Do board compositions and ownership structures affect lending and risk-taking at banks? Empirical studies of Japan-listed banks

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Abstract

This thesis empirically investigates whether corporate governance has effects on lending and risk-taking at Japan-listed banks. The conventional views are that (i) board compositions and ownership structures affect lending behaviours at banks, and (ii) corporate governance measures are very often ineffective at safeguarding against excessive risk-taking by banks.

The purpose of this thesis is to provide empirical analyses on the effects of corporate governance measures, such as board compositions and ownership structures, on lending and risk-taking at Japan-listed banks between 2005 and 2013.

To this end, this thesis contains four sub-topics. First, it examines whether levels of external directors, external director tenures, internal and external director share ownerships, board expertise, and board homogeneity have an impact on bank lending and risk-taking. Second, it examines whether bank ownership structures impact lending and risk-taking behaviours. The assessments focus on shareholders which are domestic and foreign financial institutions, domestic and foreign non-financial companies, and domestic and foreign governmental institutions. Third, it investigates whether bank boards serve as substitution or complementary monitors for shareholders and regulators. Lastly, it examines whether shareholder supremacy corporate governance measures weaken or strengthen the internal and external governance of banks. To investigate these issues, this thesis uses two regression models: fixed-effects, and generalised method of moments Arellano Bond estimations.

The empirical findings indicate that (i) external directors increase risk-taking, but decrease levels of impaired loans, (ii) foreign financial institutional shareholders are likely to induce risk-taking at banks, (iii) a positive relationship exisits between domestic government share ownerships and risk-taking of Japan-listed banks, (iv) internal directors and regulators complementarily monitor banks, (v) institutional shareholders of Japan-listed banks are likely to play active roles in monitoring risk-taking, and (vi) a corporate governance approach to shareholder supremacy increases risk-taking at banks.

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Table of Contents

List of Tables

List of Figures

Chapter 1 Introduction

Since the mid-1990s, corporate governance reform was driven in response to the rise of foreign shareholdings in Japanese companies and a series of scandals at Japanese companies (Jacoby, 2009; The Economist, 2012). The Japanese government proposed various measures to address issues relating to the corporate governance mechanisms of Japanese companies and banks. These reforms have offered scholars opportunities to assess the impact of Anglo-American-like corporate governance mechanisms on Japan-listed companies/banks.

Some scholars regard Japan's corporate governance model as being a mix of shareholder and stakeholder supremacy, and the model is gradually being adopted for some governance mechanisms similar to those of their Anglo-American counterparts (Aoki, 2001, 2000; Dore, 2000), while others consider that Japan's corporate government model is not significantly different from its Anglo-American counterparts (Miwa et al., 2002), and others argue whether companies adopting approaches to shareholder or stakeholder supremacy are determined by their ownership structures (Berle and Means, 1932; Turnbull, 1997a). In each case, the theoretical frameworks being used in the majority of corporate governance studies revolve around agency theory (Jensen and Meckling, 1976) and/or stakeholder theory (Dodd, 1932).

Aoki (2001) proposes that the Japanese institutional arrangement is unique, and Japan's corporate governance model emphasises stakeholder supremacy, in which companies focus on protecting the welfare of their stakeholders, such as their employees and customers. However, Aoki (2001) also argues that Japanese companies are gradually adopting governance controls similar to those of their Anglo-American counterparts. According to Aoki (2001) and (Dore, 2000), Japan's corporate governance model has emerged to become a hybrid model consisting of the corporate governance mechanisms of both shareholder and stakeholder supremacy. These mechanisms include (i) Japanese managers acting as stewards and working collaboratively, (ii) main banks monitoring their corporate borrowers, and disciplining and rescuing failing companies by appointing bank employees to the boards of failing companies and providing additional financial assistance, (iii) implicit lifetime employment contracts being offered to their employees, (iv) some Japanese companies, such as Sony, adopting performance-incentive schemes as rewards, and (v) some Japanese companies reducing their board sizes and adopting committee-based board structures.

Contrary to the views of Aoki (2001), Miwa et al. (2002) argue that Japan's corporate governance approach is similar to that of their Anglo-American counterparts, and their differences are due to Japanese companies being restricted by their legal frameworks and

being required to apply corporate governance mechanisms favouring stakeholder supremacy. For example, the authors argue that main banks, which are also the biggest lenders to their corporate borrowers and act similarly to Anglo-American banks, would not hesitate to monitor their corporate borrowers because of their considerable corporate borrowings. In the case of lifetime employment, Japanese companies do not implicitly offer their employees lifetime employment contracts; however, they are barred from any cost-cutting measures such as employee redundancies to increase profits.

Lastly, scholars suggest that controls arise from ownership rights (Berle and Means, 1932; Turnbull, 1997a), in which the corporate governance approaches of companies are likely to be associated with their ownership structures. In assessing the corporate governance approaches (to shareholder or stakeholder supremacy) of financial institutions, Groeneveld and Llewellyn (2012) argue that cooperative banks, which are owned by their members and whose ownerships are non-tradable, are likely to pursue relationship banking models and lend to companies among their strong local networks. They are, therefore, likely to be risk averse and to focus on long-term growth, instead of emphasising short-term profit maximisation. The authors also stress that cooperative banks pursue corporate governance approaches to stakeholder supremacy because of their "one-member-one-vote" systems, and their 'limited-distributed-profit' policies; and their profits are likely to be added to their reserves or used to fund their lending businesses, instead of paying dividends. Their objectives are to maximise profits for their members and surpluses for their corporate borrowers. Contrary to stakeholder banks, shareholder (supremacy) banks are owned by their shareholders, and their objectives are to maximise shareholder wealth. Profits are expected to be distributed to their shareholders. In summary, these scholars suggest that financial institutions, which are owned by cooperative members, are likely to pursue corporate governance approaches to stakeholder supremacy; while financial institutions, which are owned by shareholders and whose shares are trade-able in the capital markets, are likely to be subjected to market for corporate control and to pursue corporate governance approaches to shareholders supremacy.

The objective of this thesis is to develop conceptual frameworks based on Aoki (2001) and Dore (2000). This is because this thesis is primarily interested in finding ways to explain (i) the effects of various governance mechanisms (in relation to board compositions, director share ownerships and institutional shareholders) on lending and risk-taking at Japan-listed banks, and (ii) the effects of these corporate governance mechanisms on the evolution of Japan's hybrid corporate governance model. Secondly, this thesis only focuses on listed-banks, whose controls arguably arise from shareholder rights. Lastly, in Japan, banks with international

operations are required to comply with the Basel recommendations[1] (Suzuki, 2011a), and listed banks are required to comply with corporate governance practices that are similar to their Anglo-American counterparts (Tokyo Stock Exchange, 2015). For example, the number of external (and independent) directors rose from seven percent to 15 percent between 2005 and 2013, and some Japan-listed banks such as Mizuho Financial Group, and Sumitomo Mitsui Financial Group, have adopted three board committees structures.

For these reasons, the Japanese corporate governance model may be able to provide additional information on which corporate governance mechanisms may be effective for Japan-listed banks, whose social norms focus on stakeholder supremacy.

This thesis focuses on Japan-listed banks between 2005 and 2013, when Japan-listed banks started to take part in securitisation businesses as a result of the revisions of the trust law and security law. Securitisation is likely to change the ways of banks manage their funding, lending and risk-taking strategies. As a result, banks are able to convert illiquid assets to liquid assets by securitising their loans, leading to banks increasing their lending abilities (Loutskina, 2011).

Using a unique sample of Japan-listed banks, the data includes (i) city banks, (ii) regional banks, and (iii) bank holding companies. But it excludes trust banks, credit associations, and financial institutions which engage in trust businesses, because they are not listed on their local stock exchanges, and their business models differ from city banks, regional banks, and bank holding companies (Uchida and Tsutsui, 2005). Although the asset sizes of individual regional banks are smaller than city and bank holding companies, they are not segmented by prefecture (Kano and Tsutsui, 2003).

The literature on internal and external governance controls focuses on agency theory and stakeholder theory. Agency theory focuses on the economic approach to governance. Its objectives are to (i) achieve board efficiency, and (ii) maximise shareholder wealth (Jensen and Meckling, 1976; Shleifer and Vishny, 1997). Contrary to the Anglo-American corporate governance model, although some Japanese companies have adopted shareholder supremacy corporate governance mechanisms such as having external directors on their boards, the Japanese corporate governance model primarily focuses on the interests of its stakeholders (Aoki et al., 2008; Dore, 2000), which is known as stakeholder supremacy (or stakeholder theory). Stakeholder theory places an emphasis on both the economic approach to corporate organisation and governance (Aoki, 2000), and the anthropological conception of organisations (Dore, 2008). In the former, the economic approach to corporate governance

[1] The Basel I regulations took effect in Japan in 1992. Banks without any international operations are subject to looser capital adequacy requirements, and are not required to comply with Basel I, II and III.

suggests that stakeholders have economic interests in their companies, and managers are responsible for safeguarding the interests of their employees and the other stakeholders associated with their companies. In the latter, the anthropological approach addresses the (social) relationships between companies and their stakeholders, and how these relationships influence company efficiencies. Stakeholder theory assesses the trade-offs of interests among stakeholders. It theorises that companies should maintain good relationships with their stakeholders with the aim of maximising the long-term performances of their companies (Alam, 2006).

Despite the differences between shareholder and stakeholder supremacy theories, countries continue to enforce similar (shareholder supremacy approaches to) internal corporate governance mechanisms on companies, while the social norms of companies in their own countries favour maintaining shareholder or stakeholder supremacy (Dore, 2000). Shareholder and stakeholder supremacy are, arguably, incompatible, because companies may need to sacrifice the interests of their stakeholders in order to satisfy shareholder supremacy, or vice versa. Therefore, these companies may require different internal corporate governance mechanisms.

Prior research also addressed internal governance controls by evaluating the effects of financial board expertise (Hoitash et al., 2009), board composition (Battaglia and Gallo, 2017), committee structures (Yeh et al., 2011), and director share ownerships (Hoskisson et al., 2002) on financial disclosures, company performances, risk-taking and corporate strategies. On the other hand, the literature on external governance controls focuses on corporate governance mechanisms emanating from the capital markets - such as market for corporate control (Jensen and Ruback, 1983) and shareholder influences (Hill and Snell, 1988) - and their effects on internal controls such as management turnovers (Krug et al., 2015). Moreover, regulators may also be characterised as external governance controllers (Andres and Vallelado, 2008; Ciancanelli and Reyes-Gonzalez, 2000), because regulators act as external forces to influence bank governance.

This thesis focuses on various aspects on the internal and external governance of banks. It attempts to present some theoretical and practical contributions for corporate governance theories such as agency theory, and practical issues of bank governance.

First, it analyses the effects of bank (lending, risk-taking and engaging in securitisation businesses) strategies in adopting Anglo-American-like corporate governance mechanisms, such as having external directors on bank boards, and rewarding share ownerships to internal and external directors. The key internal governance mechanisms being examined are: (i) board

compositions, such as the ratios of external directors to the total number of board members, (ii) the levels of internal and external director share ownerships, (iii) financial and legal experts, and (iv) board homogeneity/diversity. Two types of external governance controls being assessed are levels of institutional shareholder ownerships, and the influences of bank regulators.

Second, it contributes to the debate concerning the introduction of external directors at Japanese banks. The Japanese corporate governance framework is composed of Company Law and codes introduced by interested parties such as the Japan Audit and Supervisory Board Members Association. Although policymakers and interested parties are keen to introduce Anglo-American-like corporate governance mechanisms, the effects of external directors may be questionable. Other structural factors, such as insider corporate governance systems (John and Senbet, 1998; Whittaker and Deakin, 2009) and limited markets for directors (Ariga, 2000) affect corporate governance practices in Japan.

Third, it provides empirical evidence of the effectiveness of domestic shareholder monitoring at Japan-listed banks. Previous literature argued that domestic financial institutions – such as main banks – play a dominant role in monitoring Japanese companies (Aoki, 1994a), but there is a lack of literature and empirical evidence in assessing how Japan-listed banks are being monitored domestically.

Fourth, it analyses the effects of foreign shareholders on Japan-listed banks, which previous literature rarely presented as empirical evidence; although scholars suggest that, in the context of Japan, the rise of foreign share ownerships are likely to affect the corporate governance of Japanese companies (Ahmadjian, 2008; Jacoby, 2009).

Fifth, it argues that corporate governance mechanisms work concurrently in a bundle to reduce agency costs (Rediker and Seth, 1995). This thesis empirically assesses the substitution and complementarity of (i) internal governance mechanisms and shareholder monitoring, and (ii) internal governance mechanisms and regulatory monitoring.

Sixth, this thesis provides empirical evidence in comparing the effects of corporate governance mechanisms to shareholder supremacy between Japan-listed banks and UK-listed banks. Previous comparative corporate governance literature provided little evidence of the corporate governance of listed-banks focusing on these two countries, which consist of two contrasting social norms (Charkham and Ploix, 2008).

In this thesis, the positivism approach is chosen, because quantitative studies allow analytical works to be carried out objectively. Empirical analyses can be used to confirm or reject hypotheses which are designed based on corporate governance theories.

This thesis is structured as follows. Chapter two reviews (i) theoretical perspectives on corporate governance theories and their associated mechanisms, (ii) the practical issues of bank governance, and (iii) Japanese corporate governance practices, including the stakeholder supremacy approach and relationship lending. It summarises and critiques theoretical literature covering agency theory, stakeholder theory, stewardship theory, and resource dependency theory. This chapter also briefly reviews and critiques literature focusing on theories and empirical studies.

Chapter three provides descriptions and reasoning on why the epistemological approach is chosen. It offers methodological considerations on implications between paradigms, theories, and the underlying assumptions of quantitative methods. This chapter also explains the choices of why the fixed-effects estimation, random-effects estimation, the system generalised method of moments (GMM) Arellano Bond estimation, the Cox proportional hazard model, and principal component analysis are adopted in this thesis. A brief overview of each method is provided.

Chapter four (i) examines the effectiveness of the Anglo-American approach to internal governance mechanisms, and their effects on the lending and risk-taking behaviours of Japan-listed banks, and (ii) assesses the bank-specific factors that affect the likelihood of banks participating in securitisation businesses. The empirical studies cover between 2005 and 2013.

In the first part of this chapter, the empirical studies focus on eight elements of internal governance mechanisms such as board characteristics and director share ownership levels. Some of these elements are proposed to mitigate the agency costs resulting from the separation of ownership and control (Jensen and Meckling, 1976).

Extending the views of Greenbaum and Thakor (1987) and Casu et al. (2011), the second part of this chapter examines the bank-specific factors that affect the likelihood of banks participating in securitisation businesses. The objective is to assess the motives of Japan-listed banks to participate in securitisation business, and whether their decisions to engage in securitisation are affected by board characteristics and the presence of assets and liabilities committees. Eight board characteristics, used in the preceding section, are considered: (i) the ratio of external directors to the total number of board members, (ii) the ratio of lifetime bankers to the total of number of board members, (iii) the ratio of financial experts to the total

number of board members, and (iv) the ratio of legal experts to the total number of board members.

Chapter five examines the effects of institutional share ownerships on the lending and risk-taking behaviours of Japan-listed banks between 2005 and 2013. Extending the conventional arguments that shareholders perform ex ante monitoring to mitigate agency costs (La Porta et al., 1998; Shleifer and Vishny, 1997), the objective of this chapter is to examine the effects of different types of institutional shareholders on the lending and risk-taking behaviours of their investee banks, and argues that their effects differ because they have dissimilar investment objectives. Six types of institutional shareholders are considered: (i) foreign financial institutions, (ii) foreign non-financial companies, (iii) foreign governmental institutions, (iv) domestic financial institutions, (v) domestic non-financial companies, and (vi) domestic governmental institutions.

Chapter six assesses the substitution and complementary effects between the internal and external monitoring of Japan-listed banks between 2005 and 2013. Scholars suggest that external monitoring may be a substitute for weak internal monitoring (Weisbach, 1988; Williamson, 1983), or that external monitoring can complement strong internal governance (Fung and Tsai, 2012; Kim et al., 2007).

In this chapter, eight internal corporate governance mechanisms are considered. In order to capture the multiple dimensionalities of the internal corporate governance mechanisms, internal corporate governance (CG) indices are developed using principal component analysis. In the case of external monitoring in Japan, scholars suggest that regulatory and institutional shareholder monitoring may be substituted for the weak market for corporate control (Kanaya and Woo, 2000; Prowse, 2014). Therefore, three external monitors are considered: (i) financial regulators, (ii) domestic financial institutional shareholders, and (iii) institutional shareholders.

Chapter seven assesses the effects of the corporate governance approach to shareholder supremacy. It examines the effects of shareholder monitoring (external controls) and board characteristics and director share ownerships (internal controls) on risk-taking by UK-listed and Japan-listed banks between 2005 and 2013. By evaluating the effects on risk-taking levels at banks in both countries, the assessment offers empirical comparisons of the UK's corporate governance system with the Japanese corporate governance system. This chapter argues that a corporate governance approach to shareholder supremacy incentivises banks to take greater risks for shareholder wealth maximisation.

This chapter is based on three important theoretical frameworks. First, it emphasises the conventional arguments that shareholders perform ex ante monitoring to mitigate agency costs (La Porta et al., 1998; Shleifer and Vishny, 1997). Second, this chapter focuses on agency theory, and empirically examines the effects of the board characteristics (internal controls) of UK-listed and Japan-listed banks. Third, shareholders are able to diversify their risks through portfolio management; as a result, they are eager to encourage their investee banks to take greater risks for greater expected profits. In this case, corporate governance approaches to shareholder supremacy are likely to encourage risk-taking at banks (Terence Tse, 2011; Wiseman and Gomez-Mejia, 1998).

In this chapter, four types of institutional investors and six internal governance mechanisms are considered. The four types of institutional investors are (i) foreign financial institutions, (ii) foreign non-financial companies, (iii) domestic financial institutions, and (iv) domestic non-financial companies. The six types of internal governance mechanisms include (i) the ratio of external directors to the total number of board members, (ii) the average tenure of external directors at boards, (iii) the amount of external director share ownerships, (iv) the amount of internal director share ownerships, (v) the ratio of lifetime bankers to the total of number of board members, and (vi) board age diversity.

Chapter eight summarises the empirical findings and proposes the associated theoretical and policy implications. It also provides summaries on the limitations of this thesis, and highlights recommendations for future studies.

In summary, this thesis investigates the relationships between corporate governance mechanisms, and the levels of bank lending and risk-taking at Japan-listed banks between 2005 and 2013. Chapters four and five focuses on board characteristics, levels of director share ownerships, and ownership structures. Chapter six explains the interactions between the board compositions (and director share ownerships), and institutional shareholders and regulators. Chapter seven compares the corporate governance mechanisms of Japan-listed banks with UK-listed banks and highlights the effects of the corporate governance approach to shareholder supremacy.

Chapter 2 Literature Review

2.1 Introduction

Corporate governance describes all the influences affecting company behaviour (Turnbull, 1997b). These influences include the appointments of external directors, board characteristics, and shareholder and regulatory monitoring mechanisms. Four major theories are commonly used in corporate governance studies : (i) agency theory (Jensen and Meckling, 1976), (ii) stewardship theory (Barney, 1990; Davis et al., 1997; Donaldson, 1990), (iii) resource dependence theory (Pfeffer and Salancik, 1978), and (iv) stakeholder theory (Alam, 2006; Dodd, 1932).

This chapter provides the outlines of key theoretical backgrounds, whereas the subsequent chapters address the above key theories in-depth. This chapter is structured as follows. Section 2.2 and 2.3 provide reviews of the theoretical backgrounds of the four major corporate governance theories. Section 2.4 provides brief discussions on various corporate governance mechanisms. Section 2.5 reviews literature focusing on the practical issues of corporate governance in relation to banks, which includes qualified boards, management incentive structures, levels of shareholder monitoring, and the problems of information asymmetry. Section 2.6 focuses on Japanese corporate governance practices, including the Japanese corporate governance approach to stakeholder supremacy, and the Japanese banking approach to lending.

2.2 Agency Theory

Agency theory is developed from two concepts proposed by Berle and Means (1932), who examine two aspects that affect non-financial companies in the United States: (i) private property (i.e. property rights), and (ii) the divergence of interests between ownership and control. The theoretical framework of Berle and Means (1932) explains that the prime objective of a company is to ensure shareholder supremacy, and it explains the consequences of a separation of ownership and control, in which principals (owners/shareholders) and agents (managers) sometimes do not necessarily share the same interests. These concepts are then extended by Jensen and Meckling (1976), and lead to what is known as agency theory.

Agency theory highlights the problems of the separation of ownership and control, and information asymmetry (Jensen and Meckling, 1976). The former is addressed in the context of management studies. It proposes that the problems resulting from the separation of ownership and control that occurs when the objectives of managers are no longer about maximising the wealth of their companies. Agency costs are incurred when managers exploit

company resources such as maximising managerial compensation or non-pecuniary benefits, or attempt to maximise their own interests via excessive risk-taking. The latter suggests that agency costs arise from information asymmetry as a result of the separation of ownership and control. For example, managers may choose to exploit company resources by investing in risky projects, and may harm the wealth of their shareholders. However, shareholders may not have sufficient information, and devices/tools to monitor the actions of their managers.

In order to minimise these agency costs arising from the separation of ownership and control and information asymmetry, agency theory proposes using monitoring and bonding mechanisms to ensure that company decisions will be aligned with the interests of shareholders. For example, outsiders are appointed to monitor company managements, and managers are rewarded using performance-based incentives.

In the context of shareholder supremacy, shareholders are referred to as the principals, and the agents are referred to as the managers (Berle and Means, 1932), and the interests of shareholders are safeguarded by the use of the monitoring and bonding mechanisms proposed by agency theory.

Agency theory is widely used in corporate governance and management literature. The theory addresses company behaviours resulting from the separation of ownership and control (Fama and Jensen, 1983a), and company relationships with the labour and capital markets (Fama, 1980). Additionally, agency theory offers unique and empirically testable assumptions which enable scholars to study company behaviours (Eisenhardt, 1989).

Critiques on agency theory highlight seven improbable assumptions about the theory. First, the theory assumes that the labour market is efficient, and managers and owners can freely enter or exit contractual relationships. In the real world, there are often shortages of skilled senior managers with industry-specific experiences (Walker, 2009). Second, the theory ignores other stakeholders such as employees and regulators, who may also act as key monitors, and affect how their companies performed. Third, the theory overlooks the characteristics of individual managers, such as those who serve as stewards, whose actions ultimately benefit their companies and society. Fourth, the theory ignores the effects on the risk preferences of principals through portfolio diversification. Fifth, the theory fails to address the possible affiliations of internal directors and external directors prior to their directorship appointments, and the chance that these external directors may collude with internal directors. Sixth, the theory neglects the board dynamics that exist as a result of insider-dominated or outsider-dominated boards, in which internal and external directors (agents) have different risk

preferences, and have the ability to influence others. Seventh, the theory focuses on majority shareholders, and ignores the rights of minority shareholders (Backer, 2002).

Additionally, several ideas have been extended from agency theory. Eisenhardt (1989) proposes that the actions of agents are aligned with the interests of their principals as a result of reduced information asymmetry. Fama and Jensen (1983b) suggest that (i) it is cost efficient for unrestricted common stock residual claimants, who are principals, to delegate the decision-making process in a large complex organisation; (ii) mutual monitoring systems can enhance human capital among agents who acquire additional knowledge through competitive interactions; (iii) internal agents who are promoted internally and who acquire greater levels of company-specific information are more influential than agents who are hired from outside the company; (iv) the appointments of directors signal to the managerial labour market that internal and external agents are regarded as company/policy decision-making experts; and (v) external agents who have acquired expert knowledge are appointed because their skills in their monitoring roles enhance the values of their companies. Warther (1998) suggests that passive dissent boards increase board efficiencies.

Overall, agency theory and its extended theories provide frameworks for linking board monitoring to company performance.

2.3 Other Corporate Governance Theories

Other corporate governance theories offer alternative perspectives of shareholder supremacy. They examine additional aspects of governance such as stewardship, and how director resources and stakeholder monitoring can play a part in improving company performance and risk-taking. The first two aspects, stewardship theory and resource dependence theory, focus on the characteristics of external managers. The latter aspect, stakeholder monitoring, places an emphasis on the relationships between managers and their stakeholders, i.e. stakeholder theory.

Stewardship theory is often compared to shareholder supremacy. Scholars argue that the theoretical distinction between these two theories is based on their views of social comparison (Barney, 1990; Davis et al., 1997; Donaldson, 1990). Contrary to shareholder supremacy, stewardship theory suggests that the objectives of principals and agents are aligned, and agents (managers) always act in the interests of their companies, and that they are trustworthy. Managers who work to achieve organisational goals may also satisfy the interests of other stakeholders, and also their own needs, and do not require additional monitoring and incentive mechanisms. This is due to (i) managers being motivated by a sense of 'esteem and self-actualisation' (Nordberg, 2011); (ii) managers caring for their reputations, which means

that their previous and current performances are likely to affect their prospective careers (Aditi Gupta et al., 2008; Fama, 1980); and (iii) managers needing to fulfil their fiduciary duties to safeguard the interests of their shareholders (Macey and O'Hara, 2003). Stewardship theory suggests that CEO duality is desirable as a result improved board effectiveness, and that boards do not require any independent chairmen, because CEOs know that the success of their companies will boost their reputations. As a result, managers who act as good stewards lower agency costs (Davis et al., 1997; Donaldson and Davis, 1991).

However, in contrast with agency theory, stewardship theory ignores (i) the possible opportunistic behaviours of agents, and (ii) problems including moral hazard and adverse selection as a result of information asymmetry. The theory also ignores conflicts of interest between principals and agents. For example, principals may focus on maximising short-term returns and encourage their agents to take greater risks, while their agents act in the interests of their companies and instead focus on long-term returns. In this case, the objectives of the principals and agents are no longer aligned, although the agents still act in the interests of their companies.

Resource dependence theory proposes a framework to explain organisational behaviours in relation to the availability of external resources. In the context of corporate governance, the theory is used to examine the relationship between (outside) managers and company performances (Hillman et al., 2000; Hillman and Dalziel, 2003; Kiel and Nicholson, 2003). The theory suggests that outside managers often have useful specialised skills and external networks, which typically results in their companies gaining comparative advantages over their competitors whose board members do not have these skills and networks with external interested parties (Pfeffer and Salancik, 1978). In other words, resource dependence theory provides a framework for linking board level human capital and company performance (Hillman and Dalziel, 2003).

Hillman and Dalziel (2003) further develop a model linking agency theory to resource dependence theory. The authors suggest that agency theory alone cannot adequately explain the relationship between board level compensation and company performance, and suggest that companies which are required to align their objectives with competent and resourceful managers can be effectively monitored. The theory focuses on the supervisory and tactical roles of external directors, instead of on the monitoring roles.

Overall, resource dependence theory is widely used in studies related to organisational theory and strategic management (Hillman et al., 2009), instead of corporate governance. For example, in the context of organisational theory, resource dependence theory links the

influences of external resources and organisational behaviours, i.e. identifying the patterns of how companies use external resources to solve problems. Studying US airline companies between 1968 and 1988, Hillman et al. (2000) examine the types of experts being appointed to boards in order to position their companies to compete in regulated and unregulated environments. Contrary to organisational theory, strategic management focuses on how management strategically allocates resources to optimise performances (Pfeffer and Salancik, 1978). Studying the top 500 Australian companies in 1996, Kiel and Nicholson (2003) examine the relationship between the external resources of board members and company performances.

Resource dependence theory is often studied in connection with stakeholder theory, because external directors not only provide external resources, but they may also be affiliated with, or represented the stakeholders of their companies (Hillman et al., 2009; Mitchell et al., 1998).

Stakeholder theory assesses the trade-offs of interests among stakeholders who are employees, suppliers, customers, and shareholders, and places an emphasis on safeguarding their interests (Dodd, 1932). The theory is that stakeholders have legitimate interests in their companies (Dodd, 1932), and companies can maximise their long-term performances by maintaining good relationships with their stakeholders (Alam, 2006). However, critiques on stakeholder theory argue that, first, the theory has not defined how to balance interests among stakeholders, and also point out that the lack of scoring systems often create confusion among managers (Jensen, 2002). Second, the theory focuses on stakeholder supremacy, which harms shareholder value (Jensen, 2002; Stout, 2012). This is because the objectives of stakeholders and shareholders differ, i.e. the objective of profit maximisation is waived to protect the interests of stakeholders, such as maintaining employment stability which may require managers to forgo their part of company profits (Smith, 2003).

In summary, the stewardship, resource dependence, and stakeholder theories provide additional theoretical perspectives on corporate governance research (Daily et al., 2003). Scholars also suggest that each of these theoretical frameworks can be applied to the different stages of a company's life cycle. Lynall et al. (2003) argue that (i) the resource dependence theory explains the effects of CEO resources on companies in the early stages of their formation (i.e. early innovation), because companies require resources to develop their businesses, and (ii) agency theory can explain the effects of bonding and monitoring in the formalisation and control stages (i.e. stability and institutionalisation). The different stages of a company's life cycle are accommodated in most corporate governance empirical studies which

focus on large, mature public companies (Gordon and Pound, 1993; Kiel and Nicholson, 2003; Van Ness et al., 2010).

2.4 Corporate Governance Mechanisms

A number of internal and external corporate governance mechanisms have been proposed to minimise principle-agent conflicts (Jensen and Meckling, 1976). The internal control mechanisms comprise external directors, managerial ownerships, and performance-based remuneration schemes, which attempt to align the interests of shareholders through monitoring and incentive mechanisms. External control mechanism include corporate for market control, concentrated share ownerships, and regulatory monitoring (Demsetz and Lehn, 1985), which act as a substitute for weak internal governance (Daily et al., 2003; Rediker and Seth, 1995; Williamson, 1983).

Scholars also argue that levels of governance effectiveness depend on a bundle of internal and external governance mechanisms (Jensen, 2010; Rediker and Seth, 1995; Williamson, 1983), in which strong external governance mechanisms may be substituted (or complement) for weak (or strong) internal governance mechanisms.

To illustrate the effects of various corporate governance mechanisms in empirical studies, scholars pursue two approaches. In the first approach, scholars focus on the individual (internal or external) corporate governance mechanism with regard to each individual benefit or risk that affects company performance (Deyoung and Nolle, 1996; Grove et al., 2011; Michel and Hambrick, 1992; Thomsen and Pedersen, 2000). Thereby, scholars examine each individual corporate governance mechanism by controlling for company-specific effects (Grove et al., 2011) and country-specific effects (Laeven and Levine, 2009). For example, Grove et al. (2011) examine the effects of corporate governance on the financial performances of US commercial banks by controlling for the effects of bank asset sizes and the opportunity to grow, in which these variables minimise the effects of lending policies on the financial performances of banks. Laeven and Levine (2009) examine the effects of shareholder (cash flow rights) on risk-taking at banks in 48 countries by controlling for country-specific effects such as levels of economic development, because the levels of economic developments affect institutional frameworks such as good laws and regulations, which are likely to influence the attitudes of banks towards risk-taking.

In addition, scholars are also able to provide insights on each corporate governance mechanism by focusing on explaining one mechanism at a time. Literature focuses to a large extent on external directors (Horiuchi and Shimizu, 2001; Kor and Sundaramurthy, 2008; Mishra and Nielsen, 2000), external director tenures (Michel and Hambrick, 1992; Smith et al.,

1994), director share ownerships (Low, 2009; Morck et al., 1988), board expertise (Booth and Deli, 1999; Van Ness et al., 2010), board homogeneity (Berger et al., 2014; Core et al., 1999), and ownership structures (Miyajima and Kuroki, 2008; Thomsen and Pedersen, 2000). At the industry or country level, these studies find mixed evidence on board characteristics and ownership structures in association with company performances or risk-taking, indicating that agency costs differ between different types of mechanisms across companies and countries, and the interactions between different types of mechanisms.

Second, following the above arguments, scholars assess a bundle of internal and external governance mechanisms. From a theoretical perspective, company performances/risk-taking depends on the efficiency of a bundle of internal and external governance mechanisms (Williamson, 1983), and external controls may substitute (or complement) for weak (or strong) internal controls (Rediker and Seth, 1995). For example, studying US banks in 1982, Rediker and Seth (1995) find strong substituted monitoring effects between external directors and large shareholders, and between external directors and internal director share ownerships.

Drawing on these diversified methodologies, this thesis assesses the effects of corporate governance on Japan-listed banks by (i) focusing on explaining one mechanism at a time, and (ii) assessing the interactions between internal and external governance mechanisms.

The above provides a brief overview of the theoretical frameworks and mechanisms of corporate governance, which offer analytical frameworks to examine the effectiveness of bank governance mechanisms that focus on board composition, management incentive structures, and shareholder monitoring. The following section provides short reviews on the practical issues arising from bank governance.

2.5 Bank Governance

Effective bank governance is vital to financial and economic stability. Scholars and policymakers tried to identify the ineffectiveness of the bank governance mechanisms that lead to the 2008 financial crisis (Erkens et al., 2012; Kirkpatrick, 2009). Some suggest that the crisis was partly due to failures of bank governance which include (i) inadequate levels of qualified directors on boards, (ii) incentive structures encouraging risk-taking, (iii) a lack of shareholder monitoring, and (iv) insufficient levels of shareholder monitoring arising from insufficient disclosure.

2.5.1 Qualified Boards

Scholars argue that qualified boards provide better management oversight and reduce risk-taking at banks (Berger et al., 2014) because (financial) experts are better at understanding the

technical aspects of the risks being taken by banks. Studying German banks between 1994 and 2010, Berger et al. (2014) find a negative relationship between levels of risk-taking and the numbers of PhD-holders serving on bank boards, suggesting that directors who are PhD-holders are more likely to have superior risk management and monitoring skills or may be more risk averse.

However, contrary to the above-mentioned empirical evidence, scholars find positive relationships between levels of financial experts and risk-taking when they study US financial companies and banks between 2000 and 2008 (Minton et al., 2010), suggesting that experts tend to encourage their financial companies and banks to take greater risks. One possible explanation is that these financial experts are likely to encourage risk-taking in an attempt to increase their company performances in order to align them with the expectations of their shareholders.

Apart from levels of expertise, qualified, or 'good' boards should also consider elements such as frequencies of board meetings, levels of director share ownerships, ages of board members, board independence, board sizes and committees, and mutual respect and trust among board members (Sonnenfeld, 2002), and some of these elements are examined in chapter four.

2.5.2 Management Incentive Structures

In the aftermath of the 2008 financial crisis, scholars, policy makers, and the media warned that performance-based incentives might encourage the employees of financial institutions to take excessive risks (OECD, 2010; Suntheim, 2010; Walker, 2009), although performance-based incentives were originally designed to minimise agency costs (Jensen and Meckling, 1976).

The underlying assumption of agency theory is that managers exploit company resources to enhance their own welfare, instead of maximising shareholder wealth (Jensen and Meckling, 1976). Performance-based incentives are designed to align the interests of managers with their shareholders, which should reduce exploitations by managers. Therefore, performance-based incentives lower monitoring costs (Almazan et al., 2005).

However, empirical studies show mixed results (Fahlenbrach and Stulz, 2011; Mehran and Rosenberg, 2007). Part of the results show that performance-based remuneration incentivises excessive risk-taking, in which managers may consider taking optimal levels of risks (or sometimes taking excessive risks) to maximise expected returns (Kahane, 1977).

Studying the effects of the remuneration schemes of the chief executive officers (CEOs) of the world's largest banks between 2000 and 2008, Suntheim (2010) finds that performance-based remuneration schemes incentivise risk-taking. The results show greater effects of

performance-based remuneration on risk-taking at US banks. Similar results are found in studies focusing on US banks (Fahlenbrach and Stulz, 2011; Mehran and Rosenberg, 2007). These authors suggest that possible relationships exist between the composition of incentive schemes and corporate policies, such as enhancing bank charter values (Houston and James, 1995).

However, studying US commercial banks in the 1980s and 1990s, the results of Houston and James (1995) show no relationship between equity-based incentives and risk-taking, but find positive relationships between equity-based incentives and bank charter values. Overall, these studies indicate that performance-based incentives are likely to be designed to increase charter values, instead of reducing risk-taking (Galloway et al., 1997; Houston and James, 1995).

Additionally, these risk-taking behaviours may be related to the charter values or franchise values of banks (Galloway et al., 1997). Studying US banks between 1983 and 1989 during the period of US financial deregulation, Galloway et al. (1997) find that when the charter values or franchise values of banks are low, banks tend to take greater risks, and vice versa. Similar results are found in Konishi and Yasuda (2004), whose study shows that declining franchise values increase risk-taking at Japanese banks between 1990 and 1999.

2.5.3 Shareholder Monitoring

In order to limit agency problems, scholars urge (concentrated) shareholders to monitor the managements of their investee companies (Jensen and Meckling, 1976; Shleifer and Vishny, 1997), because, first, these shareholders have greater levels of expertise and access to resources to monitor their investee companies. Second, shareholders are incentivised to monitor their investee companies for the purpose of shareholder wealth maximisation (Shleifer and Vishny, 1986), during which shareholder gains are required to offset the monitoring costs (Maug, 1998).

Nevertheless, mixed results are found when assessing the effects of ownership structures and risk-taking at banks. One of the most recent findings is that shareholders encourage their investee banks to take greater risks (Laeven and Levine, 2009; OECD, 2009), and this may be for two reasons. First, shareholders may try to optimise their returns by encouraging their investee banks to take greater risks. The downside possibilities of investing in risky banks can be offset by using a diversified portfolio of investments. Second, shareholders may demand short-term returns which will lead to excessive risk-taking (Laeven and Levine, 2009; OECD, 2009). In a cross-country study in 2001, Laeven and Levine (2009) find that a positive relationship exists between levels of share ownerships and risk-taking at banks, and the results

show that the effects on risk-taking are greater with concentrated shareholders. Similar results are found in earlier studies examining US banks during periods of financial deregulation between 1978 and 1985 (Saunders et al., 1990).

Contrary to these results, studying European banks between 1999 and 2004, Iannotta et al. (2007) find a negative relationship between levels of share ownerships and loan losses, except for state-owned banks. The results indicate that non-state-owned banks (mutual and privately-owned banks) are better at screening and monitoring loans. In addition, the authors also find that non-state-owned banks are more profitable, i.e. greater ratios of net returns to earning assets. This shows two possibilities: non-state-owned banks may have greater market shares, or that they charge higher interest rates on loans. The results imply that different types of institutional investors are likely to affect risk monitoring, because they have different investment objectives and investment horizons, as well as different levels of skilled employees (Almazan et al., 2005).

In summary, empirical studies show that (i) the levels and types of share ownerships are likely to affect risk-taking at banks, and (ii) shareholder incentives to monitor risks are likely to vary. In chapter five, the relationships between various types of institutional investors, and bank lending and risk-taking, will be further explained.

2.5.4 Insufficient Disclosure

Kirkpatrick (2009) suggests that shareholders were unable to monitor banks during the 2008 financial crisis as a result of information asymmetry. The author stresses that financial data on banks was insufficient to explain the types and levels of risks on the balance sheets of banks, including the complex financial products they had exposure to. In brief, without an adequate level of disclosure, shareholders are unlikely to be able to effectively monitor the managements of their banks.

The theoretical framework of agency theory states that shareholder monitoring relies on information being provided by (internal) managers, for which information symmetry is essential (Jensen and Meckling, 1976).

Following the above argument, the majority of corporate governance studies focusing on information asymmetry assess the effects of corporate disclosure, and these studies argue that the quality of disclosure affects shareholder monitoring as a result of inadequate reporting on company performances (or levels of risk-taking) (Lowenstein, 1996; Sowerbutts et al., 2013).

Scholars argue that the financial disclosures of banks are inadequate for shareholder monitoring (Lowenstein, 1996; Sowerbutts et al., 2013), because their reports on

performances and their risk-taking may be understated, overstated or inadequate. Lowenstein (1996) reviews the accounting practices of US-listed companies in the mid-1990s, and finds that US accounting practices allowed the application of derecognised liabilities resulting from higher return on assets (ROA) ratios. The author argues that these higher ROA ratios potentially provide misleading pictures on company performances to investors.

Apart from inadequate reporting on performances, scholars also find inadequate disclosures on the types and levels of risks being taken by banks (Sowerbutts et al., 2013). The authors examine the types of information being disclosed by the 50 largest banks[2] in a cross-country analysis, and construct indices[3] to measure levels of disclosure. Their finding is consistent with (Pérignon and Smith, 2010), whose empirical study argues that the disclosure of Value-at-Risk (VaR) presents very little information on the levels of risk-taking at banks by examining the relationship between a self-constructed VaR disclosure index and the trading revenue of 60 banks from 16 countries between 1996 and 2005. In summary, scholars and policy makers find that inadequate levels of information limit shareholder monitoring.

The above offers overviews of the critiques of corporate governance theories and the practical issues of bank governance, which provide the foundations to address four research questions that focus on the corporate governance of Japan-listed banks: (i) whether board composition and expertise affect bank lending and risk-taking, (ii) whether bank ownership structures have an impact on bank lending and risk-taking, (iii) whether bank boards serve as complementary or substitute monitors for shareholders of banks.

In order to link corporate governance theories and the practical issues of bank governance to Japan-listed banks, the following provides and regulators, and (iv) whether the corporate governance approach to shareholder supremacy (maximising shareholder value) weakens or strengthens the internal and external governance overviews of issues affecting the corporate governance of Japan-listed banks.

2.6 Japanese Corporate Governance

2.6.1 Stakeholder Supremacy

Scholars argue that Japanese companies have long favoured stakeholder supremacy, which emphasises safeguarding the interests of their stakeholders, especially their employees (Dore, 2000; Jackson, 2008). Araki (2005a) argues that (i) internally promoted board members, (ii) the

[2] The samples of the empirical study consist of nine US banks, eight UK banks, five Canadian banks, four Australian banks, and 24 European banks.

[3] The indices were constructed by Sowerbutts et al. (2013) to measure disclosure over funding risks, group structures, valuation methodologies, intra-annual information and financial interconnections.

lifetime employment system, and (iii) cross-shareholding facilitate the employee-centred corporate governance model in Japan.

First, Araki (2005) argues that internally promoted board directors are likely to have similar interests and views with other employees. This is because these board directors have experienced similar career grooming and organisational socialisation, and are able to affiliate themselves with other employees (Wiersema and Bird, 1993). Second, Araki (2005) further argues that the lifetime employment system increases social integration among employees, who have been promoted to the board and are able to protect the long-term interests of their companies. Third, Araki (2005) suggests that the purpose of cross-shareholding is to maintain long-term relationships with their business partners, instead of focusing on the levels of capital gains or dividend incomes. Therefore, these cross-shareholders are less likely to intervene in the corporate governance of their investee companies.

However, Japanese companies may have gradually changed their corporate governance approaches to shareholder supremacy as a result of increasing numbers of foreign institutional shareholders in Japanese companies. These foreign shareholders demand that their investee companies should adopt corporate governance mechanisms to safeguard shareholder interests (Ahmadjian, 2008; Araki, 2005a; Jacoby, 2009). In the mid-1990s, large Japanese companies were under pressure to increase their dividend payments (Jacoby, 2009), and to adopt corporate governance mechanisms similar to those operating in Anglo-American companies. For example, under pressure from foreign investors, Sony and Toshiba restructured their boards and adopted Anglo-American corporate governance mechanisms (Yoshikawa and Phan, 2001). Sony drastically reduced its board size by a third. It also appointed independent directors to its board, adopted a committees-based board structure, and introduced performance-based remuneration schemes such as share options. Toshiba, which belongs to a large *keiretsu* group, reduced its board size, and established nomination and compensation committees. Nevertheless, Toshiba's board remains insider-dominated, despite adopting some of the Anglo-American corporate governance mechanisms.

These two cases show that Japanese companies have slowly adopted some of the mechanisms of the Anglo-American corporate governance model, such as the introduction of external/independent directors, board size reductions and the separation of the roles of the chief executive officers and chairmen (Jacoby, 2009). Nevertheless, stakeholder supremacy, such as the employee-centred corporate governance model prevails in Japan as a result of social norms, the lifetime employment system and cross-shareholding (Araki, 2005b; Yorozu et al., 2013).

2.6.2 Relationship Banking: The Japanese Bank Approach to Lending

The Japanese banking system relies on long-term partnerships between companies and their banks, which is known as the main bank system. In the main bank system, banks develop their relationships with their borrowers/customers through cross-shareholdings, and by providing relationship banking services to their borrowers (Aoki and Patrick, 1994).

Through relationship banking, bank managers are able to reduce information asymmetry by collecting information on their borrowers through their daily transactions, and by monitoring their financial conditions while gathering soft information on their borrowers. According to Aoki (1994), relationship banks perform three stages of monitoring before, during and after providing lending services. These are (i) ex ante monitoring, (ii) interim monitoring, and (iii) ex post monitoring. In ex ante monitoring, bank managers perform credit evaluations and screen the financial conditions of potential borrowers prior to any possible lending. During the interim monitoring stage, bank managers closely monitor their borrowers. In ex post monitoring, bank managers verify the results of the investment projects of their borrowers, and assess the financial conditions of their borrowers. They may also have to discipline their borrowers in the event of poor outcomes, and are likely to provide financial assistance or lower loan interest rates if their borrowers are experiencing financial distress (Elsas and Krahnen, 1998; Hoshi et al., 1990). Most of the empirical research on ex post monitoring of financial assistance was undertaken in the 1980s and 1990s, and the research focused on the phenomena of Japan's main banks. Studying Japanese companies between 1978 and 1985, Hoshi et al. (1990) find that financially distressed companies that have relationships with main banks are likely to receive financial assistance from their main banks, compared to those without main bank relationships. Similar results are found in Elsas and Krahnen (1998), whose study focuses on German banks between 1992 and 1997.

The following sub-sections provide overviews of the strengths and weaknesses of relationship lending.

2.6.2.1 Strengths of Relationship Lending (compared to Transactional Lending)

Monitoring costs are generally higher at relationship banks. This is because loan officers at relationship banks are required to tailor their monitoring processes in order to collect borrower-specific information. The associated (soft) information cannot be easily observed, verified and transmitted (Berger and Udell, 2002). Although the monitoring costs are generally higher in relationship banks, scholars tend to favour relationship lending over transactional lending for five reasons. First, scholars argue that relationship banks are better monitors (Bolton et al., 2013), and that relationship banking reduces information asymmetry through

the three aforementioned monitoring stages (Aoki, 1994a). As the durations of banking relationships lengthen, soft information is accumulated. As a result, information asymmetries are reduced. Therefore, the costs of monitoring and the costs of loans decline over time (Blackwell and Winters, 1997). Studying Italian banks between 2008 and 2010, Bolton et al. (2013) find that relationship banks lend less to risky companies, compared to transactional banks, indicating that soft information reduces the levels of risky loans.

Second, relationship banks have greater liquidity buffers/reserves compared to those of transactional banks, which tend to lower the effects of economic downturns/credit crunches. Bolton et al. (2013) find that relationship banks tend to lend more and charge lower interest rates during economic contractions, compared to those of transactional banks. The authors find that relationship banks may be inclined to provide additional financial assistance to financially distressed companies, which in turn lowers the default rates of their borrowers and subsequently minimises the impact of credit crunches on the wider economy. Similar results are also found at Japanese banks, and the empirical results of Dewenter and Hess (2000) suggests that there is a statistically insignificant relationship between relationship banks and their default risks, indicating that relationship banks are likely to provide assistance to their financially distressed customers.

Third, (Japanese) relationship bank managers usually consider the importance of economic and social values in the lending process, rather than focus purely on profit maximisation (Suzuki, 2011b). Banks act in a socially responsible[4] manner towards their customers, the environment, and society (Fukukawa and Moon, 2004; The Economist, 2002). Moreover, some banks promote their corporate social responsibility (CSR) initiatives through investing in related projects in non-financial companies (Tanimoto, 2010).

Fourth, relationship banks facilitate funds for new industries (Allen and Gale, 2000), while ex post monitoring provides flexibilities for companies, and encourages those companies to support long-term projects (Suzuki, 2011b), because companies whose efforts raise additional funds from their relationship banks/main banks will in turn lead to increased internal liquidity. Studying Japanese companies between 1965 and 1986, Hoshi et al. (1991) find that the effects of liquidity on investments are less statistically sensitive in *keiretsu*-affiliated companies,

[4] For example, the 2008 annual report of Mizuho Financial Group states that their social corporate responsibilities are to "promote support of financial education and environmental conservation". Similarly, the 2013 annual report by Nomura Holdings states that they aim to "ensure that business divisions maintain a consistent and proactive approach to their community affairs activities in line with their operations as well as the needs of the local community".

compared to independent companies, indicating that *keiretsu*-affiliated companies may borrow from their banks for future investments instead of relying on internal liquidity.

Fifth, relationship banks are perceived to be safer than transactional banks because relationship banks generally have greater liquidity buffers and/or hold greater reserves against unexpected economic downturns (Bolton et al., 2013; Dewenter and Hess, 2000; Suzuki, 2011b). Liquidity buffers are held in case of unforeseen events, such as having to provide financial assistance to distressed companies. Studying the banking industries in the UK, US, Germany, and Japan between 1984 and 1996, Dewenter and Hess (2000) find that the share prices of Japanese banks outperformed the market index during economic contractions, compared to those of UK and US banks in the same period. These results indicate that Japanese banks are considered to be less risky, compared to those in the UK and the US.

2.6.2.2 Weaknesses of Relationship Lending

Although relationship banks are perceived to be safer banks, and provide greater social benefits such as dampening the effects of possible credit crunches, the relationship and main bank systems have certain obvious weaknesses.

First, relationship banks have greater levels of human capital and higher costs (Bolton et al., 2013; Dewenter and Hess, 2000). As a result, the cost of borrowing is higher in relationship banks, compared to those of transactional banks.

Second, the possibility exists of management collusion occurring between banks and their borrowers, because (i) the managements of banks and their borrowers are insulated from market disciplines as a result of cross-shareholding, and (ii) investors are unable to monitor and evaluate the credit quality of their loan portfolios as a result of information asymmetry (Hanazaki and Horiuchi, 2003). For these two reasons, bank managers, without the risks of being disciplined by the markets, may choose to continue to support companies whose financial conditions are unlikely to improve (i.e. zombie companies).

Third, Peek and Rosengren (2005) find that the balance sheets of relationship banks are weakened when they overstate their loan portfolio credit quality, and understate their capital levels. For example, banks may choose to provide loans to financially distressed companies whose financial conditions are unlikely to improve, and these companies may then use the additional financial assistance for repayments. As a consequence, the loans of zombie companies are misclassified as good loans, instead of nonperforming loans.

2.6.2.3 Summary: Relationship Banking

In summary, relationship banking strengthens relationships between banks and companies, lowers information asymmetry, and improves the monitoring abilities of banks. However, relationship banks are perceived to need more monitoring to prevent bank managements from collusion, and to prevent them from committing insider lending.

Chapter 3 Methodology

3.1 Introduction

This chapter provides an overview of the research methodology used in this thesis. It offers explanations on the methodological considerations, and explains econometric methods used.

3.2 Connections between Theory and Research Methods

Positivism is chosen in this thesis, because it enables the researcher to (i) test a list of hypotheses using the theoretical foundations underpinning corporate governance and statistical data to describe the features of Japan-listed banks, (ii) the researcher to present objective facts using empirical or scientific experiences (Crotty, 1998), which are free from opinions, beliefs, feelings and assumptions[5]. However, a number of disadvantages lie within positivism studies: (i) positivism studies rely on a valid source of data, in which measurement errors may arise; (ii) any misuse of inferential statistical tests leads to results being misinterpreted; (iii) positivism studies are descriptive, which may lack insights in the research question being studied. Nevertheless, positivism enables researchers to explain social facts using statistical data.

From the methodology standpoint, the doctrine of positivism epistemological considerations is composed of a deductive approach and an inductive strategy in three stages. In the first stage, the relationship between the theory and social research is established, in which the researcher obtains a basic knowledge and theoretical understanding with regard to the research topic. In the second stage, the researcher deduces the hypotheses which are subject to the empirical analyses for the confirmations or rejections of the hypotheses. In the third stage, the researcher is required to employ a deductive approach for an inductive process (i.e. inductive strategy), which revises the theory reflecting the empirical findings. In summary, an empirical study should be used to examine the relationship between theory and social research, which enables the researcher to examine the relationship objectively.

The following four fundamental principles are likely to be the reasons why positivism epistemological considerations are employed in corporate governance-related studies and cross-country analyses, which are conducted using quantitative modelling.

First, corporate governance theories are a set of normative principles prescribing organisational behaviours (Donaldson, 2012). These normative principles enrich views on

[5] Crotty (1998, p. 27) describes positivism epistemological as “objects in the world have meaning prior to, and independently of, any consciousness of them”.

corporate governance theories, and help researchers to design concepts of empirical studies examining the associated theoretical frameworks. The empirical assumptions of the conceptual frameworks must be based on normative theories. For this reason, this thesis attempts to incorporate the normative principles of organisational behaviours and corporate governance theories, and develops conceptive frameworks to advance the understandings of corporate governance practices at Japan-listed banks (and UK-listed banks). Much of the extent of this study focuses on the influences of board characteristics and those of institutional shareholders, and empirical studies are used to examine their effects on levels of bank lending and risk-taking.

Second, corporate governance theories rely on explicit normative expressions including (i) property rights and authorities on agency theory, (ii) equities, commitments and authorities on stewardship theory, (iii) the fiduciary duties of corporate entities in stakeholder theory, and (iv) social power in resource dependence theory. The normative aspects of these theories can be tested by a set of facts based on numerical observations. For example, in this thesis quantitative methods are used in examining corporate governance mechanisms in terms of the effects of managerial ownerships on lending ratios/insolvency risk levels. The corporate governance mechanisms are observed using a set of facts that are based on levels of managerial compensation, company financial and accounting data, and 'good' or 'bad' governance which are measured based on lending ratios and insolvency risk levels.

Third, although qualitative methods can examine the complementary and/or substitution effects of using an inductive data analysis to focus on the meanings of participants (Misangyi and Acharya, 2014), it cannot examine the characteristics of the complementary and/or substitution effects of internal and external governance. In this study, quantitative methods are used to examine the complementary and/or substitution effects of internal and external governance, in which individual internal governance controls are considered with respect to external governance controls.

Fourth, quantitative modelling enables researchers to compare observational data on multiple countries objectively without any interference from the researchers, and the comparative corporate governance of the two countries (i.e. Japan and the UK) is examined in chapter seven. In conducting comparative corporate governance empirical studies, the researcher must understand the data and statistical modelling limitations in order to present accurate or complete interpretations. The researcher should also be aware of the weaknesses of these cross-country empirical analyses, such as Simpson's paradox.

Scholars often ignore the Simpson's paradox, and instead provide a statistical generalisation. Simpson's paradox refers to trends that appear to be different from each other when groups are examined independently, and these effects of trends are reversed or cancelled when individual groups are examined under a combined data set (Ma, 2015). Although the normative concepts are examined using statistical modelling, empirical analyses of cross-country studies may ignore the differences in the statistical inference and institutional setups of the studied countries. As a result, the aggregated methods – ignoring the Simpson's paradox – are likely to present inaccurate or incomplete interpretations (Ma, 2015). In designing statistical models, the researcher should be aware of the Simpson's paradox, and pursue appropriate methods to generate accurate or complete results. In chapter seven of this thesis, an interaction country dummy variable is used as a country specific function when comparing the two countries, or two groups of data (Conway and Roberts, 1983). The interaction country dummy variable is used to isolate the effects caused by the independent variables of the two countries in a single regression analysis.

In the case of this thesis, the researcher is required to identify the financial data to explain company corporate governance practices within the literature of financial economics and comparative law. The financial data can be used to quantify the effects of corporate governance practices comparable with other country corporate governance studies. The following section will discuss the advantages and the disadvantages of using quantitative methods in corporate governance studies, and the types of econometric methods used in the analysis.

3.3 Quantitative Research

Quantitative research is used to assess the causal relationship between dependent and independent variables. The numerical approach allows researchers to simplify complex problems and to explain them numerically.

Researchers and econometricians first approach numerical problems using the pooled ordinary least square (OLS) estimation, because the OLS estimation presents a number of desirable properties such as efficiency (minimum variance and unbiased results) and unbiasedness, which is also known as BLUE (‘best linear unbiased estimator’). Consider a linear model.

Model 3.1:

$$\boldsymbol{Y = \alpha + \beta X + \varepsilon}$$

where *Y* is the dependent variable, *X* is the independent variable, and ε is the idiosyncratic error term.

The OLS estimator of the coefficient is unbiased when the estimator represents the true value of the population parameter, and the OLS estimator of the coefficient is efficient when it is unbiased with a minimum variance.

However, bias occurs if (i) there is a presence of omitted variable(s); (ii) the omitted variable is correlated with the error; (iii) the regression residuals (errors) are autocorrelated or serial correlated; (iv) the error variances are not consistent (heteroscedasticity), (v) there is a presence of outliers; (vi) the independent variable(s) is correlated with the error term (i.e. endogeneity); and (vii) the dependent variable and independent variable(s) influence each other at the same time (i.e. simultaneity).

However, to avoid biased results, researchers should consider model errors arising from endogeneity as a result of the presence of omitted variables. Therefore, panel data analysis (fixed-effects or generalised method of moments estimations), and/or instrumental variables (created by principal component analysis) should be used, because the nature of corporate governance empirical studies present problems of endogeneity and simultaneity, and unobservable heteroskedasticity (Hermalin and Weisbach, 1991; Wintoki et al., 2012).

In the absence of an omitted variable(s) or when the omitted variable(s) is uncorrelated with the independent variables, random-effects estimation is more appropriate when examining the effects of independent variables that persist over time (Luoma and Goodstein, 1999).

A panel data set is used in the empirical studies of this thesis, which is also known as longitudinal data or cross-sectional time series data. It consists of *i* company-year observations across a period of time *t*. In this thesis, 662 bank-year observations are collected for Japan, and 45 bank-year observations are collected for the UK. Both data sets cover the years between 2005 and 2013.

The panel data analysis is different from the pooled OLS estimation. The former measures the change of cross-sectional data over time. The latter ignores the statistical differences between different time periods. Compared to the pooled OLS estimation, the panel data analysis provides six advantages. First, the panel data analysis controls for individual heterogeneity, and time-invariant and state-invariant variables. Second, it provides “more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency” (Baltagi, 1995, p. 4). Third, it is more adept at investigating the dynamics of adjustment, which is suitable in estimations containing “intertemporal relations, life-cycle and intergenerational” elements (Baltagi, 1995, p. 5). Fourth, it is able to investigate effects which are not detectable in cross-sectional or time series data. Fifth, it adjusts for bias in

microeconomic models arising from aggregated company-level data. Sixth, it is suitable for both balanced and unbalanced data sets.

For the reasons highlighted above, three panel analyses are chosen to examine the effects of corporate governance mechanisms in this thesis: (i) the fixed-effects (FE) estimation, (ii) random-effects (RE) estimation, and (iii) the generalised method of moments (GMM) Arellano Bond estimation. Additionally, the Cox proportional hazard model, and principal component analysis are also employed in this study. These econometric techniques are outlined in the following sections.

The first three econometric techniques (FE, RE, and system GMM Arellano Bond estimations) are used in chapters four to seven. The Cox proportional hazard model is used chapter four, and principal component analysis is used in chapter six.

3.3.1 Fixed-Effects (FE) Estimation

Fixed-effects (FE) estimation is chosen because the nature of empirical corporate governance studies present problems of endogeneity arising from omitted variables, such as unobserved company characteristics. As a result, the problems of endogeneity lead to bias and inconsistent results (Boubaker and Nguyen, 2015, p. 333). Hence, the inconsistent estimators do not converge to the true values and the estimators are asymptotically biased, and the values of biased (and inconsistent) sample estimators are no longer able to represent estimators of population. In theory, the inconsistency can be resolved by increasing the number of sample sizes. However, it is not possible to increase the number of sample sizes in this thesis, because there are only specific numbers of listed-banks in each country. For these reasons, FE estimation is used in this study to mitigate for problems of endogeneity arising from omitted variables.

The FE estimation is designed to examine the within-company effects, instead of examining the cross-sectional effects (Roberts and Whited, 2012, p. 78), because the FE transformation produces the time-invariant effects of unobservable heterogeneity.

Consider a linear model.

Model 3.2:

$$y_{it} = \alpha + \beta CG_{it} + u_i + \varepsilon_{it}$$

where CG_{it} are the variables of corporate governance mechanisms of bank *i* at time t. u_i is the individual-specific error term, and ε_{it} is the idiosyncratic error term.

The FE estimation uses the within-cluster variation (Cameron and Miller, 2015), and removes unobserved time-invariant unobservable characteristics/omitted variables through the following transformation:

Model 3.3:

$$y_{it} - \bar{y}_i = \alpha + \beta(CG_{it} - \overline{CG}_i) + (u_i - \bar{u}_i) + (\varepsilon_{it} - \bar{\varepsilon}_i)$$

where u_i is the individual-specific error term, ε_{it} is the idiosyncratic error term, $\bar{y}_i = \sum_t y_{it}/T_i$, $\overline{CG}_i = \sum_t CG_{it}/T_i$, $\bar{u}_i = \sum_t u_{it}/T_i$, and $\bar{\varepsilon}_i = \sum_t \varepsilon_{it}/T_i$.

As shown in Model 3.3, the FE estimation can address omitted (time-invariant) variable problems by eliminating time-invariant variables. The threat of omitted variable bias can be reduced by controlling for the average differences across groups (i.e. companies) in any observable or unobservable regressors.

Several studies have used FE estimations to ameliorate the bias arising from endogeneity (Bai et al., 2004; Bhagat and Bolton, 2008; Schultz et al., 2010; Yermack, 1996), and researchers suggest that FE estimations remove the time-invariant unobservable characteristics/omitted variables through the FE transformations (Hausman and Taylor, 1981). The FE transformations eliminate the omitted variables of Japan-listed banks that are likely to be time-invariant (Nakano and Nguyen, 2012; Wailerdsak and Suehiro, 2004).

In terms of model specifications, the Hausman test is used to determine whether the FE estimation is consistent (Hausman, 1978). The null hypothesis of the Hausman test must satisfy two conditions to avoid misspecification and to be asymptotically efficient. First, the independent variable(s), CG, must be orthogonal to the error term, i.e. $E(\varepsilon|CG) = 0$. Failure to satisfy the orthogonal condition leads to a biased estimation, in which the estimators are unable to represent population estimations. Second, ε has a spherical covariance matrix, i.e. $V(\varepsilon|CG) = \sigma^2 I$. Failure to satisfy the spherical covariance matrix will lead to a loss of efficiency, i.e. the variances of estimators are unable to converge to their minimum. The null hypothesis of the Hausman test is that the desired method would be a random-effects (RE) estimation that presents more efficient estimators, while the alternative hypothesis indicates that the FE estimation is preferred; although the estimators of the FE estimation are consistent, regardless of whether the null hypothesis of the Hausman test is accepted or rejected.

The FE estimation cannot address several problems for three reasons. First, estimators are likely to be biased if the independent variables do not change greatly over time. Therefore, RE

estimation is preferred. Second, it cannot ameliorate the bias in the presence of dynamic relationships (Wintoki et al., 2012). In a dynamic relationship, the independent variable(s) is continuously changing over time, which then causes the change in the dependent variable. In attempts to model dynamic relationships, econometricians include lagged dependent variable(s) in the right-hand side of the regression model. To ameliorate the bias in the presence of dynamic relationships, the generalised method of moments (GMM) Arellano Bond estimation is used (Wintoki et al., 2012). Third, it cannot ameliorate the bias arising from endogenous time-varied variables.

In this thesis, lagged independent and control variables are used, which assume that the current outcomes (lending and insolvency risk levels) are affected by historical company performances, governance mechanisms or board characteristics. This suggests that particular governance mechanisms or board characteristics are chosen to affect future outcomes, i.e. lending and insolvency risk levels.

In this study, the fixed-effects models are based on the following.

Model 3.4:

$$Y_{i,t} = \alpha_{i,t} + \sum_{i=1}^{m} \beta_i CG_{i,t-1} + \sum_{i=1}^{n} \beta_j CTROL_{i,t-1} + \varepsilon_{i,t}$$

where $Y_{i,t}$ is the level of lending of bank *i* at time *t*, or the *z-score* of bank *i* at time *t*. $CG_{i,t-1}$ represents the variables of the corporate governance mechanisms of bank *i* at time *t*-1. *CTROL* represents the company-specific and time-specific control variables of bank *i* at time *t*-1. *m* is the number of variables of corporate governance mechanisms, and *n* is the number of control variables.

Although the FE estimation already controls for the within-cluster variation, the regressors and the errors may be caused by individual (company-specific) effects, in which companies have different corporate governance characteristics such as ratios of external directors, or companies have different corporate governance characteristics due to the differences in corporate governance frameworks between countries. In order to address the problems of heteroskedasticity, the FE estimation clusters standard errors at the company level (Acharya et al., 2013; Black et al., 2006; Laeven and Levine, 2009) or country level (John et al., 2008).

Clustering allows each unit within the cluster to be correlated, but it assumes that each cluster is independent from each other (Wooldridge, 2002, p. 134), because the correlation error terms are likely to be within the company level, or country level. In other words, '$u_i - \bar{u}_i$' is

the group-level (i.e. industry level or country level) shock, and the clustering also assumes no correction across groups.

In this thesis, the FE estimations cluster standard errors at the bank level in single country studies (chapters four to six), and cluster standard errors at the country level in two country studies (chapter seven).

3.3.2 Random-Effects (RE) Estimation

In the case of that the independent variables do not change greatly over time, random-effects (RE) estimation is likely to be preferred over FE estimation. In the RE estimation, the independent variables are assumed to be exogenous. RE estimation is often used to measure time variations (of corporate governance measures) between individual samples in panel data.

The RE estimation is designed to examine the between-company effects. Consider Model 3.2, which is a linear model measuring the impacts of corporate governance mechanisms.

Model 3.2:

$$y_{it} = \alpha + \beta CG_{it} + u_i + \varepsilon_{it}$$

where CG_{it} are the variables of corporate governance mechanisms of bank *i* at time t. u_i is the individual-specific error term (which is also known as the unobserved heterogeneity term), and ε_{it} is the idiosyncratic error term.

In RE estimation, it assumes that independent variables are uncorrelated with unobserved effects, i.e. $cov(u_{i,}\, CG_{it}) = 0$.

In order to obtain consistent RE estimators of the error terms ($u_i + \varepsilon_{it}$), the estimation must undergo RE transformation. The following model is transformed under the RE transformation.

Model 3.5:

$$y_{it} - \lambda\bar{y}_i = \lambda\alpha + \beta_2(CG_{it} - \lambda\overline{CG}_i) + (u_i - \lambda\bar{u}_i) + (\varepsilon_{it} - \lambda\bar{\varepsilon}_i)$$

where u_i is the individual-specific error term, ε_{it} is the idiosyncratic error term, $\bar{y}_i = \sum_t y_{it}/T_i$, $\overline{CG}_i = \sum_t CG_{it}/T_i$, $\bar{u}_i = \sum_t u_{it}/T_i$, $\bar{\varepsilon}_i = \sum_t \varepsilon_{it}/T_i$, and $\lambda = 1 - \left(\frac{{\sigma_\varepsilon}^2}{{\sigma_\varepsilon}^2 + T{\sigma_\mu}^2}\right)$.

If λ approaches zero, the unobserved heterogeneity term (${T\sigma_u}^2$) is relatively small, and Model 3.5 becomes an ordinary least squares (OLS) estimation. In the case of λ being bigger than zero, then the random-effects estimators of Model 3.5 are more efficient than those of FE estimation (Pesaran, 2015, p. 648). If λ approaches one, then the unobserved heterogeneity term (${T\sigma_u}^2$) becomes very big. Then Model 3.5 is close to the fixed-effects estimation.

RE estimation offers three advantages. First, the RE estimation, employing RE transformation, allows the independent variables to be constant over time (Wooldridge, 2003, p. 490). Second, RE estimators contain the information of both within-group and between-group variations. Third, RE estimation is able to examine the impact of time-invariant variables, while the FE estimation eliminates the effects of time-invariant variables through FE transformation.

The majority of panel data studies employ FE and RE estimations (Bin-Sariman et al., 2016; Gedajlovic and Shapiro, 2002; Unite and Sullivan, 2003; Wu et al., 2007), and researchers employ the Hausman test to determine the appropriateness of the FE and RE estimations (Hausman, 1978). In addition, an RE estimation is likely to be more suitable if the independent variables are persistent over time (Gedajlovic and Shapiro, 2002).

In terms of model specifications, the Breusch and Pagan Lagrangian multiplier (LM) test is also used to examine whether the variances across entities are zero (Wooldridge, 2002). The null hypothesis of the LM test is that the ordinary least squares (OLS) is consistent, while the alternative hypothesis is that the RE estimation is preferred.

In this thesis, the RE estimators provide the information of within-group and between-group effects, i.e. the average effects of independent variables ($\overline{CG_i}$) over the dependent variable (Y_{it}) when the independent variables (CG_{it}) vary over time, and between banks by one unit. In this case, the researcher should consider using information obtained from the FE and RE estimations to determine the within-group and between-group effects.

Lagged independent and control variables are used in this thesis, which assumes that historical company performances, governance mechanisms, or board characteristics have an impact on the current outcome, such as the levels of lending and insolvency risks.

The random-effects models in this thesis are based on the following.

Model 3.6:

$$Y_{i,t} = \alpha_{i,t} + \sum_{i=1}^{m} \beta_i CG_{i,t-1} + \sum_{i=1}^{n} \beta_j CTROL_{i,t-1} + \sum_{i=1}^{n} \beta_j TD_{i,t-1} + + \varepsilon_{i,t}$$

where $Y_{i,t}$ is the level of lending of bank *i* at time *t*, or the *z-score* of bank *i* at time *t*. $CG_{i,t-1}$ represents the variables of the corporate governance mechanisms of bank *i* at time *t*-1. *CTROL* represents the company-specific and time-specific control variables of bank *i* at time *t*-1. *TD* is the time dummy variable, which is used to avoid serial correlation in the idiosyncratic errors across time (Wooldridge, 2002, p. 261). *m* is the number of variables of corporate governance mechanisms, and *n* is the number of control variables.

Although the RE estimation already controls for the within-cluster and the between-cluster variations (Dieleman and Templin, 2014), the regressors and the errors may be caused by individual (company-specific) effects. In order to address the problems of heteroskedasticity, the RE estimation clusters standard errors at the company level or country level.

In this thesis, the RE estimations cluster standard errors at the bank level in single country studies (chapters four to six), and cluster standard errors at the country level in two country studies (chapter seven).

3.3.3 System Generalised Method of Moments (GMM) Arellano Bond Estimation

Scholars suggest that the results of corporate governance empirical studies are likely to be biased arising from the problems of endogenous, unobservable heteroskedasticity, and simultaneity (Hermalin and Weisbach, 1991; Wintoki et al., 2012). To resolve the bias, they suggest that the generalised method of moments (GMM) Arellano Bond estimation can be used (Schultz et al., 2010; Wintoki et al., 2012).

The GMM Arellano Bond estimation introduces a modelling approach to analyse the dynamic relationships between dependent and independent variables. The model uses lagged dependent variable(s) as instrument variable(s), from which these instrument variable(s) are used as regressor(s) (Arellano and Bond, 1991). The instrument variables affect the independent variable(s) but have no effects on the dependent variable.

Under the GMM Arellano Bond estimation, the instrument variables are the lagged values of the explanatory variables in the levels and the first-difference forms.

Model 3.7:

$$\begin{bmatrix} Y_{it} \\ \Delta Y_{it} \end{bmatrix} = \chi \begin{bmatrix} Y_{it-p} \\ \Delta Y_{it-p} \end{bmatrix} + \beta \begin{bmatrix} CG_{it} \\ \Delta CG_{it} \end{bmatrix} + \gamma \begin{bmatrix} CTROL_{it} \\ \Delta CTROL_{it} \end{bmatrix} + \varepsilon_{it}$$

The first-difference form (ΔY_{it}) can be derived from a linear model.

Consider the following the linear model.

Model 3.8:

$$Y_{it} = \beta CG_{i,t-1} + \gamma CTROL_{i,t-1} + u_i + \varepsilon_{it}$$

where $Y_{i,t}$ is the level of lending of bank *i* at time *t*, or the *z-score* of bank *i* at time *t*. $CG_{i,t-1}$ represents the variables of the corporate governance mechanisms of bank *i* at time *t*-1. $CTROL_{i,t-1}$ represents the company-specific and time-specific control variables of bank *i* at time *t*-1. u_i is the individual-specific error term, and ε_{it} is the idiosyncratic error term.

The first-difference form of Model 3.6 is:

$$\Delta Y_{it} = \delta y_{i,t-1} + \chi_p \sum_p \Delta Y_{it-p} + \beta \Delta CG_{i,t-1} + \gamma \Delta CTROL_{i,t-1} + u_i + \Delta \varepsilon_{it}$$

where p >0. The p lags in the first-difference form captures the information related to previous bank lending levels (outcomes).

The inclusion of the lagged dependent variable in the dynamic generalised method of moments (GMM) Arellano Bond estimators allows for endogeneity in the model. $Y_{i,t-1}$ is correlated with the unobserved individual level fixed-effects v_i, and $Y_{i,t-1}$ is orthogonal to the differenced disturbances. The unobserved individual level fixed-effects u_i is likely to be a time invariant variable that includes country characteristics, which may be correlated with independent variables.

The difference GMM Arellano Bond estimator may have finite sample bias problems resulting from employing weak instrument(s)[6], and the lagged level instruments may be weak under the difference GMM estimator. This is because the lagged dependent and independent variables are persistent over time (Blundell and Bond, 1998). The finite sample bias problems can be minimised by implementing the system GMM Arellano Bond estimator, which has a greater level of asymptotic efficiency compared to the difference GMM Arellano Bond estimator.

The system GMM Arellano Bond estimation is composed of the first difference and the levels instruments. First difference instruments are the lagged dependent variables, and the lagged first difference of the independent and control variables. Levels instruments are the lagged first difference of the dependent variables.

Additionally, the system GMM Arellano Bond estimation allows additional moment conditions such as endogenous and predetermined variables to be added as instruments (Cameron and Trivedi, 2010, p. 301). The number of lags are limited in GMM Arellano Bond estimations, because serial correlation will be lower with limited lag depth, and deeper lag instruments are likely to be weak and do not present any new information (Mehrhoff, 2009, p. 8). For example, Wintoki et al. (2012) suggest that the information reflecting the historical corporate governance mechanisms and company-specific characteristics (at time *t*-4, *t*-3, *t*-2) affect the outcomes at time *t*-1. The current outcome (*t*) is also affected by the previous outcome (*t-1*) and company-specific information at time *t*-1, but the company-specific information (at time *t*-4, *t*-3, *t*-2) is independent from the current outcome (*t*). Therefore, the bias arising from the

[6] A weak instrument may be correlated with the endogenous variables, and the instrument variable regressor is biased.

problems of endogeneity and simultaneity improve in the system GMM Arellano Bond estimations.

To detect model misspecifications, the Sargan test, and the Arellano Bond first-order (AR(1)) and second-order correlation (AR(2)) tests are used to assess the validity of instrument(s) in this thesis.

The Sargan test is used to test for overidentifying restrictions, and the test is required to first verify whether the number of additional instruments are greater than the number of endogenous regressors in the model. Then, if the model is overidentified, the Sargan test assesses whether the instruments are uncorrelated with the error term.

The null hypothesis of the Sargan test is that the overidentifying restrictions are valid, i.e. the instruments are uncorrelated with the error term. For example, if the instrumental variable(s) is endogenous, then the null hypothesis of the Sargan test is rejected. As a result, the instrumental variable(s) may be invalid.

Arellano Bond AR(1) and AR(2) tests determine whether the instrumental variable(s) used in the GMM Arellano Bond estimation suffers from problems of endogeneity. They are used to test for the zero autocorrelation in first-differenced errors, where the null hypothesis shows that no autocorrelation is present in the estimation. To satisfy the conditions of orthogonality, the null hypothesis of no autocorrelation in AR(1) is rejected, and the null hypothesis of no autocorrelation in AR(2) is accepted, i.e. the residuals in first difference (AR(1)) are serially correlated, and the residuals (AR(2)) are not correlated (Cameron and Trivedi, 2010, p. 300).

In conclusion, the model is valid when the valid instruments are used, and the conditions of orthogonality are satisfied.

Several studies have used the system GMM Arellano Bond estimation (Beck and Levine, 2004; Lilling, 2006; Schultz et al., 2010; Wintoki et al., 2012), in which the estimation model controls for time-invariant unobservable heterogeneity through first differencing.

In the empirical study of Lilling (2006), the author employs system GMM Arellano Bond estimations to address problems of endogeneity and simultaneity arising from the regression model estimating the relationship between the levels of chief executive officer (CEO) compensation and the values of US companies. The author argues that the levels of CEO compensation are persistent over time, and jointly affect company values. As a result, the system GMM Arellano Bond estimation is used, because it controls for company-specific

effects and the endogeneity of all explanatory variables, and includes the lagged dependent variable as a regressor.

Scholars argue that the board characteristics of Japanese companies lack diversity, and are likely to be persistent over time (Nakano and Nguyen, 2012; Wailerdsak and Suehiro, 2004). If this is the case for Japan-listed banks, their board characteristics are likely to jointly affect their lending and risk-taking strategies. As a result of the persistent board characteristics, the system GMM Arellano Bond estimation is more suitable in this thesis, compared to the difference GMM Arellano Bond estimation.

The system GMM Arellano Bond estimation models are based on the following model.

Model 3.9:

$$Y_{i,t} = \gamma_i Y_{i,t-1} + \sum_{i=1}^{m} \beta_i CG_{i,t-1} + \sum_{i=1}^{n} \beta_i CTROL_{i,t-1} + \varepsilon_{i,t}$$

where $Y_{i,t-1}$ is the level of lending of bank *i* at time *t-1*, or the insolvency risk level (*z-score*) of bank *i* at time *t-1*. $CG_{i,t-1}$ represents the variables of the corporate governance mechanisms of bank *i* at time *t-1*. $CTROL_{j,t-1}$ represents the company-specific and time-specific control variables of bank *i* at time *t-1*. *m* is the number of variables of corporate governance mechanisms, and *n* is the number of control variables. In the system GMM Arellano Bond estimation models, bank-specific effects and the endogeneity of all explanatory variables are controlled for.

Additionally, two options are included in the models: (i) predetermined regressors, and (ii) options providing a heteroskedastic-consistent estimate of the variance-covariance matrix of the estimator.

The first option, predetermined regressor(s), is used to correct the model when the model cannot satisfy the orthogonality conditions, i.e. the dependent variable is not correlated with past errors. The predetermined variable is correlated with the structure error of lagged values, but is uncorrelated with the present and future values (Arellano, 2003; Cameron and Trivedi, 2010, p. 295).

The second option is to avoid any misspecification causing weak instruments and large sample biases (Windmeijer, 2005). However, the use of *vce(robust)* inhibit the Sargan test in *Stata*, because the test requires the errors to be independent and identically distributed (Cameron and Trivedi, 2010, p. 301). According to Cameron and Trivedi (2010), the GMM Arellano Bond

estimation needs to be run first without the options of *vce(robust)* to test for overidentifying restrictions using the Sargan test.

3.3.4 The Cox Proportional Hazard Model

The Cox proportional hazard model (Cox model) is used in chapter four of this thesis, instead of logit or probit models. This is because logit and probit models assume that the probability of an event occurring (the hazard rate) is invariant to time due to models being parameterised under exponential distribution (Jones and Branton, 2005).

In chapter four of this thesis, the categorical variable is used to indicate whether banks are participating in securitisation businesses, which are repeatable events in some banks. The problem of the hazard rate being time-invariant can be resolved by introducing a duration dependency parameter. To analyse the probabilities of banks participating in securitisation businesses, the Cox model is used. The Cox model is able to model repeatable events, and allows one of the independent variables to be a categorical variable (Allison, 1982). The duration time of the hazard rate is reset after each discrete time period, which allows repeatable events to be modelled and to recalculate the probability of an event occurring.

The Cox model is also known as the survival analysis, which can be used to model the expected time to failure (or survival) of a given event (Cox, 1972). The Cox model examines a functional relationship between a binominal dependent variable and independent variable(s). The dependent variable is known as the hazard rate, or the relative risk. The relative risk is used to calculate the probability of an event occurring within the treatment group with respect to the control group.

The Cox model is often used in medical science studies to estimate survival rates. It is used to analyse a set of dynamic path events (Gietzmann et al., 2016), in which hazard rates always increase or decrease with time (Allison, 1984). In addition, the Cox model allows for repeated events in which multiple intervals are assumed to be statistically independent. It is used to determine the regression coefficients (i.e. the effects of covariates) and hazard rates of a given event, which is semi-parametric; and to examine the relationship between the probability of an event occurring and independent variables.

The hazard function of a proportional hazard model is $\lambda_i(t,x) = \lambda_0(t)e^{\beta' x}$, where $\lambda_0(t)$ is the hazard rate of the control group, and $\lambda_i(t)$ is the hazard rate of the treatment group. The hazard rates between the two groups is represented as $\frac{\lambda_i(t)}{\lambda_0(t)} = e^{\beta' x}$, and the log of the hazard ratio is $log\left(\frac{\lambda_i(t)}{\lambda_0(t)}\right) = \beta_1 x_{1i} + \beta_2 x_{2i} + \cdots + \beta_p x_{pi}$.

The hazard function is composed of the baseline hazard $\lambda_0(t)$, and the hazard function relative risk[7] is associated with covariate values *x*, i.e. $e^{\beta' x}$, in which all of the covariates are set to zero in the baseline hazard function. These time-varying covariates are easily introduced in panel data hazard models (Wooldridge, 2002).

Prior to computing the Cox model, the Kaplan–Meier estimation and the survivor function are used as exploratory analyses. The Kaplan–Meier survival function provides useful initial diagnostics, which offer the survival probability of individual sample groups. In the context of this thesis, the survival probability is the probability of banks not participating in the securitisation business.

The Kaplan–Meier estimation is a nonparametric estimation (Kaplan and Meier, 1958), which calculates the survival probability using cumulative incidence of an event at a given time, or calculates the hazard rate (the probability of failure) from which the Kaplan–Meier estimate of survival probability is subtracted by one. However, the Kaplan–Meier estimation is constrained from estimating covariate-adjusted survival. The survivor function is also known as the hazard model, which provides an estimate of the probability at a given time that an individual is at risk of an event occurring; and shows how various characteristics affect survival times (Wooldridge, 2002, chap. 20).

There are three reasons that the Cox model is chosen for chapter four of this thesis. First, the hazard rate changes over time. As a result, the exponential regression model is not suitable[8]. Second, the estimators remain unbiased under the circumstance that the baseline model is misspecified (Meyer, 1990). Third, the Cox model allows for repeatable events[9] to be used in the statistical analysis (Allison, 1984, p. 13). However, the Cox model requires covariates to be strictly exogenous (Wooldridge, 2002, p. 714).

Several financial studies have used the Cox model (Dickerson et al., 1998; Gomez-Gonzalez and Kiefer, 2009; Lane et al., 1986). In the empirical study of Gomez-Gonzalez and Kiefer (2009), the Cox model is used to characterise the failure rates of Colombian financial institutions. The authors compare the Kaplan-Meier non-parametric estimator, the estimated smoothed hazard function (the behaviour of the baseline hazard), and the Cox model.

[7] In this thesis, the hazard function relative risk is referred to as the risks of banks participating in securitisation businesses.
[8] The likelihood-ratio chi-square test can be used to compare the relative fit between the exponential regression model and the Cox model.
[9] In this thesis, the repeatable events are referred to as banks participating in securitisation businesses.

In chapter four of this thesis, the Cox model is used to examine whether the probability of banks participating in securitisation businesses is determined by board characteristics, the presence of assets and liabilities committees, levels of risk-taking, bank asset sizes, and total capital reserve ratios. Contrary to the survival probability, the hazard ratio is the probability of banks participating in securitisation businesses. Two sample groups are investigated: (i) the treatment group, and (ii) the control group. In chapter four, the treatment group is composed of banks which adopt assets and liabilities management committees (*ALCO* =1) and the control group, which is composed of banks that do not adopt assets and liabilities management committees (*ALCO* =0). The covariates are likely to be the factors (board characteristics, regulatory requirements, etc.) which affect the decisions of banks to participate in securitisation businesses.

Following Gomez-Gonzalez and Kiefer (2009), a list of graphical and numerical methods are used in section 4.5.3 to determine the overall fitting adequacy of the Cox model: (i) the Kaplan-Meier survival function, (ii) the tests of the equality of survival functions, and (iii) the estimated smoothed hazard function. The Kaplan-Meier survival function offers a graphical overview of the survival probability of individual sample groups. The tests of the equality of survival functions include the log rank and the Wilcox tests, in which the null hypotheses are that there is no difference between the population survival curves. The estimated smoothed hazard function provides a graphical overview of the probabilities of banks participating in securitisation businesses against time.

3.3.5 Principal Component Analysis

Principal component analysis (PCA) is used in chapter six to create corporate governance indices, which include eight internal corporate governance mechanisms consisting of board characteristics and director share ownerships.

PCA is used in this thesis for three reasons. First, PCA reduces the dimensionality of a data set and preserves the variations of the data by concentrating on the diagonal elements simultaneously, in which the data set contains a part of the interrelated variables. Second, the principal components (PCs) are uncorrelated and orthogonal, because the PCs are a list of eigenvectors, which are obtained from the eigenvalues decomposition of a matrix of variables. The PCs are computed using a linear transformation technique, and the orthogonal linear components maximise the total variance.

To explain further, the PCs (eigenvectors), and their eigenvalues are mathematically represented as:

$$\boldsymbol{Z = XA}$$

where *Z* is the eigenvalues of the PCs for the observations, *A* is an orthogonal matrix (i.e. $A^T A = AA^T = I$), and *X* is the column of the eigenvectors.

PCs are selected based on the Kaiser's rule, i.e. the eigenvalues of the PCs exceed one. Once the PCs are selected, researchers are required to decide whether PCs are rotated prior to the regression analysis. The reduction of the variables used in the estimations can also increase the efficiency of the analysis (Mehrhoff, 2009).

The unrotated PCs are likely to suffer large sample errors if the neighbouring eigenvalues are close to each other (North et al., 1982). As a result, PCs with varimax rotation are used in the regression analysis, in which the varimax rotation maximises the sum of the variances of the squared loading and preserving orthogonality. Varimax rotation is used when any one variable can have high loading in one component, and other variables have near-zero loading in the same component. Under this circumstance, normalisation takes place in varimax rotation, and transforms the matrix closer to the sample.

After the rotated PCs are selected, regression analysis is used to determine the relationship between the dependent variable and PCs, i.e.

$$y = \boldsymbol{Z}\gamma + \varepsilon$$

where y is the dependent variable, and $\gamma = A'\beta$; since *A* is orthogonal and $X\beta$ is equal to $XAA'\beta = Z\gamma$. ε is a vector of the error terms.

Some scholars suggest interpreting PCs using the loading of variables (Bushman et al., 2004; Eng and Mak, 2003), but Ali et al. (1985) argue that the interpretation could be misleading. Instead, the authors propose that the correlations between the PCs and the variables should also be considered in interpreting the regression results. In chapter four, both the loadings, and the correlations between the PCs and the variables are considered.

Several corporate governance empirical studies have used PCA (Bushman et al., 2004; Eng and Mak, 2003; Larcker et al., 2007; Westphal and Zajac, 1998). In the study of Larcker et al. (2007), a two-step model is used. First, PCA is used to create 14 corporate governance indices, and these indices retain 61.7 percent of the total variance in the original data. Second, the corporate governance indices are used as regressors in multivariate regression analyses.

Following Larcker et al. (2007), a two-step model is used in chapter six. In the first-step, PCA is used to create three corporate governance indices from eight variables of corporate

governance mechanisms, which contain 64.4 percent of the total variance in the original data. In the second-step, FE and system GMM Arellano Bond estimations are used. This method is able to minimise the dimensions of a large set of corporate governance variables, which ensures the validity of the regression analysis (Grove et al., 2011).

Chapter 4 Internal Corporate Governance Mechanisms

4.1 Introduction

This chapter examines the relationships between the internal corporate governance mechanisms of banks, and lending and risk-taking behaviours. It focuses on potential conflicts of shareholder supremacy with the corporate governance model of Japan-listed banks. It assesses the effects of internal corporate governance mechanisms on the levels of lending and insolvency risk between 2005 and 2013.

Moreover, this chapter also examines the likelihood of banks participating in securitisation businesses, where securitisation is used as a form of risk-taking or as a risk management tool. This chapter argues that the likelihood is affected by the ratios of external directors and board experts to the total number of board members, and the presence of assets and liabilities management committees.

Some scholars view Anglo-American and Japanese corporate governance models as being two dichotomous models and employ them in comparative analyses (Loewenstein, 2001; Macey and O'Hara, 2003). The former emphasises shareholder supremacy, promotes board independence, and contains an element of active market for corporate control (Hall and Soskice, 2001). The latter stresses stakeholder supremacy, enabling stakeholders (such as employees) to exercise their 'voice' to influence company decision-making, and contains an element of weak market for corporate control (Loewenstein, 2001). However, these dichotomous models no longer represent the full picture of the corporate governance models operating in Anglo-American countries and in Japan. Scholars argue that countries such as the UK and Japan (and many other countries) create their own versions of hybrid corporate governance models combining local practices and emerging global standards (Deeg and Jackson, 2007; Yoshikawa and Rasheed, 2009).

For example, Japanese domestic shareholders are increasingly acting like their Anglo-American counterparts, in which the institutional shareholders, such as the Japan Pension Fund Association, are encouraged to actively monitor their investee companies and to constructively engage with their investee companies for the contribution of the sustainable growth of their investee companies (Aronson, 2011; Financial Services Agency, 2014). Based on these observations, scholars argue that the corporate governance practices of Japanese companies are increasingly like those of the Anglo-Americans (Yoshikawa and Rasheed, 2009). This 'new' emerging model is described as a hybrid model (Aoki, 2000).

Nevertheless, in the context of Japan, the social and economic norms of listed-banks arguably align with the ideas of stakeholder theory, because these banks maintain stable employment and stable relationships with their borrowers (Jackson and Moerke, 2005); although the relationships between banks and their stakeholders (such as borrowers) are better described by the economic model (Hendry, 2001).

However, researchers have seldom assessed the effects of the Anglo-American corporate governance mechanisms (such as the ratios of external directors to boards) on banks operating in countries where their social norms arguably align with the stakeholder theory.

This chapter aims to provide insights on the above enquiries by examining (i) the internal corporate governance mechanisms of Japan-listed banks, in which the social norms of these banks focus on stakeholder supremacy (Dore, 2000; Loewenstein, 2001); and (ii) the effects of Japan-listed banks which adopt Anglo-American-like corporate governance mechanisms on three central characteristics of banks: lending, risk-taking, and the probability of banks participating in securitisation businesses.

Existing research provides views on stakeholder supremacy by comparing the institutional frameworks of Japan with other Anglo-American countries. Dore (2000) compares the Japanese corporate governance system with its Anglo-Saxon equivalent, and suggests that (i) the Japanese corporate governance system is referred to as an inside system, suggesting that managers are trusted to run their companies properly, but that the trust placed in them often leads to fraudulent cases; and (ii) there is little concern over shareholder interests, i.e. companies have low stock appreciations and a propensity to pay low dividends.

The majority of empirical studies examine the relationships between individual internal corporate governance mechanisms, performances, and risk-taking in Japanese companies/banks. The results are inconclusive. In the studies of Japanese banks, scholars find that the levels of performances and risk-taking (i) reflect the interests of their shareholders (Konishi and Yasuda, 2004), (ii) are associated with performance-based incentives (Kato and Kubo, 2006), and (iii) are related to the backgrounds of external directors (Horiuchi and Shimizu, 2001; Kato and Kubo, 2006). But scholars seldom discuss the effects of board independence, and external director expertise and tenure, because the majority of Japanese boards are insider-dominated (John and Senbet, 1998; Whittaker and Deakin, 2009), and there is also a limited talent pool of external or independent directors (Dore, 2000).

In this chapter, empirical analyses are designed to examine the internal governance mechanisms that are based on six theoretical keystones of corporate governance and

management. First, a theoretical argument suggests that maintaining good relationships among stakeholders may promote good long-term performances by companies (Alam, 2006; Dodd, 1932), while stakeholder wealth is likely to be eroded when the interests of managers and their stakeholders diverge (Hill and Jones, 1992). The divergence may be minimised by implementing various internal corporate governance mechanisms similar to those proposed under agency theory.

Second, increased board independence (increasing the ratios of external directors to the total number of board members) tends to increase levels of board monitoring (Jensen and Meckling, 1976). However, the monitoring mechanisms may differ between (i) performance monitoring mechanisms, and (ii) risk and stakeholder-interests monitoring mechanisms. In the former system, external directors (i.e. the monitors) may encourage their companies to take greater levels of risks for greater returns, i.e. the performance monitoring mechanisms exist to maximise shareholder wealth by investing in risky projects. Under the risk and stakeholder-interests monitoring mechanisms, the monitors may encourage banks to control the levels of risks and to provide lending while promoting financial stability and economic growth.

Third, Jensen and Meckling (1976) proposes a theoretical argument that the interests of managers are aligned with those of their shareholders through incentive schemes such as having managers owning shares in companies in which they serve. These incentive schemes also act as risk-sharing mechanisms between shareholders and managers (Fama and Jensen, 1983b), which may prevent their banks from engaging in excessive risk-taking, while attempting to maximise shareholder wealth.

Fourth, highly skilled experts understand the complexities of their industries, and are able to assess risks and opportunities. Instead of monitoring risk-taking, these experts may promote risk-taking for greater returns (Minton et al., 2014), and to develop their reputation as experts (Fama and Jensen, 1983a).

Fifth, (board) homogeneity encourages groupthink and lowers the probabilities of task conflicts (Lau and Murnighan, 1998; Zander, 1979), because board homogeneity leads to greater levels of integration among group managements, and facilitates interpersonal communication (Michel and Hambrick, 1992; Murray, 1989). However, board homogeneity is likely to affect monitoring mechanisms at banks, and increase the possibilities of board members making extreme decisions (Nakano and Nguyen, 2012). This is because individuals are likely to act by consensus in groups (Bainbridge, 2002). As a result, this thesis argues that board homogeneity is likely to increase levels of risk-taking at banks.

Sixth, assets and liabilities committees (ALCOs) are set up in a context of reducing agency costs through monitoring (Jensen and Meckling, 1976). This is based on the assumptions that (i) principals who are able to diversify their portfolios are risk neutral (Demski and Feltham, 1978); (ii) agents[10] who are unable to diversify their employment opportunities under the lifetime employment system are risk averse (Demski and Feltham, 1978); (iii) ALCOs, which are composed of experts to manage bank risk and liquidity, are likely to minimise the risk on their balance sheets (Greuning and Brajovic Bratanovic, 2009). In the context of agency theory, ALCOs may use risk and liquidity management tools, such as securitisation, to minimise risks as a result of lowering agency costs.

To assess these theoretical arguments, a database composed of 662 bank-year observations is built to collect financial and governance data on Japan-listed banks between 2005 and 2013, and to examine the effects of various internal corporate governance mechanisms on levels of lending and insolvency risks. To deal with unobserved heterogeneity and endogeneity in panel data, the fixed-effects, random-effects and the system Arellano Bond GMM regression analyses are used.

Additionally, the likelihood of banks participating in securitisation businesses is examined using the duration analysis (Cox proportional hazard model), which allows for a categorical dependent variable to be used in repeated events, because multiple intervals are assumed to be statistically independent.

This chapter uses a few different dependent variables: (i) lending ratios, (ii) the *z-score*, and (iii) the likelihood of banks participating in securitisation businesses. The lending ratios are the ratios of loans to total deposits, money market and short-term funding. The *z-score* is used as a measure of the insolvency risk levels. The likelihood of banks participating in securitisation businesses is a categorical variable, in which 1 equals the presence of securitisation businesses; otherwise, it equals 0.

The key findings are as follows. First, the findings show that the increased ratios of external directors to the total number of board members (henceforth are referred to as the ratios of external directors) lead to a rise in insolvency risk levels at Japan-listed banks, but the increased ratios of external directors reduce the levels of impaired loans, indicating that external directors may persuade internal managers to reduce their lending risks, but also to increase other risks in non-lending businesses. These findings indicate that hiring external directors leads to an increase in insolvency risk levels, which are inconsistent with the

[10] Agents are likely to experience personal financial losses in the event of their employers becoming insolvent.

corporate governance approach to shareholder supremacy, i.e. decreased agency costs (Berle and Means, 1932; Jensen and Meckling, 1976). Overall, the results indicate that (i) external directors may be ineffective at monitoring risk-taking at banks, and (ii) the introduction of external directors may lower lending support for domestic businesses and may destroy stakeholder value, because external directors are likely to view that lending to their existing corporate borrowers, whose businesses are failing, would incur significant costs to their shareholders (Slovin et al., 1993).

Second, board expertise homogeneity reduces the insolvency risks of Japan-listed banks, where the majority of board members are lifetime bankers who are promoted internally to their boards. These lifetime bankers are also bank stakeholders, who arguably have implicit claims to lifetime employment in return for their hard work and competency (Cornell and Shapiro, 1987). These lifetime bankers are likely to have concerns about the financial conditions of their banks, because they may fear being unemployable if their banks become insolvent (Demski and Feltham, 1978). As a result, it is likely that these directors (internal and external) act as monitors who are likely to restrain their banks from taking excessive risks.

Third, the increased ratios of external directors – who serve at banks with assets and liabilities committees (ALCOs) – increase the likelihood of Japan-listed banks securitising their debts. These external directors might be hired to assist their banks with participating in the derivatives markets. In addition, banks with ALCOs are likely to engage in securitisation businesses, if they have greater asset sizes or lower capital reserves.

To explore more fully the effects on lending and risk-taking behaviours of banks, section 4.7 also examines the result robustness by testing the effects of internal corporate governance mechanisms on the levels of interest incomes and impaired loans. Although the findings indicate that the results presented in section 4.7 are not fully robust, they provide additional views on the effects of internal corporate governance mechanisms, in which external directors, legal experts, and internal and external director ownerships are effectively monitoring impaired loan ratios at Japan-listed banks.

In conclusion, the results of Japan-listed banks are also consistent with the assumption that Japanese corporate governance mechanisms are internal (Dore, 2000), and confirm that, in the context of risk monitoring, board monitoring mechanisms such as the appointments of external directors are ineffective in monitoring company managements. As a result, greater ratios of external directors lead to increased insolvency risks. This indicates that external directors may show a lack of understanding of the non-lending businesses of their banks; and/or external directors may be ineffective monitors as a result of insider-dominated boards,

even though the empirical result shows a negative relationship between the ratios of external directors and impaired loans.

The empirical findings also show that internal managers are able to lower the insolvency risk levels of their banks. These results are consistent with the conventional views of the Japanese corporate governance model (Allen and Gale, 2000; Dore, 2000; Whittaker and Deakin, 2009), in which 'internal control' governance may characterise the nature of internal corporate governance at Japan-listed banks.

Lastly, the result finds that external directors act as supervisors at banks with assets and liabilities committees (ALCOs), and increase the likelihood of banks engaging in securitisation businesses. It also shows that banks with ALCOs are likely to participate in securitisation businesses, if they have bigger assets sizes, and/or lower capital reserves.

This chapter is structured as follows. Section 4.2 provides backgrounds on the internal corporate governance mechanisms in Japan, and the Japanese securitisation market. Section 4.3 reviews the literature on various internal corporate governance mechanisms, and assets and liabilities management committees. Section 4.4 presents the conceptual framework and its associated hypotheses. Section 4.5.1 summarises the data samples. Section 4.5.2 provides descriptions on the variables used in the empirical analyses. Section 4.5.3 provides summary statistics. Section 4.6 describes the methodology used in these empirical assessments. Section 4.7 discusses the results and the associated robustness tests. Section 4.8 contains the conclusions.

4.2 Backgrounds

4.2.1 The Internal Corporate Governance Model in Japan

Compared to the Anglo-American corporate governance model, the Japanese corporate governance model is considered to be stakeholder supremacy, and to have limited board independence and shareholder rights.

Consistent with the perspective of stakeholder supremacy, the Japanese corporate governance model requires companies to maintain economic and non-economic relationships with their stakeholders. To illustrate this point, the element of stakeholder supremacy can be found in the 2015 Japan's Corporate Governance Code, which states that "Companies should fully recognize that their sustainable growth and the creation of mid- to long-term corporate value are brought as a result of the provision of resources and contributions made by a range of stakeholders, including employees, customers, business partners, creditors and local communities".

Moreover, Japan-listed companies differ from their Anglo-American counterparts for two reasons. First, with regard to board compositions, Japan-listed companies can choose to adopt one of three board structures: a 'corporate (statutory) auditors system', a 'company with committees', and a 'company with an audit committee'[11]. The 'corporate (statutory) auditors system' requires the company to elect full-time statutory auditors. Under the new 'committees system', the board is required to consist of an auditing committee, an appointment committee, and a remuneration committee, and more than half of each committee is required to be composed of outsiders. The 'company with an audit committee' requires the company to have an audit committee in which the majority of members must be outsiders and elected by a resolution at the shareholders' meeting. Unlike the UK, the (Japanese) Company Act does not have any restrictions on chief executive officer duality. Until 2009[12], the majority of listed companies (97 percent) adopted the 'corporate (statutory) auditors system' (OECD, 2011). However, the 'corporate (statutory) auditors system' does not require companies to have external directors on their boards, in which 97 percent of these listed company boards are arguably insider-dominated.

Second, in terms of remuneration schemes, Japan-listed companies are required to determine the remuneration levels of their senior managers by using the remuneration committees that

[11] The amendments to the Company Act introduced a new corporate governance model for board composition: 'a company with an audit committee', which became effective on 1 May 2015.
[12] The data was collected in 2009.

have resulted from their adoption of the 'committees system'. Companies are also required to disclose information relating to their directors' remunerations in their company reports.

In summary, the Japanese internal corporate governance model considers the boards to be jointly responsible for both supervisory and monitoring roles, and to promote the interests of their stakeholders.

4.2.2 Japan's Securitisation Market

Securitisation was not active in Japan until the mid-2000s, when the Japanese government revised its trust law (i.e. Special Purpose Company (SPC) law) and security law (the enactment of Asset Securitization Law) to lower the costs of securitisation.

To facilitate the development of a domestic securitisation market, a government-supported housing agency, the Japan Housing Finance Agency (JHF), was created to replace the Government Housing Loan Corporation in 2007. The objectives of the JHF are to (i) promote domestic mortgage lending by purchasing mortgage portfolios from Japanese banks, (ii) to provide mortgage insurance to Japanese banks, and (iii) to finance social welfare projects including the rehabilitation of the areas affected by the 2011 Great East Japan Earthquake, redeveloping concentrated urban areas, rebuilding aged condominiums, etc.

In the securitisation process, the JHF purchases loan portfolios from Japanese banks, and these loans are then securitised and sold to investors. The JHF issued nearly a third of mortgage-backed securities (MBS) in Japan in the mid-2000s (Chan et al., 2006), and 'Flat 35' of JHF is arguably one of the biggest MBS issuances in Japan (Suumo, 2015).

The Japan's securitisation market is relatively small, compared to those in the United States, Europe and the United Kingdom (Nassr and Wehinger, 2015, p. 109), and the 2008 financial crisis led to a substantial decrease in the number of securitisation issuances. In Japan, on the supply side of the Japan's securitisation issuance, the number of securitised issuances amounts decreased by ¥ 3.1 trillion from 2007 to 2008, and remains low compared to corporate bond issuance (see Table 4.1). On the demand side, the majority of buyers are banks and insurance companies, whose strategies are buy-and-hold as a result of illiquid secondary markets in Japan (BCBS, 2011).

In summary, Japan's securitisation market remains small, and the securitisation of mortgage loans through the JHF appears to be a government policy which aims to help it finance its social welfare projects, such as by providing low interest rate loans for purchasing energy efficient houses, and to assist borrowers who were affected by the 2011 Great East Japan

Earthquake (Kobayashi, 2012; Standard & Poor's, 2018), as well as to provide additional liquidity to banks to encourage lending (Park, 1996).

Table 4.1 Securitised products: issuance amounts and numbers of issuances

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013
Number of Issuances of Securitised Products	312	314	261	204	146	107	91	90	127
Securitised Products Issuing Amounts (¥ Trillion)	8.2	9.8	6.8	3.7	2.9	2.6	3.4	2.9	2.7
Corporate Bonds Issuing Amounts (¥ Trillion)	6.9	6.8	9.4	9.6	10.3	9.9	8.3	8.2	8.1

Source: Japan Securities Dealers Association.

4.3 Literature Review

4.3.1 External Directors

The effectiveness of board independence is being debated by scholars and policymakers, with some emphasising that the introduction of external directors may improve board monitoring. Yet, researchers have not empirically concluded how the effects of external directors differ between countries which have adopted corporate governance frameworks based on stakeholder supremacy or shareholder supremacy (Dore, 2000; Jensen and Meckling, 1976).

The research gap is surprising, because external directors are required to be a part of listed company requirements, regardless of whether the listed companies are in favour of stakeholder supremacy or shareholder supremacy (Aguilera and Cuervo-Cazurra, 2004; Kaplan, 1997).

The former refers to stakeholder theory, which argues that managers are accountable to their stakeholders (Freeman and McVea, 2001). Alam (2006) suggests that companies can maximise their long-term performances by maintaining good relationships with their stakeholders. On the contrary, the latter, referred to as shareholder supremacy, argues that the interests of shareholders and mangers may diverge due to a separation of ownership and control. In order to align the interests of shareholders and managers, Jensen and Meckling (1976) propose that companies hire external directors to monitor their company managements to prevent them from exploiting company resources (Fama and Jensen, 1983a).

Other than being expected to monitor company managements, external directors are also expected to provide guidance to junior internal directors, and to decide on levels of executive compensation for internal directors. According to the standard corporate governance literature using the agency theoretical framework, potential conflicts between managers and shareholders over company performances/levels of risk-taking may be evaluated and monitored by external directors (Jensen and Meckling, 1976). The efficiency of management decisions improves and residual losses are minimised as a result of the separation of management and control (Fama and Jensen, 1983a).

The conventional monitoring roles of external directors may not apply in Japanese companies that adopt stakeholder supremacy, because governance controls are internal rather than external (Dore, 2000), which means that managers are monitored internally as well as by their stakeholders. Unlike shareholders, stakeholders trust managers to run their companies properly. For these reasons, external directors are hired to comply with legal requirements, or

to obtain external resources to benefit the development of their companies (Pfeffer and Salancik, 1978), instead of monitoring the conduct of their managers.

Empirical literature assesses the monitoring effectiveness of external directors by examining the relationship of board independence and company performance (or levels of risk-taking). Studies of US companies show mixed results. Kor and Sundaramurthy (2008) and Mishra and Nielsen (2000) find positive relationships between the ratios of external directors and company performances, which indicate increased rates of sales growth, and increased return on assets (ROA) as a result of having external directors on boards, respectively. These studies show that the functions of external directors are not only limited to monitoring, but they also act as key advisors who help their companies to gain competitive advantages over their rivals by using their skills and experiences to spot possible opportunities, and to advance technologies and to deal with industry-specific regulations (Kor and Sundaramurthy, 2008), as well as by helping companies to develop their businesses by providing access to their external networks (Pfeffer and Salancik, 1978). However, hiring knowledgeable and skilled external directors may not be enough to improve company performances. Bhagat and Black (1999) show that external directors are negatively associated with company performances. This is because outside-dominated boards may weaken board dynamics when external directors do not have sufficient levels of company-specific and industry-specific knowledge to advise and to monitor their company managements efficiently.

In summary, these studies, which are based on US companies where shareholder supremacy is the norm, shows that board composition – such as board expertise and inside-dominated or outside-dominated boards – are important elements in determining whether external directors improve company performances.

Weak financial performance may be associated with levels of risk-taking at companies, because the balance between risk and return is likely to be associated with levels of external director monitoring. Sufficient levels of external director monitoring provide safeguards which prevent banks from taking excessive risks, which could lead to poor financial performances. For example, weak external director monitoring may lead to poor quality loan portfolios as a result of weak lending policies (Horiuchi and Shimizu, 2001), which are also unlikely to increase returns.

Instead of examining the effects on financial performance, it is worth investigating the relationships between external directors and risk-taking, because performances should be risk-adjusted as result of risk-return trade-offs. Studying financial companies, Pathan (2009) finds that external directors – who are independent from shareholder influences – are negatively

associated with risk-taking, while Horiuchi and Shimizu (2001) and Minton et al. (2010) find that positive relationships exist between risk-taking and ratios of external directors. Pathan (2009) argues that these external directors – who can provide industry-specific knowledge free from the restrictions of shareholders – can improve risk monitoring at banks. This argument is affirmed by Mehran et al. (2011)., who suggest that the key objectives of banks are to balance the interests of non-shareholder-stakeholders such as depositors, debtholders, and regulators. This is because (i) banks hold both economic and non-economic relations with depositors, debtholders, and regulators, and (ii) bank managers have fiduciary duties to safeguard the assets and maintain the financial stability of their banks.

Contrary to the negative relationships, other studies suggest that risk levels may increase when regulators loosen their risk controls and reduce monitoring, or external directors try to improve bank performances by investing in risky projects. In the first case, moral hazard problems occur when *amakudari* are appointed as external directors. *Amakudari* are soon-to-be-retired employees of financial authorities or the Ministry of Finance, and are incentivised to lower the monitoring on their prospective employers. As a result, regulatory monitoring fails. Studying Japanese banks between 1977 and 1992, Horiuchi and Shimizu (2001) find a positive relationship between the ratios of external directors, who are *amakudari*, and risk-taking at banks (Horiuchi and Shimizu, 2001). In the second case, external directors may try to improve bank performances by increasing risk-taking (Minton et al., 2010), which is consistent with agency theory such as shareholder wealth maximisation (Jensen and Meckling, 1976).

The relationships between the ratios of external directors and company performances (and risk-taking) may also be underpinned by the prime objectives of companies, and other board characteristics. The prime objectives of companies may be shareholder supremacy, in which companies try to increase their profits by investing in risky projects, or stakeholder supremacy, in which companies try to balance the interests of their stakeholders, such as regulators or customers.

4.3.2 External Director Tenures

As discussed in the previous section, sufficient ratios of external directors on boards may improve board efficiencies and minimise residual losses (Fama and Jensen, 1983a; Jensen and Meckling, 1976). This is because external directors often have acquired sufficient knowledge and skills from previous work experiences, and can independently monitor and advise their company boards.

However, monitoring may be inadequate due to insufficient levels of company-specific experience or increased board homogeneity. Insufficient levels of company-specific experience

may be the result of short tenures, from which external directors have not acquired sufficient levels of company-specific information to enable them to efficiently monitor and advise their boards (Van Ness et al., 2010). Board homogeneity increases with external director tenures, which leads to enhanced board cohesion. Michel and Hambrick (1992) measure levels of cohesion using the average tenure of top management teams, and argue that managers share similar perspectives and experiences that often lead them having a single, dominant, general management logic.

However, increased external director tenures may lead to a loosening of board monitoring, because external directors may more easily conform with the views of other board members as their tenures lengthen, resulting in a decrease in their abilities to monitor and become more homogeneous with internal directors (Kor and Sundaramurthy, 2008). Studying US financial companies, Sun and Liu (2014) find that increased levels of external director tenures weaken their abilities to monitor, and increase levels of risk-taking at companies. As a result, some policy makers suggest putting a cap on external director tenures to ensure effective monitoring mechanisms on boards (Walker, 2009). In summary, these studies imply a convex relationship between the strength of board monitoring and external director tenures.

4.3.3 Internal and External Director Share Ownerships

Scholars argue that managerial ownerships can be used as a bonding mechanism to align the interests of shareholders and managers (Jensen and Meckling, 1976), and as a risk-sharing mechanism for shareholders and managers (Fama and Jensen, 1983b). The objective of the bonding mechanism is to maximise shareholder wealth, while the objective of the risk-sharing mechanism is to prevent managers from taking excessive risks. However, these two mechanisms may be offsetting the effects of each other, because bank managers are required to consider taking optimal levels of risks to maximise expected returns (Kahane, 1977), and to maintain the profitability of their banks. Consistent with the bonding mechanism hypothesis, managerial ownerships are positively associated with company performances, but this may be achieved by taking greater levels of risks (Grove et al., 2011), which may be excessive. Scholars argue that director share ownership is directly associated with company financial performance, and this increased financial performance is often at the expense of stakeholders (McGuire et al., 2003).

In order to assess the effectiveness of the bonding and the risk-sharing mechanisms, empirical studies examine the effects on company performances/levels of risk-taking. However, results are mixed. Studying financial companies, Fahlenbrach and Stulz (2011) find no relationships between company performances and amounts of internal director share ownerships. Grove et

al. (2011) find that the relationships are positive which is consistent with the bonding mechanism hypothesis.

On the contrary, Mudambi and Nicosia (1998) find that these relationships are negative. Their results indicate that highly concentrated internal director share ownerships dampen company performances, because managers may expropriate company resources from other (minority) investors. Under this circumstance, the bonding and risk-sharing mechanisms fail, because highly concentrated internal director share ownerships prevent managers from being removed by their boards, and managers can resist their companies from being taken over and continue to expropriate company resources (Jensen and Meckling, 1976).

However, internal director share ownerships may incentivise their managements to pursue risky projects with higher possible returns, and the risk-taking behaviour may be further induced by government subsidies or weak regulatory environments. Bank managers may be motivated to take greater risks because their banks are protected by government subsidies, such as deposit protection insurance schemes (Demsetz et al., 1997), or could benefit from a weak regulatory environment, such as having low capital reserve requirements (Anderson and Fraser, 2000).

Therefore, once internal director share ownerships fail to incentivise managers to maximise shareholder wealth, companies may introduce external directors as substitutes to monitor their boards. For example, companies are likely to increase their numbers of external directors following poor performances (Hermalin and Weisbach, 1988).

In some cases, these external directors are rewarded with company shares. Studying US companies, Johnson et al. (1993) suggest that increased external director share ownerships are positively associated with the involvement of their boards in restructuring decisions and other major strategic initiatives. The authors argue that external directors, with equity ownerships, are incentivised to monitor and to take charge of restructuring actions.

Following the above arguments, internal director share ownerships fail to align the interests of managers and their shareholders, and internal and external directors are likely to encourage their companies to take greater risks for their own benefits (Low, 2009). They may also be under the influences of their shareholders who are seeking higher returns (Saunders et al., 1990), or exploit weak regulatory environments (Anderson and Fraser, 2000).

4.3.4 Board Expertise

In order to increase their competitiveness, companies can hire experts to help them spot possible opportunities, or technologies and deal with industry-specific regulations (Kor and

Sundaramurthy, 2008). The levels and types of expertise on boards may affect the risk preferences of boards, in which individuals' understandings of their businesses and their decision-making processes are likely to be affected by their backgrounds and previous experiences (Kesner, 1988). Boards are usually composed of experts who are familiar with their businesses and they may hire financial and legal experts to gain tactical advantages when dealing with complex financial and compliance matters.

Studies of US companies which hire financial experts for their boards find that there are positive relationships between ratios of financial experts and risk-taking in both non-financial companies (Booth and Deli, 1999; Van Ness et al., 2010) and financial companies (Minton et al., 2010). These scholars argue that financial experts are more inclined to take greater risks as a result of their perceived abilities to use their market understandings to influence the financial policies of their companies (Booth and Deli, 1999). They may also encourage their companies to engage in riskier projects/investments (Guerrera and Larsen, 2008).

However, these findings are inconsistent with the views that financial experts enhance risk monitoring on boards, when the objective of hiring financial experts is to provide adequate levels of risk controls and higher levels of financial reporting standards (Berger et al., 2014). Minton et al. (2010) suggest that increased risk levels are the results of the experts' understandings of the residual natures of equity claims and their attempts to improve company performances, despite the fact that these experts are hired as external (independent) directors to perform monitoring functions.

Legal experts may also be hired as external directors to advise on appropriate regulatory and compliance policies (Linck et al., 2009), and serve as monitors (Krishnan et al., 2011). Studying US Russell 1000 companies between 2003 and 2005, Krishnan et al. (2011) find that appointments of legal experts as directors lead to improvements in company financial reporting standards, indicating that legal experts may be hired as monitors to ensure their companies comply of financial reporting regulations, and help to minimise legal liability risks.

Additionally, legal and compliance matters are often dealt with by the attorney generals (AGs) and/or the chief compliance officers (CCOs) who are rarely appointed to bank boards. These AGs and CCOs are, arguably, able to provide comprehensive legal risk analyses, but they may not understand the complexity of the financial risks on bank balance sheets. By studying the behaviours of the in-house lawyers of financial companies, Langevoort (2012) argues that legal professionals are more inclined to be in harmony with their co-workers and conform with the corporate missions, and rarely oppose the ideas of the majority of their co-workers. These legal professionals believe that being in harmony with their co-workers helps them to maintain

their roles and to enhance their promotion opportunities. These findings lead to questions of whether legal experts should promote or restrain risk-taking at banks. For example, if the objectives of banks are to increase their profits by taking greater risks, this leads to questions of whether legal experts are employed to promote risky projects for greater returns, which are in line with their corporate missions, or to restrain their banks from taking greater risks by advising them on appropriate regulatory and compliance policies.

It is debatable whether financial and legal experts should be on the boards of banks. In the review of corporate governance at UK banks, Walker (2009) recommends that financial institutions should hire independent directors with relevant experiences and skills who may not be required to have previously worked in the financial services industry, which suggests that a board with a broader knowledge base is likely to provide competitive advantages to a company/bank (Mahadeo et al., 2012). It is a question of whether hiring non-bankers to boards may decrease board homogeneity. The effects of board homogeneity/diversity are examined in the following section.

4.3.5 Board Homogeneity

Psychologists and management scholars propose that levels of diversity alter social pressures within groups and their subgroups, which subsequently affect group cohesiveness and transform the dynamics of decision-making processes within groups (Lau and Murnighan, 1998; Zander, 1979).

Consistent with these arguments, finance scholar, Murray (1989), argues that senior management homogeneity allows managers to interact efficiently and is preferable in a competitive business environment, because greater levels of top management members with similar core function experiences are likely to increase cohesiveness in decision-making processes and increase levels of strategic controls (Michel and Hambrick, 1992). Therefore, board homogeneity increases board efficiency.

Studying the banking industry, scholars also find that board expertise homogeneity tends to be the case in banks which hire external (independent) directors with similar banking experience (Ferreira et al., 2010), because industry relevant directors can provide complementary industry insights, and foster a culture in their banks in order to increase market share and industry concentration (Dass et al., 2014). Furthermore, board homogeneity is also likely to improve board cohesiveness, as boards tend to encourage group think (Berger et al., 2014), and react better during crises (Hau and Thum, 2009).

Other reasons for having homogeneous boards are sizes of companies (Mahadeo et al., 2012) and the complexities of businesses. Ferreira et al. (2010) find that levels of board members with banking experiences are positively associated with bank asset sizes in a cross-country analysis between 2000 and 2008. The authors argue that larger banks tend to be more complex, and require board members to have a greater understanding of banking.

However, some scholars promote board diversity in contrast with board homogeneity. They argue that homogeneous boards are likely to affect the abilities of boards to adapt to rapidly changing business environments, to affect board dynamics and succession planning, and to encourage risk-taking (Berger et al., 2014; Core et al., 1999; Pfeffer and Salancik, 1978; Van Ness et al., 2010).

For example, scholars suggest that board diversity assists companies in developing new opportunities through their external connections to members who have dissimilar previous experiences, compared to other board members (Pfeffer and Salancik, 1978), and they are better at adapting to rapidly changing business environments (Murray, 1989).

Age diversity arguably also affects board dynamics and succession planning (Houle, 1990), because managers who are dissimilar in age may be better at risk monitoring, because they tend to differ in their risk preferences (Berger et al., 2014; Kesner, 1988; Van Ness et al., 2010) and are better at promoting board dynamics. Board age diversity also allows older and more experienced directors to advise and mentor younger directors who are energetically driven when dealing with day-to-day tasks (Houle, 1990).

Other than board dynamics, board homogeneity/diversity also affects board monitoring effectiveness. Studying German banks, Berger et al. (2014) find that banks with greater board homogeneity tend to have lower capital adequacy ratios and greater levels of off-balance sheet items to total assets. They argue that groupthink within the homogeneity group is likely to lower risk monitoring effectiveness. Similarly, tenure diversity is likely to increase risk aversion on boards (Van Ness et al., 2010), because board members with different tenures lead to greater arrays of ideas, thereby delaying action on certain capital projects. From these perspectives, if companies maximise their profits by taking greater risks, senior management homogeneity may weaken the risk monitoring mechanisms of their companies, because the nature of cohesiveness on boards, and among individual board members, means that individuals are less likely to oppose to the consensus of engaging in risky projects.

Based on the above arguments, board homogeneity should perhaps be considered when promoting internal directors or hiring external directors to monitor their boards, because

board homogeneity often affects the strategic policies and risk-taking levels at companies/banks.

4.3.6 Assets and Liabilities Management Committees (ALCOs)

Assets and liabilities management committees (ALCOs) are unique to banking and insurance businesses, and are a key governing body (BCBS, 2016a). The responsibilities of ALCOs include monitoring the levels of assets and liabilities on balance sheets, sharing information with chief financial officers, chief risk officers and the heads of individual business units (PricewaterhouseCoopers, 2009), and facilitating the management of balance sheets in volatile capital markets (Canada, Oct/Nov2004).

Effective assets and liabilities management (ALM) involves minimising maturities mismatches between assets and liabilities, optimising the surplus on bank balance sheets, and increasing the level of profitability (Shrestha, 2016), because ALM lowers income stream volatilities, improves liquidity, and provides risk management at banks (Memmel and Schertler, 2012).

Without maturities mismatches, banks would have higher asset-liability dependencies. In some cases, banks may engage in securitisation and use it as a risk management tool, such as to reduce cash flow mismatches between the maturities of their assets and liabilities on their balance sheets, and to remove credit risks from their balance sheets (Altunbas et al., 2009). The use of risk-transfer instruments – such as asset securitisation – enables banks to reduce their interest rates and credit exposures, and increase their liquidity, and could be used for regulatory capital arbitrage to allow them to lower their required capital reserves (Dionne and Harchaoui, 2008).

Although ALM and securitisation provide liquidity cushions for banks during changes in monetary policies or economic downturns (Altunbas et al., 2009; Novickytė and Petraitytė, 2014), they also arguably induce banks to take greater risks (Lui, 2011). Studying German banks between 1994 and 2007, Memmel and Schertler (2012) documented that banks decreased their asset-liability dependencies and increased in their use of derivatives at the same time, indicating an increased usage of risk-transfer instruments. If shareholders are risk averse, the use of securitisation in ALM may arguably worsen agency problems, because bank managers may pursue securitisation businesses by taking excessive levels of risk which could result in investment losses, thereby impacting shareholder wealth.

In summary, ALCOs may enhance the function of ALM by allowing banks to optimise their balance sheets and lower liquidity risks through the use of derivative contracts. As a result, ALCOs increase interest rates and credit exposures on balance sheets.

4.3.7 Banking Lending, Risk-taking and Securitisation

Lending and risk-taking are arguably the key functions of banks. As a result of lending, banks obtain rents from taking deposits, borrowing from the wholesale markets, and obtaining profits by charging their borrowers higher interest rates. In addition, banks are required to monitor their borrowers, and manage their interest rate and credit risk exposures. Policy considerations motivate researchers to focus on assessing the effects on lending. For example, scholars examine the effects on the relationships between lending and economic growth (Bernanke and Blinder, 1988; Romer et al., 1990), between lending and risk-taking at banks (Boyd and De Nicoló, 2005), between lending and monitoring/information asymmetry (Black, 1975; Fama, 1985), and between relationship and transactional lending (Dewenter and Hess, 2000). Yet, financial innovations have changed bank lending and risk-taking behaviours (Dynan et al., 2006; Santomero and Trester, 1998), which has drawn the attentions of scholars to assess the relationships between bank lending, risk-taking and securitisation (Altunbas et al., 2009; Loutskina, 2011).

Views on the relationships between bank lending, risk-taking and securitisation have led to two schools of thought. In the first, scholars have praised the benefits of securitisation, such as the increased supply of credit (Altunbas et al., 2009), and the lowering of the amounts of required regulatory capital (Greenbaum and Thakor, 1987). In the second school, scholars argue that securitisation may increase levels of risk-taking at banks. As a result, securitisation increases the levels of off-balance sheet items and leverage of banks, and inappropriately lowers the required capital reserves and lending standards (Maddaloni and Peydró, 2011; Shin, 2009). The majority of former scholarships were published prior to the 2008 financial crisis, and those of the latter scholarships were published after the crisis.

There are benefits and costs to securitisation, and banks, scholars and policy makers should consider both prior to the securitisation of their assets. The majority of studies suggest that the costs of securitisation outweigh the benefits. Studying US banks between 2001 and 2007, Wang and Xia (2014) find securitisation lowers monitoring incentives for banks. Banks loosen their lending requirements (i.e. loan covenants), and securitisation allows them to increase their book leverage. These findings may suggest that banks use securitisation to grow their balance sheets (Adrian and Shin, 2009). Other findings also suggest that securitisation is used as regulatory capital arbitrage, which lowers their effective risk-based capital requirements (Ambrose et al., 2005; Jones, 2000).

Contrary to these views, securitisation can be used as a risk management tool to lower credit exposures on the balance sheets. Studying US banks between 2001 and 2007, Casu et al.

(2011) find that securitisation effectively lowers the credit exposures on the balance sheets of banks, but those banks typically have greater proportions of non-performing loans and charge-off rates. Nevertheless, the costs of non-performing loans are likely to lower the benefits of the fees obtained from loan sales and other activities related to securitisation.

In summary, banks are likely to engage in securitisation because it allows them to enhance their credit risk management (Casu et al., 2011), lower capital reserves (Jones, 2000), and obtain additional liquidity to grow their balance sheets (Estrella, 2002). However, banks should be cautious when taking excessive risks through securitisation.

4.3.8 (Internal) Corporate Governance of Japanese Companies and Banks

In Japanese internal corporate governance literature, the majority of studies focus on three elements: (i) insider-dominated boards, (ii) the lifetime employment system, and (iii) the adoption of internal corporate governance mechanisms similar to those in Anglo-American countries, which is also known as corporate governance reform. The former two elements are arguably inter-connected with each other, because the lifetime employment system has led to insider-dominated boards, which often means that board members are likely to be internally promoted. The latter element is a result of foreign investor influence, which promotes shareholder supremacy, i.e. maximising shareholder wealth. The literature on these three elements is reviewed in the following sections.

4.3.8.1 Insider-Dominated Boards and the Lifetime Employment System

Contrary to the traditional corporate governance view on hiring external directors to monitor boards and increase board efficiency (Jensen and Meckling, 1976), Japanese corporate governance is heavily reliant on internal controls rather than external controls. Managers are promoted internally and their abilities are monitored by their peers and their company stakeholders (Dore, 2000). The boards of most Japanese companies are insider-dominated as a result of the lack of distinction between the roles of monitors and operating executives. Scholars argue that insider-dominated boards lead to board inefficiencies, and insulate board managements from disciplinary pressures (John and Senbet, 1998; Whittaker and Deakin, 2009). Therefore, insider-dominated boards increase agency costs.

Comparing the insider-dominated and outsider-dominated boards of Japanese and German non-financial companies between 1979 and 1983, John and Senbet (1998) find no relationship between executive turnover and poor performance in companies with insider-dominated boards, while their results show a positive relationship between executive turnover and poor performance in companies with outsider-dominated boards. The empirical findings show that insider-dominated boards weaken disciplinary pressures. Contrary to this finding, scholars find

that executive turnover is positively associated with company performance, in which the sample companies have close ties with their main banks or large shareholders (Kang and Shivdasani, 1995; Kaplan, 1994), indicating that main banks or large shareholders act as monitors when internal governance is weak (i.e. insider-dominated boards). The results are not surprising, because main banks and large shareholders are often the main creditors of the companies and have business affiliations with the companies.

In addition to disciplinary pressures, executive turnover may also increase board independence by replacing internal directors with external directors. However, scholars also find that external directors may not be independent in Japan, because they are often appointed by their cross-shareholders or stakeholders (Ahmadjian, 2000), have worked in companies belonging to the same *keiretsu* group (Lincoln et al., 1996), have retired from senior roles in the same company, or are retired government officials who were formerly bank monitors[13] (Horiuchi and Shimizu, 2001; Konishi and Yasuda, 2004).

This may be because the labour market for external directors is weak in Japan, and as a result it is easier to recruit candidates who have ties with companies (Knyazeva et al., 2013). Dore (2008) suggests that the talent pool of external directors may be extremely small as a result of the lifetime employment system, because potential candidates for external director roles tend to be employed by the same companies until they retire. This has caused difficulties when hiring qualified and experienced external directors. As a result of the small talent pool, and free from regulatory restrictions, external directors tend to serve longer on Japanese company boards, compared to those in Anglo-American countries. Scholars suggest that the problems of a small talent pool may be resolved with technological advancements (Knyazeva et al., 2013).

Knyazeva et al. (2013) examine the effects between the external director labour market and company sizes among US non-financial companies between 1996 and 2006, and find that the size of the local talent pool is only relevant to small companies. Large companies are less constrained by the local talent pool, because they can hire external directors from abroad, and benefit from their communications technologies that allow their external directors to attend board meetings via video conferencing. Although technological advancements enlarge talent

[13] Horiuchi and Shimizu (2001) find that external directors, who were former monitors (*amakudari*), are likely to have lower monitoring standards compared to the financial authorities, which leads to greater risk-taking at banks. This is because *amakudari* are likely to loosen their monitoring criteria as a result of being offered a job after their retirement. The authors argue that *amakudari* lower board independence, and often create moral hazards. Contrary to these arguments, Miwa and Ramseyer (2005) suggest that *amakudari*, who are appointed as external directors, enhance the monitoring efficiency of their financial authorities, because *amakudari* can identify the appropriate level of information which is required by the financial authorities.

pool of directors, hiring non-Japanese directors may be inapplicable in Japanese companies, because the unique business culture in Japan.

As a result of the insider-dominated boards and the lifetime employment system, the expertise of Japanese boards tend to be homogenous, and employees tend to be trained as generalists to acquire company-specific information. The lack of board diversity often results in decisions taking a single direction. Studying Japanese non-financial companies between 2003 and 2007, Nakano and Nguyen (2012) find no relationship between board size and risk-taking (ROA volatility and stock), indicating that homogenous boards negate board size effects. Greater board sizes should increase the number of layers in the evaluation process as a result of the reduction in risk-taking.

In summary, studies that show insider-dominated boards, cross-shareholding and the illiquid labour market hinder Japanese companies from adopting the Anglo-American corporate governance model. Moreover, it is questionable whether Japan could achieve the same corporate governance standards as its Anglo-American counterparts. The following section discusses the progress and the effects of corporate governance reform in Japan.

4.3.8.2 Corporate Governance Reforms in Japan

As a result of reduced cross-shareholding and increased levels of foreign ownerships in the late 1990s, Japanese companies have been under pressure to reform their corporate governance practices which emphasise maximising shareholder wealth (Ahmadjian, 2008).

In response to capital market pressures, the Japanese government and the Japanese investment communities and companies introduced various reforms. In 2003, the Japanese Commercial Code was revised and the board committee-based system was introduced, which put an emphasis on board independence. In 2004, the Japan Pension Fund Association published guidelines on shareholder rights and fiduciary duties, and recommended that their members exercise their voting rights. Japanese companies subsequently adapted their corporate governance practices such as the introduction of performance-based incentives, and increased board independence and disclosures.

In the light of these changes, scholars shifted their focus from cross-shareholding (*keiretsu* groups) and main bank monitoring to foreign investors. Scholars argue that these foreign investors are gradually taking the role of monitoring which is being performed by the main bank and large domestic shareholders (Ahmadjian, 2008; Ahmadjian and Robbins, 2005). As a result, these foreign investors are beginning to influence the internal governance of their investee companies, and a hybrid Japanese corporate governance practice has developed.

Jackson and Moerke (2005) argue that the hybrid Japanese corporate governance practice has embedded some of the features of the Anglo-American corporate governance models (such as the adoption of the board committee-based system, the introduction of performance-based incentives, and the promotion of greater transparency and disclosure), while the practices of insider-dominated boards and employee-oriented corporate governance continue.

In a qualitative study of Japan-listed companies, Yoshikawa et al. (2007) find that Japan-listed companies (such as Sony and Toshiba) have increased their board independence and established nomination and compensation committees, but that their external directors act as advisors rather than monitors. In their survey study, company managers explained that the objective of introducing external directors is to increase their competitiveness overseas, instead of enhancing their corporate governance practices at home.

Although the Commercial Code reinforces board independence and puts an emphasis on the separated roles between supervision and monitoring, it is questionable whether external directors can efficiently monitor management at Japanese companies, because of resistance to change from within the business community and from the organisational culture of Japanese companies (Yoshikawa et al., 2007).

4.3.8.3 Governance and Risk Management (Applicable to Japanese Banks)

Contrary to transactional banking, Japanese banks provide relationship banking and lending by providing banking services, and debt and equity financing to their clients, and are able to reduce the levels of information asymmetry through three stages of monitoring: ex ante, interim, and ex post monitoring (Dewenter and Hess, 2000). As a result of relationship banking, banks normally provide long-term loans to their clients, and may continue to provide financing to companies in financial distress arising from short-term liquidity problems or bad investments. Therefore, relationship banking is likely to increase levels of risky loans or non-performing loans on bank balance sheets.

Consequently, the balance sheets of banks consist of large maturities mismatches between short-term funds and long-term loans. As a result, Japanese banks are heavily exposed to interest rate risks and credit risks. However, there is little evidence to show the extensive use of derivatives contracts to manage risks by Japanese banks, although the majority of Japanese banks have implemented Value at Risk (VaR) in their risk management frameworks (Nishiguchi, 2011).

In terms of risk management, the banks of Anglo-American countries may choose to hedge their interest rate and credit exposures by using derivatives contracts or off-balance sheet

hedging instruments. Studying US commercial banks, Angbazo (1997) finds that banks affected by default risks have high concentrations of short-term assets and off-balance sheet hedging instruments, while other banks are sensitive to interest rate risks as a result of unhedged maturities mismatches between assets and liabilities on their balance sheets. The study highlights that the risk sensitivities of banks are due to unhedged exposures.

Cebenoyan and Strahan (2004) find similar results when studying US commercial banks between 1988 and 1993. The authors find a positive relationship between loan sales and risk-taking (greater proportion of risky loans) at banks, although loan sales are used to manage credit risks. The authors argue that banks engaging in loan sales activities tend to manage their interest risks using derivatives contracts, to have lower capital buffers, and to have lower on-balance-sheet risks. Although risk management can reduce risk sensitivities, it may also create moral hazards, because the use of derivatives contracts enables banks to lend more (Cebenoyan and Strahan, 2004), and loan sales are likely to lower incentives for banks to monitor their borrowers.

In summary, these studies highlight the importance of risk management in bank governance. Moreover, boards should ensure that their companies/banks acquire sound risk management and internal controls to safeguard shareholder interests (Van der Elst, 2011).

4.4 Conceptual Framework and Hypotheses Development

This section develops the conceptual framework that examines the effects of internal governance characteristics on bank lending ratios, risk-taking, and the decisions to participate in securitisation businesses. The internal governance characteristics include board monitoring and bonding mechanisms, and board risk preferences, as illustrated in Figure 4.1.

Figure 4.1. Conceptual Framework – Internal Governance (IG) Mechanisms

The effectiveness of internal governance mechanisms have been questioned by scholars, regulators and policy makers, and have often yielded inconclusive results on whether these mechanisms have improved bank performances and their levels of risk-taking. A conceptual framework is designed to address questions that focus on the internal governance mechanisms of banks, and their relationships with bank lending ratios, risk-taking and debt management strategies, such as participating in securitisation.

The conceptual framework argues that bank lending and risk management are the core functions of banks, in which the lending and risk-taking levels are determined by the strategic policy and decision-making processes of bank boards. The issues relating to lending and risk-taking are constantly being debated by scholars and policy makers, who encourage banks to lend more and to reduce their risk-taking levels. Based on this framework, 11 hypotheses are developed and attempt to connect the internal governance of banks with their lending, risk-taking levels and risk management strategies. They examine whether the internal governance mechanisms of banks relate to their bank lending ratios, risk-taking levels and the probabilities of them participating in securitisation.

4.4.1 The Board Monitoring Mechanism

This section aims to develop the effects of the board monitoring mechanism (including the ratios of external directors at boards and the average tenures of external directors) on lending and risk-taking at banks.

Risks occur through bank lending, and banks are required to closely monitor their borrowers in order to detect any potential losses, such as defaults (Nakamura, 1991). Through relationship banking and lending, bank managers collect information on their borrowers through their daily transactions, and by monitoring their borrowers' financial conditions while gathering soft information on them. In order to evaluate their borrowers' abilities to repay their loans, bank managers perform ex ante monitoring, interim monitoring, and ex post monitoring. In addition, banks are likely to consider lending to risky industries in order to increase revenues and market share in low interest rate environments (Nikkei Asian Review, 2017).

Boards of directors are arguably responsible for deciding policies for lending strategies and (credit) risk management, including "identifying, measuring, monitoring and controlling credit risks" (BCBS, 2000, p. 4). However, lending strategies/risk preferences are likely to differ between internal and external directors.

Theoretically, external directors may be hired for the purposes of (i) monitoring to minimise principal-agent conflicts (Fama and Jensen, 1983a; Jensen and Meckling, 1976), (ii) obtaining external resources to benefit the development of their companies (Muth and Donaldson, 1998; Pfeffer and Salancik, 1978), and (iii) safeguarding the interests of stakeholders (Donaldson and Preston, 1995).

However, with regard to Japan, external directors may be less effective at monitoring their company managements, because (i) most Japanese bank/company boards are insider-dominated (Dore, 2000), and (ii) external directors, who may be affiliated with other stakeholders, are able to provide external resources and safeguard the interests of their stakeholders (Bonn et al., 2004).

This section argues that external directors on boards do not sufficiently improve monitoring at banks. As a result, levels of lending and risk-taking at banks increase. This hypothesis argues that these external directors are likely to be affiliated with stakeholders (who are also borrowers), and the lack of independence of external directors of Japan-listed banks weakens the effects of monitoring. In some cases, these external directors are likely to advise banks to continuously provide relationship loans to their stakeholders, despite economic downturns. Moreover, external directors may be hired to advise on the non-core businesses of their banks,

which the banks do not have sufficient resources or expertise with which to develop these businesses. As a result, increased numbers of external directors lead to increased risk-taking at banks.

Hypothesis 4.1 suggests that (i) a positive relationship exists between external directors at boards (*ExDir*) and bank lending ratios (*LoanDeps*), and (ii) a negative relationship exists between *ExDir* and the *z-score*. The *z-score* is a measure of a bank being insolvent, in which the lower value of the *z-score* indicates a higher probability of insolvency risks at a bank.

In the context of monitoring abilities, scholars suggest that external directors may require a minimum amount of time to gain sufficient knowledge of their companies to be able to effectively monitor their banks (Van Ness et al., 2010). As their tenures lengthen, the monitoring mechanism is likely to strengthen.

The following hypothesis argues that (i) external directors overcome the difficulties of insider-dominated boards as their tenures lengthen by becoming more persuasive, and (ii) external directors are more interested in demonstrating their monitoring abilities as their tenures lengthen.

Hypothesis 4.2 argues that lending ratios and risk-taking decrease as average external director tenures lengthen, i.e. (i) a negative relationship exists between *ExDir_T* and *LoanDeps*, and (ii) a positive relationship exists between *ExDir_T* and the *z-score*.

Hypothesis 4.1 and Hypothesis 4.2 are examined using the following models.

Model 4.1:

$$Y_{1i,t} = \alpha_{i,t} + \beta_1 ExDir_{i,t-1} + \beta_2 ExDir\_T_{i,t-1} + \beta_3 Disc_{i,t-1} + \beta_4 Post2008_{i,t-1} + \beta_5 TobinQ_{i,t-1} + \varepsilon_{i,t}$$

Model 4.2:

$$Y_{2i,t} = \alpha_{i,t} + \beta_1 ExDir_{i,t-1} + \beta_2 ExDir\_T_{i,t-1} + \beta_3 Size_{i,t-1} + \beta_4 Post2008_{i,t-1} + \beta_5 IntInc_{i,t-1} + \beta_6 TCapR_{i,t-1} + \varepsilon_{i,t}$$

where $Y_{1i,t}$ is the lending ratio (*LoanDeps*) of bank *i* in time *t*, and the level of interest income (*IntInc*) of bank *i* in time *t*. $Y_{2i,t}$ is the insolvency risk level (*z-score*) of bank *i* in time *t*, and the level of impaired loans (*ImpLoanR*) of bank *i* in time *t*. The monitoring mechanism is composed of the ratios of external directors (*ExDir*) and the average of external director tenures (*ExDir_T*).

The levels of financial disclosure (*Disc*), market-based performance (*TobinQ*), bank board size (*Size*), interest income (*IntInc*), and total capital regulatory ratio (*TCapR*) control for bank-specific effects. *Post2008* controls for year-specific effects. *Post2008* is a categorical variable in which 1 equals the years 2008-2013, and 0 equals 2005-2007. The fixed-effects (FE) estimations are used to examine Model 4.1 and Model 4.2.

4.4.2 The Board Bonding Mechanism

Board bonding mechanisms are described as incentive contracts (internal and external director share ownerships), which are meant to align the interests of shareholders and managers, and prevent managers from exploiting company resources (Jensen and Meckling, 1976).

In the context of stakeholder theory, director ownerships with long-term vesting periods may be used to align the interests of managers with the long-term interests of their companies and stakeholders (Falck and Heblich, 2007).In the case of banks, managers may choose to lend to support domestic businesses (Cecchetti and Kharroubi, 2015), and provide additional assistance to financially distressed companies during economic downturns (Nishiguchi, 2011).

In the case of Japan, the following argues that Japan-listed banks may try to maximise their profits by adapting their business models to make them suit the Japanese corporate governance frameworks, whereby banks increase customer engagements, and continue to nurture their long-term commitments with their customers; because their proximities to their customers are likely to affect their profitability (Wan et al., 2008). Japan-listed banks may try to maximise their profits by lending, which can also balance the interests of shareholders and other stakeholders such as customers and regulators. For example, banks provide funds to customers to invest in long-term projects or to resolve short-term liquidity problems, and regulators can closely monitor the lending profiles of their banks.

Under these assumptions, Japan-listed banks may be encouraged to lend more as a result of maintaining relationships with their customers. Internal and external directors may be incentivised (by rewarding ownerships) to promote relationships between their banks and their customers to maximise the long-term interests of their banks.

Hypothesis 4.3 suggests that positive relationships exist between the amounts of internal director ownerships (*InDir_O*) and bank lending ratios (*LoanDeps*), and between external director ownerships (*ExDir_O*) and bank lending ratios (*LoanDeps*).

However, continued lending may harm shareholder wealth, because the risk-taking levels of banks increase as a result of their fragile credit-granting structures (Nishiguchi, 2011). Therefore, Japan-listed banks may try to reduce their credit risk levels, and managers may be incentivised to diversify their businesses. As a result of increasing the levels of non-lending businesses, the insolvency risk levels of banks also increase.

Hypothesis 4.4 suggests that negative relationships exist between the amounts of internal director ownerships (*InDir_O*) and the *z-score*, and between external director ownerships (*ExDir_O*) and the *z-score*.

Hypothesis 4.3 and Hypothesis 4.4 are analysed in the following models.

Model 4.3:

$$Y_{1i,t} = \alpha_{i,t} + \beta_1 ExDir\_O_{i,t-1} + \beta_2 InDir\_O_{i,t-1} + \beta_3 Disc_{i,t-1} + \beta_4 Post2008_{i,t-1} + \beta_5 TobinQ_{i,t-1} + \varepsilon_{i,t}$$

Model 4.4:

$$Y_{2i,t} = \alpha_{i,t} + \beta_1 ExDir\_O_{i,t-1} + \beta_2 InDir\_O_{i,t-1} + \beta_3 Size_{i,t-1} + \beta_4 Post2008_{i,t-1} + \beta_5 IntInc_{i,t-1} + \beta_6 TCapR_{i,t-1} + \varepsilon_{i,t}$$

where $Y_{1i,t}$ is the lending ratio (*LoanDeps*) of bank *i* in time *t*, and the level of interest income (*IntInc*) of bank *i* in time *t*. $Y_{2i,t}$ is the insolvency risk level (*z-score*) of bank *i* in time *t*, and the level of impaired loans (*ImpLoanR*) of bank *i* in time *t*. The bonding mechanism is composed of external director share ownerships (*ExDir_O*) and internal director share ownerships (*InDir_O*).

Disc, *TobinQ*, *Size*, *IntInc*, and *TCapR* control for bank-specific effects. *Post2008* controls for year-specific effects. *Post2008* is a categorical variable in which 1 equals the years 2008-2013, and 0 equals 2005-2007. The fixed-effects (FE) estimations are used to examine Model 4.3 and Model 4.4.

4.4.3 The Board Risk Preference: Board Expertise

The risk preferences of individual board members may be affected by their experiences and gained expertise from previous employments. This section focuses on the ratios of financial and legal experts at boards.

This section argues that Japan-listed banks may be more risk averse, and hire financial and legal experts to improve risk management. These experts are likely to encourage their banks to diversify their businesses, and to recognise the need for greater regulatory compliance. Yet, Japan-listed banks may not be able to reduce their lending ratios, because of their obligations to their borrowers and to society (Wan et al., 2008). The core objective of Japan-listed banks is arguably to enhance social values such as providing jobs to local communities and by assisting their corporate borrowers during periods of financial distress.

In the context of hiring financial and legal experts, this section argues that they are able to provide professional financial and legal advice to their banks (Booth and Deli, 1999; Linck et al., 2009). These experts are committed to their corporate missions (Langevoort, 2012), whose aims are to generate returns for stakeholders and shareholders.

Additionally, these financial and legal experts are likely to have close ties with other stakeholders (Lincoln et al., 1996). Under these assumptions, financial and legal experts may encourage their banks to lend more in order to safeguard the interests of stakeholders. For example, these experts may previously have worked for companies within their keiretsu networks, which borrow from their banks. In this particular circumstance, these experts may be more inclined to lend to their previous employers.

Hypothesis 4.5 argues that positive relationships exist between the ratios of financial experts (*BF*) and the levels of bank lending ratios (*LoanDeps*), and between the ratios of legal experts (*BL*) and *LoanDeps*.

From a risk management perspective, financial and legal experts are able to use their market knowledge to influence the financial policies of their banks (Booth and Deli, 1999), improve monitoring (Linck et al., 2009), and are able to safeguard the interests of their stakeholders such as regulators and depositors.

Given the low interest rate environment and reduced demands for loans in Japan (Nishiguchi, 2011), financial and legal experts are likely to advise their banks to diversify their investments away from their lending businesses for risk reduction purposes. As a result, Hypothesis 4.6 argues that positive relationships exist between the ratios of financial experts (*BF*) and the *z-score*, and between legal experts (*BL*) and the *z-score.*

These hypotheses are examined using Model 4.5 and Model 4.6.

Model 4.5:

$$Y_{1i,t} = \alpha_{i,t} + \beta_1 BF_{i,t-1} + \beta_2 BL_{i,t-1} + \beta_3 Disc_{i,t-1} + \beta_4 Post2008_{i,t-1} + \beta_5 TobinQ_{i,t-1} + \varepsilon_{i,t}$$

Model 4.6:

$$Y_{2i,t} = \alpha_{i,t} + \beta_1 BF_{i,t-1} + \beta_2 BL_{i,t-1} + \beta_3 Size_{i,t-1} + \beta_4 Post2008_{i,t-1} + \beta_5 IntInc_{i,t-1} + \beta_6 TCapR_{i,t-1} + \varepsilon_{i,t}$$

where $Y_{1i,t}$ is the lending ratio (*LoanDeps*) of bank *i* in time *t*, and the level of interest income (*IntInc*) of bank *i* in time *t*. $Y_{2i,t}$ is the insolvency risk level (*z-score*) of bank *i* in time *t*, and the level of impaired loans (*ImpLoanR*) of bank *i* in time *t*. *BL* and *BF* represent the legal and financial experts, respectively.

Disc, *TobinQ*, *Size*, *IntInc*, and *TCapR* control for bank-specific effects. *Post2008* controls for year-specific effects. *Post2008* is a categorical variable in which 1 equals the years 2008-2013, and 0 equals 2005-2007. The fixed-effects (FE) estimations are used to examine Model 4.5 and Model 4.6.

4.4.4 Board Homogeneity

Diversification of board expertise may also affect bank lending ratios and risk-taking, because board risk preferences may be influenced by board homogeneity with regard to age and backgrounds. From a psychological perspective, members of a similar age and background are less likely to create task conflicts, because they are more likely to share similar ideas (Lau and Murnighan, 1998; Zander, 1979).

Although board homogeneity improves the cohesiveness of boards, it is also likely to decrease board monitoring effectiveness, because directors are inclined to follow the consensus and are less likely to object to group decisions. This results in weak internal governance.

To improve internal governance/risk monitoring, banks may decrease their board homogeneity. For example, companies may consider increasing their board sizes or ratios of external (independent) directors (Smith et al., 1994), although decreased board homogeneity may not be effective if boards do not have adequate levels of banking expertise to understand the complexities of their businesses (Berger et al., 2014). Board homogeneity is theoretically suitable for less complex businesses.

In the context of Japan, this section argues that increased board expertise homogeneity (i.e. high levels of lifetime bankers) promotes lending, because internally promoted directors are likely to encourage their banks to maintain their lending practices. Moreover, these lifetime bankers may be concerned with the domestic low interest rate environment and reduced levels of profits. As a result, they may encourage their banks to seek alternative investments, such as by investing in non-lending businesses.

Hypothesis 4.7 suggests that positive relationships exist (i) between the ratios of lifetime bankers (*BB*) and lending ratios (*LoanDeps*), and (ii) between *BB* and insolvency risk levels (i.e. *BB* is negatively associated with the *z-score*).

Board age diversity results in board directors having similar levels of experience and risk preferences. But board age diversity increases when older (or younger) board members join boards, and have acquired greater (or lesser) levels of experience compared to the existing board members. These recently-joined board members are likely to upset the social integration and may increase communication difficulties among team members (Smith et al., 1994). Therefore, they may weaken board dynamics (Lau and Murnighan, 1998; Zander, 1979). This may be because recently-joined board members may be at a different stage of their training and may not have similar experiences compared to the existing board members. Additionally, recently-joined board members may be eager to demonstrate their abilities to

encourage their banks to increase their risk-taking for greater returns (Fama and Jensen, 1983b).

Hypothesis 4.8 suggests that (i) a positive relationship exists between the levels board age diversity (*AgeRange*) and lending ratios (*LoanDeps*), and (ii) a negative relationship exists between the levels of board age diversity (*AgeRange*) and the *z-score*.

These hypotheses are examined using Model 4.7 and Model 4.8.

Model 4.7:

$$Y_{1i,t} = \alpha_{i,t} + \beta_1 BB + \beta_2 AgeRange_{i,t-1} + \beta_3 Disc_{i,t-1} + \beta_4 Post2008_{i,t-1} + \beta_5 TobinQ_{i,t-1} + \varepsilon_{i,t}$$

Model 4.8:

$$Y_{2i,t} = \alpha_{i,t} + \beta_1 BB_{i,t-1} + \beta_2 AgeRange_{i,t-1} + \beta_3 Size_{i,t-1} + \beta_4 Post2008_{i,t-1} + \beta_5 IntInc_{i,t-1} + \beta_6 TCapR_{i,t-1} + \varepsilon_{i,t}$$

where $Y_{1i,t}$ is the lending ratio (*LoanDeps*) of bank *i* in time *t*, and the level of interest income (*IntInc*) of bank *i* in time *t*. $Y_{2i,t}$ is the insolvency risk level (*z-score*) of bank *i* in time *t*, and the level of impaired loans (*ImpLoanR*) of bank *i* in time *t*. *BB* is the level of lifetime bankers on boards, which measures the level of board expertise homogeneity. *AgeRange* is calculated by subtracting the age of the oldest directors from the youngest directors on the boards, which measures board age diversity.

Disc, *TobinQ*, *Size*, *IntInc*, and *TCapR* control for bank-specific effects. *Post2008* controls for year-specific effects. *Post2008* is a categorical variable in which 1 equals the years 2008-2013, and 0 equals 2005-2007. The fixed-effects (FE) estimations are used to examine Model 4.7 and Model 4.8.

4.4.5 The Probability of Banks Participating in Securitisation

This section argues that banks use securitisation as part of their risk management, and assets and liabilities management (ALM).

A bank's assets typically consist of (i) cash, (ii) government issued fixed-interest loan securities, and (iii) secured and unsecured loans. Its liabilities contain customer deposits and funds borrowed from the wholesale markets. Maturities mismatches between assets and liabilities occur when loan durations differ from the durations of customer deposits and wholesale market funds. For example, a bank issues long-term mortgage loans, while deposits are typically short-term (i.e. customers can withdraw their deposits at any time). As a result, interest rate risks arise due to maturities mismatches.

To resolve maturities mismatches, banks may sell their loans in a process known as securitisation. This section argues that banks are likely to establish a specialised function – such as an assets and liabilities committee (ALCO) – to set policies and monitor the assets and liabilities on their balance sheets, and to ensure that they have sufficient levels of liquidity to manage their daily operations as part their ALM. As a result, the presence of ALCOs may indicate a greater competency in risk monitoring. Contrary to the risk management view of ALM using securitisation, scholars argue that securitisation induces risk-taking at banks and partly caused the 2008 financial crisis (Adrian and Shin, 2009; Hellwig, 2009).

This section argues that the probability banks participating in securitisation businesses (henceforth the probability) is determined by board characteristics such as ratios of external directors (*ExDir*), lifetime bankers (*BB*), financial experts (*BF*), and legal experts (*BL*), insolvency risks (*z-score*), impaired loans (*ImpLoanR*), bank asset sizes (*logA*), the presence of ALCOs, and total capital reserve ratios (*TCapR*). The probability is assessed using the proportional hazard model between two groups: (i) banks with ALCOs (the treatment group), and (ii) banks without ALCOs (the control group), because banks signal that they have greater abilities to manage their assets and liabilities by establishing ALCOs.

Hypothesis 4.9 argues that banks with ALCOs are more likely to participate in securitisation businesses, because securitisation may also be used for risk management purposes.

Additionally, in the treatment group banks (banks with ALCOs), greater ratios of lifetime bankers (*BB*), and financial and legal experts (*BF*, *BL*) are likely to enable banks to benefit from participating in securitisation businesses as a result of lowering their asset-liability dependencies. This section argues that the experts working treatment group banks tend to have greater skills in risk management and ALM (Pfeffer and Salancik, 1978), compared to the

control group banks (banks without ALCOs). Although the majority of board members are lifetime bankers, financial and legal experts are able to provide specialised technical assistance to their banks.

Hypothesis 4.10 argues that treatment group banks with greater levels of lifetime bankers (*BB*), financial experts (*BF*), and legal experts (*BL*) increase the probabilities of their banks participating in securitisation businesses.

In addition, bank characteristics such as bank asset sizes, and regulatory capital ratios may also affect the business strategies of banks. Dionne and Harchaoui (2008) find that bigger banks may prefer to engage in securitisation businesses, which they use it as regulatory capital arbitrage to lower their required capital reserves. This is because, prior to the 2008 financial crisis, banks were able to remove their loans from their balance sheets, and as a result lesser regulatory capital reserves were required (Altunbas et al., 2009).

This hypothesis argues that banks that have lower required capital reserves (*TCapR*) or greater asset sizes (*logA*) are likely to enter into securitisation businesses, because bigger banks are expected to have the resources (i.e. expertise and technologies) to engage in securitisation. As a result of having securitised their debts, banks are able to operate with lower levels of capital reserves.

Hypothesis 4.11 suggests that bigger banks with ALCOs are likely to use securitisation to resolve their problems of having low levels of required capital reserves.

Hypothesis 4.9 - Hypothesis 4.11 are examined using the proportional hazard model $h_i(t)$ in Model 4.9, in which the proportional hazard model is not required to make any assumptions on the function form of the baseline hazard.

Model 4.9:

$$\lambda_i(t, x) = \lambda_0(t)e^{\beta' x_i}$$

where the function $\lambda_i(t)$ contains two elements: the baseline hazard ($\lambda_0(t)$), and the hazard ratio ($e^{\beta' x}$). $\lambda_i(t)$ is the hazard rate of banks with ALCO (treatment group banks: *ALCO* = 1), and $\lambda_0(t)$ is the baseline hazard, which represents the hazard rate of banks without ALCO (control group banks: *ALCO* = 0). The hazard rate is the probability of banks participating in securitisation businesses.

X_i is a vector of the ratios of external directors (*ExDir*), lifetime bankers (*BB*), legal experts (*BL*), financial experts (*BF*), the presence of ALCOs (*ALCO*), the total capital regulatory ratio (*TCapR*),

bank asset sizes (*logA*), the insolvency risk levels (*z-score*), the impaired loans ratios (*ImpLoanR*). β is a vector of the corresponding coefficient X_i. *logA* also controls for bank-specific effects. *Post2008* is a categorical variable in which 1 equals the years 2008-2013, and 0 equals 2005-2007.

4.5 Data and Variable Descriptions

4.5.1 Data Sample

The objective of this research is to examine the effects of various internal governance mechanisms on bank lending, risk-taking and the probability of banks participating in securitisation businesses using data from Japan-listed banks from 2005 to 2013.

The sample data consists of information relating to the balance sheets and corporate governance of each bank. The balance sheet information was extracted from the *Bankscope* database, from which consolidated data is used.

The corporate governance information on Japan-listed banks was extracted from the *Nikkei Needs* database and annual company reports. The annual reports were downloaded from the websites of each bank. However, some annual reports were not available from the websites of Japan-listed banks, and were instead downloaded from the websites of Kabupro[14] (株主プロ) and the Electronic Disclosure for Investors' NETwork[15].

The information relating to the backgrounds of individual Japanese bank board directors was extracted from the *Nikkei Telecom 21* database, and hand-collected from the individual annual reports. Levels of managerial ownership were extracted from the annual reports of banks, and then cross-checked with the data extracted from the *Bankscope* database and the *Nikkei Needs* database.

The sample banks are listed on their domestic stock exchanges, which fulfilled the listed bank requirements such as corporate governance requirements, disclosure requirements, etc. These listed-bank corporate governance requirements include the need to appoint outsiders to boards, to adopt specific board structures (such as a company with statutory auditors, a company with committee, company with audit and supervisory committee system), and the need to fulfil the regulatory capital and disclosure requirements.

In addition, the sample set is unbalanced.

[14] http://www.kabupro.jp/list/t0028.htm
[15] disclosure.edinet-fsa.go.jp

4.5.2 Variable Descriptions

This chapter attempts to examine (i) the effects of internal governance mechanisms (board characteristics and the levels of internal and external director ownerships) on lending and risk-taking at Japan-listed banks, and (ii) whether the probability of banks participating in securitisation is determined by board characteristics, the presence of assets and liabilities committees, levels of risks, bank asset sizes, and total capital reserve ratios.

Three dependent variables are used in this chapter: bank lending ratios (*LoanDeps*), insolvency risk levels (*z-score*), and the presence of securitisation businesses (*Sec*).

The first two variables are arguably interrelated, because the composition of bank assets can be divided into lending, and non-lending assets, i.e. banks may choose to lend to the real sector, or to invest their non-lending assets in risky assets and businesses.

The bank lending ratios arguably present elements of a stakeholder supremacy perspective. Scholars argue that bank lending ratios have welfare implications, indicating that bank lending supports domestic businesses (Cecchetti and Kharroubi, 2015).

The *z-score* is used to measure bank-specific insolvency risks including lending and non-lending risks.

The last dependent variable (*Sec*) is used to measure the presence of securitisation businesses. This chapter argues that for the purpose of assets and liabilities management, banks may choose to securitise their debts, or enter into other types of derivatives contracts to lower their risks and the liquidity exposures on their balance sheets.

The following sub-sections present the definitions of dependent, independent and control variables used in this chapter.

4.5.2.1 Dependent Variables

There are five dependent variables. Banking lending ratios (*LoanDeps*) and the *z-score* are used in Model 4.1 - Model 4.8, which assess the effects of various board characteristics.

The levels of interest incomes (*IntInc*) and impaired loans (*ImpLoanR*) are used as alternative measures of *LoanDeps* and the *z-score* in robustness tests.

The categorical variable, the presence of securitisation business (*Sec*), is used as a dependent variable in Model 4.9.

4.5.2.1.1 Bank Lending Ratios (*LoanDeps*)

Bank lending ratios are the ratios of loans to total deposits, money market and short-term funding (*LoanDeps*), which the data was extracted from using the *Bankscope* database. The ratios of loans to total assets also show the composition of the asset portfolios of banks (Novickytė and Petraitytė, 2014), which consist of loans and investment securities.

A similar term is used in the empirical study of Andres and Vallelado (2008), which is the ratios of loans to total assets[16]. Andres and Vallelado (2008) examine the effects of board characteristics on bank performances in six developed countries, in which *LoanDeps* is used to control for bank-specific effects.

4.5.2.1.2 Insolvency Risk Levels (*z-score*)

The level of bank risk-taking is a measure of a bank being insolvent (*z-score*), in which the lower value of the *z-score* indicates a higher probability of insolvency risks at a bank (Hannan and Hanweck, 1988; Roy, 1952).

It is often used in a number of empirical studies to examine the relationships between the financial stabilities of countries and their banking sectors (De Nicolo, 2000; Laeven and Levine, 2009; Yeyati and Micco, 2007). The *z-score* is defined as

$$z - score_{i,t} = \frac{car_{i,t} + \sum_{t=0}^{T} \mu_{i,t}}{\sum_{t=0}^{T} \sigma_{i,t}}$$

where the *car* is a ratio of a bank's total equity to its total assets, and $\mu_{i,t}$ and $\sigma_{i,t}$ are the mean and standard deviations of the return on assets (ROA) of bank *i* at time *t*, respectively. ROA is defined as the ratio of net income (or loss) to total assets. The *z-score* is a measure of the falling profits which offset equity, and the natural logarithm of the *z-score* is normally distributed.

Although the *z-score* does not provide the risk profiles of banks, it is able to simply represent the levels of insolvency risks at banks for comparative purposes. The *z-score* measures the progression to insolvency (Roy, 1952). Insolvency is defined as the losses ($\sum_{t=0}^{T} \mu_{i,t}$) exceeding equity ($car_{i,t}$). In other words, if the *z-score* is negative, the bank is insolvent.

[16] The ratio of loans to total assets is not used in this empirical study because the *Bankscope* database classifies total assets differently in Japan, compared to other countries. According to *Bankscope*, "The difference in total assets is due to the item "Customers' liabilities for acceptances and guarantees" that are deducted from total assets. This is the case for all the Japanese banks."

A high and positive *z-score* indicates that the bank is more stable, because the *z-score* is skewed (Laeven and Levine, 2009), and measures the variability of returns can be absorbed by capital without the bank being insolvent (Li et al., 2017).

In this thesis, the mean and the standard deviation of the ROA are calculated using the entire population of each bank between 2005 and 2013, which are used to minimise errors caused by using an unbalanced panel.

4.5.2.1.3 The presence of Securitisation Businesses (*Sec*)

Sec is a dummy variable in which 1 represents a bank participating in the securitisation business. Otherwise, *Sec* equals 0.

4.5.2.1.4 Other Dependent Variables: (i) levels of interest incomes (*IntInc*) and (ii) levels of impaired loans (*ImpLoanR*)

IntInc and *ImpLoanR* are used in the robustness tests. The reasons for using these alternative measures are that (i) interest incomes are one of the key bank incomes, which are generated from lending, and (ii) impaired loan ratios reflect the loan qualities and risk-taking behaviours/lending strategies of banks.

The levels of interest incomes (*IntInc*) are the percentages of interest incomes over gross loans. The gross loans include net loans minus the reserves for impaired loans/non-performing loans.

The levels of impaired loans (*ImpLoanR*) are the percentages of impaired loans over gross loans. The gross loans include net loans minus reserves for impaired loans/non-performing loans. *ImpLoanR* can be an indicator of bank risk, and is used as a proxy for measuring ex post credit risks (Deyoung and Nolle, 1996), or for measuring a bank's asset risks (Shehzad et al., 2010). Loan qualities or levels of impaired loans also reflect the abilities and efforts of bank managers to monitor their loans (Boyd et al., 1998).

4.5.2.2 Independent Variables

Nine independent variables are used in Model 4.1 - Model 4.9, which are used to assess the effects of internal corporate governance mechanisms on lending ratios (*LoanDeps*), insolvency risk levels (*z-score)*, and the probabilities of banks participating in securitisation businesses (*Sec*).

First, the presence of assets and liabilities management committees is a categorical variable, in which *ALCO* equals 1 indicating that a bank consists of an assets and liabilities management

committee; and 0 otherwise. *ALCO* measures the effectiveness of monitoring on the level of assets and liabilities on the balance sheet (BCBS, 2016a).

In addition, eight variables are used to examine the effects of internal governance controls (board characteristics and the amounts of director share ownerships): (i) the ratio of external directors to the total number of board members (*ExDir*), (ii) the average tenure of external directors on boards (*ExDir_T*), (iii) the amount of external director share ownerships (*ExDir_O*), (iv) the amount of internal director share ownerships (*InDir_O*), (v) the ratio of financial experts to the total number of board members (*BF*), (vi) the ratio of legal experts to the total number of board members (*BL*), (vii) the ratio of lifetime bankers to the total of number of board members (*BB*), and (viii) the level of age diversity (*AgeRange*), which is calculated by subtracting the age of the oldest directors from the youngest directors on the boards.

The ratio of external directors (*ExDir*) and the average tenure of external directors on boards (*ExDir_T*) are used to measure the effectiveness of board monitoring mechanisms by external directors. External directors include both non-executives and independent directors. Scholars suggest that potential conflicts between managers and shareholders over company performances/levels of risk-taking may be evaluated and monitored by external directors (Jensen and Meckling, 1976). In addition, external directors tend to acquire sufficient levels of company-specific information to enable them to efficiently monitor and advise their boards as their tenures lengthen (Van Ness et al., 2010).

The amounts of external and internal director share ownerships (*ExDir_O*, *InDir_O*) are used to measure the effectiveness of board bonding mechanisms, and scholars suggest that performance-based incentives can be used to motivate agents to maximise shareholder wealth (Jensen and Meckling, 1976).

Financial experts (*BF*) are those who have previously worked in the area of corporate finance, or as chartered accountants. Legal experts (*BL*) include lawyers and those who have previously held senior positions in financial regulatory authorities. The ratios of financial and legal experts to the total number of board members are used to measure the board risk preferences. Scholars argue that companies can hire experts to help them spot possible opportunities, and/or technologies and deal with industry-specific regulations (Kor and Sundaramurthy, 2008). In addition, their abilities and work experiences influence the financial policies of their companies (Booth and Deli, 1999) and may encourage their companies to engage in riskier investments (Guerrera and Larsen, 2008).

Lifetime bankers are those who have at least 20 years of work experience in the banking industry. The ratio of lifetime bankers to the total number of board members (*BB*) and age diversity (*AgeRange)* are used to measure board homogeneity and diversity, respectively. These two variables measure the effectiveness of strategic controls, because scholars suggest that greater levels of top management members with similar core function experiences are likely to increase cohesiveness in decision-making processes and increase levels of strategic controls (Michel and Hambrick, 1992).

4.5.2.3 Control Variables

Control variables are used to isolate any potential influences on the results. A set of control variables is used to control for bank-specific, and year-specific effects.

At the bank level, the levels of financial disclosure (*Disc*), market-based performance (*TobinQ*), board size (*Size*), interest income (*IntInc*), total regulatory capital ratio (*TCapR*), bank asset sizes (*logA*), insolvency risks (*z-score*), and impaired loans (*ImpLoanR*) control for bank-specific effects. *Post2008* controls for year-specific effects.

Five variables are used in Model 4.1 -Model 4.8 to control for bank-specific effects: *Disc*, *TobinQ*, *Size*, *IntInc*, and *TCapR*. *Post2008* controls for year-specific effects.

Four variables are used in Model 4.9 to control for bank-specific effects: *TCapR*, *logA*, *z-score*, and *ImpLoanR*. *Post2008* controls for year-specific effects.

Disc measures the level of bank financial disclosure which is constructed using 18 categories[17] of core disclosures that are published in the annual reports of the banks (Nier and Baumann, 2006). The level of accounting information is voluntarily disclosed according to director expertise and board characteristics (Karamanou and Vafeas, 2005), which improves board monitoring. Appendix B describes the method of the construction of the bank financial disclosure (*Disc*) index in detail.

TobinQ is a measure of market-based performance, and is a ratio of the total market value over the total asset value. The level of market-based performance is likely to affect lending and risk-taking strategies (Galloway et al., 1997; Konishi and Yasuda, 2004), because banks may

[17] *Disc* is constructed using 18 categories of information on bank balance sheets (Nier and Baumann, 2006), which includes (i) loans by maturity, (ii) loans by type, (iii) loans by counterparty, (iv) problem loans, (v) problem loans by type, (vi) securities by type (detailed breakdown), (vii) securities by type (coarse breakdown), (viii) securities by holding purpose, (ix) deposits by maturity, (x) deposits by type of customer, (xi) money market funding, (xii) long-term funding, (xiii) reserves, (xiv) capital, (xv) contingent liabilities, (xvi) off-balance sheet items, (xvii) non-interest incomes, and (xviii) loan loss provisions. The breakdowns of the 18 categories are listed in Appendix Table A.2.

change their asset allocations between lending and non-lending businesses to focus on long-term growth or short-term profits.

Size is the total number of board members, and scholars argue that larger boards are less likely to adopt extreme decisions (Nakano and Nguyen, 2012), because it is more difficult for them to persuade their peers to make unconventional decisions, i.e. investing in extremely risky projects.

IntInc is the level of interest income over gross loans, and controls for bank-specific effects. This is because interest income levels are likely to affect levels of risk-taking (*z-score*, *ImpLoanR*) at banks, i.e. banks are required to earn adequate returns from interest incomes in order to offset their monitoring costs. As a result, the levels of *IntInc* may affect bank corporate governance practices such as the effectiveness of ex ante monitoring, interim monitoring, and ex post monitoring. Therefore, *IntInc* should be controlled for when assessing risk-taking at banks.

TCapR is the total regulatory capital ratio. It is used to measure capital regulatory stringency in literature (Barth et al., 2004), because banks are required to hold a minimum level of capital against their asset risks, i.e. a bank is required to hold a greater level of capital to act as a buffer against a higher level of risk-taking. Therefore, *TCapR* controls for bank-specific effects.

logA is the natural logarithm of total bank assets, which measures bank asset sizes. *logA* controls for bank-specific effects, because large banks have greater abilities to diversify their risk portfolios (Saunders et al., 1990), or to engage in securitisation businesses (Cardone-Riportella et al., 2010).

The *z-score* measures insolvency risks, and the level of impaired loans (*ImpLoanR*) is used as a proxy for credit risks. Both variables control for bank-specific effects when assessing the probability of banks participating in securitisation businesses.

Post2008 is a categorical variable in which 1 equals the years 2008-2013, and 0 equals 2005-2007. *Post2008* is used as a year dummy to capture the influences of the 2008 financial crisis and control for year-specific effects. *Post2008* is used to control for the change of regulations prior to and in the aftermath of the 2008 financial crisis (Blundell-Wignall et al., 2008).

4.5.3 Summary Statistics

Table 4.2 provides a summary of the statistics for the variables used in the empirical analyses. The mean of lending ratios (*LoanDeps*) of Japan-listed banks is 0.71, while its minimum is 0.49 and its maximum is 1.07[18]. This indicates that some Japan-listed banks lend more than their total deposits, money market and short-term funding. The mean of insolvency risk (*z-score*) of Japan-listed banks is 125.25, and its standard deviation is 173.49. The mean of interest incomes (*IntInc*) is 1.95 percent, and the mean of non-interest income (*NIIR*) is 15.70 percent, indicating that, on average, Japan-listed banks have greater levels of incomes contributing from non-lending businesses, compared to those of lending businesses. The mean of total regulatory capital ratio (*TCapR*) is 11.55 percent, but its minimum is 5.71 percent. The mean of market-based performance (*TobinQ*) is 0.03.

Figure 4.2 shows that the levels of non-interest incomes (*NIIR*) decreased rapidly between 2007 and 2008, and have gradually increased since the 2008 financial crisis. The figure also shows that levels of regulatory capital ratio (*TCapR*) have gradually increased, and levels of interest incomes (*IntInc*) and impaired loans (*ImpLoanR*) have decreased. *LoanDeps* remain at roughly the same level between 2005 and 2013.

In terms of board independence, the means of the ratios of external directors to the total number of board members (*ExDir*) is 0.1. Figure 4.3 shows that the average ratios of external directors[19] have slowly increased between 2005 and 2013, although Japan-listed banks have insider-dominated boards. Table 4.4 shows that 96 percent of Japan-listed banks in the sample data are insider-dominated boards. This result might be expected, given that Japan-listed companies can choose to adopt the *kansayaku* system that requires that they have statutory auditors on their boards, but it does not require them to have any external directors on their boards.

Compared to Anglo-American countries, there are no specific guidelines restricting the tenures of external/independent directors. On average, external director tenures (*ExDir_T*) are 1.73 years, but the maximum is 26 years. In some cases, Japan-listed banks appoint their former

[18] *LoanDeps* is the ratio of loans to total deposits, money market and short-term funding. When *LoanDeps* exceeds one, a part of a bank's lending is funded using long-term liabilities/capital. In this case, Aozora Bank funded its lending business using long-term liabilities/capital in 2007.

[19] For each bank, directors are classified as internal and external directors. Internal directors, who are the full-time employees of the banks, manage the bank on a day-to-day basis. External directors consist of non-executive directors and independent directors. Non-executive directors do not have any business or family affiliations with the bank, and may also be the shareholders of the bank. Independent directors do not have any business or family affiliations with the bank and do not hold any shares in the bank.

retired board directors as external directors, resulting in unusually long external director tenures (Miwa and Ramseyer, 2005).

In terms of incentives, Table 4.2 shows that the internal directors of Japan-listed banks, on average, own 0.15 percent of the shares of their banks, while external directors own 0.07 percent of the shares.

In terms of types of board expertise, Japan-listed banks have an average of 0.64 percent of financial experts, 1.1 percent of legal experts, and Figure 4.4 shows that the majority of the boards are composed of lifetime bankers who have at least 20 years of finance or banking-related work experience, and who are mostly promoted internally.

Board homogeneity is measured by the ratios of lifetime bankers at banks (*BB*) and age diversity (*AgeRange*). On average, the ratios of *BB* are close to 90 percent, and the *AgeRange* is 16.38 years between the youngest and the oldest board directors. The age diversity is calculated by subtracting the age of the oldest directors from the youngest directors on the boards.

In terms of having assets and liabilities committees (*ALCOs*) and participating in securitisation businesses (*Sec*), Table 4.2 shows that, on average, 66 percent of Japan-listed banks have assets and liabilities committees. Table 4.5 shows that Japan-listed banks have gradually adopted ALCOs, and the adoption increased by 20 percent between 2005 and 2013. But, on average, only 25 percent of Japan-listed banks have participated in securitisation businesses.

Table 4.6 and Table 4.7 show bank and board characteristics between banks participating and not participating in securitisation businesses, respectively. Table 4.6 shows that banks with greater total asset sizes tend to participate in securitisation businesses, but the mean of bank lending ratios, the *z-score* and the total regulatory capital ratio are similar between banks participating and not participating in securitisation. Table 4.7 shows that banks participating in securitisation tend to have slightly higher ratios of financial experts (*BF*) compared to banks that are not participating in securitisation, but the ratios of legal experts (*BL*) are higher in banks not participating in securitisation. Moreover, the ratios of board size (*Size*), lifetime bankers (*BB*), and external directors (*ExDir*) are similar between banks participating in and not participating in securitisation.

The survival analysis shown in Table 4.8 suggests that the rates of banks participating in securitisation businesses (equals 1 minus the survivor function) increases over time. Overall, 34 percent of Japan-listed banks in the sample participate in securitisation between 2005 and 2013. Figure 4.5 shows the Kaplan-Meier survival function by groups: (i) banks that have assets

and liabilities committees or an equivalent (treatment group: *ALCO* =1), and (ii) banks do not have assets and liabilities committees or an equivalent (control group: *ALCO* =0). It shows that the hazard ratios increase over time, indicating that the probability of banks participating in securitisation increases over time.

For the purpose of equality, the patterns between the treatment group (banks with ALCOs) and the control group (banks without ALCOs) are similar. Table 4.9 shows that the null hypotheses of log-rank and Wilcoxon tests are accepted, indicating that the two groups are the same.

Figure 4.6 shows the estimated smoothed-hazard function for Japan-listed banks, and the function is monotonic. This indicates a steady increase in banks participating in securitisation, although the rate of banks participating is relatively small (0.13). The figure also shows that, prior to 2010, the banks with ALCOs (the treatment group) are less likely to engage in securitisation, compared to banks without ALCOs (the control group), and the probability of banks participating in securitisation is 38 percent at the end of 2013.

The correlation matrix is presented in Table 4.3. In terms of lending ratios (*LoanDeps*), four variables – *Disc*, *IntInc*, *ExDir*, and *Sec* – are positively correlated with *LoanDeps* at a 10 percent significance level. Eleven variables – *ALCO*, *BB*, *InDir_O*, *logA*, *NIIR*, *ExDir_T*, *Post2008*, *Size*, *TCapR*, *TobinQ*, and the *z-score* – are negatively correlated with *LoanDeps* at a 10 percent significance level. These findings indicate that Japan-listed banks with greater asset sizes (*logA*) tend to lend less, and Japan-listed banks, which have smaller lending ratios (*LoanDeps*), are likely to have lower regulatory capital levels (*TCapR*), and have larger proportions of non-interest incomes (*NIIR*).

In terms of risk-taking at banks (*z-score*), five variables – *ALCO*, *BB*, *logA*, *Size* and *TCapR*– are positively correlated with the *z-score* at a 10 percent significance level. This indicates that banks, which have lower insolvency risks, may have (i) assets and liabilities committees, (ii) greater ratios of lifetime bankers, (iii) bigger asset sizes, (iv) bigger board sizes, and (v) higher total capital regulatory ratios. Six variables – *BL*, *ImpLoanR*, *IntInc*, *LoanDeps*, *ExDir* and *TobinQ* – are negatively correlated with the *z-score* at a 10 percent significance level. This suggests that banks, which have higher insolvency risks, are likely to have (i) greater ratios of legal experts, (ii) higher levels of impaired loans, (iii) higher interest rate incomes, (iv) greater lending ratios, (v) greater ratios of external directors, and (vi) higher market-based performances.

In the board monitoring mechanism model, *ExDir* and *ExDir_T* are statistically significant and are positively correlated with each other, indicating that boards with greater numbers of external directors tend to have them serving longer on their boards. In the board bonding mechanism model (*InDir_O*, *ExDir_O*), *ExDir_O* is negatively correlated with *InDir_O*, and is statistically insignificant. In the board risk preference model, *BF* and *BL* are positively significantly correlated with each other, indicating that banks with financial board experts are likely to hire legal experts for their boards, or vice versa. In examining board homogeneity, *AgeRange* and *BB* are negatively significantly correlated with each other, indicating that banks with fewer ratios of lifetime bankers tend to have greater age diversity on their boards.

In the model estimating the probability of banks participating in securitisation businesses, four variables – *ALCO*, *IntInc*, *logA*, and *ExDir*– are significantly and positively correlated with *Sec*. Only one variable –*ImpLoanR* – is significantly and negatively correlated with *Sec*.

In the context of multicollinearity, the variance inflation factor does not exceed five in each model. Each pair of variables, in which the correlation coefficients exceed 0.5 (Dormann et al., 2013), will not be used in the regression model.

Table 4.2 Descriptive statistics: variables used.

This sample consists of (approximately) 662 Japan-listed bank-year observations between 2005 and 2013.

Variable	Mean	Std. Dev.	Minimum	Maximum	No. of Obs.
AgeRange	16.38	6.85	0	37.00	662
ALCO	0.66	0.48	0	1.00	631
BB	88.97	13.48	0	100.00	624
BF	0.64	2.20	0	12.50	624
BL	1.10	3.85	0	27.27	624
Disc	0.53	0.04	0.40	0.70	655
ExDir	0.10	0.15	0	0.86	657
ExDir_O	0.07	0.50	0	6.59	662
ExDir_T	1.73	3.46	0	26.00	657
InDir_O	0.15	0.31	0	6.86	662
ImpLoanR	3.67	1.32	0.84	10.83	653
IntInc	1.95	0.41	1.15	4.56	655
LoanDeps	0.71	0.08	0.49	1.07	655
logA	17.34	0.99	15.35	21.66	655
NIIR	15.70	13.78	-62.27	191.04	654
Post2008	0.66	0.47	0	1	662
Sec	0.36	0.48	0	1	625
Size	10.64	3.12	4.00	19.00	657
TCapR	11.55	1.96	5.71	19.48	655
TobinQ	0.03	0.02	0.01	0.14	635
z-score	125.25	173.49	-0.85	1,948.99	649

Table 4.3 Pairwise correlation coefficients.

* indicates that the pairwise correlation coefficient is statistically significant at a 10 percent level.

	AgeRange	*ALCO*	*BB*	*BF*	*BL*	*Disc*	*ExDir*	*ExDir_O*	*ExDir_T*	*ImpLoanR*	*InDir_O*	*IntInc*	*LoanDeps*	*logA*	*NIIR*	*Post2008*	*Sec*	*Size*	*TCapR*	*TobinQ*	*z-score*
AgeRange	1																				
ALCO	0.0136	1																			
BB	-0.1601*	0.1880*	1																		
BF	0.1043*	-0.1436*	-0.3280*	1																	
BL	0.2130*	-0.2456*	-0.3922*	0.2531*	1																
Disc	-0.0172	0.0458	-0.0730*	0.011	0.0186	1															
ExDir	0.4731*	-0.0673*	-0.7936*	0.4405*	0.4207*	0.0971*	1														
ExDir_O	0.2005*	0.0740*	-0.2170*	0.2430*	0.1029*	0.0949*	0.4484*	1													
ExDir_T	0.2992*	-0.0661*	-0.2285*	0.0629	0.0564	-0.1059*	0.3008*	0.1607*	1												
ImpLoanR	-0.0662*	-0.1689*	-0.1007*	0.0256	0.0435	0.0422	0.0119	0.1351*	0.0327	1											
InDir_O	0.1539*	0.0557	-0.0037	0.0279	0.0308	-0.0634	0.0465	-0.0371	-0.0081	-0.0820*	1										
IntInc	-0.016	-0.1426*	-0.1897*	0.1234*	0.0168	0.0624	0.2248*	0.3797*	0.038	0.3467*	0.0362	1									
LoanDeps	-0.0583	-0.0941*	-0.0803*	0.0022	0.0116	0.0719*	0.0795*	-0.0065	-0.1633*	0.0034	-0.0691*	0.3369*	1								
logA	0.2098*	0.1221*	-0.1246*	0.2369*	0.1066*	0.2011*	0.2904*	0.1050*	0.0684*	-0.3605*	-0.1115*	-0.2141*	-0.1580*	1							
NIIR	0.0884*	0.0443	-0.2325*	0.1096*	0.0361	0.1351*	0.3057*	0.1704*	0.0791*	-0.0842*	0.0541	-0.1550*	-0.0718*	0.4208*	1						
Post2008	0.0345	0.1214*	-0.025	0.1063*	0.0289	-0.1225*	0.0754*	-0.0066	0.1361*	-0.3056*	-0.0695*	-0.3098*	-0.0967*	0.1675*	0.0301	1					
Sec	0.0365	0.1077*	-0.0599	0.0532	-0.0317	0.1701*	0.2171*	0.1380*	-0.0549	-0.0891*	-0.0204	0.1741*	0.1371*	0.2827*	0.1717*	0.0464	1				
Size	0.2157*	0.2538*	0.2594*	-0.0416	-0.1235*	-0.0052	-0.1471*	-0.0136	0.0381	-0.2617*	0.1229*	-0.1793*	-0.2956*	0.3641*	0.0681*	-0.0228	-0.0849*	1			
TCapR	0.2535*	0.1479*	0.0557	0.0881*	0.0043	-0.0447	0.2304*	0.0054	0.2576*	-0.3407*	-0.018	-0.3821*	-0.3226*	0.4793*	0.3048*	0.2144*	0.0248	0.2493*	1		
TobinQ	-0.0627	0.0258	-0.1379*	0.0499	0.1485*	-0.1188*	0.0304	-0.0081	0.0307	0.0879*	-0.017	-0.1657*	-0.1002*	-0.2236*	-0.0953*	0.5298*	0.0162	-0.2028*	-0.2760*	1	
z-score	-0.0203	0.0988*	0.1469*	-0.0526	-0.1068*	0.0439	-0.1177	-0.0607	0.0261	-0.1445*	-0.0427	-0.2711*	-0.1047*	0.0799*	0.031	-0.0257	-0.008	0.1305*	0.2465*	-0.1147*	1

Figure 4.2 A summary of the levels of lending ratios (*LoanDeps*), interest incomes over gross loans (*IntInc*), impaired loans over gross loans (*ImpLoanR*), non-interest incomes over gross revenues (*NIIR*), and the total regulatory capital ratios (*TCapR*) of Japan-listed banks between 2005 and 2013.

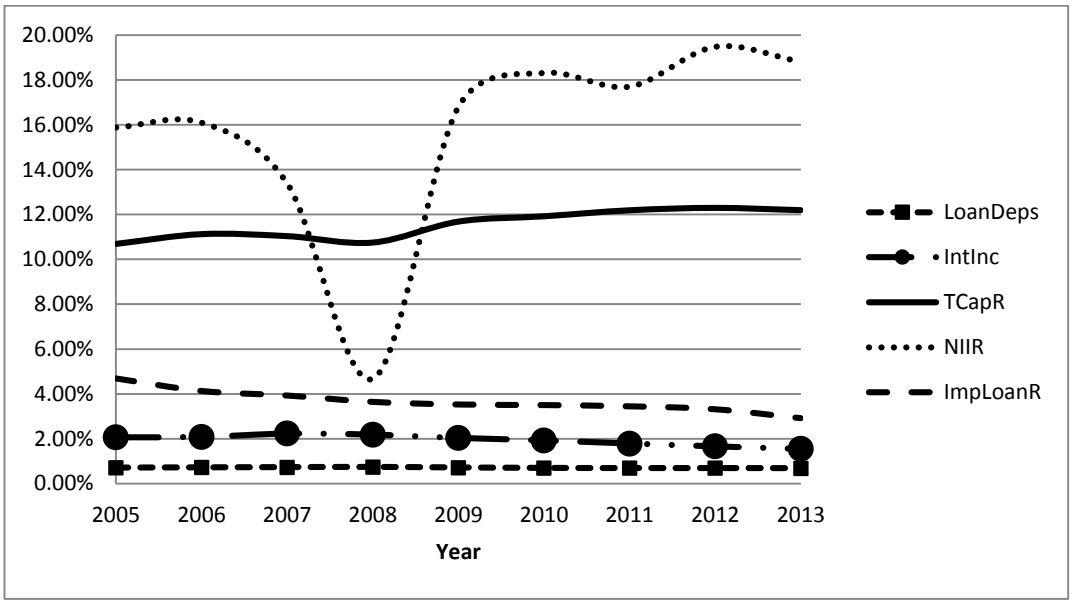

Figure 4.3 The average ratios of external directors at the boards of Japan-listed banks between 2005 and 2013.

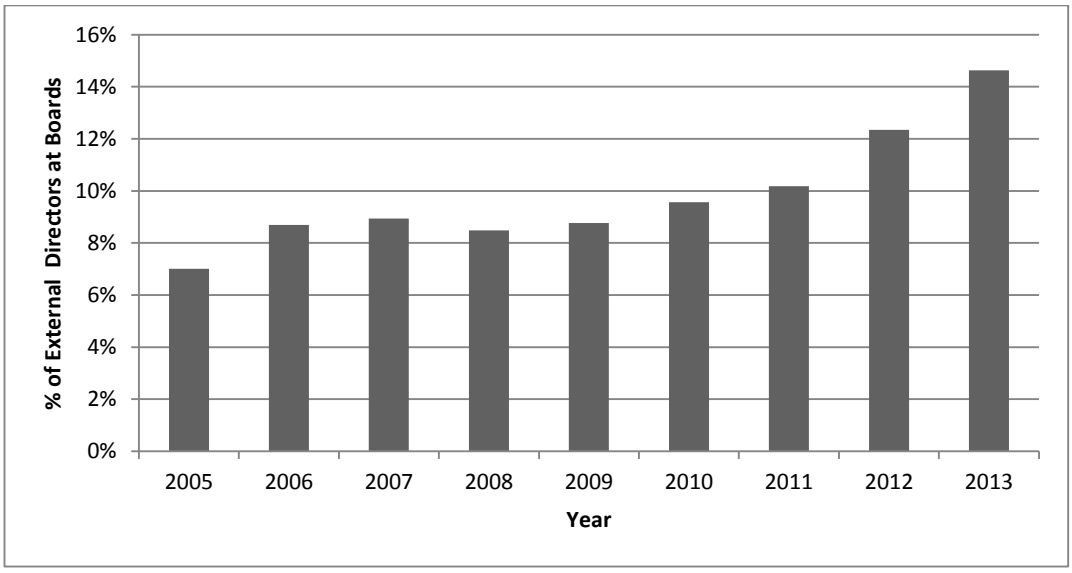

Table 4.4 A summary of the types of boards of Japan-listed banks between 2005 and 2013.

To distinguish between insider-dominated boards, outsider-dominated boards, and mixed boards, this study follows the categorisation technique used in Weisbach (1988). Insider-dominated boards have at least 60 percent of their board members as internal directors. Outsider-dominated boards have no more than 40 percent of their board members as internal directors. A mixed board contains between 40 and 60 percent of their board members as internal directors.

Year	Mixed Boards	Insider-Dominated Boards	Outsider-Dominated Boards
2005	0%	96%	4%
2006	1%	95%	4%
2007	0%	96%	4%
2008	1%	96%	3%
2009	1%	96%	3%
2010	0%	96%	4%
2011	0%	96%	4%
2012	1%	96%	3%
2013	1%	96%	3%

Figure 4.4 The distribution of skills of the board members of Japan-listed banks between 2005 and 2013.

'Others' represent the population of board members who do not have any banking, financial, or legal-related experience, but have previously worked as marketing experts, sales experts, engineering experts, or civil servants. *BF* is the ratio of financial experts on boards. *BB* is the ratio of lifetime bankers on boards. *BL* is the ratio of legal experts on boards.

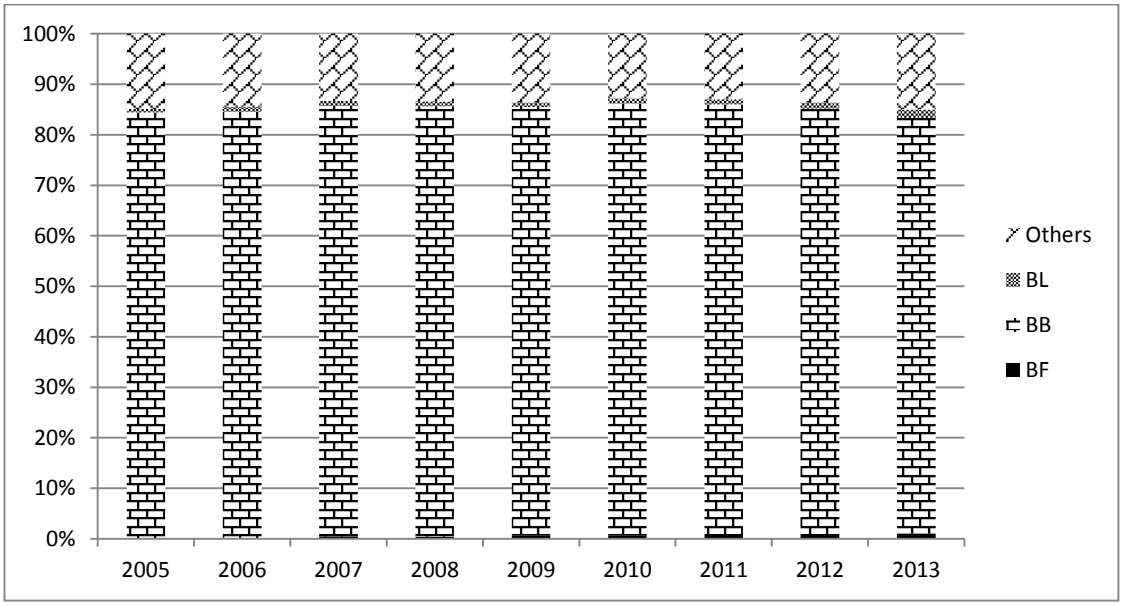

Table 4.5 The percentage of banks with assets and liabilities committees (ALCOs) at board levels, and the percentage of banks participating in securitisation businesses (*Sec*) among 662 bank-year observations.

Year	Number of Banks	ALCOs	Sec
2005	74	37 (50%)	19 (26%)
2006	74	41 (55%)	24 (32%)
2007	74	42 (57%)	26 (35%)
2008	74	41 (55%)	29 (39%)
2009	74	48 (65%)	30 (41%)
2010	73	52 (71%)	29 (40%)
2011	73	51 (70%)	26 (36%)
2012	73	51 (70%)	24 (33%)
2013	73	51 (70%)	19 (26%)

Table 4.6 The characteristics of the sample banks participating in and not participating in securitisation businesses.

Sec is a categorical variable in which 1 indicates that banks are participating in securitisation businesses, and 0 otherwise. *The z-score* measures the levels of insolvency risks at banks. *TCapR* is the total regulatory capital ratio.

Country	Sec	Number of Banks	Mean of Total Assets (million USD)	Mean of Loan Ratio (*LoanDeps*)	Mean of *z-score*	Mean of *TCapR*
Japan	1	226	181	0.72	125.67	11.69
	0	399	36	0.70	128.61	11.59

Table 4.7 The board characteristics of the sample banks participating in and not participating in securitisation businesses.

Sec is a categorical variable in which 1 indicates that banks are participating in the securitisation businesses, and 0 otherwise.

Country	*Sec*	*Board Size*	Ratio of Financial Experts	Ratio of Lifetime Bankers	Ratio of Legal Experts	Ratio of External Directors
Japan	1	10.39	0.81	88.05	0.95	*0.15*
	0	10.95	0.56	89.73	1.21	*0.08*

Table 4.8 A list of the results showing the survivor function (*Stata* command: *sts list*).

$^{+}$ indicates the number of banks entering into securitisation businesses in a given year. $^{++}$ indicates the probability of the number of banks not participating in securitisation businesses.

Year	Beginning Total	Sec =1	Net Loss^{+}	Survivor Function^{++}
2005	662	19	55	0.9713
2006	588	24	50	0.9317
2007	514	26	48	0.8845
2008	440	29	45	0.8262
2009	366	30	44	0.7585
2010	292	29	44	0.6832
2011	219	26	47	0.6021
2012	146	24	49	0.5031
2013	73	19	54	0.3722

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Figure 4.5 The Kaplan-Meier survival function between groups.

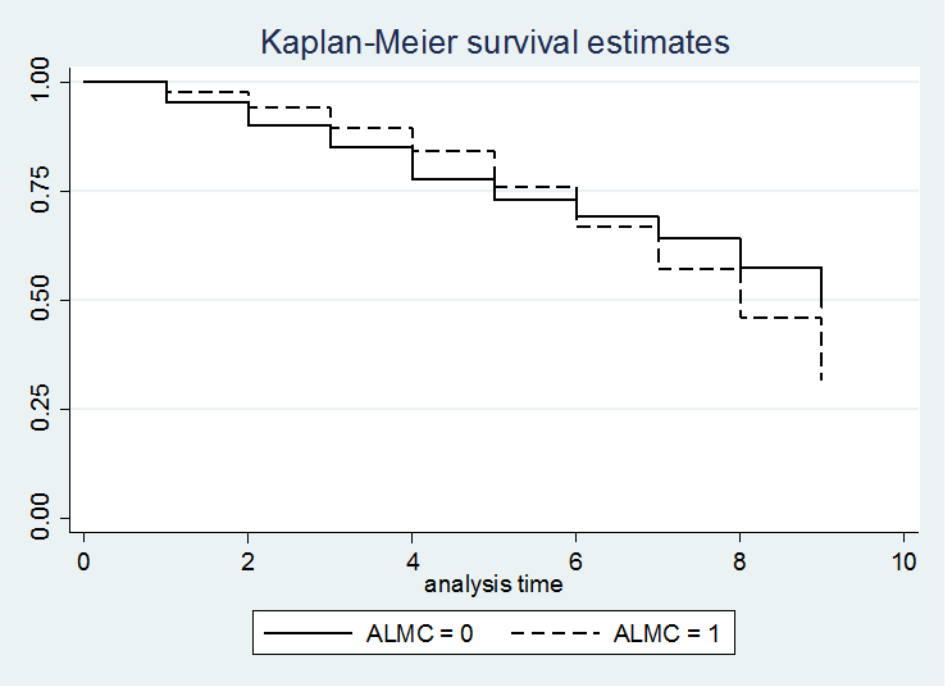
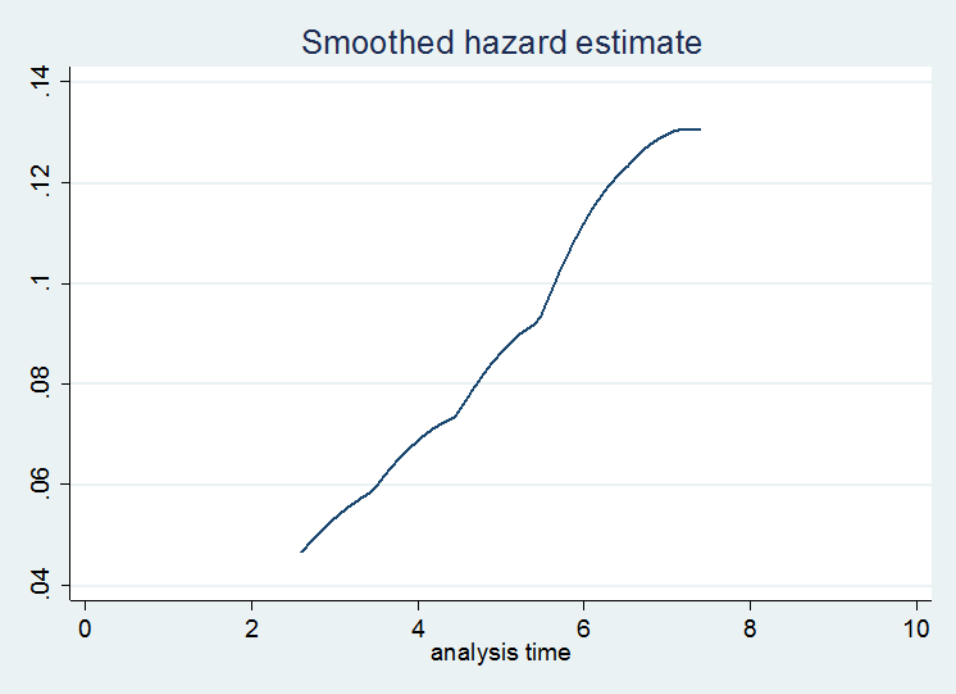


Table 4.9 Tests for equality of the survivor functions: Log-rank and Wilcoxon tests.

Test	χ (1)	Prob > χ^2
Log-rank	0.68	0.4106
Wilcoxon	0.38	0.5351

Figure 4.6 Estimated smoothed hazard function.



4.6 Methodology

This chapter argues that board characteristics, amounts of director share ownerships, and the presence of assets and liabilities committees affect levels of bank lending and risk-taking, as well as the probability of banks participating in securitisation. This chapter is divided into two parts.

The first part investigates the effects of board characteristics and the amounts of director share ownerships on bank lending and insolvency risk levels. In order to address problems of endogeneity and unobserved heterogeneity, (i) fixed-effects (FE) estimations with lagged independent (and control) variables, (ii) random-effects (RE) estimations with lagged independent (and control) variables and (iii) system generalised method of moments (GMM) Arellano Bond estimations are used. If the null hypothesis of the Hausman test is accepted, then the RE estimation is preferred over the FE estimation. The FE, RE and GMM estimations control for bank-specific effects. The FE estimations cluster standard errors at the bank level.

The GMM estimations are used as robustness tests, and are run using two-step estimators with an option that the estimated variance–covariance matrix is robust to heteroskedasticity in case of any misspecification causing weak instruments and large sample biases (Windmeijer, 2005). In the GMM estimations, the control variables lead to endogenous explanatory variables that are less correlated with the instrumental variable(s). Additionally, alternative measures (*IntInc*, *ImpLoanR*) are used to test the robustness results in Table 4.13.

The second part examines whether the probability of banks participating in securitisation businesses is determined by board characteristics, the presence of assets and liabilities committees, levels of risk-taking, bank asset sizes, and total regulatory capital ratio. In order to assess the probability, the Cox proportional hazard model (Cox model) is used. The Cox model is able to deal with repeatable events in the left-hand side of the model (Allison, 1982).

Both assessments are focused on Japan-listed banks between 2005 and 2013.

4.7 Results

4.7.1 The Relationships Between Board Characteristics, Bank Leading Ratios, and Insolvency Risk Levels

The results shown in Table 4.10 and Table 4.11 are consistent with Hypothesis 4.1, Hypothesis 4.2, Hypothesis 4.4, and Hypothesis 4.8, but they are weakly supported. Hypothesis 4.3, and Hypothesis 4.5 - Hypothesis 4.7 are inconsistent. The message from Table 4.10 - Table 4.13 is that board independence weakens monitoring at Japan-listed banks, which indicates that alternative governance mechanisms may need to be considered.

The summary results on the effects on the levels of lending ratios (*LoanDeps*), interest incomes (*IntInc*), insolvency risks (*z-score*), and impaired loans (*ImpLoanR*) are shown in Table 4.10 - Table 4.13. Table 4.10 summaries the results of the fixed-effects (FE) estimations. Table 4.11 summarises the results of the random-effects (RE) estimations. In terms of robustness tests: (i) Table 4.12 summaries the results of the system generalised method of moments (GMM) Arellano Bond estimations; and (ii) Table 4.13 summaries the results of fixed FE estimations using alternative dependent variables: levels of interest income (*IntInc*) and impaired loans (*ImpLoanR*).

In terms of the model specification test, the Hausman test is used to determine the consistencies and efficiencies of the fixed-effects (FE) estimations. Except for columns (1) – (4) of Table 4.10, the results of the Hausman tests in Table 4.10 and Table 4.13 return p-values of less than 0.05, in which the null hypotheses of the Hausman tests are rejected. Therefore, only the FE estimations are suitable, and the RE estimators are inconsistent.

On the contrary, the Hausman tests in columns (1) – (4) of Table 4.10 return p-values of more than 0.05, indicating that the null hypotheses of the Hausman tests are accepted, and the RE estimations are more efficient. As a result, the RE estimations are used to assess the relationships between board characteristics, and the levels of lending ratios. The results of RE estimations are shown in Table 4.11. In addition, the Breusch and Pagan Lagrangian multiplier (LM) test is used to test for unobserved heterogeneity in Table 4.11. The p-values of the LM tests shown in Table 4.11 indicate that the null hypotheses (the variance of the unobserved fixed effects is zero) are rejected. Therefore, the RE estimations are suitable.

In terms of the GMM Arellano Bond estimations, Sargan and Arellano Bond autocorrelation (AR) tests are used. The results of Table 4.12 satisfy the null hypotheses of the Sargan and Arellano Bond AR(1) and AR(2) tests.

The majority of independent variables in Table 4.10, Table 4.11, and Table 4.12 are statistically insignificant, and only half of the results in Table 4.10 and Table 4.11 are robust against Table 4.12 and Table 4.13. However, the results show that the models are poorly explained, in which neither R^2 (overall), R^2 (between) or R^2 (within) are more than 0.25 in examining the impacts on *LoanDeps* and the *z-score*. The results provide seven key findings relating to bank board characteristics.

First, the results shown in Table 4.10, Table 4.11 and Table 4.12 are consistent with Hypothesis 4.1. The results indicate that *ExDir* is positively associated with *LoanDeps, and ExDir* is negatively associated with the *z-score*. More importantly, the result presented in column (5) of Table 4.12 shows that the relationship between *ExDir* and the *z-score* is statistically significant at a one percent level in the system GMM Arellano Bond estimation. This indicates that the increased ratios of external directors are likely to lead to greater insolvency risk levels at banks. The result of the system GMM Arellano Bond estimation shown in column (5) of Table 4.12 suggests the presence of dynamic endogeneity (Schultz et al., 2010), indicating that the current governance structure, such as the levels of external directors, are likely to be determined by the banks' previous risk-taking levels of Japan-listed banks.

But that is contrary to the results presented in columns (1) and (5) of Table 4.13, which shows that the relationships between *ExDir* and *LoanDeps*, and between *ExDir* and the *z-score* are not robust compared to those between *ExDir* and *IntInc*, and between *ExDir* and *ImpLoanR*. The results indicate that increased ratios of external directors lead to reduced levels of interest incomes and impaired loans. The relationships between *ExDir* and *IntInc*, and between *ExDir* and *ImpLoanR* are statistically and economically significant. The results show that the relationship between *ExDir_T* and *ImpLoanR* is insignificant, although the relationship between *ExDir_T* and *IntInc* is statistically significant at a one percent level.

The overall findings offer two explanations: (i) external directors (*ExDir*) effectively monitor risk levels associated with lending, but insufficiently monitor insolvency risk levels at banks. This may be because external directors are less likely to acquire adequate levels of information such as the structures of portfolio exposures to monitor risk-taking at a bank level, especially risks associated with non-lending businesses. (ii) External directors encourage their banks to invest in non-lending businesses in order to add value for their shareholders, especially as Japan-listed banks add little value for their shareholders when making loans with declining interest incomes. These results suggest that the introduction of external directors may lower lending support for domestic businesses, indicating that external directors may destroy value for stakeholders.

Second, the findings shown in Table 4.10 are consistent with Hypothesis 4.2 and suggest that longer average external director tenures (*ExDir_T*) lower lending ratios (*LoanDeps*) and insolvency risks levels (i.e. *ExDir_T* are positively related to the *z-score*). But the hypothesis (the increased average external director tenures enhance the monitoring abilities of external directors) is weakly supported; because the coefficients of *ExDir_T* in Table 4.10 - Table 4.12 are statistically insignificant. These results are robust to the results of the GMM estimations and FE estimations using alternative dependent variables in Table 4.11 - Table 4.13.

Third, the findings shown in column (6) of Table 4.10 are consistent with Hypothesis 4.4 (the external director ownerships (*ExDir_O*) and internal director ownerships (*InDir_O*) are negatively related to the *z-score*), but it is weakly supported. The results are statistically insignificant in Table 4.10 and Table 4.12. The results are robust to those of the GMM estimations in Table 4.12, but are not robust to those of the FE estimations using alternative dependent variables in Table 4.13. The results shown in Table 4.13 indicate that *InDir_O* and *ExDir_O* are negatively and statistically significantly associated with *ImpLoanR*, which are contrary to the relationships between *InDir_O* and the *z-score*, and between *ExDir_O* and the *z-score*.

These results indicates that internal director share ownerships may incentivise risk-taking behaviours at banks, which are likely to be in line with shareholder expectations (Laeven and Levine, 2009), and consistent with the corporate governance approach to shareholder supremacy (Berle and Means, 1932; Jensen and Meckling, 1976). But the results in Table 4.13 also imply that increased internal and external director share ownerships incentivise directors to encourage their banks to actively monitor levels of impaired loans. One possible explanation is that performance-based incentives may encourage directors to re-consider their lending strategies, and to re-distribute their resources to non-lending businesses. Therefore, there are negative effects on levels of impaired loans, and positive effects on insolvency risk levels.

Fourth, the findings shown in Table 4.10 and Table 4.11 suggest that board age diversity (*AgeRange*) is negatively related to the *z-score*, and *AgeRange* is positively related to *LoanDeps*. The findings are consistent with Hypothesis 4.8, but it is weakly supported. The results are statistically and economically insignificant.

Fifth, the findings shown in Table 4.10 suggest that increased board expertise homogeneity reduces levels of insolvency risks at banks, i.e. the ratio of lifetime bankers (*BB*) is positively associated with the *z-score*. Although the result is inconsistent with Hypothesis 4.7, it shows an interesting view on board expertise homogeneity, in which lifetime bankers are mostly internally promoted. The findings indicate that greater ratios of lifetime bankers decrease

insolvency risks at banks, and increase levels of interest incomes (*IntInc* in Table 4.13), and impaired loans (*ImpLoanR* in Table 4.13), but the coefficients of these variables are economically insignificant.

Sixth, financial experts are less likely to increase monitoring at banks. The result is inconsistent with Hypothesis 4.6 (financial experts (*BF*) enhance risk monitoring on boards) and suggests that financial experts encourage risk-taking at banks. The results also show that the relationships between *BF* and the *z-score* (and other dependent variables: *LoanDeps*, *IntInc*, and *ImpLoanR*) are statistically insignificant in Table 4.10 - Table 4.13. This may be due to the low ratios of financial experts on the boards of Japan-listed banks (the mean of *BF* is only 0.64 percent), and the fact that financial experts tend to be external directors who are likely to be less influential on insider-dominated boards.

Seventh, the result in Table 4.10 shows a positive relationship between the ratios of legal experts (*BL*) and insolvency risks (*z-score*) but is statistically and economically insignificant. The result is consistent with Hypothesis 4.6 (legal experts reduce levels of insolvency risks at banks) and is only robust against the results shown in Table 4.12 (*BL* is negatively and statistically significantly associated with *ImpLoanR*), indicating that legal experts may be focusing on the increased numbers of upcoming compliance and regulatory issues arising from impaired loans, and that they are more inclined to agree with their co-workers and conform with the corporate missions of their banks (Langevoort, 2012).

In summary, the results find that external monitoring (which is performed by external directors) tends to increase risk-taking at banks, although external directors may have positive effects on reducing impaired loans. The board bonding mechanism may be ineffective, as the results show that: (i) director share ownerships (*ExDir_O*, *InDir_O*) have positive impacts on the insolvency risks at banks, although the results are statistically insignificant; and (ii) director share ownerships (*ExDir_O*, *InDir_O*) induce directors to reduce impaired loan ratios. Overall, the results show that other internal corporate governance mechanisms, such as board experts, and board homogeneity, seem to be ineffective in monitoring risk-taking at Japan-listed banks.

Table 4.10 A summary of the results of the fixed effects (FE) estimations assessing the relationships between board characteristics and the levels of lending ratios (*LoanDeps*), and between board characteristics and insolvency risks (*z-score*).

L. indicates that the independent variables have a one-year lag. *ExDir* is the ratio of external directors to the total number of board members. *ExDir_T* is the average tenure of external directors on boards. *ExDir_O* is the amount of external director share ownerships. *InDir_O* is the amount of internal director share ownerships. *BF* is the ratio of financial experts to the total number of board members. *BL* is the ratio of legal experts to the total number of board members. *BB* is the ratio of lifetime bankers to the total number of board members. *AgeRange* is calculated by subtracting the age of the oldest directors from the youngest directors on the boards. *Disc*, *Size*, *IntInc*, *TobinQ*, *TCapR* control for bank-specific effects. *Post2008* controls for year-specific effects. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. The Hausman test is used to test for the consistency and efficiency of the FE estimations.

Dependent Variable	*LoanDeps*				*z-score*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	0.770***	0.770***	0.7734***	0.7539***	621.9***	601.2**	655.83***	624.50*
	(22.13)	(21.57)	(20.53)	(11.19)	(3.63)	(3.25)	(3.51)	(2.49)
L.ExDir	0.0144				-265.9			
	(0.25)				(-1.96)			
L.ExDir_T	-0.00214				5.298			
	(-1.36)				(0.97)			
L.ExDir_O		-0.00496				-7.110		
		(-0.76)				(-0.21)		
L.InDir_O		0.000781				-32.13		
		(0.12)				(-1.10)		
L.BF			-0.0012				-3.2398	
			(-0.58)				(-0.38)	
L.BL			0.0005				1.6228	
			(0.49)				(0.55)	
L.BB				0.0001				0.3366
				(0.19)				(0.17)
L.AgeRange				0.0005				-0.9565
				(0.74)				(-0.35)
L.Disc	-0.0667	-0.0677	-0.0723	-0.0696				
	(-1.15)	(-1.15)	(-1.14)	(-1.14)				
L.Size					-15.23	-11.96	-15.7184	-14.2931
					(-1.97)	(-1.18)	(-1.65)	(-1.68)
L.Post2008	-0.0259***	-0.0274***	-0.0268***	-0.0270***	-25.07	-24.53	-19.5888	-20.3852
	(-3.68)	(-3.71)	(-3.60)	(-3.71)	(-1.44)	(-1.31)	(-1.03)	(-1.04)
L.IntInc					-216.4***	-215.8***	-2.1e+02***	-2.1e+02***
					(-4.06)	(-4.56)	(-4.04)	(-4.11)
L.TobinQ	-0.274	-0.275	-0.3189	-0.3235				
	(-0.99)	(-0.98)	(-1.10)	(-1.14)				
L.TCapR					11.46	9.224	5.2139	5.5739
					(1.41)	(1.16)	(0.73)	(0.76)
No. of obs.	563	563	539	539	574	574	542	542
R^2	0.220	0.215	0.221	0.221	0.111	0.105	0.099	0.098
Adj. R^2	0.213	0.208	0.214	0.214	0.102	0.096	0.088	0.088
R^2 (within)	0.220	0.215	0.2213	0.2213	0.111	0.105	0.0985	0.0984
R^2 (between)	0.0188	0.00168	0.0017	0.0101	0.117	0.0853	0.0270	0.0486
R^2 (overall)	0.0565	0.0343	0.0345	0.0267	0.0887	0.0797	0.0475	0.0598
RMSE	0.0303	0.0304	0.0306	0.0306	145.0	145.4	144.4132	144.4191
Hausman test	1.242	1.522	0.6685	2.5157	17.92	13.24	15.6562	15.0829
Hausman test: p-value	0.941	0.911	0.9847	0.7741	0.00643	0.0394	0.0157	0.0196

Table 4.11 A summary of the results of the random effects (RE) estimations assessing the relationships between board characteristics and the levels of lending ratios (*LoanDeps*).

L. indicates that the independent variables have a one-year lag. *ExDir* is the ratio of external directors to the total number of board members. *ExDir_T* is the average tenure of external directors on boards. *ExDir_O* is the amount of external director share ownerships. *InDir_O* is the amount of internal director share ownerships. *BF* is the ratio of financial experts to the total number of board members. *BL* is the ratio of legal experts to the total number of board members. *BB* is the ratio of lifetime bankers to the total number of board members. *AgeRange* is calculated by subtracting the age of the oldest directors from the youngest directors on the boards.

Disc and *TobinQ* control for bank-specific effects. *Post2008* controls for year-specific effects. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. The Breusch and Pagan Lagrangian multiplier (LM) test is used to test for whether the variance of the unobserved fixed effects is zero.

Dependent Variable	*LoanDeps*			
	(1)	(2)	(3)	(4)
Intercept	0.769***	0.768***	0.772***	0.770***
	(23.93)	(23.20)	(22.13)	(13.44)
L.ExDir	0.0237			
	(0.45)			
L.ExDir_T	-0.00237			
	(-1.61)			
L.ExDir_O		-0.00544		
		(-1.20)		
L.InDir_O		0.0000499		
		(0.01)		
L.BF			-0.00114	
			(-0.58)	
L.BL			0.000450	
			(0.50)	
L.BB				-0.0000389
				(-0.08)
L.AgeRange				0.000289
				(0.45)
L.Disc	-0.0652	-0.0633	-0.0678	-0.0674
	(-1.16)	(-1.07)	(-1.07)	(-1.10)
L.Post2008	-0.0259***	-0.0274***	-0.0269***	-0.0273***
	(-3.74)	(-3.85)	(-3.72)	(-3.90)
L.TobinQ	-0.271	-0.269	-0.311	-0.311
	(-1.02)	(-0.99)	(-1.12)	(-1.14)
No. of obs.	563	563	539	539
R^2 (within)	0.220	0.215	0.221	0.221
R^2 (between)	0.0247	0.00115	0.00169	0.00610
R^2 (overall)	0.0601	0.0348	0.0347	0.0314
RMSE	0.0324	0.0325	0.0326	0.0327
LM test: p-value	0	0	0	0

Table 4.12 A summary of the results of the system generalised method of moments (GMM) Arellano Bond estimations assessing the relationships between board characteristics and the levels of lending ratios (*LoanDeps*), and between board characteristics and risk-taking (*z-score*).

L. indicates that the independent variables have a one-year lag. *ExDir* is the ratio of external directors to the total number of board members. *ExDir_T* is the average tenure of external directors on boards. *ExDir_O* is the amount of external director share ownerships. *InDir_O* is the amount of internal director share ownerships. *BF* is the ratio of financial experts to the total number of board members. *BL* is the ratio of legal experts to the total number of board members. *BB* is the ratio of lifetime bankers to the total number of board members. *AgeRange* is calculated by subtracting the age of the oldest directors from the youngest directors on the boards. *Disc*, *Size*, *IntInc*, *TobinQ*, *TCapR* control for bank-specific effects. *Post2008* controls for year-specific effects. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. The instruments are the first-differenced and the levels equations. The first-differenced equations are the lagged observations of the explanatory variables. The number of lags used varies slightly across the estimations. The levels of equations include *TCapR* and *TobinQ*. All instruments pass the Sargan test for the validity of instruments.

Dependent Variable	*LoanDeps*				*z-score*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.ExDir	0.0136				-384.1*			
	(0.67)				(-2.06)			
L.ExDir_T	-0.000140				6.910			
	(-0.10)				(1.34)			
L.ExDir_O		0.000734				-30.79		
		(0.05)				(-0.59)		
L.InDir_O		0.00471				-24.15		
		(0.29)				(-0.58)		
L.BF			0.0004				-8.2583	
			(0.13)				(-0.71)	
L.BL			-0.0028				-0.4058	
			(-1.25)				(-0.07)	
L.BB				0.0002				2.6927
				(0.48)				(1.31)
L.AgeRange				-0.0000				-4.1095
				(-0.08)				(-1.20)
L.Disc	0.114***	0.117***	0.1177***	0.1077**				
	(4.03)	(4.26)	(4.93)	(2.90)				
L.Size					-4.240	-0.781	-2.5239	-2.3355
					(-0.82)	(-0.11)	(-0.37)	(-0.28)
L.Post2008	-0.0260***	-0.0258***	-0.0273***	-0.0265***	-22.56	-22.48	-19.3907	-18.0572
	(-8.08)	(-7.38)	(-6.69)	(-8.95)	(-1.33)	(-1.24)	(-0.91)	(-0.95)
L.LoanDeps	0.920***	0.917***	0.9202***	0.9004***				
	(42.99)	(43.24)	(49.44)	(23.93)				
L.IntInc					-140.0***	-144.7***	-1.4e+02***	-1.7e+02***
					(-4.56)	(-5.07)	(-4.87)	(-3.78)
L.zscore					0.392***	0.425***	0.4356***	0.3970***
					(4.28)	(4.45)	(3.97)	(3.78)
L.TobinQ	0.407**	0.427**	0.4905**	0.4639***				
	(2.89)	(3.07)	(3.11)	(3.61)				
TobinQ	-0.137	-0.145	-0.1800	-0.1965				
	(-1.01)	(-1.20)	(-1.19)	(-1.47)				
L.TCapR					18.33*	10.48	9.4320	7.3892
					(1.96)	(1.14)	(0.95)	(0.98)
TCapR					21.60*	24.73**	25.3647**	18.2510
					(2.52)	(2.71)	(2.71)	(1.64)
No. of obs.	563	563	539	539	571	571	539	539
No. of instruments	55	55	55	55	62	62	62	62
Sargan test	54.59	54.09	53.1369	55.0104	66.71	66.55	64.8398	63.2064
Sargan test: p-value	0.238	0.253	0.2829	0.2264	0.115	0.117	0.1483	0.1832
Arellano-Bond AR(1) test	-3.473	-3.317	-3.5055	-3.3456	-2.517	-2.503	-2.4010	-2.3977
AR(1) test: p-value	0.000515	0.000909	0.0005	0.0008	0.0118	0.0123	0.0164	0.0165
Arellano-Bond AR(2) test	-0.962	-0.968	-0.9983	-0.9508	-0.913	-0.999	-0.9851	-1.0320
AR(2) test: p-value	0.336	0.333	0.3181	0.3417	0.361	0.318	0.3246	0.3021

Table 4.13 Summary of results of fixed effects (FE) estimations assessing the relationships between board characteristics, and the levels of interest income (*IntInc*) and impaired loans (*ImpLoanR*).

L. indicates that the independent variables have a one-year lag. *ExDir* is the ratio of external directors to the total number of board members. *ExDir_T* is the average tenure of external directors on boards. *ExDir_O* is the amount of external director share ownerships. *InDir_O* is the amount of internal director share ownerships. *BF* is the ratio of financial experts to the total number of board members. *BL* is the ratio of legal experts to the total number of board members. *BB* is the ratio of lifetime bankers to the total number of board members. *AgeRange* is calculated by subtracting the age of the oldest directors from the youngest directors on the boards. *Disc*, *Size*, *IntInc*, *TobinQ*, *TCapR* control for bank-specific effects. *Post2008* controls for year-specific effects. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. The Hausman test is used to test for the consistency and efficiency of the FE estimations.

Dependent Variable	*IntInc*				*ImpLoanR*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	3.259***	3.308***	3.2657***	2.5423***	2.302*	1.697	2.3117*	0.0167
	(16.30)	(17.32)	(14.87)	(5.69)	(2.36)	(1.64)	(2.48)	(0.01)
L.ExDir	-0.381*				-3.012*			
	(-2.09)				(-2.52)			
L.ExDir_T	-0.0167*				-0.0307			
	(-2.14)				(-0.79)			
L.ExDir_O		-0.00204				-0.911***		
		(-0.04)				(-5.49)		
L.InDir_O		-0.0705*				-1.016***		
		(-2.11)				(-6.39)		
L.BF			-0.0019				-0.0165	
			(-0.20)				(-0.31)	
L.BL			0.0012				-0.1241***	
			(0.26)				(-4.11)	
L.BB				0.0058*				0.0256
				(2.33)				(1.60)
L.AgeRange				0.0087				-0.0016
				(1.90)				(-0.11)
L.Disc	-1.852***	-1.996***	-1.9471***	-1.8536***				
	(-5.74)	(-6.36)	(-5.56)	(-4.98)				
L.Size					-0.0318	0.0408	-0.0270	-0.0371
					(-0.50)	(0.76)	(-0.66)	(-0.58)
L.Post2008	-0.325***	-0.346***	-0.3422***	-0.3329***	-0.153	-0.271	-0.1755	-0.1658
	(-9.63)	(-9.60)	(-9.45)	(-11.87)	(-0.98)	(-1.89)	(-1.09)	(-0.94)
L.IntInc					1.318**	1.289***	1.3891***	1.4097**
					(3.21)	(3.66)	(3.73)	(3.44)
L.TobinQ	-2.327	-2.613	-2.5565	-2.7073				
	(-1.18)	(-1.27)	(-1.23)	(-1.50)				
L.TCapR					-0.0556	-0.0677	-0.0838	-0.0887
					(-0.84)	(-1.18)	(-1.29)	(-1.25)
No. of obs.	563	563	539	539	575	575	543	543
R^2	0.571	0.567	0.556	0.567	0.316	0.339	0.338	0.311
Adj. R^2	0.568	0.563	0.552	0.563	0.308	0.332	0.330	0.304
R^2 (within)	0.571	0.567	0.5557	0.5673	0.316	0.339	0.3376	0.3115
R^2 (between)	0.132	0.0379	0.0175	0.1054	0.0154	0.00728	0.0247	0.0622
R^2 (overall)	0.0718	0.167	0.1713	0.0911	0.0853	0.0417	0.0981	0.1436
Hausman test	44.08	27.28	25.1989	38.6275	29.80	40.56	36.1978	19.9083
Hausman test: p-value	0	0	0.0001	0	0	0	0	0.0029

4.7.2 The Probability of Participating in Securitisation Businesses

Table 4.14 shows that the probability of any securitisation business participation is driven by (i) the ratios of external directors (*ExDir*), and (ii) the ratios of financial experts (*BF*), and both variables are statistically significant at one percent levels in model (1). In terms of control variables, the levels of total regulatory capital (*TCapR*) and total asset sizes (*logA*) are statistically significant, while the *z-score* and *ImpLoanR* are statistically insignificant. The results shown in Table 4.14 are consistent with Hypothesis 4.11. Additionally, the results are inconsistent with Hypothesis 4.9 and Hypothesis 4.10.

In order to examine the probabilities (the relative risks/hazard rates) between two groups: the control group (*ALCO* = 0) and the treatment group (*ALCO* =1) entering into securitisation businesses, the Cox proportional hazard model (Cox model) is used. *ALCO* = 0 represents banks without assets and liabilities committees, and *ALCO* = 1 represents banks with assets and liabilities committees. The Cox model controls for bank-specific effects (*logA*, *TCapR*, *z-score*, *ImpLoanR*) and clusters standard errors at a bank level.

In terms of robustness tests, the results of the Cox model are compared to those of the exponential regression model, in which the Cox model is a time-varied model, and the exponential regression model is a time-non-varied model. The signs of the coefficients between the two models remain the same, but there are some changes in the statistical significance levels. Two variables (*BL*, *Post2008*) are noticeable, and are statistically insignificant in the Cox model.

The results shown in model (1) of Table 4.14 compare the relative risks (hazard rates) between two groups: the control group (*ALCO* = 0) and the treatment group (*ALCO* =1). The relative risks (hazard rates) are the probability of banks participating in securitisation.

The results in model (1) of Table 4.14 suggest that (compared to the control group banks,) the (treatment group) banks with ALCO may hire more external directors to help them develop their securitisation businesses as the profit margins of their lending businesses deteriorate. This is because of increased capital market competition resulting in higher-quality borrowers obtaining loans from the capital markets (Boot and Thakor, 2000). As a result, banks may be required to develop other businesses to substitute for the loss of high-quality borrowers.

But the results also show that increased ratios of financial experts in the treatment group banks tend to decrease the probabilities of banks engaging in securitisation, indicating that financial experts are likely to play monitoring roles, instead of supervision roles, in banks with ALCOs.

Interestingly, *ALCO*, the *z-score*, and *ImpLoanR* are statistically insignificant, and the total capital reserve ratios (*TCapR*) and asset sizes (*logA*) are statistically significant. The former shows that the decisions of banks to engage in securitisation businesses are not related to the presence of ALCOs, and securitisation is not an effective credit risk management tool.

The results are inconsistent with Hypothesis 4.9, which show that the *z-score* and *ImpLoanR* are statistically and economically insignificant. The finding is consistent with Cardone-Riportella et al. (2010), whose study focuses on Spanish banks between 2000 and 2007. Additionally, securitisation may pose problems in the loan risk-sharing market, because the market is likely to break down if there are large numbers of loan defaults (Duffee and Zhou, 2001).

The results are inconsistent with Hypothesis 4.10, in which the coefficients of *BF* and *BL* are negative, and *BF* is statistically significant in models (1) and (2), indicating that the increased ratios of financial and legal experts on the boards of the treatment group (*ALCO* =1) lower the probabilities of banks participating in securitisation businesses.

The results are consistent with Hypothesis 4.11, which show that: (i) the treatment group banks which have larger asset sizes (*logA*) tend to engage in securitisation, i.e. bigger banks with ALCOs are likely to engage in securitisation businesses, compared to banks that do not have ALCOs. (ii) The results show that an increase of one unit of required regulatory capital (*TCapR*) in banks with ALCOs reduces the probability of banks participating in securitisation. This indicates that banks with low required regulatory capital are likely to securitise their debts, which is consistent with the views that securitisation also allows banks to remove credit risks from their balance sheets as a result of reductions in capital requirements (Altunbas et al., 2009).

In summary, board composition affects decisions by banks to use complex financial problems to enhance growth and facilitate regulatory arbitrage.

Table 4.14 A summary of the results of the Cox proportional hazard model and the exponential regression model.

The table presents the estimates indicating the probability of banks participating in securitisation (hazard rates/relative risks) between the control group banks (*ALCO* =0) and the treatment group banks (*ALCO* =1). *ALCO* is the presence of the assets and liabilities committee at a bank, in which *ALCO* equals 1 when a bank has an ALCO or equivalent at board level; otherwise, *ALCO* equals 0. *ExDir* is the ratio of external directors to the total number of board members. *BB* is the ratio of lifetime bankers to the total number of board members. *BF* is the ratio of financial experts to the total number of board members. *BL* is the ratio of legal experts to the total number of board members. *TCapR* is the total regulatory capital ratio. *logA* is the natural logarithm of the total bank assets. The *z-score* measures the level of insolvency risks at banks. *ImpLoanR* is the percentage of impaired loans over gross loans. *Post2008* is a categorical variable in which 1 equals the years 2008-2013, and 0 equals 2005-2007. *, ** and *** indicate statistical significance at 10%, 5%, and 1%, respectively.

Model	(1)		(2)	
	Cox Proportional Hazard Model		Exponential Regression Model	
	Coefficient	Hazard Ratio	Coefficient	Hazard Ratio
Intercept			-8.908**	0.00
			(-3.04)	
ALCO	0.157	1.17	0.168	1.18
	(0.71)		(0.78)	
ExDir	2.620*	13.74	2.673***	14.48
	(2.50)		(3.42)	
BB	0.0222	1.02	0.0170	1.02
	(1.02)		(0.91)	
BF	-0.0822*	0.92	-0.0761*	0.93
	(-2.00)		(-1.99)	
BL	-0.0771	0.93	-0.0801*	0.92
	(-1.95)		(-2.33)	
TCapR	-0.188**	0.83	-0.161**	0.85
	(-2.87)		(-2.82)	
logA	0.450***	1.57	0.401***	1.49
	(3.58)		(3.36)	
z-score	-0.00103	1.00	-0.000285	1.00
	(-1.01)		(-0.45)	
ImpLoanR	0.0765	1.08	0.0229	1.02
	(0.87)		(0.28)	
Post2008	-38.10	0.00	-1.038***	0.35
	(.)		(-8.71)	
No. of Obs.	606		606	
Log Likelihood	-1,047.9		-413.5	
χ^2	36.17		147.8	
Prob > χ^2	0.00		0.00	

4.8 Conclusion

This section provides empirical assessments on the effects of the board characteristics and the director share ownerships on lending and risk-taking at Japan-listed banks. The empirical findings highlight that internal corporate governance mechanisms which are popular in Anglo-American countries are ineffective at Japan-listed banks. External directors are likely to induce risk-taking at banks. The possible reasons are (i) the nature of insider-dominated boards (i.e. a lack of board independence); and (ii) external directors may act as supervisors or advisors for the development of non-lending businesses at Japan-listed banks.

The results also find that any participation in securitisation businesses by Japan-listed banks is when their assets sizes are large, and their capital reserves are low.

From a policy perspective, alternative governance mechanisms are required to enhance the monitoring effectiveness of Japan-listed banks. This is not to say that banks should replace the majority of their board members with external/independent directors. Given the limited supply of suitable external directors in Japan, Japanese policy makers and banking communities should consider alternative internal governance mechanisms which separate the roles of supervision and monitoring, such as by adopting a two-tier board corporate governance model.

Chapter 5 Institutional Ownerships

5.1 Introduction

In the aftermath of the 2008 financial crisis, policy makers urged institutional shareholders to act as stewards to monitor listed banks (FRC, 2012; Walker, 2009), because institutional shareholders are considered to have sufficient knowledge and understanding of the banking industry to enable them to be effective monitors. Under the efficient market hypothesis, markets signal the performances of companies, and punish their managements when they perform poorly or they govern inadequately (Fama, 1980). In the event of ex ante monitoring, shareholders may also insist that managers of investee companies pursue the interests of their shareholders when they gather for private or annual general meetings (La Porta et al., 1998; Shleifer and Vishny, 1997).

While the conventional view on institutional shareholder monitoring focuses on shareholder wealth maximisation, it ignores the fact that ensuring shareholder maximisation may require forgoing the interests of stakeholders (Hawley and Williams, 1997). The theoretical arguments of Shleifer and Vishny (1997) propose that the effects of ownership structures may differ between the Anglo-American and Japanese systems due to concentrated ownerships and legal investor protections. The authors suggest that Anglo-American countries have strong legal systems that protect both majority and minority shareholders, which emphasise shareholder supremacy.

However, shareholder supremacy and bank governance are likely to be undermined in the banking industry because of regulation restrictions on takeovers, and because of interference by regulatory agencies (Levine, 2003; Prowse, 2014). In order to protect shareholder wealth and improve bank governance, Levine (2003) suggests enhancing investor protections to empower shareholders to act as monitors.

Consistent with the views of Levine (2003), the traditional approach argues that agency costs occur when control and ownership are separated, and agency costs increase with greater non-managerial ownership levels (Jensen and Meckling, 1976). This is because managers may exploit company resources and their decisions may involve taking excessive risks. To resolve the problems of excessive risk-taking, non-managerial shareholders who own residual control rights may develop relationships with their managements and allow agency problems to be controlled by monitoring and by implementing reward systems (Fama and Jensen, 1983a).

In order to examine the effectiveness of (non-managerial) shareholder monitoring, existing empirical research examines the relationships between company performances (or risk-taking

levels), and levels of ownership (Shleifer and Vishny, 1986), investor protections (Levine, 2003), information asymmetry (Gompers and Metrick, 2001), and cross-share ownerships (Araki, 2009), in which each element is arguably inter-dependent with the other. However, it is difficult to examine some of these elements due to data availability. Therefore, the majority of empirical studies focus on examining the effects of ownership structures on monitoring.

In terms of corporate governance studies focusing on Japan, the majority of empirical studies assess the effects of non-financial companies on corporate governance (Miyajima and Kuroki, 2008; Prowse, 1992; Randall et al., 2000; Sakawa et al., 2014). Studying non-financial companies between 1979 and 1984, Prowse (1992) finds that financial institutions and companies that are outside the *keiretsu* groups, and which are majority shareholders, lead to positive relationships between cross-shareholdings and investee company performances. But shareholders belonging to the same *keiretsu* groups lead to negative investee company performances. Similar results are found in Miyajima and Kuroki (2008) whose studies are focused on Japanese companies between 1995 and 2001.

Most empirical studies assess the effects of various types of ownership structures on financial and non-financial companies. Yet, only a few studies (such as Iannotta et al. (2007), De Nicolò and Loukoianova (2007), García-Marco and Robles-Fernández (2008), and Gedajlovic et al. (2005)) assess the effects of ownership structures in terms of different types of shareholders which may have different effects on bank lending and risk-taking. This study argues that the interests of stakeholders and shareholders may be better protected by institutional shareholders who have long-term business relationships with their investee banks. Meanwhile, internal governance mechanisms and the market for corporate control remain weak. This is because mergers and acquisitions are extremely rare in Japan due to cross-shareholding, the protection of community companies, and anti-takeover measures (Hayakawa and Whittaker, 2009; Milhaupt and West, 2003; Whittaker and Hayakawa, 2007).

In Japan, the weak market for corporate control is substituted by long-term shareholder monitoring, which is arguably able to influence the managements of investee companies through long-term relationships (Gibson, 1998; Gilson and Roe, 1993). For example, some of these shareholders may have other business affiliations with their investee companies, and also protect the interests of their stakeholders in an attempt to ensure long-term returns (McGuire and Dow, 2003). Moreover, if internal control mechanisms have not been effective as a result of excessive risk-taking at banks/companies, the governance mechanisms may be substituted by the institutional investors/shareholders (Walker, 2009).

The empirical framework of this chapter is based on the theoretical frameworks proposed by Shleifer and Vishny (1997) and Levine (2003), and makes two testable predictions assessing (i) whether six different types investors affect the levels of lending and insolvency risk of their investee banks; and (ii) whether domestic financial institutional shareholders are better at monitoring Japanese banks, compared to other types of investors.

To assess the predictions empirically, a database was compiled and consisting of 662 bank-year observations of Japan-listed banks between 2005 and 2013. The data was extracted from the *Bankscope* database. On ownership, bank level data were collected based on the types of investors, of which only 11 types of institutional investors and were considered and were re-assigned into six categories of institutional shareholders: (i) foreign financial institutions, (ii) foreign non-financial companies, (iii) foreign governmental institutions, (iv) domestic financial institutions, (v) domestic non-financial companies, and (vi) domestic governmental institutions. Among these institutional investors, some of the foreign and domestic financial institutions were not among the top 10 shareholders, but hold sufficient levels of bank shareholdings. This study argues that the nature of each institutional shareholder may differ. Some may focus on shareholder wealth maximisation, while others may emphasise the health of the financial conditions of their banks, or may safeguard the interests of their stakeholders.

Furthermore, in order to mitigate the problems arising from endogeneity and heterogeneity, the fixed-effects (FE), random-effects (RE) and the system generalised method of moments (GMM) Arellano Bond estimations are used to investigate the effects of different types of shareholders on lending and risk-taking (i.e. insolvency risks (*z-score*)). In order to resolve the problems of the large heterogeneity of the sample and the overly persistent autoregressive process, the GMM estimations are computed using (i) an option that the estimated variance–covariance matrix is robust to heteroscedasticity, and (ii) an additional moment condition is used (Arellano and Bover, 1995; Blundell and Bond, 1998).

The results show that only three independent variables (*FNFC*, *DGov* and *FFI*) are statistically significant in testing against levels of lending (*LoanDeps*) or risk-taking (*z-score*) in the FE and GMM estimations.

The key findings are as follows. First, contrary to the recommendations of policy makers (FRC, 2012) and previous findings relating to foreign investors in Japan (Ahmadjian, 2008; Jacoby, 2009), this chapter finds that foreign financial institutional shareholders may not be the best monitors. Instead, the results show a positive relationship between foreign financial institutional share ownerships and the insolvency risks of the associated investee banks. This may be due to (i) financial institutional shareholders encouraging risk-taking at banks as a

result of increased exposures to non-lending businesses, or (ii) foreign financial institutional shareholders not having sufficient levels of information to monitor their investee banks effectively as a result of the home bias, i.e. the information may only be available to domestic investors.

Second, governmental institutional ownerships dampen corporate governance at banks as a result of increased insolvency risk levels. The findings are consistent with theoretical assumptions (Levine, 2003; Shleifer and Vishny, 1997), which argue that state ownerships lead to lower levels of corporate governance at banks and increase the possibility of excessive risk-taking.

Third, a negative relationship exists between levels of domestic financial institutional ownerships (*DFI*) and the *z-score*, indicating that domestic financial institutions, which are also majority shareholders, encourage risk-taking at banks. The finding is contrary to the theoretical assumptions proposed by Shleifer and Vishny (1986), in which concentrated shareholders have greater resources and incentives to effectively monitor their investee companies.

To explore more fully the effects on the lending and risk-taking behaviours of banks, section 5.6 tests the robustness of the results by assessing the effects of various types of institutional shareholders on the levels of interest incomes and impaired loans. Although the findings are not fully robust, they provide additional information relating to the effects of institutional investors on corporate governance.

This section concludes that the effectiveness of risk-monitoring may be subject to shareholder objectives, and state-ownerships may hinder risk-monitoring at banks as their objectives differ from those of private-ownerships. Moreover, foreign financial investors increase risk-taking at banks.

This chapter is structured as follows. Section 5.2 reviews literature on the effects of various types of institutional investors. Section 5.3 presents the conceptual framework and its associated hypotheses. Section 5.4.1 summarises the data samples. Section 5.4.2 provides descriptions of the variables used in the empirical analyses. Section 5.4.3 provides summary statistics. Section 5.5 provides brief overviews of the methodology used in this chapter. Section 5.6 discusses the results. Section 5.7 contains the conclusions.

5.2 Literature Review

5.2.1 Institutional Shareholders

Scholars argue that investment strategies are often affected by residual claims (Fama and Jensen, 1985), in which concentrated shareholders (institutional investors) are incentivised to monitor the managements of their investee companies for shareholder wealth maximisation (Shleifer and Vishny, 1986), and, ideally, shareholder gains are required to offset the monitoring costs (Maug, 1998).

Shleifer and Vishny (1986) suggest that large shareholders (i.e. block shareholders/institutional investors) limit agency problems, and are likely to have greater resources and incentives to monitor the boards of their investee companies for three reasons, although there may be free-riding by minority shareholders. First, institutional investors are likely to have greater access to information compared to small investors. Therefore, they are able to negotiate informally with company managements over any institutional changes. Second, institutional investors have greater controls over their investee companies through their shareholdings, which allow them to request proxy votes to overturn decisions or replace the managements of their investee companies. Third, institutional investors are likely to maximise shareholder wealth (i.e. incentives) – by increasing the share prices of their investee companies or by increasing dividend payments – by influencing the decision-making processes of their investee companies.

Mixed results are found when assessing the effects of ownership structures. By studying 500 US companies, Demsetz and Lehn (1985) find no relationships between levels of concentrated ownerships and company performances. On the contrary, Douma et al. (2006) suggest that there are positive relationships between levels of domestic corporate ownerships and the performances of investee companies, because these shareholders have business affiliation with their investee companies. These findings indicate that cash flow and control rights may be separated, during which concentrated shareholders may not be effective monitors if their control rights are limited, and their cash flow and control rights are separated in a dual class stock structure. In this circumstance, control rights may be improved through formal and informal shareholder engagements such as voting, shareholder activism, and consultations on the remuneration and nomination processes.

Contrary to the conventional views on concentrated shareholders (Shleifer and Vishny, 1986), studying European banks between 1999 and 2008, and García-Kuhnert et al. (2015) find that banks with diversified shareholders tend to have greater risk-taking levels, indicating that a

positive relationship exists between levels of ownership and control rights which affect shareholder monitoring effectiveness.

In the context of Japan, although levels of foreign ownerships remain low compared to domestic ownerships, the increased levels of foreign shareholders arguably alter corporate governance practices in Japanese companies. In the empirical studies assessing the impacts of shareholders on corporate governance, scholars find that foreign shareholders improve market liquidity and transparency in Japan (Sakawa et al., 2014), facilitate management turnovers as a result of influencing internal monitoring (Denis et al., 1997), and change internal governance mechanisms, such as increased board independence, through shareholder activism (Gillan and Starks, 2003).

Contrary to the effects of foreign shareholders on corporate governance practices, other scholars find that majority shareholders, who are cross-shareholders, may lead to poor disclosures by their investee companies (Fan and Wong, 2002; Sakawa et al., 2014), and reduce the disciplinary effects of markets (Sakawa et al., 2014) in both East Asian countries and Japan.

Another school of literature examines the effects on minority and majority shareholders. Backer (2002) argues that majority shareholders may owe fiduciary duties to minority shareholders, but empirical studies find that agency costs increase when concentrated shareholders try to influence their managements in order to maximise the interests of concentrated shareholders at the expense of minority shareholders and other stakeholders (Claessens et al., 1999; Young et al., 2002), such as through excessive risk-taking. Similar results are found in a cross-country study (Laeven and Levine, 2009), in which the authors suggest that a positive relationship exists between concentrated ownerships and risk-taking at banks, indicating that concentrated ownerships increase agency costs.

Following the above arguments, this chapter examines the effects of different types of institutional shareholders on the corporate governance of banks that results in different lending and risk-taking behaviours. The following sections review literature on various types of shareholders associated with corporate governance.

5.2.2 Domestic Institutional Shareholders

Domestic investors are arguably better monitors than foreign investors, because they have in-depth understandings of their domestic business environments (Gehrig, 1993). Information asymmetry between domestic and foreign investors is driven by the nature of private

information structures (Choe et al., 2004; Coval and Moskowitz, 1999), from which foreign investors can obtain country-specific information through intermediaries.

Empirical studies show that domestic investors tend to have superior information as a result of home ground advantage. Studying Korean companies between 1996 and 1998, Choe et al. (2004) find that foreign investors generally pay more and sell less compared to domestic investors, despite the fact that foreign investors are more experienced and have greater access to research information. Similarly, Coval and Moskowitz (1999) find that US domestic investors tend to invest in US companies rather than invest abroad. These findings suggest that domestic investors tend to have greater access to local information, and have better ties with the executives of local companies. Large foreign investment companies are arguably likely to have the same access to local information as domestic investors, and they may also have greater recourse to proprietary research information (Coval and Moskowitz, 1999).

From a corporate governance perspective, Douma et al. (2006) find that domestic institutions often have group businesses that are affiliated with investee companies, and are able to have positive influences on the performances of investee companies. Scholars also argue that cross-shareholders may influence the internal governance of companies (Claessens et al., 2000; Douma et al., 2006). In summary, these studies imply that domestic institutions have greater access to company-specific information, and are able to influence the managements of their investee companies through their affiliations and concentrated ownerships.

In contrast with these results, Ahmadjian and Robbins (2005) find that cross-shareholdings with domestic shareholders may block monitoring by investors who are outside the cross-shareholding groups. Sakawa et al. (2014) suggest that cross-shareholding lowers information asymmetry. As a result, cross-shareholding increases agency costs (Isagawa, 2007).

In summary, mixed results are shown in empirical studies. It should be noted that most of these empirical studies are based on countries that are operating under bank-based corporate governance systems in which large creditors play monitoring roles.

5.2.3 Foreign Institutional Shareholders

Scholars suggest that the investment objectives of foreign institutional investors are either profit-oriented (Ahmadjian, 2008), or technology-driven, in which foreign investors bring state-of-the-art technologies and human capital to their investee banks (Bonin et al., 2005), instead of developing long-term relationships with investee companies/banks (Ahmadjian and Robbins, 2005). At the same time, foreign investors may also influence the corporate governance standards of their investee companies through voice or by threating to exit their

investments (Ahmadjian and Robbins, 2005), and can do so free from political influences (Choe et al., 2004).

Foreign investors who come from countries with greater standards of corporate governance believe that poor corporate governance may dampen company performances. As a result, they often encourage their investee companies to initiate corporate governance reforms (Ahmadjian, 2008; Jacoby, 2009), and demand greater board independence (Jacoby, 2009), management/CEO accountability, transparency, and disclosure (Sakawa et al., 2014).

From a performance perspective, some empirical studies show that foreign institutional share ownerships are positively related to corporate growth (Shinada, 2010), market liquidity (Sakawa et al., 2014), and downsizing and restructuring (Ahmadjian and Robinson, 2001). On the contrary, Ahmadjian and Robbins (2005) find that Japanese non-financial companies with greater levels of domestic financial ownerships are less affected by foreign investors. The results might not be surprising, since Japanese non-financial companies are likely to be shielded from foreign investor voice or exit threats, and their friendly shareholders are unlikely to vote against them.

In terms of risk-taking at banks, few studies assess banks with foreign ownership. Instead, studies compare different risk-taking and performance levels between state-owned, domestic-privately-owned, and foreign-owned banks (Agoraki et al., 2011; Buch and DeLong, 2008; Deyoung and Nolle, 1996; Kick and von Westernhagen, 2009; Laeven and Levine, 2009). Overall, the literature finds that foreign-owned banks/banks with majority foreign ownerships are less profitable (Deyoung and Nolle, 1996), but the results on risk-taking are mixed. When studying banks from emerging-market countries between 1992 and 1996, Laeven (1999) finds that banks with majority foreign ownerships tend to take fewer risks, because they are less likely to commit insider lending. Similar results are found in Agoraki et al. (2011) and the authors find that foreign-owned banks enjoy better human resource and information technologies in transition economy countries. On the contrary, Buch and DeLong (2008) find that foreign-owned banks tend to engage in riskier projects, if these banks originate from countries with weaker supervisory frameworks.

Nevertheless, the findings do not conclude whether foreign investors are better or worse monitors, compared to domestic investors. Although foreign investors may suffer from information asymmetry (Choe et al., 2004; Gehrig, 1993), compared to domestic investors, the majority of empirical studies suggest that foreign investors originating from countries with strong corporate governance and supervisory frameworks could provide technological advancements and guidance on corporate governance enhancements for their banks.

Additionally, foreign investors may overcome the home bias and effectively monitor their investee companies through voice or exit mechanisms (Miyajima and Hoda, 2015).

5.2.4 Shareholders: Financial Institutions versus Non-Financial Companies

Theoretical arguments propose that the investment decisions of companies are affected by their different types of shareholders (Fama and Jensen, 1985), because their residual claims and residual risk bearing tolerances often differ. Additionally, the risk preferences of financial institutional investors and non-financial companies also arguably differ because they have different investment objectives and investment horizons. Financial institutional investors might focus on profit maximisation and portfolio risk diversification, while non-financial institutional investors might place an emphasis on the survival of their investee companies, with which they may have business affiliations. Additionally, financial institutions (such as pension funds or wealth management companies) may also have fiduciary duties on behalf of beneficiaries (Hawley and Williams, 1997). Fiduciary duties require institutions to promote and safeguard the interests of their beneficiaries. As a result, the criteria for the stock selection processes of financial institutions emphasise whether the stocks are part of a major index which fulfils the performance and corporate governance requirements (Lysandrou and Stoyanova, 2007; Miyajima and Hoda, 2015), because these stocks are likely to have greater levels of disclosure as a result of the reduced cost of monitoring.

Non-financial companies and financial institutions may use different performance indicators as benchmarks, which helps them to identify the strategic activities and the strategic plans of their investee companies. Non-financial companies are likely to assess company performances using performance indicators such as sales growth to measure the profitability and market shares of their investee companies. On the contrary, financial institutions may prefer to use financial performance matrices, such as return on equity and return on assets, as performance indicators, which emphasise shareholder returns and long-term probability trends.

Studying European non-financial companies, Thomsen and Pedersen (2000) find that levels of financial institutional shareholdings are positively associated with the financial performances of their investee companies, and that non-financial company shareholders have greater effects on sales growth, but have negative effects on financial performances of their investee companies. But similar research suggests otherwise. Studying the banks of western European countries between 1999 and 2008, Barry et al. (2011) find that the risk-return preferences are similar between financial institutions and non-financial companies, except for banks with greater levels of financial institutional ownerships that tend to decrease their credit risk levels. This indicates that the investment objectives of financial institutional shareholders may be

similar to those of their investee banks. The authors also find positive associations between the concentrated ownerships of non-financial companies and insider lending, indicating the possibility of shareholder expropriations.

Furthermore, studying Japanese non-financial companies between 1985 and 2002, Miyajima and Kuroki (2008) find a positive relationship between financial institutional ownerships and company performances, but a negative relationship between stable shareholders and company performances. This indicates that financial institutions have greater monitoring abilities which lead to improved performances at their investee companies.

In summary, the empirical results are consistent with the theoretical framework of Fama and Jensen (1985), and show the characteristics, the possible investment objectives, and their influences on their investee companies. However, these studies have not considered the time-horizons and the levels of investor portfolio diversification. Perhaps time-horizons and portfolio diversification may not be the only considerations affecting monitoring. Other factors, such as cross-shareholdings, geographical proximities, and business affiliations, should be taken into account.

5.2.5 Government Shareholders (Domestic and Foreign)

The objectives of governmental authorities may differ when compared to private companies, in which state-owned/public sector banks are controlled by bureaucrats who have no cash flow rights (Shleifer and Vishny, 1997). In this circumstance, governmental authorities/bureaucrats may forgo profit maximisation for social objectives or political goals (Levine, 2003; Shleifer and Vishny, 1994, 1997), which lead to inefficiencies (Shleifer and Vishny, 1997) and poor performances (Berger et al., 2005) at banks.

The majority of empirical studies find that state-owned/public sector banks tend to take greater risks, because they are less restrained from insider lending (Laeven, 1999), moral hazards resulting from explicit guarantees (Iannotta et al., 2007), or for the purpose of economic policies and enhancing economic welfare (García-Marco and Robles-Fernández, 2008). Additionally, the natures of risks are likely to differ between state-owned and privately-owned banks (García-Marco and Robles-Fernández, 2008), in which state-owned banks tend to increase their credit risk levels through lending, while privately-owned banks tend to generate other types of risks through non-lending businesses.

Contrary to domestic governmental authorities, foreign states may invest abroad for a variety of reasons, ranging from political, nonfinancial social (creating employment or obtaining technologies for their domestic companies), or for strategic and financial objectives (Fotak et

al., 2008; Gilson and Milhaupt, 2007). The foreign states often invest through their sovereign wealth funds (SWFs), and invest in foreign currency-denominated assets (Jen, 2007; Johnson, 2007).

From a corporate governance perspective, empirical studies find mixed results on the monitoring of SWFs. Scholars argue that the fund managers of SWFs are likely to have prior knowledge relating to the polices of governments that affect their investee companies (Fotak et al., 2008; Gilson and Milhaupt, 2007). As a result, these fund managers may lobby for potential policy changes that benefit/harm their investee companies. Moreover, the majority of share ownerships have also given SWFs the right to appoint their representatives to the boards of their investee companies for monitoring purposes (Dewenter et al., 2010). However, Gilson and Milhaupt (2007) argue that the controlling (voting) rights may be removed from the governments of investee companies for national security reasons, and the removal of controlling rights is likely to prevent the SWFs from changing the corporate governance standards of their investee companies.

Empirical studies find mixed results between levels of SWF ownerships and company performances. Dewenter et al. (2010) find a positive relationship between SWFs and the performances of their investee companies, and the authors argue that there are possible signalling effects, i.e. the market perceives that SWFs may have insider information. On the contrary, the empirical study of Fotak et al. (2008) shows a negative relationship between SWFs and the performances of their investee companies, which suggests that the SWFs increase agency costs due to conflicting interests between them and the managements of their investee companies.

In summary, empirical studies suggest that state ownerships lead to poor bank governance, while the effects of SWFs are similar to those of financial institutions which are likely to improve bank governance. It is not clear whether the SWFs have any political motives which could affect lending and risk-taking at banks.

5.2.6 Ownership Structures of Japanese Companies

In Japan, the external governance role is traditionally performed by the main banks, which are able to influence and monitor their borrowers through cross-shareholding, and relationship banking and lending.

The ownership structures of Japanese companies and banks have been widely studied from three perspectives: (i) cross-shareholdings, (ii) foreign investors, and (iii) the convoy system. The first two perspectives are arguably in conjunction with each other, because the reduction

of cross-shareholding has prompted increased ownerships by foreign investors in Japanese companies and banks. The latter (the convoy system) is a mechanism which prevents competition among Japanese banks, and is designed to encourage healthier banks to support weaker banks for the benefit of the stability of the whole Japanese banking industry.

5.2.6.1 Cross-shareholdings and Foreign Investors

Stable cross-shareholdings arise from the *keiretsu*, in which a group of companies hold shares in each other, and have close ties with their main banks through relationship banking and lending. These companies establish and maintain long-term business relationships with each other through their *keiretsu* group networks. As a result of cross-shareholdings, companies are insensitive to profits, able to focus on employee-centred corporate governance, and can resist takeovers (Araki, 2009; Miyajima and Kuroki, 2008). From the external governance perspective, non-financial companies are monitored by their main banks and their majority shareholders, which belong to the same *keiretsu* group (Kang and Shivdasani, 1995; Randall et al., 2000; Yafeh and Yosha, 2003).

In the aftermath of the banking crisis of the 1990s, the majority of Japanese studies shifted their research interests from cross-shareholding to (i) the effects of the unwinding from cross-shareholding, and (ii) examine the effects of companies resulting from the ownerships of main banks being substituted from those of foreign and domestic shareholders. The unwinding from cross-shareholding between 1995 and 2002 was due to (i) the weakened main bank relationships, and (ii) the increased awareness of the high risks of holding bank shares as a result of the 1990s banking crisis (Miyajima and Kuroki, 2008).

As a result of the unwinding, scholars argue that the rapid change of ownership structures led to the growing number of foreign investors (Araki, 2009, p. 224), which gradually changed the Japanese corporate governance model from stakeholder supremacy to shareholder supremacy (Ahmadjian, 2008). As a result of these changes, scholars find that (i) foreign investors tend to pressure their Japanese investee companies to adopt specific governance practices which may enhance shareholder returns (Jacoby, 2009), and (ii) there is an increased awareness of fiduciary responsibility among the domestic financial institutional investors (Miyajima and Hoda, 2015).

Despite the unwinding of cross-shareholding, the influences of foreign investors are limited to companies that receive strong support from their main banks. By studying Japanese non-financial companies between 1991 and 1997, Ahmadjian and Robbins (2005) find a positive relationship between foreign ownerships and the likelihood of non-financial companies downsizing, but companies show no propensity to downsize if they are largely owned by

domestic financial institutions. Scholars also find that domestic financial institutions continue to be the majority shareholders of banks, and these domestic financial institutions and their investee banks are likely to be affiliated with bank-oriented or *keiretsu* groups (Hiraki et al., 2003; Miyajima and Hoda, 2015).

Even with the increased influences of foreign investors, domestic financial institutions (such as the main banks and pension funds) remain the key monitors of Japanese companies. By studying Japanese financial companies between 1998 and 2008, Miyajima and Hoda (2015) find that financial performances and investments in growth are positively associated with the ownership levels of foreign and domestic institutions, indicating that foreign and domestic institutions monitor and strengthen the financial performances of their (Japanese) investee companies. At the same time, both foreign and domestic institutions promote the long-term values of their investee companies, instead of only focusing on short-term returns.

In summary, in the absence of main bank monitoring, foreign investors play an important role in monitoring their Japanese companies (Ahmadjian and Robbins, 2005), and promoting corporate governance reforms (Ahmadjian, 2008). Overall, these changes are improving the awareness of fiduciary responsibilities among Japanese financial institutions, and are gradually shifting the Japanese corporate governance model from stakeholder to shareholder supremacy (Dore, 2000; Jacoby, 2009). Nevertheless, foreign investor monitoring mechanisms are still limited by the *keiretsu* groups, and various anti-takeover mechanisms.

5.2.6.2 The Convoy System

The convoy system is designed to protect weak banks and to maintain the stability of the Japanese banking industry, which prohibits competitive behaviour. In order to prevent any Japanese banks from collapsing, large banks may acquire small (potentially failing) banks as directed by their government. However, following governmental guidelines and incorporating social distributions are likely to dampen shareholder rights, instead of maximising profits (Tandon, 2005).

Studying the Japanese banking industry, scholars argue that the convoy system creates moral hazards, because banks were taking excessive risks to increase profits (Hoshi, 2002; Malcolm, 2001). This is because (i) the convoy system prevents weak banks with large volumes of non-performing loans from failing (Malcolm, 2001, pp. 97–101), (ii) the government provides explicit guarantees to persuade healthier banks to acquire failing banks (Hoshi, 2002), and (iii) the government provides additional liquidity to support mergers between failing banks (Hosono et al., 2009). As a result, the convoy system weakens the external monitoring and disciplining processes.

Although takeover mechanisms (such as the disciplining process) exist, mergers and acquisitions of Japanese banks are (i) normally conducted under the instructions of the Ministry of Finance (Hoshi, 2002; Malcolm, 2001), or (ii) under the same bank-oriented or *keiretsu* groups (Anderson and Campbell II, 2000).

Additionally, empirical studies and industry research show that the Japanese government introduced various forms of implicit protection mechanisms to prevent banks from bank runs (Suzuki, 2011a). These mechanisms include (i) deposit insurance schemes, (ii) central bank lender of last resort facilities, (ii) information sharing mechanisms between regulators and major banks which ensure greater flexibilities for regulators to amend financial regulations to resolve structural problems, and (iv) allowing the government to inject funds into problem banks in the form of equity (Moody's, 2013).

Additionally, the revised 2001 Deposit Insurance Corporation (DIC) Act provides a permanent framework for helping failing banks, including the DIC taking over failing banks, and then transferring them to assuming financial institutions (Harada et al., 2015). Moreover, the Japanese government introduced public capital infusion programs in 1998 and 1999, which injected public money into banks, which are systematically important major bank (Guizani and Watanabe, 2016). Although the polices of the Japanese government no longer explicitly guarantee that they will rescue failing banks, the DIC Act and the public capital infusion programs provide a softened version of the convoy system.

Despite the fact that Japanese banks continue to operate under the (softened) convoy system, scholars find that it has weakened since the late 1990s banking crisis (Hoshi, 2002), and shareholder value has improved. The study of Radić (2015) assessing Japanese banks between 1999 and 2011 finds that Japanese banks generate at least 40 percent greater shareholder value for their owners. In particular, the author finds that small Japanese banks tend to have higher shareholder value creation, compared to large Japanese banks. Similar results are found in Lazonick and O'Sullivan (2000).

In summary, the (softened) convoy system or the newly formed implicit protection mechanisms may hinder the external governance control mechanisms of Japanese banks. Nevertheless, Japanese policy makers should consider alternative measures to safeguard the interests of stakeholders, to be accountable to shareholders, and to ensure the stability of their banking industry.

5.3 Conceptual Framework and Hypotheses Development

Shleifer and Vishny (1997) suggest a strong relationship exists between ownership and control, in which concentrated ownerships reduce agency costs. The conceptual framework of this study focuses on ownership structures (different types of shareholders) which have different investment objectives and risk appetites. As a result, their influences are likely to affect the business strategies of their investee banks, such as levels of lending and risk-taking.

Six categories of institutional shareholders are considered: (i) foreign financial institutions (*FFI*), (ii) foreign non-financial companies (*FNFC*), (iii) foreign governmental institutions (*FGov*), (iv) domestic financial institutions (*DFI*), (v) domestic non-financial companies (*DNFC*), and (vi) domestic governmental institutions *DGov*. *FFI*, *FNFC*, *FGov*, *DFI*, *DNFC*, and *DGov* are the percentage of shares owned by each type of institutional shareholder.

Five hypotheses are used to examine the effects of different types of institutional shareholders on levels of bank lending and insolvency risks.

Hypothesis 5.1 suggests that (i) a positive relationship exists between domestic financial institutional shareholders (*DFI*) and lending ratios (*LoanDeps*), and (ii) a negative relationship exists between foreign financial institutional shareholders (*FFI*) and lending ratios (*LoanDeps*).

The hypothesis argues that domestic and foreign financial institutional shareholders have the incentives and have acquired sufficient knowledge to monitor their investee banks, but their monitoring effects may differ as a result of different investment objectives (Douma et al., 2006).

The investment objectives of domestic and foreign financial institutional shareholders are likely to differ for two reasons. First, domestic financial institutions are likely to have closer ties, and/or long-term business relationships with their investee banks (Ahmadjian and Robbins, 2005; Douma et al., 2006). Domestic financial institutions are likely to encourage their banks to lend more, because increased credit supply may promote domestic growth, and as a result benefit domestic (financial and non-financial) companies. Second, foreign financial institutions may focus on financial returns (Grinblatt and Keloharju, 2000; Jacoby, 2009), and they may encourage their investee banks to lend less and re-distribute their resources away from lending as a result of the low interest rate environment in Japan (Nishiguchi, 2011). Moreover, foreign financial institutions, which are more familiar with transactional banks, are likely to be less familiar with the relationship lending practices of Japan-listed banks, because the lending decisions of Japan-listed banks depend on soft information. Therefore, foreign

financial institutional shareholders are less likely to rely on soft information and to encourage their investee banks to lend to companies that have low credit scores (Berger and Udell, 2002).

Therefore, this hypothesis argues that domestic financial institutions are likely to the safeguard interests of stakeholders, while foreign financial institutions are likely to safeguard interests of shareholders.

Additionally, foreign financial institutions may encourage their investee banks to invest in risky businesses (and change their business models to be closer to the bank holding company models that are operating in Anglo-American countries), while domestic financial institutions may prefer their investee banks to reduce their risk-taking and focus on stable income streams.

Hypothesis 5.2 argues that *DFI* are likely to discourage their investee banks from taking risks (i.e. *DFI* is positively associated with the *z-score*), while *FFI* are likely to encourage their investee banks to increase levels of insolvency risks (i.e. *FFI* is negatively associated with the *z-score*).

Hypothesis 5.3 argues that the investment objectives of non-financial companies may be long-term, as they focus on the health of their investee banks, and encourage their banks to focus on their core businesses, i.e. lending. The hypothesis argues that *DNFC* and *FNFC* are likely to encourage their investee banks to lend more, and to discourage their investee banks from investing in non-lending businesses such as derivatives businesses, because non-financial companies are unlikely to acquire sufficient levels of knowledge to effectively monitor their investee banks.

Risk monitoring arguably varies between financial institutions and non-financial companies (Gedajlovic et al., 2005), and between domestic and foreign companies (Grinblatt and Keloharju, 2000). This is for two reasons. First, it is because of levels of information asymmetry. Scholars argue that information asymmetry between domestic and foreign investors is driven by the nature of private information structures (Choe et al., 2004; Coval and Moskowitz, 1999). Domestic investors may have home ground advantage, which enables them to obtain information through local business partners and personal networks (Douma et al., 2006). Contrary to domestic investors, foreign investors can only obtain country-specific information through intermediaries (Choe et al., 2004).

Second, incentives to monitor their investee banks invariably differ between domestic and foreign investors (Douma et al., 2006; Gedajlovic et al., 2005). Japanese domestic investors are likely to have business affiliations with their investee banks, and are less likely to focus on

financial returns (Gedajlovic et al., 2005). On the contrary, foreign investors are more likely to be profit-oriented (Jacoby, 2009), and are more likely to dispose of their investments if the country of their investments is experiencing economic uncertainties (Adler et al., 2016).

In addition, Thomsen and Pedersen (2000) find that non-financial companies are likely to monitor the performances of their investee banks by evaluating their sales levels and market shares (i.e. volumes of lending), while financial institutions are likely to monitor the performances of their investee banks by using financial-based and market-based performance indicators, such as stock prices, Tobin's Q, ROA and ROE.

Hypothesis 5.4 argues that, first, domestic financial institutions (*DFI*) are the best risk monitors compared to other institutional investors and non-financial companies. This hypothesis argues that domestic financial institutions are one of biggest shareholders and may be, arguably, under the same *keiretsu* group (Suzuki, 2011a).

On the contrary, domestic non-financial companies (*DNFC*) and foreign financial institutions (*FFI*) may induce their investee banks to take greater risks (Jacoby, 2009). Second, the hypothesis argues that (i) these domestic non-financial companies are likely to have relationship-banking business with their investee banks, and may persuade their banks to provide insider lending (Barry et al., 2011); and (ii) foreign financial institutions may encourage their investee banks to take greater risks to maximise profits (Buch and DeLong, 2008; Jacoby, 2009).

Third, the hypothesis further argues that foreign non-financial companies (*FNFC*) are ineffective at monitoring the risks of investments in businesses that may be using products such as derivatives. They may not have acquired the expertise and information to monitor their investee banks as a result of the complexity of the banking business and the Japanese business culture. Figure 5.1 shows the degrees of risk monitoring abilities among different types of shareholders.

Hypothesis 5.5 argues that foreign and domestic governmental institutions (*FGov*, *DGov*) encourage banks to lend less. This is because the balance sheets of Japanese banks are heavily exposed to the credit and liquidity risks which led to the Japanese banking sector being structurally fragile because of the slowdown in Japan's economy and the 2008 financial crisis (Nishiguchi, 2011). This hypothesis argues that foreign governmental institutions (*FGov*) would be better at monitoring compared to domestic governmental institutions (*DGov*), because they are free from political influence (Choe et al., 2004). This hypothesis further argues that *DGov* is likely to be positively associated with risk-taking (i.e. especially non-lending risks) at Japanese

banks, and the Japanese government may encourage banks to diversify their lending at home and abroad, as loan demand has been decreasing since the 1990s.

Figure 5.1 Degrees of Risk Monitoring Abilities Model

	Domestic	**Foreign**
Non-Financial Companies	Low	Insignificant
Financial Institutions	High	Low

Hypothesis 5.1 - Hypothesis 5.5 are examined using the following models.

Model 5.1:

$$Y_{i,t} = \alpha_{i,t} + \beta_1 FFI_{i,t-1} + \beta_2 FNFC_{i,t-1} + \beta_3 FGov_{i,t-1} + \beta_4 TCapR_{i,t-1} + \beta_5 Disc_{i,t-1} + \beta_6 Post2008_{i,t-1} + \varepsilon_{i,t}$$

Model 5.2:

$$Y_{i,t} = \alpha_{i,t} + \beta_1 DFI_{i,t-1} + \beta_2 DNFC_{i,t-1} + \beta_3 DGov_{i,t-1} + \beta_4 TCapR_{i,t-1} + \beta_5 Disc_{i,t-1} + \beta_6 Post2008_{i,t-1} + \varepsilon_{i,t}$$

where $Y_{1i,t}$ is (i) the lending ratio (*LoanDeps*) of bank *i* in time *t*, (ii) the insolvency risk level (*z-score*) of bank *i* in time *t*, (iii) the level of interest incomes (*IntInc*) of bank *i* in time *t*, and (iv) the level of impaired loans (*ImpLoanR*) of bank *i* in time *t*.

FFI is the level of foreign financial institutional ownerships. *FNFC* is the level of foreign non-financial institutional ownerships. *FGov* is the level of foreign governmental ownerships. *DFI* is the level of domestic financial institutional ownerships. *DNFC* is the level of domestic non-financial institutional ownerships. *DGov* is the level of domestic governmental ownerships. *TCapR* and *Disc* are used to control for bank-specific effects. *Post2008* controls for year-specific effects. *TCapR* is the total regulatory capital ratio. *Disc* measures the level of bank financial disclosure. *Post2008* is a categorical variable in which 1 equals the years 2008-2013, and 0 equals 2005-2007. The fixed-effects (FE), random-effects (RE) and the system

generalised method of moments (GMM) Arellano Bond estimations are used to examine Model 5.1 and Model 5.2.

5.4 Data and Variable Descriptions

5.4.1 Data Sample

The objective of this section is to examine the effects of institutional ownership structures on bank lending and risk-taking using data consisting of Japan-listed banks from 2005 to 2013.

Information on individual banks and their shareholders was extracted from the *Bankscope* and *Datastream* databases. In the *Bankscope* database, both consolidated and unconsolidated financial account data are available. The consolidated data was used to study lending and risk-taking behaviours by banks.

Levels of institutional ownership were extracted from the *Bankscope* database, in which types of shareholders were filtered. Nine categories of shareholders were selected from the *Bankscope* database: (i) banks, (ii) financial companies, (iii) foundations/research institutes, (iv) industrial companies, (v) insurance companies, (vi) mutual and pension funds/nominees/trusts/trustees, (vii) private equity firms, (viii) publicly listed companies, and (xi) public authorities, states, governments.

These nine types of shareholders were then categorised into six groups: (i) foreign financial institutions (*FFI*), (ii) foreign non-financial companies (*FNFC*), (iii) foreign governmental institutions (*FGov*), (iv) domestic financial institutions (*DFI*), (v) domestic non-financial companies (*DNFC*), and (vi) domestic governmental institutions (*DGov*).

The original sample data consists of 662 bank-year observations between 2005 and 2013 containing 73 Japan-listed banks. The sample banks are listed on their domestic stock exchanges, which fulfilled the listed bank requirements such as corporate governance requirements, disclosure requirements. These listed-bank corporate governance requirements include the need to appoint outsiders to boards, to adopt specific board structures and the need to fulfil the regulatory capital and disclosure requirements. The data is an unbalanced panel.

5.4.2 Variable Descriptions

This chapter attempts to examine the effects of different types of institutional shareholders on bank lending and risk-taking at Japan-listed banks from 2005 to 2013.

The following sub-sections briefly present the definitions of dependent and control variables, which are discussed in sections 4.5.2.1 and 4.5.2.3 of chapter four in detail. Additionally, section 5.4.2.2 discusses the definitions of independent variables in detail.

5.4.2.1 Dependent Variables

There are four dependent variables. Banking lending ratios (*LoanDeps*) and the insolvency risk levels (*z-score*) are used in Model 5.1 and Model 5.2, which assess the effects of various institutional share ownerships. The levels of interest incomes (*IntInc*) and impaired loans (*ImpLoanR*) are used as alternative measures of *LoanDeps* and the *z-score* in robustness tests, respectively.

5.4.2.1.1 Bank Lending Ratios (*LoanDeps*)

Bank lending ratios are the ratios of loans to total deposits, money market and short-term funding (*LoanDeps*), which the data is extracted from using the *Bankscope* database. The ratios of loans to total assets also show the composition of the asset portfolios of banks (Novickytė and Petraitytė, 2014), which consist of loans and investment securities.

5.4.2.1.2 Insolvency Risk Levels (*z-score*)

The level of bank risk-taking is a measure of a bank being insolvent (*z-score*), in which the lower value of the *z-score* indicates a higher probability of insolvency risks at a bank (Hannan and Hanweck, 1988; Roy, 1952).

It is often used in a number of empirical studies to examine the relationships between the financial stabilities of countries and their banking sectors (De Nicolo, 2000; Laeven and Levine, 2009; Yeyati and Micco, 2007). The *z-score* is defined as

$$z - score_{i,t} = \frac{car_{i,t} + \sum_{t=0}^{T} \mu_{i,t}}{\sum_{t=0}^{T} \sigma_{i,t}}$$

where the *car* is a ratio of a bank's total equity to its total assets, and $\mu_{i,t}$ and $\sigma_{i,t}$ are the mean and standard deviations of the return on assets (ROA) of bank *i* at time *t*, respectively. ROA is defined as the ratio of net income (loss) to total assets. The *z-score* is a measure of the falling profits which offset equity, and the natural logarithm of the *z-score* is normally distributed.

5.4.2.1.3 Other Dependent Variables: (i) levels of interest incomes (IntInc) and (ii) levels of impaired loans (ImpLoanR)

IntInc and *ImpLoanR* are used in the robustness tests. The levels of interest incomes (*IntInc*) are the percentages of interest incomes over gross loans. The gross loans include net loans minus the reserves for impaired loans/non-performing loans. The levels of impaired loans (*ImpLoanR*) are the percentages of impaired loans over gross loans.

5.4.2.2 Independent Variables

Six groups of shareholders are considered: (i) foreign financial institutions (*FFI*), (ii) foreign non-financial companies (*FNFC*), (iii) foreign governmental institutions (*FGov*), (iv) domestic financial institutions (*DFI*), (v) domestic non-financial companies (*DNFC*), and (vi) domestic governmental institutions (*DGov*). The *Bankscope* shareholder types are categorised according to Table 5.1.

Table 5.1 Shareholder categorisation. *FI* represents financial institutions. *NFC* represents non-financial companies. *Gov* represents governmental authorities. The ownership levels are aggregated according to the following:

Shareholder - Type (*Bankscope*)	Type of Shareholders
Bank	*FI*
Financial company	*FI*
Foundation/Research Institute	*NFC*
Venture capital	*FI*
Hedge funds	*FI*
Industrial company	*NFC*
Insurance company	*FI*
Mutual & Pension Fund/Nominee/Trust/Trustee	*FI*
Private Equity firms	*FI*
Public (publicly listed companies)	*NFC*
Public authority, State, Government	*Gov*

5.4.2.3 Control Variables

Control variables are used to isolate any potential influences on the regression results. A set of control variables is used to control for bank-specific, and year-specific effects.

Three variables – *Post2008*, *TCapR* and *Disc* – are used in Model 5.1 - Model 5.2 to control for year-specific effects and bank-specific characteristics as a result of minimising the size effects and the economic (macroeconomic and microeconomic) effects on bank lending ratios and insolvency risk levels.

Post2008 is a categorical variable in which 1 equals the years 2008-2013, and 0 equals 2005-2007. *Post2008* is used as a year dummy to capture the influences of the 2008 financial crisis and control for year-specific effects.

TCapR is the total regulatory capital ratio. It is used to measure capital regulatory stringency in literature (Barth et al., 2004), because banks are required to hold a minimum level of capital against their asset risks, i.e. a bank is required to hold a greater level of capital to act as a buffer against a higher level of risk-taking. Therefore, *TCapR* controls for bank-specific effects.

Disc measures the level of bank financial disclosure which is constructed using 18 categories[20] of core disclosures that are published in the annual reports of the banks (Nier and Baumann, 2006). The level of accounting information is voluntarily disclosed according to director expertise and board characteristics (Karamanou and Vafeas, 2005), which improves board monitoring.

5.4.3 Summary Statistics

Table 5.2 provides a summary of the statistics for the variables used in the empirical analyses. The mean of the lending ratios (*LoanDeps*) of Japan-listed banks is 0.71, while the mean of the insolvency risk levels (*z-score*) is 125.25. On average, the interest incomes over gross loans are 1.95 percent, and impaired loans over gross loans are 3.67 percent.

In terms of ownership structures, Table 5.2 and Figure 5.2 show that the majority of shareholders of Japan-listed banks are domestic financial institutions (*DFI*), and foreign financial institutions *(FFI*). The mean of *DFI* is 14.14 percent and its maximum is 100 percent. The mean of *FFI* is 4.76 percent and its maximum is 75.48 percent[21]. Only a small percentage of banking shares are owned by domestic non-financial companies (*DNFC*). Figure 5.3 shows that *FFI* increased from 2.16 percent to 6.09 percent in the aftermath of the 2008 financial crisis. Although it was only a small increase, it may indicate that foreign financial institutions have become one of the important shareholders in monitoring Japan-listed banks. The ownership structures of banks between 2005 and 2013 are similar to those between 1985 and 1996 (Anderson and Campbell II, 2004), which show that (i) the majority shareholders of banks are domestic financial institutions; and (ii) there has been an increase in foreign ownership of Japan-listed banks. Additionally, Figure 5.2 shows that the ownership of domestic non-financial institutions (*DNFC*) decreased from 1.04 percent to 0.77 percent from 2005 to 2013.

The correlation matrix is presented in Table 5.3. In terms of lending ratios (*LoanDeps*), six variables – *DGov*, *DNFC*, *FGov*, *Post2008*, *TCapR*, and the *z-score* – are negatively correlated with *LoanDeps* at a 10 percent significance level; and five variables – *DFI*, *Disc*, *FFI*, *FNFC*, and *IntInc* – are positively correlated with *LoanDeps* at a 10 percent significance level. In terms of

[20] *Disc* is constructed using 18 categories of information on bank balance sheets (Nier and Baumann, 2006), which includes (i) loans by maturity, (ii) loans by type, (iii) loans by counterparty, (iv) problem loans, (v) problem loans by type, (vi) securities by type (detailed breakdown), (vii) securities by type (coarse breakdown), (viii) securities by holding purpose, (ix) deposits by maturity, (x) deposits by type of customer, (xi) money market funding, (xii) long-term funding, (xiii) reserves, (xiv) capital, (xv) contingent liabilities, (xvi) off-balance sheet items, (xvii) non-interest incomes, and (xviii) loan loss provisions. The breakdowns of the 18 categories are listed in Appendix Table A.2.

[21] Among Japan-listed banks, Shinsei Bank and Aozora Bank are composed of the highest foreign shareholders. These banks were formerly specialty banks created for the purpose of providing long-term credit to Japanese companies. The majority of their shares were sold to foreign investors as part of the rescue plans during the late 1990s Japanese financial crisis (Tett, 2003).

risk-taking levels (*z-score*), four variables – *FFI*, *ImpLoanR*, *IntInc*, and *LoanDeps* – are negatively correlated with the *z-score* at a 10 percent significance level; and three variables – *DNFC*, *FGov*, and *TCapR* – are positively correlated with the *z-score* at a 10 percent significance level.

Table 5.2 Descriptive statistics: variables used.

The sample consists of 662 bank-year observations between 2005 and 2013.

Variable	Mean	Std. Dev.	Minimum	Maximum	No. of Obs.
DFI	14.14	14.82	0	100.00	662
DGov	0.05	0.51	0	6.21	662
Disc	0.53	0.04	0.40	0.70	655
DNFC	0.86	2.12	0	14.23	662
FFI	4.76	9.10	0	75.48	662
FGov	0.28	0.38	0	2.83	662
FNFC	0.37	2.23	0	40.40	662
ImpLoanR	3.67	1.32	0.84	10.83	653
IntInc	1.95	0.41	1.15	4.56	655
LoanDeps	0.71	0.08	0.49	1.07	655
Post2008	0.66	0.47	0	1	662
TCapR	11.55	1.96	5.71	19.48	655
z-score	125.25	173.49	-0.85	1948.99	649

Table 5.3 Pairwise correlation coefficients.

* indicates that the pairwise correlation coefficient is statistically significant at a 10 percent level.

	DFI	*DGov*	*Disc*	*DNFC*	*FFI*	*FGov*	*FNFC*	*ImpLoanR*	*IntInc*	*LoanDeps*	*Post2008*	*TCapR*	*z-score*
DFI	1												
DGov	-0.0355	1											
Disc	0.0655*	-0.0239	1										
DNFC	0.1136*	-0.0101	-0.0466	1									
FFI	0.0694*	0.1058*	0.0512	-0.0715*	1								
FGov	0.0224	0	0.0201	0.0212	0.3020*	1							
FNFC	0.0564	-0.0154	0.1165*	-0.0361	0.1954*	0.1278*	1						
ImpLoanR	-0.1633*	-0.0358	0.0422	-0.0816*	-0.1141*	-0.2961*	0.0457	1					
IntInc	-0.0946*	-0.0893*	0.0624	-0.1166*	0.1692*	-0.1549*	0.2123*	0.3467*	1				
LoanDeps	0.1447*	-0.1951*	0.0719*	-0.1433*	0.1048*	-0.0868*	0.1171*	0.0034	0.3369*	1			
Post2008	0.0247	0.0461	-0.1225*	-0.0027	0.2215*	0.4589*	0.0256	-0.3056*	-0.3098*	-0.0967*	1		
TCapR	0.0836*	0.0791*	-0.0447	0.1471*	0.3186*	0.3539*	0.0416	-0.3407*	-0.3821*	-0.3226*	0.2144*	1	
z-score	0.0086	-0.0273	0.0439	0.0743*	-0.0871*	0.0846*	-0.0405	-0.1445*	-0.2711*	-0.1047*	-0.0257	0.2465*	1

Figure 5.2 The distribution of the ownership structures of Japan-listed banks between 2005 and 2013.

FGov represents foreign governmental institutions. *FNFC* represents foreign non-financial companies. *FFI* represents foreign financial institutions. *DFI* represents domestic financial institutions. *DNFC* represents domestic non-financial companies. *FGov* represents domestic governmental institutions.

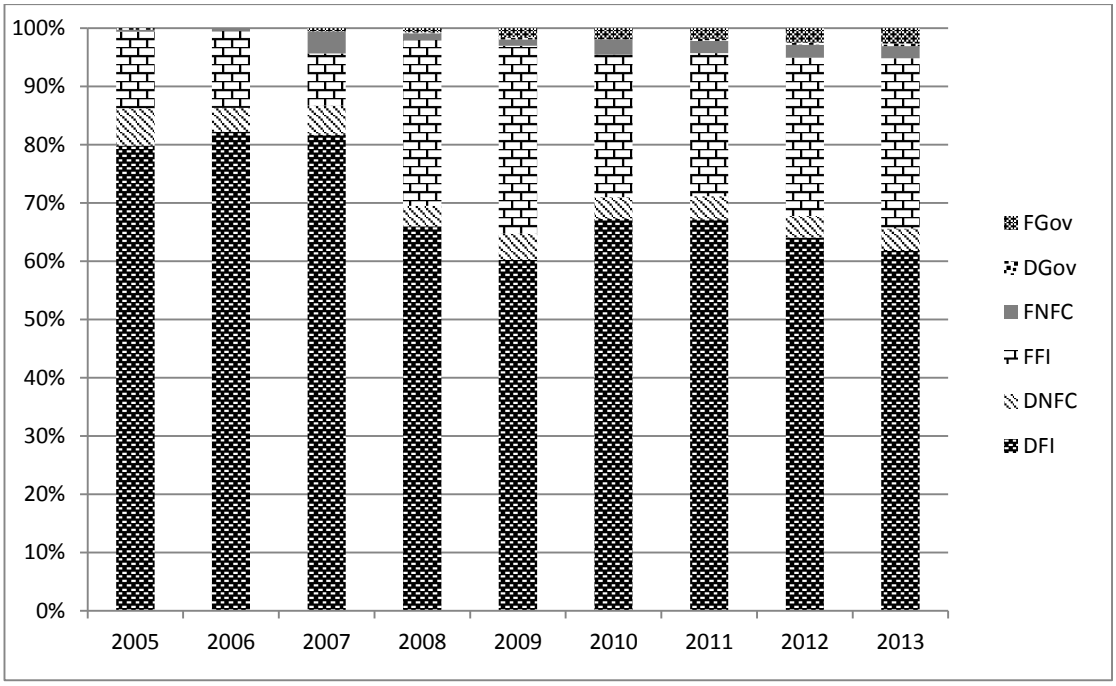
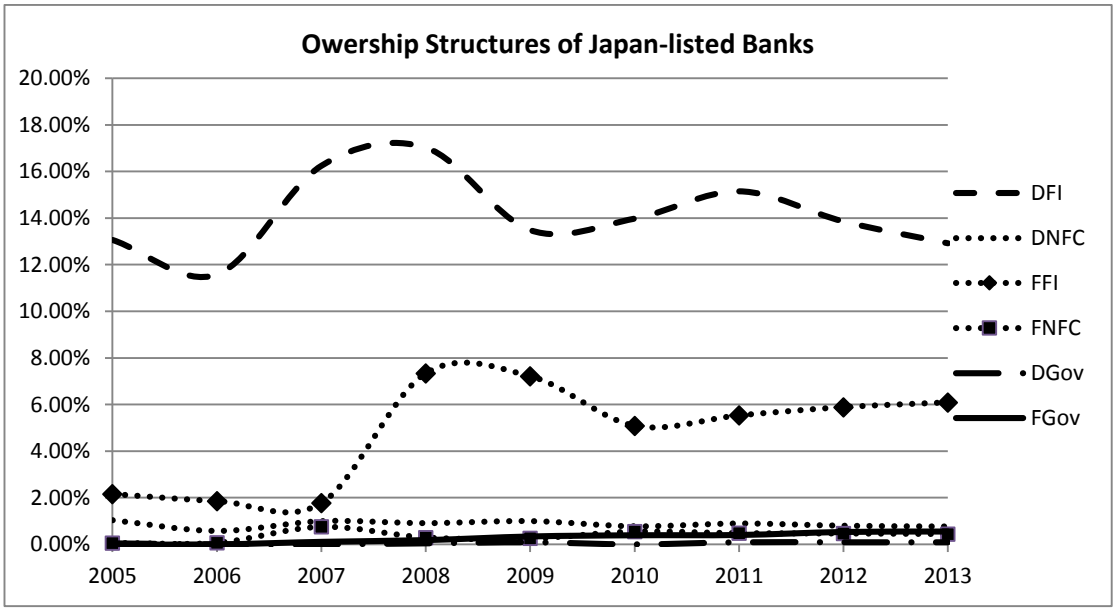


Figure 5.3 The ownership structures of Japan-listed banks between 2005 and 2013.



5.5 Methodology

This chapter assesses the effects of different types of institutional shareholders on bank lending and risk-taking at Japan-listed banks from 2005 to 2013.

It argues that different types of institutional shareholders, whose investment objectives differ, affect the levels of lending and insolvency risks of their investee banks.

In order to address problems of endogeneity and unobserved heterogeneity in the models, the fixed-effects (FE), random-effects (RE) and the system generalised method of moments (GMM) Arellano Bond estimations are used. The latter method is run using two-step estimators with an option that the estimated variance–covariance matrix is robust to heteroskedasticity in case of any misspecification causing weak instruments and large sample biases (Windmeijer, 2005). The regressions results shown in Table 5.5 are only considered if they satisfy the Sargan and Arellano-Bond autocorrelation (AR) tests.

5.6 Results

The results shown in the regressions (1) – (2) of Table 5.4 are consistent with Hypothesis 5.1, but are not consistent with Hypothesis 5.2, Hypothesis 5.3, Hypothesis 5.4 and Hypothesis 5.5. The key finding from the regressions in Table 5.4 is that the levels of foreign financial institution share ownerships (*FFI*) are positively associated with risk-taking at Japan-listed banks.

In terms of the model specification test, the Hausman test is used to determine the consistencies and efficiencies of the fixed-effects (FE) estimators. The results of the Hausman tests shown in columns (3) and (4) of Table 5.4, and columns (1) – (3) of Table 5.6 indicate that random-effects (RE) estimations are preferred.

To test for the model specification of system generalised method of moments (GMM) Arellano Bond estimations, Sargan and Arellano Bond autocorrelation (AR) tests are used. The results of Table 5.5 satisfy the null hypotheses of the Sargan and Arellano Bond AR(1) and AR(2) tests, except for columns (3) and (4) of Table 5.5 in which the p-values of the Arellano Bond AR(1) tests are only significant at 10 percent levels. The results in regressions (1) and (2) of Table 5.7 accept the null hypothesis at 5 percent levels, indicating that the instruments used in the regressions are weak, and the problems cannot be corrected using additional moment conditions (Arellano and Bover, 1995; Blundell and Bond, 1998). Overall, the test results of the Sargan and Arellano Bond AR tests suggest that the specifications of Model 5.1 and Model 5.2 are reliable.

Robustness tests are presented in Table 5.5 and Table 5.6. Table 5.4 summarise the results of the system GMM Arellano Bond estimations. Table 5.6 summarises the results of the fixed-effects (FE) estimations using alternative dependent variables, levels of interest incomes (*IntInc*) and impaired loans (*ImpLoans*).

However, the results show that the models are poorly explained, in which neither R^2 (overall), R^2 (between) or R^2 (within) is more than 0.33. The findings additionally provide four key messages on the relationships between ownership structures and banking activities (lending and risk-taking).

First, the results shown in Table 5.4 are consistent with Hypothesis 5.1 that there is a positive relationship between the domestic financial institutional shareholders (*DFI*) and the lending ratios of their investee banks (*LoanDeps*), and a negative relationship between the foreign financial institutional shareholders (*FFI*) and the lending ratios of their investee banks

(*LoanDeps*). But the results are statistically and economically insignificant, indicating that neither investor affects bank lending behaviours.

Second, the results shown in Table 5.4 are inconsistent with Hypothesis 5.2. The results in Table 5.4 show (i) a negative and statistically significant relationship between the levels of foreign financial institutional ownerships (*FFI*) and the *z-score*, and (ii) a negative relationship between domestic financial institutional ownerships (*DFI*) and the *z-score*, but it is statistically insignificant.

The relationship between *FFI* and the *z-score* is robust using the GMM estimations shown in column (4) of Table 5.5. However, the results (the relationship between *FFI* and *ImpLoanR*) using alternative variables are not robust in column (4) of Table 5.6 and column (4) of Table 5.7. They are statistically and economically significant. The findings offer two potential explanations: (i) foreign investors may suffer from information asymmetry (Choe et al., 2004; Gehrig, 1993), and they are unable to monitor Japanese banks; (ii) *FFI* may offer professional advice and encourage their investee banks to engage in non-lending investments for greater returns (Laeven and Levine, 2009). Additionally, foreign financial institutions may be profit-oriented and their investment objectives may be short-term.

Third, the results shown in Table 5.4 indicate that a positive relationship exists between the levels of governmental institutional ownerships (*DGov*) and insolvency risks (i.e. *DGov* is negatively related to the *z-score*), and it is statistically significant at a 1 percent level. But the result is not robust against GMM regressions and regressions using an alternative variable (*ImpLoanR*).

Nevertheless, the result indicates that governmental institutional shareholders are likely to worsen bank governance, which is consistent with previous empirical studies suggesting that social objectives or political goals dampen effective bank governance; and governmental institutional ownerships create conflicts of interest as a result of a lack of independence and from political goals creating moral hazards (Grossman, 2013; Hoshi, 2002; Levine, 2003; Shleifer and Vishny, 1994, 1997). One possible explanation is that the governmental institutional ownerships reduce information asymmetries between bank regulators and banks, which enhance more efficient protective structures within the domestic banking industry and assist banks in addressing their nonperforming loans problems. For example, state shareholders would then obtain more precise risk-related information from their investee banks, which in turn coordinate with their regulators to provide these banks with regulatory forbearance to not fully revalue their nonperforming loans avoiding any potential realised credit losses. It is debatable whether governmental institutional ownerships will improve

monitoring at banks, because governmental institutional ownerships may hinder competition among banks and lower the effectiveness of market for corporate control.

Fourth, the results in Table 5.4 are inconsistent with Hypothesis 5.4. But they suggest that domestic financial institutions and (domestic and foreign) non-financial institutional shareholders may be unable to monitor risk-taking at banks sufficiently, i.e. neither of these coefficients ae statistically significant.

Overall, the results show that shareholders either have negative or no effects on risk-taking on Japan-listed banks, indicating that shareholder monitoring may be ineffective in lowering risk-taking levels at Japan-listed banks.

Table 5.4 The summary of the results of the fixed-effects (FE) and random-effects (RE) estimations examine the effects of foreign and domestic institutional ownerships on the levels of bank lending ratios (*LoanDeps*) and insolvency risks (*z-score*).

L. indicates that the independent variables have a one-year lag. *FFI* is the level of foreign financial institutional ownerships. *FNFC* is the level of foreign non-financial institutional ownerships. *FGov* is the level of foreign governmental ownerships. *DFI* is the level of domestic financial institutional ownerships. *DNFC* is the level of domestic non-financial institutional ownerships. *DGov* is the level of domestic governmental ownerships. *TCapR* and *Disc* control for bank-specific effects. *Post2008* controls for year-specific effects. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. The Hausman test is used to test for the consistency and efficiency of the FE estimations. The Breusch and Pagan Lagrangian multiplier (LM) test is used to test for whether the variance of the unobserved fixed effects is zero.

The results of columns (5) and (6) using RE estimations correspond with those of columns (3) and (4) using FE estimations, respectively.

Estimation	FE	FE	FE	FE	RE	RE
Dependent Variable	*LoanDeps*	*LoanDeps*	*z-score*	*z-score*	*z-score*	*z-score*
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.776***	0.765***	-344.6*	-316.0	-251.4	-266.6
	(20.52)	(19.65)	(-2.31)	(-1.94)	(-1.76)	(-1.74)
L.DFI	0.000158		0.257		-0.0844	
	(0.68)		(0.46)		(-0.19)	
L.DNFC	-0.000649		0.0144		2.427	
	(-0.61)		(0.00)		(0.80)	
L.DGov	-0.00605***		2.712		-9.234***	
	(-10.04)		(1.59)		(-3.34)	
L.FFI		-0.000167		-2.721		-3.490***
		(-0.21)		(-1.47)		(-4.13)
L.FNFC		0.00270*		-0.626		-1.803
		(2.09)		(-0.25)		(-0.86)
L.FGov		-0.0105		18.47		25.95
		(-1.18)		(0.51)		(0.72)
L.Post2008	-0.0299***	-0.0272***	9.449	14.09	13.96	17.32
	(-5.27)	(-4.71)	(0.64)	(0.93)	(0.92)	(1.06)
L.TCapR	-0.00226	-0.00101	30.77***	31.87***	25.71***	28.55***
	(-1.19)	(-0.43)	(3.72)	(3.73)	(3.82)	(4.50)
L.Disc	-0.0451	-0.0482	203.8	143.7	138.3	121.7
	(-0.81)	(-0.89)	(0.81)	(0.51)	(0.63)	(0.52)
No. of obs.	581	581	578	578	578	578
R^2	0.208	0.234	0.046	0.052		
Adj. R^2	0.200	0.226	0.036	0.042		
R^2 (within)	0.208	0.234	0.0464	0.0520	0.0445	0.0512
R^2 (between)	0.157	0.0212	0.121	0.196	0.139	0.212
R^2 (overall)	0.0964	0.0557	0.0724	0.102	0.0776	0.106
Hausman test: p-value	0.025	0.000	0.757	0.983		
LM test: p-value					0.00	0.00

Table 5.5 The summary of the results of the system generalised method of moments (GMM) Arellano Bond estimations which examine the effects of foreign and domestic institutional ownerships on the levels of bank lending ratios (*LoanDeps*) and insolvency risks (*z-score*).

L. indicates that the independent variables have a one-year lag. *FFI* is the level of foreign financial institutional ownerships. *FNFC* is the level of foreign non-financial institutional ownerships. *FGov* is the level of foreign governmental ownerships. *DFI* is the level of domestic financial institutional ownerships. *DNFC* is the level of domestic non-financial institutional ownerships. *DGov* is the level of domestic governmental ownerships. *TCapR* and *Disc* control for bank-specific effects. *Post2008* controls for year-specific effects. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. The instruments are the first-differenced and the levels equations. The first-differenced equations are the lagged observations of the explanatory variables. The number of lags used varies slightly across the estimations. The levels of equations include *TCapR*.

The Arellano Bond test is used to determine for zero autocorrelation in first-differenced errors in which the null hypothesis indicates no autocorrelation. The number of lags used varies slightly across the estimations. The estimations passed the Sargan and the Arellano Bond (AR) tests for the validity of instruments.

Dependent Variable	*LoanDeps*	*LoanDeps*	*z-score*	*z-score*
	(1)	(2)	(3)	(4)
L.DFI	0.000184		-0.207	
	(1.19)		(-0.20)	
L.DNFC	-0.000547		0.339	
	(-0.54)		(0.08)	
L.DGov	0.00410		1.491	
	(0.93)		(0.10)	
L.FFI		-0.000361		-4.529*
		(-0.50)		(-2.00)
L.FNFC		-0.000898		-3.709
		(-0.80)		(-1.06)
L.FGov		0.00660		76.28
		(0.88)		(1.11)
L.Post2008	-0.0251***	-0.0244***	11.65	9.534
	(-9.32)	(-4.62)	(0.79)	(0.39)
L.TCapR	0.00534**	0.00561**	11.05	17.98
	(2.92)	(2.80)	(1.47)	(1.84)
L.Disc	0.0552*	0.0410	-512.0	-507.6
	(2.37)	(1.10)	(-1.50)	(-1.37)
L.LoanDeps	0.873***	0.900***		
	(35.33)	(26.76)		
L.z-score			0.561***	0.515***
			(5.26)	(4.94)
TCapR	0.000438	-0.000451	17.88	12.25
	(0.21)	(-0.17)	(1.34)	(0.87)
No. of obs.	581	581	575	575
No. of instruments	56	56	62	62
Sargan test	45.36	43.97	65.15	66.99
Sargan test: p-value	0.582	0.639	0.142	0.110
Arellano Bond AR(1) test	-4.092	-3.871	-2.467	-2.562
AR(1) test: p-value	0	0	0.0136	0.0104
Arellano Bond AR(2) test	-0.847	-0.846	-0.838	-0.880
AR(2) test: p-value	0.397	0.397	0.402	0.379

Table 5.6 The summary of the results of the fixed-effects (FE) and the random-effects (RE) estimations which examine the effects of foreign and domestic institutional ownerships on levels of interest income (*IntInc*) and impaired loans (*ImpLoanR*).

L. indicates that the independent variables have a one-year lag. *FFI* is the level of foreign financial institutional ownerships. *FNFC* is the level of foreign non-financial institutional ownerships. *FGov* is the level of foreign governmental ownerships. *DFI* is the level of domestic financial institutional ownerships. *DNFC* is the level of domestic non-financial institutional ownerships. *DGov* is the level of domestic governmental ownerships. *TCapR* and *Disc* control for bank-specific effects. *Post2008* controls for year-specific effects. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively.

The Hausman test is used to test for the consistency and efficiency of the FE estimations. The Breusch and Pagan Lagrangian multiplier (LM) test is used to test for whether the variance of the unobserved fixed effects is zero. The results of columns (5), (6) and (7) using RE estimations correspond with those of columns (1), (2) and (3) using FE estimations, respectively.

Estimation	FE	FE	FE	FE	RE	RE	RE
Dependent Variable	*IntInc*	*IntInc*	*ImpLoanR*	*ImpLoanR*	*IntInc*	*IntInc*	*ImpLoanR*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	4.015***	3.885***	6.871***	6.882***	3.974***	3.856***	6.831***
	(20.49)	(18.36)	(6.92)	(6.39)	(20.88)	(18.70)	(8.63)
L.DFI	0.000663		-0.00630		0.000494		-0.00661
	(1.05)		(-1.30)		(0.82)		(-1.60)
L.DNFC	-0.00793		-0.00869		-0.00818		-0.00739
	(-1.42)		(-0.36)		(-1.46)		(-0.35)
L.DGov	-0.0210***		-0.00358		-0.0218***		-0.0100
	(-7.09)		(-0.14)		(-8.25)		(-0.62)
L.FFI		0.00355*		-0.0211		0.00761***	
		(2.07)		(-1.87)		(4.02)	
L.FNFC		0.00735		0.0199		0.0136*	
		(1.02)		(0.72)		(2.36)	
L.FGov		-0.116**		0.168		-0.0969*	
		(-2.81)		(0.78)		(-2.02)	
L.Post2008	-0.323***	-0.304***	-0.364	-0.361	-0.325***	-0.327***	-0.376*
	(-12.58)	(-9.63)	(-1.88)	(-1.90)	(-13.13)	(-12.77)	(-2.16)
L.TCapR	-0.0834***	-0.0791**	-0.226	-0.207	-0.0802***	-0.0789***	-0.210*
	(-3.99)	(-3.35)	(-1.83)	(-1.86)	(-4.20)	(-3.55)	(-2.20)
L.Disc	-1.730***	-1.580***	-0.755	-1.295	-1.714***	-1.552***	-1.012
	(-6.47)	(-5.73)	(-0.65)	(-1.50)	(-6.08)	(-5.16)	(-0.89)

(Table continues overleaf)

Table 5.6 (table continues from the previous page)

Estimation	FE	FE	FE	FE	RE	RE	RE
Dependent Variable	*IntInc*	*IntInc*	*ImpLoanR*	*ImpLoanR*	*IntInc*	*IntInc*	*ImpLoanR*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
No. of obs.	581	581	579	579	581	581	579
R^2	0.641	0.652	0.188	0.204			
Adj. R^2	0.637	0.648	0.179	0.196			
R^2 (within)	0.641	0.652	0.188	0.204	0.641	0.648	0.187
R^2 (between)	0.0660	0.109	0.122	0.0591	0.0668	0.214	0.124
R^2 (overall)	0.283	0.327	0.150	0.111	0.285	0.393	0.152
Hausman test: p-value	0.236	0.173	0.931	0.000			
LM test: p-value					0.000	0.000	0.000

Table 5.7 The summary of the results of the system generalised method of moments (GMM) Arellano Bond estimations which examine the effects of foreign and domestic institutional ownerships on levels of interest income (*IntInc*) and impaired loans (*ImpLoanR*).

L. indicates that the independent variables have a one-year lag. *FFI* is the level of foreign financial institutional ownerships. *FNFC* is the level of foreign non-financial institutional ownerships. *FGov* is the level of foreign governmental ownerships. *DFI* is the level of domestic financial institutional ownerships. *DNFC* is the level of domestic non-financial institutional ownerships. *DGov* is the level of domestic governmental ownerships. *TCapR* and *Disc* control for bank-specific effects. *Post2008* controls for year-specific effects. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. The instruments are the first-differenced and the levels equations. The first-differenced equations are the lagged observations of the explanatory variables. The number of lags used varies slightly across the estimations. The levels of equations include *TCapR*. All instruments pass the Sargan test for the validity of instruments.

	GMM	GMM	GMM	GMM
Dependent Variable	*IntInc*	*IntInc*	*ImpLoanR*	*ImpLoanR*
	(1)	(2)	(3)	(4)
L.DFI	-0.000750		0.00490	
	(-0.98)		(1.38)	
L.DNFC	-0.00486		-0.0157	
	(-1.26)		(-0.81)	
L.DGov	-0.00202		0.00273	
	(-0.29)		(0.02)	
L.FFI		0.00263		0.00969
		(1.73)		(1.65)
L.FNFC		0.00642		0.0692***
		(1.18)		(3.44)
L.FGov		-0.0990		-0.226
		(-1.73)		(-0.91)
L.Post2008	-0.179***	-0.173***	0.109	0.139
	(-8.40)	(-12.55)	(0.79)	(0.64)
L.TCapR	0.00325	0.0000645	0.0259	0.000469
	(0.31)	(0.01)	(0.72)	(0.01)
L.Disc	0.179	0.274	0.527	0.486
	(0.73)	(0.99)	(0.49)	(0.70)
L.IntInc	0.953***	0.904***		
	(16.43)	(14.16)		
L.ImpLoanR			0.853***	0.851***
			(9.32)	(7.94)
TCapR	0.00186	0.00791	-0.0319	-0.00573
	(0.08)	(0.33)	(-0.40)	(-0.06)
No. of obs.	581	581	578	578
No. of instruments	56	56	62	62
Sargan test	72.56	72.44	63.12	62.00
Sargan test: p-value	0.0126	0.0129	0.185	0.212
Arellano Bond AR(1) test	-2.677	-2.604	-3.775	-3.907
AR(1) test: p-value	0.00743	0.00922	0.00016	0.00009
Arellano Bond AR(2) test	0.817	0.453	-1.201	-1.128
AR(2) test: p-value	0.414	0.651	0.230	0.259

5.7 Conclusions

This chapter conducts the first empirical assessments of the theories of ownership structures, and their effects on lending and risk-taking at Japan-listed banks. There are three important empirical findings that are listed below.

First, greater levels of foreign financial institutional shareholders tend to increase levels of risk-taking at banks, indicating that foreign-owned banks tend to encourage their investee banks to engage in riskier projects. This shows that foreign financial institutional shareholders weaken risk monitoring at banks.

Second, the empirical findings highlight that increased state ownership may weaken bank governance. The findings are consistent with the views that state ownerships create conflicts of interest, because states play important roles in setting up financial regulatory policies and in monitoring their banking industries.

Third, shareholder monitoring may be ineffective in monitoring risk-taking at banks. One of the possible explanations is the inefficient market for corporate control in Japan, i.e. making it challenging to discipline company managements.

From a policy perspective, regulators[22] may consider imposing restrictions on the control rights of foreign institutional shareholders, which are likely to promote risk-taking at banks. Regulators should encourage shareholder engagements and promote bank governance.

[22] The current Japanese regulations do not have any specific regulations restricting foreign investors from acquiring shares of Japanese companies/banks. But, in the case of designated sectors, Japan's Foreign Exchange and Foreign Trade Act requires foreign investors to seek prior approval from the Ministry of Finance and the ministry that regulates the specific industry if they want to acquire more than 10 percent of shares of any Japanese companies in listed designated sectors (including agriculture, aerospace, forestry, petroleum, electric/gas/water utilities, telecommunications, and leather manufacturing) (U.S. Department of State, 2015).

Chapter 6 The Substitution/Complementary Effects between Internal and External Monitoring

6.1 Introduction

This chapter analyses the substitution or complementary effects between internal and external monitoring.

Internal monitoring is performed by internal directors and external directors in which the quality and sufficiency of monitoring may be affected by the ratios of external directors to the boards (Jensen and Meckling, 1976; Minton et al., 2010), the director incentive levels (Grove et al., 2011), levels of expertise (Booth and Deli, 1999; Van Ness et al., 2010), and board dynamics affected by board homogeneity (Berger et al., 2014; Mahadeo et al., 2012).

External monitoring is often performed by shareholders and regulatory authorities, although their monitoring objectives may differ. The objectives of shareholders are to maximise wealth (Shleifer and Vishny, 1986), and to prevent managers from exploiting company resources (Jensen and Meckling, 1976). The objectives of regulatory authorities are to prevent banks from excessive risk-taking, to protect investors and depositors from bank insolvencies, and to maintain financial stability (Barth et al., 2004).

Previous studies suggest that external monitoring may be substituted for weak internal governance (Weisbach, 1988; Williamson, 1983), or that external monitoring can complement strong internal governance (Fung and Tsai, 2012; Kim et al., 2007).

Japanese banks operate under the convoy system described in Section 5.2.6.2 of chapter five (Aoki and Patrick, 1994). It is designed to protect/prevent banks from competition and to rescue failing banks (Nishiguchi, 2011; Yafeh, 2000).

Scholars argue that the convoy system has weakened Japanese bank governance (Grossman, 2013) because the system continues to support banks which are supposedly insolvent. Yet Japanese regulators have implemented various measures – such as the Basel Accords, and deposit insurance schemes – to improve bank governance and protect depositors. Moreover, as a result of foreign investor pressures, some banks have started to implement corporate governance mechanisms that are similar to the Anglo-American model, and are increasing their board independence by introducing external directors and board committees.

Additionally, Japanese banks are monitored by their cross-shareholders (Dore, 2000), which is considered to be an insider-system (i.e. dominance of internal controls). Scholars argue that

cross-shareholding or *keiretsu* groups lower the disciplinary effects of other outside shareholders (who do not belong to the *keiretsu* groups or have any cross-shareholding relationships). Instead of focusing on shareholder wealth maximisation, cross-shareholders tend to focus on the long-term performances of their banks because of their business affiliations. (Kang and Shivdasani, 1995; Randall et al., 2000; Yafeh and Yosha, 2003).

In this chapter, empirical analyses are designed to examine the substitution and complementary effects between the internal controls and the external monitoring mechanisms of Japan-listed banks between 2005 and 2013. The internal control mechanisms include board monitoring mechanisms, board bonding mechanisms, board expertise homogeneity, and board age diversity. The external monitoring mechanisms include (i) regulatory monitoring, and (ii) the monitoring of institutional shareholders (including those of domestic financial institutional shareholders).

The motivation for this research is based on the views of Rediker and Seth (1995), who argue that various corporate governance mechanisms do not work independently, and that corporate governance mechanisms work concurrently in a bundle to reduce agency costs. Similar to this argument, Williamson (1983) proposes the substitution hypothesis which suggests that strong internal governance compensates for weak external governance, and vice versa. For example, organisations such as universities may require strong internal controls to compensate for the absence of the market for corporate control. While the market for corporate control is strong, shareholder monitoring may substitute (or complement) for weak (or strong) internal controls, because shareholders may protest against weak internal controls, and call for a change or review of management decisions, or demand that certain executives be dismissed.

Although the substitution/complementary effects of corporate governance mechanisms have been widely studied by scholars, a few have studied the context of Japanese banks which are internally governed (Dore, 2000), are operating under a (softened) convoy system (Nishiguchi, 2011) and where the banking industry is heavily influenced by its regulators (Grossman, 2013).

Mixed results are found when examining the substitution hypothesis between (i) board and shareholder monitoring, and (ii) board and regulatory monitoring. The majority of studies examine US companies and often find that there are substitute effects between board and shareholder monitoring. This is likely due to the institutional frameworks and board composition which companies are operating in. Studying US companies, Gillan et al. (2003) find that weak internal controls are associated with shareholder-friendly boards, and substitute effects are found between board and shareholder monitoring. Similar results are

also found in Brickley and James (1987). However, the substitute hypothesis may not be supported if internal controls prevail in companies. For example, Weisbach (1988) finds no relationship between poor company performance and CEO turnover in US companies with insider-dominated boards. Studying Spanish banks, Fernández and Arrondo (2005) find that the market for corporate control mechanism is substituted by top three shareholder monitoring and a joint monitoring mechanism amongst internal directors, and there are no substitute effects between internal and shareholder monitoring when internal controls prevail.

Yet no previous research assesses the theoretical implications in Japan where the banking industry operates under the convoy, the *keiretsu*, and the cross-shareholding systems. The empirical assessments of this chapter are underpinned by three theoretical keystones of corporate governance and the substitute hypothesis.

First, a theoretical argument suggests that a substitute hypothesis prevails when companies operate under weak regulatory environments (Williamson, 1983), and that external directors and shareholders act as substitute devices in monitoring management in order to safeguard the interests of shareholders (Jensen and Meckling, 1976; Shleifer and Vishny, 1997).

Second, insider-dominated boards weaken board monitoring (Jensen and Meckling, 1976), but joint monitoring by internal directors may replace external directors as monitors (Fama and Jensen, 1983a). As a result, the internal controls prevail, and external (regulatory and shareholder) monitoring will be complementary.

Third, the convoy system weakens joint monitoring amongst internal directors (Aoki, 1994b), because, in the event of an insolvency, they are expected to receive support from the Japanese government (Moody's, 2013). Therefore, internal directors may not optimise their monitoring, because there is no potential loss of employment.

To assess the predictions empirically, a database was compiled and consists of 662 bank-year observations of Japan-listed banks between 2005 and 2013. Due to the nature of endogeneity in corporate governance, a two-step model is used. In the first stage of the analysis, in order to reduce the dimensionality of a variable set, three internal corporate governance (CG) indices are created to capture eight internal CG mechanisms using principal component analysis. In the second stage of the analysis, the fixed-effects (FE), the random-effects (RE) and the system generalised method of moments (GMM) estimations are used. Due to the presence of endogeneity and heterogeneity, the FE, the RE and the GMM estimations are used to investigate the substitution/complementary effects of the internal CG indices on external governance, such as regulatory and shareholder monitoring.

The key findings are as follows. First, regulatory and internal directors are complementary monitoring mechanisms. Second, regulatory and external directors are complementary monitoring mechanisms. Third, internal director share ownerships and financial institutional shareholders act as substitute devices in monitoring banks, indicating that internal director share ownerships incentivise internal directors to align the interests of bank managers and shareholders, and potentially lower the costs of shareholding monitoring.

This chapter concludes that internal controls prevail in the governance of Japanese banks, and that complementary regulatory monitoring remains weak. The convoy system is arguably embedded in the Japanese bank governance framework. The Japanese government has introduced various policies to prevent banks from failing, and these policies include encouraging mergers among regional banks (Nakamoto, 2006), and to urge city banks to seek investments abroad (MacDougall, 2013; Narayanan, 2017). In addition, the complementary effects of regulatory and institutional shareholder monitoring may highlight that additional governance mechanisms are required to ensure the stability of the Japanese banking industry.

This chapter is structured as follows. Section 6.2 reviews literature on the effects of substitute and complementary monitoring devices, and the mechanisms hindering substituted/complementary effects in Japan. Section 6.3 presents the conceptual framework and its associated hypotheses. Section 6.4.1 summarises the data samples. Section 6.4.2 provides descriptions on the variables used in the empirical analyses. Section 6.4.3 provides summary statistics. Section 6.5 describes the methodology used in these empirical assessments. Section 6.6 discusses the results. Section 6.7 contains the conclusions.

6.2 Literature Review

6.2.1 Substitution and Complementary Corporate Governance Mechanisms

The monitoring role is a key component in corporate governance. It may be performed internally and/or externally. The internal monitoring role is performed by internal directors (Rediker and Seth, 1995), and/or by external directors. Internal directors jointly oversee the business, and jointly monitor each other (Fama and Jensen, 1983a). External directors are hired to monitor company managements on behalf of shareholders (Jensen and Meckling, 1976). On the contrary, the external monitoring role is performed by investors, (concentrated) shareholders (Fama, 1980; La Porta et al., 1998; Shleifer and Vishny, 1997), and regulators (Gillan et al., 2003).

Scholars argue that effective internal and external monitoring mechanisms should be examined jointly (Rediker and Seth, 1995; Walsh and Seward, 1990), because the interrelationships between these two mechanisms are contingent on their acting together (Walsh and Seward, 1990). For example, in the case of internal directors who are failing to monitor managers that are taking excessive risks, shareholders may protest and request that the existing management be replaced. These phenomena may be considered under the substitute hypothesis.

According to the substitute hypothesis (Williamson, 1983), the internal and external corporate governance mechanisms may substitute or complement each other, especially when one of these mechanisms weakens, because strong internal governance is compensated for in the absence of the market for corporate control, or a weak regulatory environment. For example, if regulatory monitoring is used as a substitute for the internal governance of banks, the increased regulatory monitoring should lead banks to loosen their internal monitoring. Therefore, the coefficients of regulatory monitoring and internal monitoring are negatively associated with each other in a regression model. On the contrary, if regulatory monitoring complements the internal governance of banks, the loosening of regulatory monitoring should not affect the internal monitoring of banks, i.e. the coefficients of regulatory monitoring and internal monitoring are positively associated with each other.

In the case of the Japanese banking industry, the takeover market is weak as a result of cross-shareholding and because of banking regulation restrictions on the market for corporate control (Kanaya and Woo, 2000; Prowse, 2014). Internal governance mechanisms and shareholder monitoring may act as complementary or substitute devices in monitoring bank management.

Strong boards may resist shareholder pressures. As a result, a substitute hypothesis is not applicable (Weisbach, 1988). For example, strong boards, such as insider-dominated boards, may have a greater resistance to external pressures, compared to outsider-dominated boards. Studying US companies between 1977 and 1980, Weisbach (1988) finds that poorly performing companies are less likely to experience CEO turnovers, if their boards are insider-dominated. This indicates that the substitute hypothesis may not be applicable to companies that are insider-dominated. On the contrary, Gillan et al. (2003) show that weak internal controls are associated with shareholder-friendly boards, indicating that shareholders and boards act as substitute devices in monitoring company managements[23].

Although internal controls may arguably be essential in corporate governance, highly regulated industries may require fewer internal controls or other forms of external controls (Becher and Frye, 2011; Demsetz and Lehn, 1985), because the interests of shareholders and stakeholders are adequately protected by various regulations and legislations such as anti-competition laws, corporate laws, contract laws and labour laws (Hansmann and Kraakman, 2001). In comparing regulated and unregulated industries, when studying US companies between 1976 and 1980, Demsetz and Lehn (1985) find lower concentrated ownership levels in companies operating in regulated industries such as financial or utility companies, compared to those operating in unregulated industries. This indicates that regulated industries arguably require less external shareholder monitoring, given that they are expected to be monitored by regulators. On the contrary, studying US companies (including banks and non-financial companies) in the years 1993, 1996, and 1998, Becher and Frye (2011) find that internal (insider shareholding) and shareholder monitoring are substitute devices for monitoring the managements of banks, and show that deregulation lowers the internal monitoring of banks, because insider shareholding significantly decreases.

Moreover, increased shareholder protection may complement internal monitoring, and lead to lower agency costs (La Porta et al., 2000), because increased shareholder protection enables minority shareholders to demand that their investee companies improve their monitoring mechanisms, such as board independence. In a study on the effects of minority shareholders on European non-financial companies in 2000, Kim et al. (2007) find a positive relationship between the levels of shareholder protection and board independence, indicating that minority shareholders are more adept at influencing their investee companies to increase

[23]Gillan et al. (2003) construct a board index to measure the degree of internal controls, which include: (i) board sizes, (ii) board independence, (iii) independence of audit, compensation, and nominating committees, and (iv) CEO duality.

board independence in countries with strong shareholder protection. Fung and Tsai (2012) who study US companies between 1997 and 2006 found similar results.

Moreover, shareholder protection may be weak in the absence of the market for corporate control, because shareholders are less able to discipline the managements of their investee companies. Fernández and Arrondo (2005) examine Spanish companies between 1990 and 1997, when Spain exhibited features of high ownership concentration with an undeveloped takeover market (La Porta et al., 1998). Fernández and Arrondo (2005) find that the market for corporate control mechanism is substituted by the top three shareholders' monitoring and the joint monitoring mechanism amongst internal directors, indicating that internal controls are prevalent at Spanish companies. The authors suggest that shareholders and internal director monitoring are key governance mechanisms in the absence of the market for corporate control.

In terms of the banking industry, the majority of empirical studies are consistent with the substitute hypothesis. Studying US banks between 1987-1989 and 1992-1994, Anderson and Fraser (2000) examine the relationships between managerial ownerships and risk-taking in which risk-taking is used as a proxy for measuring the effectiveness of board monitoring. This is because strong boards are likely to mitigate the kind of management exploitation that could lead to excessive risk-taking. The authors find managerial ownerships and risk-taking differing between two periods: (i) the relationship is positive during the period of 1987-1989 when banks were less constricted by regulations; and (ii) the relationship is negative during the period of 1992-1994 when bank regulations became stricter. These two findings are consistent with the substitute hypothesis, which suggests that regulatory monitoring substitutes for weak board monitoring. Moreover, in a study of US banks in 1982 when the US regulatory environment strengthened, Rediker and Seth (1995) find that internal monitoring is likely to be substituted by monitoring of the concentrated shareholders, when board independence (the ratio of external directors to the total number of board members) is low.

In a comparative study of US banks in 1979, Brickley and James (1987) find that (i) there are lower levels of external directors in states with greater restrictions on the acquisitions of banks, compared to those with fewer restrictions; and (ii) when the takeover market is weak, concentrated ownerships and external directors complement each other in monitoring company managements; and (iii) concentrated ownerships are likely to act as a substitute for a takeover mechanism as a governance device. These results are similar to those found in the study of Fernández and Arrondo (2005) examining Spanish non-financial companies between

1990 and 1997. Their study indicates that the predictions of substitute hypothesis are similar between banks and non-financial companies.

In summary, the majority of studies find substitute/complementary effects between shareholder and regulatory monitoring (Demsetz and Lehn, 1985; Fung and Tsai, 2012; Kim et al., 2007), or between shareholder and board monitoring (Becher and Frye, 2011; Brickley and James, 1987; Rediker and Seth, 1995). These external substitute/complemented devices are able to control agency conflicts within company managements, and improve governance.

6.2.2 Regulatory Monitoring

Other than internal corporate governance mechanisms and shareholder monitoring, banks are also monitored and disciplined by financial authorities, which also design banking and prudential regulations to prevent banks from excessive risk-taking. A number of banking and prudential regulations have been introduced to protect investors and depositors from bank insolvencies, and to maintain financial stability. These regulations include the introduction of governance requirements (FRC, 2012; Walker, 2009), deposit insurance schemes (Keeley, 1990), and regulatory capital requirements (Levine, 2003).

Regulatory capital requirements were introduced to protect depositors and ensure that banks maintain adequate levels of regulatory capital as reserves to act as buffers during periods of severe economic distress. Holding adequate levels of liquidity in the event of macroeconomic downturns is an attempt by regulators to prevent bank runs (BCBS, 2016b). The regulatory capital reserve is calculated against the on-balance sheet items, and consists of the minimum regulatory capital (Tier 1 core capital) and supplementary capital (Tier 2). Regulatory capital is often used as a proxy for measuring levels of regulatory monitoring because regulators are likely to increase the amount of capital required as regulatory pressure increases (Furfine, 2001), and banks are likely to adjust their capital levels under regulatory pressure (Shrieves and Dahl, 1992).

Regulatory capital reserves are calculated against risk-weighted assets, which require that banks hold higher percentages of their capital in reserve against loans, compared to those of government securities. By failing to hold the required regulatory capital reserves, banks may face statutory penalties such as the imposition of restrictions on certain types of banking activities (Furfine, 2001), which include ceasing or limiting their lending businesses, limits on new investments, limits on operational expenses, etc.

Mixed results are found in examining the effectiveness of regulatory capital for minimising excessive risk-taking at banks. This is because off-balance sheet exposures and financial

innovations such as securitisation were not taken into account when calculating the amount of required regulatory capital prior to the 2008 financial crisis. Studying Canadian commercial banks between 1988 and 1998, Dionne and Harchaoui (2008) find that banks use securitisation and off-balance sheet activities as regulatory capital arbitrage, as these banks are likely to already have high levels of credit risks, and also high leverage ratios. Similar results are found in examining the relationships between securitisation and risk-taking at US and European banks (Acharya et al., 2013; Maddaloni and Peydró, 2011).

Contrary to these views, scholars argue that regulatory capital effectively constrains risk-taking at banks, and increases bank efficiencies (Shrieves and Dahl, 1992). Studying US commercial banks between 1983 and 1987, Shrieves and Dahl (1992) find that a positive and statistically significant relationship exists between levels of regulatory capital and risk-taking, indicating that regulatory capital is effective in constraining risk-taking at banks in the absence of financial innovations.

Despite the mixed results on the relationship between regulatory capital and risk-taking at banks, some scholars argue that mechanisms such as regulatory capital requirements may substitute or complement internal monitoring. In a simulation study, Furfine (2001) finds that, after the risk-based capital requirements increase, US banks switch from holding high risk assets (i.e. loans) to low risks assets (i.e. government securities), as well as indicating a preference for safer loans, suggesting that regulatory pressures encourage greater monitoring. Studying US commercial banks between 1983 and 1987, Shrieves and Dahl (1992) find that regulatory capital is effective in constraining risk-taking at banks, indicating that the increased levels of regulatory capital discourages bank managements from taking on additional asset risks, and acts to reduce agency costs. Similar results are found in Laeven and Levine (2009) whose study focused on 48 countries between 1996 and 2001. The authors suggest that capital stringency has direct effects on discouraging risk-taking, but also find that the effects of capital stringency may be limited, if majority shareholders encourage their banks to take greater risks to compensate for the loss of income as a result of the increased costs of regulatory capital.

In summary, regulators may be unable to improve bank governance by imposing regulatory capital requirements, because shareholders may offset the effects of regulatory monitoring by directly influencing managers to invest in riskier projects for greater returns.

6.2.3 External Monitoring (Institutional Investors)

Conceptually, under separation of ownership and control, owners delegate management responsibilities to internal directors, who deal with the decision-making processes and controls of companies (Jensen and Meckling, 1976). In the case of poorly performing companies,

owners (institutional shareholders) are only able to discipline their investee companies through exit or voice mechanisms (Ahmadjian and Robbins, 2005), and may request changes in company managements such as through executive dismissals (Denis et al., 1997).

Scholars and policy makers argue that institutional shareholders are motivated to their monitor managements, because they may own sufficient numbers of shares, and have the knowledge and experience to adequately monitor their investee companies/banks (Shleifer and Vishny, 1986). Moreover, shareholder monitoring may improve governance, especially when internal/regulatory monitoring is weak (Williamson, 1983).

Studying European non-financial companies, Kim et al. (2007) also find that countries with weak shareholder protection tend to have greater amounts of concentrated share ownerships and less independent directors at companies. This study indicates that concentrated shareholders and external directors act as substitute devices in monitoring managements. These results are consistent with studies focusing on banks operating in emerging-market countries. In the study of Laeven (1999) focusing on East Asian banks between 1992 and 1996, the findings indicate that banks with majority foreign ownerships tend to take fewer risks, because they are less likely to engage in insider lending, indicating that foreign shareholders act as key substitute monitors when regulatory and internal governance mechanisms are weak.

Contrary to the benefits of substitute or complementary institutional shareholder monitoring, institutional shareholders may also dampen regulatory and internal controls by encouraging their investee companies to invest in riskier projects for grater expected returns. In a cross-country study, Laeven and Levine (2009) find a positive relationship between the cash flow rights of majority shareholders and risk-taking at banks between 1996 and 2001, indicating that majority shareholders are able to encourage their investee banks to take greater risks. The study covers the deregulation periods of the banking industry in the 1990s. This shows a negative relationship between regulatory and shareholder monitoring (i.e. these two monitoring mechanisms substitute for each other), and, more importantly, the result show that shareholders fail to monitor risk-taking at banks during the deregulation periods.

As discussed, the literature offers mixed findings concerning shareholder monitoring, which is arguably affected by the risk preferences of shareholders and the levels of control (or cash flow) rights. This is because shareholders may serve as better monitors and use their capacities to enforce discipline on their managers if they believe that their risk preferences are being ignored. Moreover, some scholars also suggest that shareholders may be happy to see their investee companies/banks take risks, because they can diversify their portfolio risks (French

and Poterba, 1991; Wright et al., 1996). Nevertheless, shareholder monitoring remain an effective governance mechanism when internal governance and takeover markets are weak (Fernández and Arrondo, 2005; Grossman, 2013; Williamson, 1983).

6.2.4 The Mechanisms Hindering Substitute/Complementary Effects in Japan

Japanese regulatory monitors have been under scrutiny because (i) the convoy system hinders the development of the domestic banking sector, (ii) cross-shareholdings or *keiretsu* groups hinder takeover bids (Morck and Nakamura, 1999), (iii) the appointment of *amakudari* as bank board directors (Grossman, 2013; Horiuchi and Shimizu, 2001), and (iv) weak disciplinary mechanisms such as executive turnover. These criticisms are discussed as follows.

6.2.4.1 The Convoy System

The traditional objective of the convoy system is to prevent excessive competition amongst banks in order to ensure financial stability, in which banks mutually support each other under regulatory guidelines. These guidelines may negate the interest of the general public, such as by financially supporting non-performing banks in the aftermath of the asset bubble bursts in 1990 and 1991 (Cargill, 2000). Since then, the convoy system has been under scrutiny, because the Ministry of Finance (MoF) tried to support weak banks from failing (Grossman, 2013; Rosenbluth and Schaap, 2003).

Scholars argue that the convoy system is weakening (Imai, 2007; Murata and Hori, 2004), because the Japanese government has encouraged competition in the banking industry (Bikker and Spierdijk, 2008; Frankel and Morgan, 1992), and has implemented various implicit protection mechanisms, similar to those of Anglo-American countries, such as the deposit insurance scheme to prevent banks from being affected by the impact of bank runs (Suzuki, 2011a). These protection mechanisms include deposit insurance schemes, central bank lender of last resort facilities, and information sharing mechanisms between regulators and major banks which ensures a certain degree of flexibility for regulators when amending financial regulations for resolving problems (Suzuki, 2011a, p. 39). In addition, the Japanese government may choose to maintain banks as going concerns instead of bailing them out, and also by injecting funds into them as equity (Moody's, 2013).

From the institutional framework perspective, the lifetime employment system encourages internally promoted directors to jointly monitor their banks, because those directors may fear the loss of their employment in the case of the insolvency of their banks (Aoki, 1994b). However, the efforts of joint monitoring may be undermined by the implicit protective mechanisms, because their banks expect to be rescued by the Japanese government.

6.2.4.2 Cross-Shareholding

Other than the convoy system, scholars also argue that cross-shareholdings or *keiretsu* groups lower the disciplinary effects of other shareholders, because their cross-shareholders tend to be long-term concentrated shareholders, and also have business affiliations with them (Kang and Shivdasani, 1995; Randall et al., 2000; Yafeh and Yosha, 2003). As a result, they may also be reluctant to sell their shares in order to discipline their investee banks/companies. Moreover, these cross-shareholders, who are the main banks of the investee banks, may also appoint external directors to the boards of their investee banks for monitoring purposes (Van Rixtel and Hassink, 2002).

In a study of Japanese non-financial companies between 1981 and 1987, Morck and Nakamura (1999) find imperfect substitute monitoring between shareholders and main banks. The authors find that (i) companies that belong to *keiretsu* groups tend to have higher entertainment costs, compared those which do not belong to *keiretsu* groups, (ii) the share prices of *keiretsu* group companies increase after the appointment of bank directors, compared to those outside the *keiretsu* groups. These findings indicate that only companies belonging to *keiretsu* groups enjoy the substitute monitoring between shareholders and main banks. In terms of bank governance, Milhaupt (1999) argues that investee banks are monitored by their main banks within the same *keiretsu* groups, because these main banks are expected to rescue/support failing banks in the same group. For example, as a result of the falling share prices of financial companies and banks in the early 2000s, six major groups were reduced to four groups (Grabowiecki, 2006, pp. 47–48), which became Mizuho Financial Group, Mitsubishi Tokyo Financial Group, Sumitomo Mitsui Banking Corporation, and UFJ Group.

Therefore, the takeover markets are weak as a result of cross-shareholdings. Takeovers of banks rarely happen, unless it is under the instructions of the MoF (Hoshi, 2002; Malcolm, 2001), or banks merge with, or are acquired by, members of their *keiretsu* groups (Anderson and Campbell II, 2000).

6.2.4.3 The Amakudari and Disciplinary Mechanisms

Amakudari and disciplinary mechanisms are often discussed conjointly, because *amakudari* act as external directors to monitor and discipline managements. *Amakudari* are former civil servants who are often appointed to senior positions in private sector companies after they retire from the public sector. *Amakudari* may perform *ex post* monitoring on behalf of the Japanese financial authorities, and act as facilitators between banks and financial authorities

(Schaede, 1995). Hoshi and Kashyap (2001) argue that *amakudari* and the main bank-appointed directors act as substitute devices in monitoring bank management.

However, contrasting results are found in *amakudari* studies. Studying Japanese banks between 1977 and 1993, Van Rixtel and Hassink (2002) find that a positive relationship exists between the appointments of *amakudari* and risk-taking at banks, i.e. an increase in lending to high risk industries. The results are consistent with those found in Horiuchi and Shimizu (2001), which indicates that *amakudari* weaken *ex post* monitoring at banks.

Other than the appointments of *amakudari*, Japanese banks may select their external directors through external networks such as their *keiretsu* groups, or companies with which they have business affiliations. An external director is also referred to as an outside director in most Japanese studies. Under the legal definition, outside directors should not have any personal relationships with any employees of the companies to which they are appointed, or previously have worked in any related companies (such as their subsidiaries, or their parent companies, or any other subsidiaries of their parent companies) in the past 10 years.

Although the ratios of external/independent directors remain low on the boards of listed Japanese companies, they are gradually increasing their influences in monitoring the boards (Liu et al., 2011). In a study of Japan-listed companies between 2007 and 2008, Liu et al. (2011) find that greater ratios of independent directors lead to increased probabilities of executive turnover and decreased dividend levels during the 2008 financial crisis, but find no relationship between external directors and executive turnover. This indicates that independent directors effectively monitor managements by disciplining poorly performing boards and safeguarding shareholder wealth.

In summary, the above studies highlight that external directors – who had business affiliations with their banks prior to their appointments to their boards, or hold shares in their banks – may not effectively monitor bank managements. Instead, monitoring should be performed by independent directors who have no affiliations or hold any shares in the banks/companies which they serve on the boards of.

6.3 Conceptual Framework and Hypotheses Development

To prevent managers from exploiting company resources, scholars suggest that control mechanisms may be used to monitor and align the interests of shareholders and managers (Jensen and Meckling, 1976). Board monitoring and performance-based incentives are internal control devices, while the market for corporate control and regulatory monitoring are external control devices. Rediker and Seth (1995) suggest that various corporate governance mechanisms should operate concurrently to minimise agency costs. Once internal control mechanisms weaken, external control mechanisms arguably play substitution/complementary effects as monitors to prevent banks from excessive lending and risk-taking.

This section develops hypotheses to assess the interactions between internal and external control mechanisms, which further the understandings on internal and external control mechanisms.

The internal controls are measured by three internal CG indices (*VPC1*, *VPC2*, *VPC3*), which are constructed using principal component analysis. *VPC1* consists of the eigenvalues of the ratios of lifetime bankers (*BB*), financial experts (*BF*), legal experts (*BL*), and external directors (*ExDir*). *VPC2* consists of the eigenvalues of board age diversity (*AgeRange*) and external director tenures (*ExDir_T*). *VPC3* consists of the eigenvalue of internal director ownerships (*InDir_O*). The constructions of these internal CG indices are discussed in Section 6.4.2.2 in detail. The principal components are named as: (i) board independence and expertise (*VPC1*), (ii) tenure and board dynamics (*VPC2*), and (iii) internal director joint monitoring (*VPC3*).

Three external control mechanisms are considered: financial regulatory authorities, institutional shareholders, and domestic foreign institutional shareholders. The levels of total regulatory capital ratio (*TCapR*) are used as proxies for measuring the regulatory monitoring effects. Increased levels of regulatory capital reserves may incentivise bank managements to reduce their assets risks (Furlong and Keeley, 1989). As a result, regulatory capital reserves can be viewed as a corporate governance mechanism for reducing agency costs.

The levels of institutional share ownerships (*II*) are used as proxies for measuring institutional shareholder monitoring effectiveness. The levels of domestic financial institutional share ownerships (*DFI*) are used as proxies for measuring domestic financial institutional shareholder monitoring effectiveness.

This section argues that regulatory monitoring (*TCapR*) is complementary to the internal control devices of banks (*VPC1*, *VPC2*, *VPC3*), because the managements of Japanese banks work closely, but informally, with their financial regulators and the financial authorities

(Kanaya and Woo, 2000). As a result, additional regulatory mechanisms, such as the implementation of capital reserves, are used as complementary device to strengthen corporate governance.

Hypothesis 6.1 suggests a positive relationship between *TCapR* and *VPC1*, suggesting that regulatory monitoring complements the board monitoring that is performed by external directors, financial experts, legal experts, and lifetime bankers.

Hypothesis 6.2 argues that the regulatory monitoring (*TCapR*) is positively related to *VPC2*, suggesting that external directors with greater tenures and increased board age diversity complements regulatory monitoring.

Hypothesis 6.3 suggests a positive relationship between *TCapR* and *VPC3*, indicating that internal director share ownerships complement regulatory monitoring.

In the context of Japan, there were historically only small numbers of mergers and acquisitions of financial institutions as a result of cross-shareholding (Jackson and Moerke, 2005) and the Antimonopoly Act (Junko Fujita, 2017). In case of failing Japanese banks, large healthy banks may be requested to acquire or merge with potentially failing banks as directed by the government (Lee and Nagano, 2008). As a result, market for corporate control is arguably weak in Japan.

Following the substitute hypothesis proposed by Williamson (1983), when the market for corporate control is weak, shareholders and internal controls act as substitute devices in monitoring company managements. This section argues that institutional shareholders and joint monitoring are substitute devices at monitoring company managements. The majority of Japan-listed banks have insider-dominated boards, in which internal director joint monitoring (*VPC3*) is key to bank governance. Therefore, institutional shareholders step in when bank governance is weak.

Hypothesis 6.4 suggests a negative relationship between *II* and *VPC1*, suggesting that institutional shareholder monitoring substitutes the board governance role being performed by external directors and board experts.

Hypothesis 6.5 suggests a negative relationship between *II* and *VPC2*, indicating that increased external director tenures and board age diversity enhance board monitoring, because external directors increase their influences as their tenures length (*ExDir_T*) and board age diversity (*AgeRange*) allows for greater varieties of experiences at boards. As a result, the board monitoring strengthens and act as a substitute for institutional shareholder monitoring.

Hypothesis 6.6 suggests a negative relationship between *II* and *VPC3*, and argues that shareholder interests are aligned with performance-based incentives, in which rewarding internal directors with share ownerships (*InDir_O*) would make internal directors effectively de jure owners. Therefore, internal directors with share ownerships are likely to effectively monitor their banks on behalf of institutional shareholders.

If internal governance fails, domestic financial institutional shareholders (*DFI*) and the internal control devices of banks (*VPC1*, *VPC2*, *VPC3*) are substitute devices at monitoring managements. It also argues that *DFI* step in when bank governance is weak, because financial institutional shareholders might have business relationships with their investee banks and may be concerned about the financial health of their investee banks.

Hypothesis 6.7 argues that a negative relationship exists between *DFI* and *VPC1*, indicating that domestic institutional shareholder monitoring (*DFI*) act as a substitute for the board governance being performed by external directors (*ExDir*) and board experts (*BL*, *BF*), but domestic institutional shareholders complement the board governance being performed by life-time bankers (*BB*).

Hypothesis 6.8 argues that a negative relationship exists between *DFI* and *VPC2*, suggesting that increased external director tenures and board age diversity improve board monitoring, and act as a substitute for domestic institutional shareholder monitoring (*DFI*).

Hypothesis 6.9 argues that a negative relationship exists between *DFI* and *VPC3*, suggesting that increased ownership levels of internal directors (*InDir_O*) are likely to align the interests of internal directors with domestic institutional shareholders (*DFI*).

Model 6.1 is used to determine the substitution/complementary effects of external controls (*TCapR*, *II*, *DFI*) on the internal controls (*VPC1*, *VPC2*, *VPC3*):

Model 6.1:

$$Y_{i,t} = \alpha_{i,t} + \beta_1 VPC1_{i,t-1} + \beta_2 VPC2_{i,t-1} + \beta_3 VPC3_{i,t-1} + \beta_4 ImpLoanR_{i,t-1} + \beta_5 Disc_{i,t-1} + \beta_6 logA_{i,t-1} + \beta_7 NIIR_{i,t-1} + \beta_8 Post2008_{i,t-1} + \varepsilon_{i,t}$$

where $Y_{i,t}$ is the level of total regulatory capital ratio (*TCapR*) of bank *i* in time *t*, the level of institutional share ownerships (*II*) of bank *i* in time *t*, and the level of domestic financial institutional share ownerships (*DFI*) of bank *i* in time *t*.

VPC1, *VPC2*, and *VPC3* are internal CG indices which represent: board independence and expertise (*VPC1*), tenure and board dynamics (*VPC2*), and internal director joint monitoring (*VPC3*).

The levels of impaired loans (*ImpLoanR*), financial disclosure (*Disc*), bank asset sizes (*logA*), and non-interest income (*NIIR*) control for bank-specific effects. *Post2008* is a categorical variable in which 1 equals the years 2008-2013, and 0 equals 2005-2007. *Post2008* controls for year-specific effects. The fixed-effects (FE) estimations are used to examine Model 6.1.

6.4 Data and Variable Descriptions

6.4.1 Data Sample

The objective of this chapter is to assess the substitution and/or complementary effects of internal and external monitoring using data from Japan-listed banks between 2005 and 2013. The same set of sample data is used in chapters four and five. However, for the sake of consistency, the data sample descriptions of this chapter are also listed below.

The sample data consists of information relating to the balance sheets and corporate governance of each bank. The balance sheet information was extracted from the *Bankscope* database, in which consolidated data are used.

Corporate governance information on Japan-listed banks was extracted from the *Nikkei Needs* database and annual company reports. The annual reports were downloaded from the websites of each bank. However, some annual reports were not available from the websites of Japan-listed banks, and were instead downloaded from the websites of Kabupro[24] (株主プロ) and the Electronic Disclosure for Investors' NETwork[25].

The information relating to the backgrounds of individual Japanese bank board directors was extracted from the *Nikkei Telecom 21* database, and hand collected from the individual annual reports. Levels of managerial ownership were extracted from the annual reports of banks, and then cross-checked with the data extracted from the *Bankscope* database and the *Nikkei Needs* database.

The sample banks are listed on their domestic stock exchanges, which fulfilled the listed bank requirements such as corporate governance requirements, disclosure requirements, etc. These listed-bank corporate governance requirements include the need to appoint outsiders to boards, to adopt specific board structures, and the need to fulfil the regulatory capital and disclosure requirements.

In addition, the sample set is unbalanced.

[24] http://www.kabupro.jp/list/t0028.htm
[25] disclosure.edinet-fsa.go.jp

6.4.2 Variable Descriptions

This chapter examines the substitution and/or complementary effects of external and internal monitoring. Three dependent variables are used in this chapter, which are proxies for external monitoring.

The following sections (sections 6.4.2.1 and 6.4.2.2) present the definitions of dependent and independent variables in detail. Additionally, the following sub-sections briefly present the definitions of control variables, which are discussed in section 4.5.2.3 of chapter four in detail.

6.4.2.1 Dependent Variables: External Controls

6.4.2.1.1 The Total Regulatory Capital Ratio (*TCapR*)

TCapR is the total regulatory capital ratio. It is used as a proxy for the levels of regulatory monitoring. It is used to measure capital regulatory stringency (Barth et al., 2004), because banks are required to hold a minimum level of capital against their asset risks, i.e. a bank is required to hold a greater level of capital to act as a buffer against a higher level of risk-taking. It is also used as a proxy to measure bank capitalisation, or the financial soundness of banks (Michalak and Uhde, 2012). Additionally, scholars consider regulatory monitoring as an external control that is separate from the market (Ciancanelli and Reyes-Gonzalez, 2000).

6.4.2.1.2 Institutional Ownership Levels (*II*)

The level of institutional ownerships (*II*) is used as a proxy to measure the monitoring of institutional shareholders. It is a sum of the domestic and foreign financial institutions (*DFI*, *FFI*), and the domestic and foreign non-financial companies (*DNFC, FNFC*). Theoretical perspectives suggest that large shareholders (i.e. block shareholders/institutional investors) limit agency problems, and are likely to have greater resources and incentives to monitor the boards of their investee companies (Shleifer and Vishny, 1986). This is because they have greater access to information, greater influence over their investee companies, and higher proportions of investments compared to minority shareholders. Additionally, institutional shareholders often have more knowledge and more expertise to overcome the problems of information asymmetry (Pound, 1988). As a result, they are more capable of monitoring their investee companies, compared to other shareholders.

6.4.2.1.3 Domestic Financial Institutional Share Ownership Levels

Domestic financial institutional shareholders are arguably better monitors, because they have in-depth understandings of their domestic business environments (Gehrig, 1993), and greater understandings of the banking business, and similar risk preferences to their investee banks (Barry et al., 2011). Additionally, domestic financial institutional shareholders may be affiliated

with bank-oriented or *keiretsu* groups (Hiraki et al., 2003; Miyajima and Hoda, 2015), and therefore are likely to acquire company-specific information on their investee banks.

6.4.2.2 Independent Variables: Internal Controls (Corporate Governance Indices)

Board monitoring effectiveness is determined by multiple elements such as board composition (i.e. ratios of board independence, expertise and board homogeneity) and director share ownerships.

In order to measure these elements, internal corporate governance (CG) indices are created using principal component analysis (PCA), which produces three factors characterising the dimensionality of eight board mechanisms. The eight mechanisms (variables) are: (i) the ratio of external directors to the total number of board members (*ExDir*), (ii) the average tenure of external directors at boards (*ExDir_T*), (iii) the amount of external director share ownerships (*ExDir_O*), (iv) the amount of internal director share ownerships (*InDir_O*), (v) the ratio of financial experts to the total number of board members (*BF*), (vi) the ratio of legal experts to the total number of board members (*BL*), (vii) the ratio of lifetime bankers to the total of number of board members (*BB*), and (viii) board age diversity (*AgeRange*), which is calculated by subtracting the age of the oldest directors from the youngest directors on the boards.

Table 6.1 provides a summary of the statistics for the variables that are used to compose the principal components of *VPC1*, *VPC2*, and *VPC3*. The data shows that the boards of Japan-listed banks are of a similar age, and the average difference between the oldest and youngest members is 16 years. Compared to the boards of Anglo-American companies, the boards of Japan-listed banks are composed of insiders, of which only 10 percent of their board members are external directors (*ExDir*), and the majority of their board members are lifetime bankers (*BB*). Additionally, the average external director tenure is two years.

Table 6.1 Descriptive statistics: the variables used when composing principal components.

This sample consists of approximately 662 Japan-listed bank-year observations between 2005 and 2013.

Variable	Mean	Std. Dev.	Minimum	Maximum	No. of Obs.
AgeRange	16.38	6.85	0	37.00	662
BB	88.97	13.48	0	100.00	624
BF	0.64	2.20	0	12.50	624
BL	1.10	3.85	0	27.27	624
ExDir	0.10	0.15	0	0.86	657
ExDir_O	0.07	0.50	0	6.59	662
ExDir_T	1.73	3.46	0	26.00	657
InDir_O	0.15	0.31	0	6.86	662

The principal components (CG indices) are constructed according to the statistical properties of each variable, and they are associated with each factor, in which the components are retained based on the Kaiser's rule, i.e. the eigenvalues of the component exceeds one. Three components are kept, which have 35.6 percent of unexplained variances. These components contain positive and negative loadings.

Principal component analysis (PCA) is able to reduce the dimensions of the data without any loss of information. However, the invariances of individual variables (prior to the PCA transformation) cannot be captured (Karamizadeh et al., 2013).

Table 6.2 shows the compositions of *VPC1*, *VPC2*, and *VPC3*. *VPC1* captures the monitoring levels of external directors (0.4753), financial experts (0.469), legal experts (0.4722) and the substitute effects of the monitoring levels of lifetime bankers (-0.5186). *VPC2* is composed of the positive loading of tenures (0.7055) and board age diversity (0.5108). The tenures of external directors (*ExDir_T*) capture the monitoring abilities of external directors whose monitoring abilities increase as their tenures lengthen as they acquire adequate levels of company-specific knowledge (Sun and Liu, 2014). Board age diversity (*AgeRange*) captures the effects of board dynamics and succession planning (Houle, 1990), and managers who are dissimilar in age may be better at risk monitoring because they tend to differ in their risk preferences (Berger et al., 2014; Kesner, 1988; Van Ness et al., 2010). *VPC3* is dominated by internal director share ownerships (0.8577) which capture the alignment effects of internal director share ownerships and joint monitoring amongst internal directors (Fama and Jensen, 1983a), although the amounts of internal director share ownerships are relatively small, which Table 6.1 shows that the mean of the internal director share ownerships (*IOwn*) is 0.15 percent.

Table 6.2 The principal components of the internal control mechanisms, and its varimax rotation.

Items in **boldface** exceed 0.4.

	Pattern of Principal Components				Pattern of Components: Varimax Rotation		
Variable	*PC1*	*PC2*	*PC3*	Unexplained	*VPC1*	*VPC2*	*VPC3*
ExDir	**0.5246**	-0.0171	-0.0368	0.1762	**0.4753**	0.2251	-0.0181
ExDir_T	0.2268	**0.5505**	-0.393	0.3464	-0.0759	**0.7055**	-0.0736
ExDir_O	0.2979	-0.0107	**-0.4046**	0.562	0.2059	0.2986	-0.3479
InDir_O	0.0491	**0.408**	**0.7529**	0.2093	0.0112	0.0055	**0.8577**
BF	0.3276	**-0.4136**	0.0642	0.4849	**0.469**	-0.2159	-0.1264
BL	0.3381	-0.291	0.3123	0.4614	**0.4722**	-0.2258	0.1504
BB	**-0.4971**	0.1387	-0.0865	0.2327	**-0.5186**	-0.0625	-0.0312
AgeRange	0.3368	**0.5051**	0.0666	0.3729	0.1184	**0.5108**	0.3132

The naming of each component corresponds to the largest eigenvalues of the varimax rotations[26] which exceed 0.4. Table 6.2 shows the three principal components and their corresponding varimax rotations which represent the six aspects of corporate governance. The principal components of varimax rotations are named as: (i) board independence and expertise (*VPC1*), (ii) tenure and board dynamics (*VPC2*), and (iii) internal director joint monitoring (*VPC3*).

6.4.2.3 Control Variables

Control variables are used to isolate any potential influences on the results. A set of control variables is used to control for bank-specific and year-specific effects.

At the bank level, three variables – the levels of financial disclosure (*Disc*), bank asset sizes (*logA*), and non-interest income (*NIIR*) – control for bank-specific effects. *Post2008* is a categorical variable in which 1 equals the years 2008-2013, and 0 equals 2005-2007. *Post2008* controls for year-specific effects.

Disc measures the level of bank financial disclosure which is constructed using 18 categories[27] of core disclosures that are published in the annual reports of the banks (Nier and Baumann, 2006). The level of accounting information is voluntarily disclosed according to director expertise and board characteristics (Karamanou and Vafeas, 2005), which improves board monitoring.

[26] The varimax rotated principal components are used in the regression models, because varimax rotation retains the orthogonality of the principal components and maximises the sum of the variances of the squared loadings (Jolliffe, 2002).

[27] *Disc* is constructed using 18 categories of information on bank balance sheets (Nier and Baumann, 2006), which includes (i) loans by maturity, (ii) loans by type, (iii) loans by counterparty, (iv) problem loans, (v) problem loans by type, (vi) securities by type (detailed breakdown), (vii) securities by type (coarse breakdown), (viii) securities by holding purpose, (ix) deposits by maturity, (x) deposits by type of customer, (xi) money market funding, (xii) long-term funding, (xiii) reserves, (xiv) capital, (xv) contingent liabilities, (xvi) off-balance sheet items, (xvii) non-interest incomes, and (xviii) loan loss provisions. The breakdowns of the 18 categories are listed in Appendix Table A.2.

logA is the natural logarithm of total bank assets, which measures bank asset sizes. *logA* controls for bank-specific effects, because large banks have greater abilities to diversify their risk portfolios (Saunders et al., 1990), or to engage in securitisation businesses (Cardone-Riportella et al., 2010).

NIIR is the ratio of non-interest income over gross revenues, which measures the proportion of incomes contributing from non-lending businesses, including proprietary trading revenues and advisory fees. *NIIR* can be used to reflect the business strategies of banks (Köhler, 2012). For example, banks – with greater levels of *NIIR* – may focus on increasing their incomes from investments and advisory-related businesses, instead of focusing on traditional bank lending businesses.

Post2008 is a categorical variable in which 1 equals the years 2008-2013, and 0 equals 2005-2007. *Post2008* is used as a year dummy to capture the influences of the 2008 financial crisis and control for year-specific effects.

6.4.3 Summary Statistics

Table 6.3 provides a summary of the statistics for the variables used in the empirical analyses. The mean of the total regulatory capital ratio (*TCapR*) of Japan-listed banks is 11.55, while its minimum is 5.71 and its maximum is 19.48.

In terms of ownership structure, on average, 20.47 percent of the bank shares are owned by institutional investors (*II*), of which 14.14 percent are domestic financial institutional investors (*DFI*). In terms of independent variables, the mean of board monitoring and expertise composition (*VPC1*), external director monitoring abilities and board dynamics (*VPC2*), and internal director joint monitoring (*VPC3*) are 0.

The correlation matrix is presented in Table 6.4. First, *TCapR* is statistically and positively correlated with *VPC1* and *VPC2* at 10 percent levels. But only a number of eigenvalues of *VPC1* and *VPC2* are statistically related to *TCapR.* Table 6.4 shows that the associated eigenvalues of *VPC1* and *VPC2* – *AgeRange*, *BF*, *ExDir* and *ExDir_T* – are positively statistically related to *TCapR*, suggesting that there are positive relationships (i) between the levels of regulatory monitoring, and board age diversity, (ii) between regulatory monitoring and legal experts, and (iii) between regulatory monitoring and external directors.

Second, the levels of institutional share ownerships (*II*) are positively and statistically correlated with *VPC1* and *VPC2*, but negatively and statistically correlated with *VPC3.* Only a number of the associated eigenvalues of *VPC1*, *VPC2* and *VPC3* – *AgeRange*, *BF*, *ExDir*, and *ExDir_T* – are positively statistically related to *II*, and the eigenvalues *BB* and *InDir_T* are

negatively statistically correlated with *II.* High positive correlation coefficients exist (i) between the level of institutional share ownerships and the ratio of financial experts, and (ii) between the level of institutional share ownerships and the ratio of external directors.

The level of domestic financial institutional share ownerships (*DFI*) is positively and statistically correlated with *VPC1*, and is negatively and statistically correlated with *VPC3*. Only the eigenvalues of *VPC1 – BF* and *ExDir –* are positively statistically related to *DFI*. But the eigenvalues of *VPC1* and *VPC3 – BB* and *InDir_O*, respectively – are negatively statistically related to *DFI*.

Interestingly, the levels of financial disclosure (*Disc*) are positively and statistically correlated with the levels of institutional share ownerships (*II*) and those of domestic financial institutional share ownerships (*DFI*), indicating that shareholders may have a direct influence on improving the levels of financial disclosure at banks. On the contrary, *Disc* and *TCapR* are not statistically correlated.

In terms of multicollinearity, the variance inflation factor does not exceed 2 in each model, and the correlation coefficients of variables do not exceed 0.4 in each model.

Table 6.3 Descriptive statistics: variables used.

This sample consists of approximately 662 Japan-listed bank-year observations between 2005 and 2013.

Variable	Mean	Std. Dev.	Minimum	Maximum	No. of Obs.
AgeRange	16.38	6.85	0	37.00	662
BB	88.97	13.48	0	100.00	624
BF	0.64	2.20	0	12.50	624
BL	1.10	3.85	0	27.27	624
DFI	14.14	14.82	0	100	662
Disc	0.53	0.04	0.4	0.70	655
ExDir	0.10	0.15	0	0.86	657
ExDir_O	0.07	0.50	0	6.59	662
ExDir_T	1.73	3.46	0	26.00	657
II	20.14	18.61	0	100.00	662
ImpLoanR	3.67	1.32	0.84	10.83	653
InDir_O	0.15	0.31	0	6.86	662
logA	17.34	0.99	15.35	21.66	655
NIIR	15.70	13.78	-62.27	191.04	654
Post2008	0.66	0.47	0	1	662
TCapR	11.55	1.96	5.71	19.48	655
VPC1	-0.00	1.63	-1.33	8.13	619
VPC2	0.00	1.20	-1.59	5.96	619
VPC3	-0.00	1.04	-3.96	18.86	619

Table 6.4 Pairwise correlation coefficients.

* indicates that the pairwise correlation coefficient is statistically significant at a 10 percent level.

	AgeRange	*BB*	*BF*	*BL*	*DFI*	*Disc*	*ExDir*	*ExDir_O*	*ExDir_T*	*II*	*ImpLoanR*	*InDir_O*	*logA*	*NIIR*	*Post2008*	*TCapR*	*VPC1*	*VPC2*	*VPC3*
AgeRange	1																		
BB	-0.1601*	1																	
BF	0.1043*	-0.3280*	1																
BL	0.2130*	-0.3922*	0.2531*	1															
DFI	0.0595	-0.1546*	0.1794*	0.0167	1														
Disc	-0.0172	-0.0730*	0.011	0.0186	0.0655*	1													
ExDir	0.4731*	-0.7936*	0.4405*	0.4207*	0.1241*	0.0971*	1												
ExDir_O	0.2005*	-0.2170*	0.2430*	0.1029*	-0.0034	0.0949*	0.4484*	1											
ExDir_T	0.2992*	-0.2285*	0.0629	0.0564	0.0527	-0.1059*	0.3008*	0.1607*	1										
II	0.1905*	-0.2477*	0.3166*	0.0383	0.8454*	0.0854*	0.4292*	0.2620*	0.1203*	1									
ImpLoanR	-0.0662*	-0.1007*	0.0256	0.0435	-0.1633*	0.0422	0.0119	0.1351*	0.0327	-0.1958*	1								
InDir_O	0.1539*	-0.0037	0.0279	0.0308	-0.1113*	-0.0634	0.0465	-0.0371	-0.0081	-0.0767*	-0.0820*	1							
logA	0.2098*	-0.1246*	0.2369*	0.1066*	0.3001*	0.2011*	0.2904*	0.1050*	0.0684*	0.4200*	-0.3605*	-0.1115*	1						
NIIR	0.0884*	-0.2325*	0.1096*	0.0361	0.1854*	0.1351*	0.3057*	0.1704*	0.0791*	0.3008*	-0.0842*	0.0541	0.4208*	1					
Post2008	0.0345	-0.025	0.1063*	0.0289	0.0247	-0.1225*	0.0754*	-0.0066	0.1361*	0.1406*	-0.3056*	-0.0695*	0.1675*	0.0301	1				
TCapR	0.2535*	0.0557	0.0881*	0.0043	0.0836*	-0.0447	0.2304*	0.0054	0.2576*	0.2522*	-0.3407*	-0.018	0.4793*	0.3048*	0.2144*	1			
VPC1	0.4319*	-0.8725*	0.6619*	0.6736*	0.1271*	0.0728*	0.8723*	0.4538*	0.1870*	0.3576*	0.0710*	0.0545	0.2485*	0.2285*	0.0754*	0.0953*	1		
VPC2	0.6982*	-0.3890*	0.018	0.021	0.0542	-0.0309	0.5554*	0.4658*	0.7964*	0.2556*	0.0088	0.0533	0.1580*	0.1873*	0.0748*	0.2736*	0.3706*	1	
VPC3	0.3592*	-0.0679*	-0.1134*	0.1728*	-0.0824*	-0.0777*	0.0229	-0.3312*	-0.0428	-0.1273*	-0.1363*	0.8890*	-0.0706*	0.0244	-0.0744*	0.0264	0.0381	0.0451	1

6.5 Methodology

The objective of this chapter is to examine the substituted/complementary effects between the internal and external governance mechanisms of Japan-listed banks between 2005 and 2013.

This chapter argues that external governance mechanisms – such as institutional shareholder and regulatory monitoring – can be used as substitution (or complementary) mechanisms when internal controls are weak (or strong).

In order to examine the substitution and complementary corporate governance mechanisms, a two-step model is used. First, in order to capture the multiple dimensionalities of the internal corporate governance mechanisms of Japan-listed banks, internal corporate governance (CG) indices are developed using principal component analysis (PCA), in which the principal components are uncorrelated with each other. For the purpose of interpretation, the final principal components are then produced using varimax rotation. Second, fixed-effects (FE), random-effects (RE) and system generalised method of moments (GMM) Arellano Bond estimations are used to examine the substitution and complementary effects between external monitoring (regulatory and shareholder monitoring) and internal control mechanisms (internal CG indices).

In order to address problems of endogeneity and unobserved heterogeneity, (i) fixed-effects (FE) and random-effects (RE) estimations with lagged independent and control variables are used. The estimations control for bank-specific and year-specific effects, and cluster standard errors at the bank level. If the null hypothesis of the Hausman test is accepted, then the RE estimation is preferred over the FE estimation. But if the null hypothesis is rejected, then it indicates that the RE estimators are inconsistent and the FE estimation is preferred.

The system generalised method of moments (GMM) Arellano Bond Arellano estimations, and estimations using alternative independent variables are used as robustness tests. The GMM estimations are run using two-step estimators with an option that the estimated variance–covariance matrix is robust to heteroskedasticity in case of any misspecification causing weak instruments and large sample biases (Windmeijer, 2005). In the GMM estimations, the control variables lead to endogenous explanatory variables that are less correlated with the instrumental variable(s). The alternative independent variables used as robustness tests are the lagged variables of *BB*, *BF*, *BL*, *ExDir*, *AgeRange*, *ExDir_T*, and *InDir_O*, which correspond to *VPC1*, *VPC2* and *VPC3*.

6.6 Results

The results shown in columns (1) – (5) of Table 6.5 are consistent with Hypothesis 6.3 and Hypothesis 6.9, and weakly support Hypothesis 6.2, Hypothesis 6.5, Hypothesis 6.6, and Hypothesis 6.8. But the results do not support Hypothesis 6.1, Hypothesis 6.4 and Hypothesis 6.7. The key finding is that internal director joint monitoring (*VPC3*) is statistically significant at a 10 percent level in columns (4) and (5) of Table 6.5, indicating that regulatory monitoring and internal director ownerships are complementary devices in bank monitoring, and domestic shareholder monitoring and internal director ownerships are substitute devices in bank monitoring.

In terms of the model specification test, the Hausman test is used to determine the consistencies and efficiencies of the fixed-effects (FE) estimators. The results of the Hausman tests shown in columns (1) and (3) of Table 6.5, and columns (1), (3), (4) and (6) of Table 6.7 indicate that the random-effects (RE) estimations are preferred.

In terms of the model specification test for the system generalised method of moments (GMM) Arellano Bond estimation, the null hypotheses of the Sargan and Arellano Bond AR(1) and AR(2) tests are accepted in Table 6.6 and Table 6.9, indicating that the overidentifying restrictions are valid, and the instrumental variable(s) are valid.

However, the results also show that the majority of models are poorly explained, in which the R^2 (overall) are less than 0.3. The results provide three key findings.

First, the RE regression results shown in column (4) of Table 6.5 are consistent with Hypothesis 6.3 in which *TCapR* is positively and statistically associated with *VPC3* at a one percent level, suggesting that regulatory monitoring (*TCapR*) and the principal component (PC) of internal director joint monitoring[28] (*VPC3*) complementarily monitor bank governance. Inconsistent with the substitute hypothesis, the results show important policy implications for three reasons. First, it shows that internal director ownerships induce internal director joint monitoring, which shows that internal director joint monitoring prevails in the internal Japanese corporate governance model. The result is consistent with the concepts of dominant internal controls suggested by Dore (2000). Second, internal directors work closely with their regulators, although scholars argue that the bonds between bank managers and their regulators gradually weaken (Horiuchi and Shimizu, 2001). Nevertheless, joint monitoring creates concerns of potential collusion among internal directors, leading to suspicions of fraud or accounting manipulations. Third, as for robustness, the results in Table 6.7 and Table 6.9

[28] Table 6.2 shows that the largest eigenvalue of *VPC3* is *InDic_O* (0.8577).

show the positive relationships between the eigenvalue of *VPC3* – *InDic_O* – and *TCapR*, indicating that internal director ownerships incentivise board monitoring; although the relationship between *InDic_O* and *TCapR* is only statistically significant in the GMM estimation in Table 6.9. It suggests that the current levels of internal director ownerships are likely to be affected by the preceding pressures from the regulators. In summary, the results show that internal director ownerships incentivise board monitoring, which increases the complementary monitoring effects between internal directors and regulators.

Second, the results presented in column (5) of Table 6.5 are consistent with Hypothesis 6.9. The RE regression result in column (5) of Table 6.5 shows negative relationships between the level of domestic financial institutional ownerships (*DFI*) and the principal components of internal director joint monitoring (*VPC3*), and it is statistically significant at a 1 percent level. Consistent with agency theory, the results indicate that internal director share ownerships can be used to align the interests of shareholders (Jensen and Meckling, 1976), and internal director ownerships (*InDir_O*) can be used as a substitute device to lower the costs of monitoring performed by domestic financial shareholders. As for robustness, the result is robust against the GMM results in Table 6.5, and the results of the regression model using the alternative variable (*InDir_O*) in Table 6.8 and Table 6.9. This indicates that the monitoring of domestic financial institutional shareholders act as a substitute in internal governance, i.e. the coefficients of domestic financial institutional ownerships (*DFI*) are negatively and statistically related to internal director joint monitoring (*InDir_O*) in the RE and GMM regressions shown in Table 6.8 and Table 6.9, respectively.

Third, although the results in Table 6.5 show that the independent variables (*VPC1*, *VPC2* and *VPC3*) are statistically insignificantly related to institutional shareholders (*II*) when estimating with fixed-effects specification, column (2) of Table 6.6 shows that *VPC1*, *VPC2* and *VPC3* are positively and statistically significantly related to institutional shareholders (*II*) when estimating with the system GMM Arellano Bond specification. This suggests that the relationship between institutional shareholders (*II*) and independent variables related to internal governance (*VPC1*, *VPC2* and *VPC3*) may be driven by the unobserved characteristics of banks, and the lagged dependent and independent variables are likely to be persistent over time (Blundell and Bond, 1998). As a result, the system GMM Arellano Bond estimations are likely to be more appropriate in estimating the relationships between *II* and *VCP1*, between *II* and *VCP2*, and between *II* and *VCP3*.

Moreover, contrary to Hypothesis 6.4, Hypothesis 6.5 and Hypothesis 6.6, *VPC1*, *VPC2* and *VPC3* are positively and statistically significantly associated with *II*, indicating that institutional

shareholders complementarily monitor their investee banks with the boards of their investee banks.

In addition, the results shown in Table 6.5 suggest that Hypothesis 6.2, Hypothesis 6.5, Hypothesis 6.6, and Hypothesis 6.8 are weakly supported, i.e. the signs of coefficients are consistent with the proposed hypotheses, but they are not statistically significant.

Consistent with Hypothesis 6.2, but result is weakly supported. The result shown in Table 6.5 indicates that regulatory monitoring (*TCapR*) is positively and statistically insignificantly related to *VPC2*, and the results in Table 6.7 and Table 6.8 show that *TCapR* is positively and statistically related to *ExDir*, indicating that regulators and external directors complement each other in monitoring their banks. However, the results should be interpreted with caution, because Table 6.9 shows that *TCapR* is negatively related to *ExDir* and the coefficient is not statistically significant when estimating with the system GMM Arellano Bond specification.

Consistent with Hypothesis 6.5, but result is weakly supported. The result shown in Table 6.5 indicates that institutional shareholder monitoring (*II*) is negatively and statistically insignificantly related to *VPC2*, and only the result shown in Table 6.9 is statistically significant – the coefficient of *AgeRange* is positively related to *II* when estimating with the system GMM Arellano Bond specification. This indicates that the relationship between institutional shareholder monitoring and board age diversity is likely to be driven by unobserved bank characteristics.

Consistent with Hypothesis 6.6, but result is weakly supported. The result shown in Table 6.5 indicates that institutional shareholder monitoring (*II*) is negatively and statistically insignificantly related to *VPC3*. As shown in Table 6.2, *VPC3* can be largely explained by the principal component of *InDir_O*. The results shown in Table 6.7 and Table 6.9 indicate that the coefficient of *InDir_O* is not statistically significantly related to *II*.

Consistent with Hypothesis 6.8, but result is weakly supported. The result shown in Table 6.5 suggests that domestic institutional shareholder monitoring (*DFI*) is negatively and statistically insignificantly related to *VPC2*. As shown in Table 6.2, the majority of *VPC2* is composed of the eigenvalues of *ExDir_T* and *AgeRange*. But the coefficients of *ExDir_T* and *AgeRange* are not statistically significantly related to *DFI* in Table 6.7 and Table 6.9

In conclusion, the results show that, first, external directors may act as a bridge in communicating with regulators in reducing information asymmetry between Japan-listed banks and the regulatory authorities. As a result, the complementary mechanisms improve monitoring, and enhance the protective banking industry (Suzuki, 2011a). Second, the use of

internal shareholder ownerships is effectively aligned with the interests of domestic institutional shareholders, indicating that domestic financial institutional shareholders are likely to step in, if bank internal governance fails. This suggests that the Japanese governance system is dominated by internal controls being performed by domestic shareholders. Lastly, the results also show that the institutional shareholders complementarily monitor their investee banks with the banks' boards.

Table 6.5 A summary of the results of the fixed-effects (FE) and the system generalised method of moments (GMM) Arellano Bond estimations which examine the relationships between external monitoring mechanisms (*TCapR*, *II*, *DFI*), and board compositions (*VPC1*, *VPC2*, *VPC3*).

L. indicates that the independent variables have a one-year lag. *VPC1* represents board monitoring consisting of the eigenvalues of *BB*, *BF*, *BL* and *ExDir*. *VPC2* represents the board dynamics and external director monitoring abilities consisting of the eigenvalues of *AgeRange* and *ExDir_T*. *VPC3* represents the joint monitoring consisting of the eigenvalue of *InDir_O*. *ImpLoanR*, *Disc*, *logA*, and *NIIR* control for bank-specific effects. *Post2008* controls for year-specific effects. *, **, and *** indicate a significance at 10%, 5%, and 1%, respectively.

The Hausman test is used to test the consistency and efficiency of the FE estimations. The Breusch and Pagan Lagrangian multiplier (LM) test is used to test for whether the variance of the unobserved fixed effects is zero.

The results of columns (4) and (5) using RE estimations correspond with those of columns (1) and (3) using FE estimations, respectively.

Estimation type	FE			RE	
	(1)	(2)	(3)	(4)	(5)
Dependent variable	*TCapR*	*II*	*DFI*	*TCapR*	*DFI*
Intercept	13.91	-23.84	34.62	0.483	-21.39
	(1.56)	(-0.24)	(0.39)	(0.15)	(-0.81)
L.VPC1	0.0823	1.586	1.682	-0.00111	1.330
	(0.56)	(1.34)	(1.15)	(-0.01)	(1.15)
L.VPC2	0.0663	-0.627	-0.201	0.124	-0.350
	(0.47)	(-0.53)	(-0.18)	(0.89)	(-0.36)
L.VPC3	0.0589*	-0.0763	-0.446*	0.0597*	-0.572*
	(2.16)	(-0.30)	(-2.03)	(2.18)	(-2.50)
L.ImpLoanR	0.0884	-0.764	-0.606	0.0735	-0.722
	(1.40)	(-1.42)	(-1.03)	(1.23)	(-1.34)
L.Disc	-0.186	-6.870	-14.01	-1.013	-14.94
	(-0.14)	(-0.36)	(-0.84)	(-0.76)	(-0.93)
L.logA	-0.201	2.965	-0.567	0.613***	2.758*
	(-0.40)	(0.50)	(-0.11)	(3.80)	(1.99)
L.NIIR	0.0216**	-0.0154	0.0114	0.0197**	0.00161
	(3.13)	(-0.29)	(0.27)	(2.93)	(0.04)
L.Post2008	1.149***	0.328	-0.957	0.888***	-2.023
	(7.38)	(0.18)	(-0.57)	(7.12)	(-1.55)
No. of obs.	542	542	542	542	542
R^2	0.333	0.025	0.019		
Adj. R^2	0.323	0.010	0.004		
R^2 (within)	0.333	0.0247	0.0188	0.321	0.0169
R^2 (between)	0.00468	0.312	0.0350	0.289	0.149
R^2 (overall)	0.0400	0.202	0.0265	0.276	0.0935
Hausman test: p-value	0.928	0.0110	0.942		
LM test: p-value				0.00	0.00

Table 6.6 A summary of the results of the system generalised method of moments (GMM) Arellano Bond estimations which examine the relationships between external monitoring mechanisms (*TCapR*, *II*, *DFI*), and board compositions (*VPC1*, *VPC2*, *VPC3*).

L. indicates that the independent variables have a one-year lag. *VPC1* represents board monitoring consisting of the eigenvalues of *BB*, *BF*, *BL* and *ExDir*. *VPC2* represents the board dynamics and external director monitoring abilities consisting of the eigenvalues of *AgeRange* and *ExDir_T*. *VPC3* represents the joint monitoring consisting of the eigenvalue of *InDir_O*. *ImpLoanR*, *Disc*, *logA*, and *NIIR* control for bank-specific effects. *Post2008* controls for year-specific effects. *, **, and *** indicate a significance at 10%, 5%, and 1%, respectively.

The instruments used for the first-differenced equations are the lagged observations of the explanatory variables, and the instruments used for the levels of equations are the lagged observations of the dependent variable. The estimations passed the Sargan and the Arellano Bond (AR) tests in columns (1) – (3) for the validity of instruments. The Sargan test is used to determine whether the overidentifying restrictions are valid. The Arellano Bond test is used to determine for zero autocorrelation in first-differenced errors, in which the null hypothesis indicates no autocorrelation.

Estimation type	GMM Arellano Bond		
	(1)	(2)	(3)
Dependent variable	*TCapR*	*II*	*DFI*
L.VPC1	-0.0780*	1.839**	0.740
	(-2.12)	(2.71)	(1.78)
L.VPC2	0.0368	3.833***	0.594
	(0.81)	(5.00)	(1.07)
L.VPC3	0.0675***	0.451**	-0.0392
	(5.85)	(3.06)	(-0.32)
L.TCapR	0.532***		
	(20.65)		
L.II		-0.0273	
		(-1.15)	
L.DFI			0.0722**
			(2.61)
L.ImpLoanR	0.230***	-0.596	-0.426
	(7.95)	(-1.84)	(-1.65)
L.Disc	-2.026***	-4.418	-14.37
	(-3.80)	(-0.41)	(-1.83)
L.logA	0.323***	1.519***	1.108***
	(12.35)	(4.29)	(3.74)
L.NIIR	0.000191	-0.0734*	0.0153
	(0.08)	(-2.40)	(0.53)
L.Post2008	0.657***	-1.582*	-2.213***
	(11.18)	(-2.17)	(-3.32)
No. of obs.	542	542	542
No. of instruments	43	43	43
Sargan test	37.76	42.95	43.92
Sargan test: p-value	0.301	0.140	0.119
Arellano-Bond AR(1) test	-4.054	-3.824	-4.249
AR(1) test: p-value	0	0	0
Arellano-Bond AR(2) test	-1.111	0.864	1.068
AR(2) test: p-value	0.267	0.388	0.285

Table 6.7 A summary of the results of the fixed-effects (FE) estimations which examine the relationships between external monitoring mechanisms (*TCapR*, *II*, *DFI*), and board compositions (*BF*, *BB*, *BL*, *ExDir*, *AgeRange*, *ExDir_T*, *InDir_O*).

L. indicates that the independent variables have a one-year lag. *ImpLoanR*, *Disc*, *logA*, and *NIIR* control for bank-specific effects. *Post2008* controls for year-specific effects. *, **, and *** indicate a significance at 10%, 5%, and 1%, respectively. The Hausman test is used to test the consistency and efficiency of the FE estimations.

Estimation type	FE	FE	FE	FE	FE	FE	FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent variable	*TCapR*	*TCapR*	*II*	*II*	*II*	*DFI*	*DFI*
Intercept	13.47	9.717	-7.162	-33.37	-84.50	-32.80	16.75
	(1.36)	(1.04)	(-0.07)	(-0.35)	(-0.83)	(-0.37)	(0.20)
L.BB	0.0212		-0.0852				
	(1.24)		(-0.41)				
L.BF	0.000769		0.492				
	(0.01)		(1.22)				
L.BL	0.00227		0.0663				
	(0.08)		(0.18)				
L.ExDir	3.629**		8.703				
	(2.80)		(0.59)				
L.AgeRange				0.0183			0.108
				(0.11)			(0.68)
L.ExDir_T				0.278			0.203
				(0.67)			(0.53)
L.InDir_O		0.138			-0.202	-1.610**	
		(1.27)			(-0.30)	(-2.83)	
L.ImpLoanR	0.0891	0.0759	-0.737	-0.827	-0.952	-0.841	-0.567
	(1.34)	(1.18)	(-1.32)	(-1.59)	(-1.62)	(-1.31)	(-0.84)
L.Disc	-0.779	-0.0632	-7.876	-2.429	-0.787	-8.337	-8.901
	(-0.59)	(-0.05)	(-0.42)	(-0.14)	(-0.04)	(-0.55)	(-0.58)
L.logA	-0.289	0.0455	2.401	3.347	6.471	3.378	0.176
	(-0.55)	(0.09)	(0.40)	(0.59)	(1.06)	(0.64)	(0.04)
L.NIIR	0.0224**	0.0125	-0.0155	-0.0325	-0.145	-0.122	-0.00790
	(3.20)	(1.78)	(-0.29)	(-0.64)	(-1.72)	(-1.45)	(-0.19)
L.Post2008	1.148***	1.077***	0.274	-0.138	-1.258	-2.610	-1.211
	(7.15)	(7.20)	(0.15)	(-0.08)	(-0.62)	(-1.46)	(-0.77)
No. of obs.	542	578	542	574	578	578	574
R^2	0.345	0.319	0.028	0.016	0.034	0.030	0.008
Adj. R^2	0.334	0.312	0.011	0.004	0.024	0.020	-0.004
R^2 (within)	0.345	0.319	0.0275	0.0165	0.0340	0.0304	0.00797
R^2 (between)	0.00151	0.0813	0.386	0.248	0.195	0.119	0.0487
R^2 (overall)	0.0494	0.101	0.247	0.160	0.136	0.0877	0.0307
Hausman test	4.579	10.83	12.92	7.860	19.47	8.961	1.010
Hausman test: p-value	0.869	0.0936	0.166	0.345	0.00345	0.176	0.995

Table 6.8 A summary of the results of the random-effects (RE) estimations which examine the relationships between external monitoring mechanisms (*TCapR*, *II*, *DFI*), and board compositions (*BF*, *BB*, *BL*, *ExDir*, *AgeRange*, *ExDir_T*, *InDir_O*).

L. indicates that the independent variables have a one-year lag. *ImpLoanR*, *Disc*, *logA*, and *NIIR* control for bank-specific effects. *Post2008* controls for year-specific effects. *, **, and *** indicate a significance at 10%, 5%, and 1%, respectively.

The Breusch and Pagan Lagrangian multiplier (LM) test is used to test for whether the variance of the unobserved fixed effects is zero.

Estimation type	RE	RE	RE	RE	RE
	(1)	(2)	(3)	(4)	(5)
Dependent variable	*TCapR*	*II*	*II*	*DFI*	*DFI*
Intercept	-0.667	-58.80*	-91.71**	-54.95*	-43.08
	(-0.18)	(-2.10)	(-3.13)	(-1.98)	(-1.74)
L.BB	0.0308*	0.0742			
	(1.98)	(0.41)			
L.BF	0.00307	0.896**			
	(0.06)	(3.16)			
L.BL	-0.00864	-0.374			
	(-0.48)	(-1.65)			
L.ExDir	3.263*	33.80*			
	(2.39)	(2.06)			
L.AgeRange			0.124		0.0918
			(0.76)		(0.69)
L.ExDir_T			0.328		0.156
			(1.08)		(0.59)
L.InDir_O				-2.116**	
				(-3.01)	
L.ImpLoanR	0.0681	-0.744	-0.637	-0.820	-0.517
	(1.05)	(-1.46)	(-1.28)	(-1.57)	(-0.92)
L.Disc	-1.565	-11.13	-0.541	-8.181	-8.966
	(-1.17)	(-0.59)	(-0.03)	(-0.55)	(-0.60)
L.logA	0.518**	4.550***	6.531***	4.660**	3.680**
	(3.09)	(3.36)	(4.30)	(3.03)	(2.67)
L.NIIR	0.0206**	0.000575	-0.0159	-0.103	-0.0157
	(3.10)	(0.01)	(-0.32)	(-1.46)	(-0.40)
L.Post2008	0.897***	-0.792	-1.035	-3.124*	-2.219
	(7.18)	(-0.62)	(-0.82)	(-2.27)	(-1.71)
No. of obs.	542	542	574	578	574
R^2 (within)	0.333	0.0227	0.0142	0.0295	0.00660
R^2 (between)	0.289	0.459	0.275	0.141	0.159
R^2 (overall)	0.277	0.298	0.181	0.0972	0.0962
RMSE	0.840	11.17	11.02	10.41	9.464
LM test: p-value	0.00	0.00	0.00	0.00	0.00

Table 6.9 A summary of the results of generalised method of moments (GMM) Arellano Bond estimations which examine the relationships between external monitoring mechanisms (*TCapR*, *II*, *DFI*), and board compositions (*BF*, *BB*, *BL*, *ExDir*, *AgeRange*, *ExDir_T*, *InDir_O*).

L. indicates that the independent variables have a one-year lag. *ImpLoanR*, *Disc*, *logA*, and *NIIR* control for bank-specific effects. *Post2008* controls for year-specific effects. *, **, and *** indicate a significance at 10%, 5%, and 1%, respectively. The instruments used for the first-differenced equations are the lagged observations of the explanatory variables, and the instruments used for the levels of equations are the lagged observations of the dependent variable. The estimations passed the Sargan and the Arellano Bond (AR) tests in columns (4) – (6) for the validity of instruments. The Sargan test is used to determine whether the overidentifying restrictions are valid. The Arellano Bond autocorrelation tests (AR test (1) and AR test (2)) are used to determine for zero autocorrelation in the first-differenced errors in which the null hypothesis indicates no autocorrelation.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent variable	*TCapR*	*TCapR*	*II*	*II*	*II*	*DFI*	*DFI*
L.BB	0.00164		0.0225				
	(0.22)		(0.24)				
L.BF	-0.0395*		0.148				
	(-2.56)		(0.57)				
L.BL	0.0295*		-0.449				
	(2.03)		(-1.65)				
L.ExDir	-0.496		43.70***				
	(-1.16)		(7.45)				
L.AgeRange				0.379***			0.188
				(3.91)			(1.96)
L.ExDir_T				0.124			0.271
				(0.29)			(1.38)
L.InDir_O		0.207***			0.0714	-0.470***	
		(16.25)			(0.44)	(-4.44)	
L.TCapR	0.539***	0.584***					
	(23.04)	(29.08)					
L.II			-0.0179	-0.0190	0.0485		
			(-0.81)	(-0.73)	(1.80)		
L.DFI						0.120***	0.0504
						(4.59)	(1.78)
L.ImpLoanR	0.227***	0.262***	-0.836*	-1.084**	-0.825*	0.0871	-0.425
	(8.13)	(8.31)	(-2.32)	(-3.09)	(-2.22)	(0.33)	(-1.73)
L.Disc	-1.973***	-2.497***	-7.548	-3.414	5.336	-2.261	-7.529
	(-3.42)	(-4.20)	(-0.73)	(-0.35)	(0.52)	(-0.26)	(-0.99)
L.logA	0.308***	0.294***	1.328*	1.133***	1.458***	1.166***	0.690*
	(7.55)	(13.16)	(2.09)	(3.41)	(4.21)	(3.91)	(2.34)
L.NIIR	0.000753	-0.00321*	-0.0582	-0.0601*	-0.153***	-0.106***	-0.0158
	(0.32)	(-2.16)	(-1.90)	(-2.24)	(-5.45)	(-3.89)	(-0.60)
L.Post2008	0.660***	0.654***	-1.689*	-1.336	-3.040***	-3.374***	-2.538***
	(10.08)	(11.04)	(-2.48)	(-1.82)	(-4.74)	(-5.57)	(-3.98)
No. of obs.	542	578	542	574	578	578	574
No. of instruments	44	41	44	42	41	41	42
Sargan test	37.75	44.36	43.43	42.68	39.80	41.66	41.14
Sargan test: p-value	0.302	0.110	0.129	0.146	0.228	0.172	0.186
AR(1) test	-4.147	-4.428	-3.949	-3.985	-4.101	-4.242	-4.322
AR(1) test: p-value	0	0	0	0	0	0	0
AR(2) test	-1.382	-1.371	0.919	1.008	0.194	-0.117	1.181
AR(2) test: p-value	0.167	0.170	0.358	0.314	0.846	0.907	0.238

6.7 Conclusions

This section provides empirical assessments of the substitution and/or complementary effects between internal and external monitoring at Japan-listed banks. The empirical findings highlight that internal controls prevail at Japan-listed banks, which are consistent with those of Japanese companies (Dore, 2000).

The main results find that (i) external directors complement regulatory monitoring, (ii) internal director joint monitoring complements regulatory monitoring, and (iii) internal director joint monitoring substitute with institutional shareholder monitoring, i.e. the use of internal shareholder ownerships is effectively aligned with the interests of domestic financial institutional shareholders, and domestic financial shareholders are likely to intervene in the event of weak bank board governance.

These results correspond to the fact that (i) external directors (especially *amakudari* appointments) act as communicators with regulators, (ii) the majority of Japan-listed bank boards are insider-dominated and the use of internal director share ownerships are to align the interests of internal directors with domestic financial shareholders, and (iii) the results suggest that the bank-centred or *keiretsu* groups may be the key monitors at Japan-listed banks.

The results show that domestic financial shareholders act as monitors of Japan-listed banks, and may show concerns over the insufficiency of regulatory monitoring of Japan-listed banks, especially as banks have low disclosure levels and a weak market for corporate controls.

Chapter 7 Comparative Studies of Japan-listed and UK-listed Banks

7.1 Introduction

The 2008 financial crisis cast doubt on the Anglo-American corporate governance model and the sufficiency of bank governance. A review by the Organisation for Economic Co-operation and Development (OECD) on corporate governance and the 2008 financial crisis highlights the failure of the bank risk management oversight, poor disclosure, and insufficient internal controls that contributed to the crisis (Kirkpatrick, 2009). Despite this, policy markets also suggest that shareholders such as financial institutions should monitor their investee banks (Walker, 2009), and ensure that appropriate directors/experts are appointed to safeguard the interests of shareholders (FRC, 2014).

However, it is difficult to ascertain which governance mechanisms are appropriate for banks operating in different countries. This chapter presents the comparative views of shareholder risk monitoring (external controls) and board risk oversight (internal controls) using UK-listed and Japan-listed banks. It determines whether the same corporate governance mechanisms have the same effects in banks operating in countries where corporate governance approaches and social norms differ, specifically shareholder and stakeholder supremacy (Dore, 2000).

In order to evaluate the appropriateness of governance mechanisms applicable to banks operating in the UK and Japan, this chapter first assesses the relationships between ownership structures (four types of shareholders) and risk-taking at UK-listed and Japan-listed banks. Second, it examines the effects of board characteristics (such as board independence, and board homogeneity/diversity) and the amounts of director share ownerships on risk-taking at UK-listed and Japan-listed banks. The studies cover between 2005 and 2013.

While scholars and regulators put an emphasis on the shareholder returns of UK-listed banks (Walker, 2009), the primary objectives of Japan-listed banks are to maintain their social responsibilities such as assisting their borrowers during periods of financial distress (Nishiguchi, 2011). Meanwhile, UK-listed and Japan-listed banks must comply with the requirements proposed by their financial authorities which focus on safeguarding the stability of their banking industries.

Given that UK-listed banks operate under the shareholder supremacy approach, and Japan-listed banks arguably operate under a hybrid model consisting of shareholder and stakeholder

supremacy approaches, the effects of internal and external controls on risk-taking are expected to differ between the banks in the two countries.

However, researchers still have not fully appraised how internal and external controls impact risk-taking in countries that are adopting corporate governance approaches to shareholder and stakeholder supremacy. This study aims to fill this gap. This chapter argues that similar corporate governance mechanisms could have different effects on bank risk-taking, depending on whether banks adopt corporate governance approaches to shareholder or stakeholder supremacy.

The theoretical approach to shareholder supremacy focuses on the economic aspects of governance. Its objective is to satisfy the interests of shareholders (Jensen and Meckling, 1976), while stakeholder supremacy places an emphasis on the relationship between the organisation and other stakeholder groups (Pesqueux and Damak-Ayadi, 2005), which suggests that stakeholders have legitimate interests in their companies, and managers are responsible for safeguarding the interests of their employees and other stakeholders associated with their companies (Dodd, 1932).

The shareholder supremacy approach prompts various research interests to examine how internal corporate governance mechanisms and ownership structures affect company performances and risk-taking. These internal corporate governance mechanisms include the appointments of external directors, the introduction of performance-based incentives, and board homogeneity/diversity.

Similar to the shareholder supremacy approach, companies operating under the stakeholder supremacy approach may also (i) hire external directors to safeguard the interests of their stakeholders, and to increase board accountability (Aguilera, 2005); (ii) reward managers with performance-based incentives, such as stock options or restricted stocks with long-term vesting periods to align them with the long-term interests of their companies and stakeholders (Falck and Heblich, 2007); and (iii) increase board diversity to represent their stakeholders such as employees and interest groups (Goodstein et al., 1994; Pfeffer and Salancik, 1978).

While these corporate governance mechanisms are designed to reduce agency costs, the purposes for their use are different, and as a result the effects may differ. In the UK, the governance mechanisms are meant to align the interests of managers with their shareholders. Meanwhile, the adoption of Anglo-American corporate governance mechanisms is about complying with the requests of foreign investors (Jacoby, 2009). However, scholars argue that

these governance mechanisms may be ineffective as a result of the unique ownership structures and main bank relationships in Japan (Dewenter and Warther, 1998).

Existing research provides mixed views on the effects of internal and external controls in companies/banks operating in Anglo-American countries (shareholder supremacy) or in Japan (stakeholder supremacy). Studying Anglo-American companies/banks, scholars find that the levels of performance and risk-taking reflecting the interests of their shareholders (Pathan, 2009), are associated with internal director ownerships (Demsetz et al., 1997; Laeven and Levine, 2009), and board tenure (Sun and Liu, 2014). Compared to American companies/banks, scholars also find similar results when examining Japanese banks/companies in which the risk-taking levels are associated with the interests of their shareholders, i.e. shareholder wealth maximisation (Konishi and Yasuda, 2004).

In terms of internal controls, company performances are positively related with performance-based incentives (Kato and Kubo, 2006), and risk-taking is associated with the backgrounds of external directors (Horiuchi and Shimizu, 2001; Kato and Kubo, 2006).

This chapter develops the empirical analyses around four theoretical keystones. First, increased board independence (the ratio of external directors to the total number of board members) tends to increase levels of monitoring on behalf of both shareholders and stakeholders (Aguilera, 2005; Dodd, 1932; Jensen and Meckling, 1976), and these external directors are hired to safeguard the interests of their stakeholders and shareholders, and to increase board accountability (Aguilera, 2005; Roberts et al., 2005).

Second, the shareholder supremacy approach to corporate governance predicts that performance-based incentives influence risk-taking at banks. Risk-seeking managers may increase lending to risky industries and invest in risk-taking activities for the purpose of shareholder wealth maximisation. But risk-averse managers may safeguard the interests of their shareholders by preventing their banks from lending to risky industries and refraining from engaging in excessive risk-taking which could lead to the insolvency of their banks, or lead to a loss of employment.

From a stakeholder supremacy perspective, performance-based incentives may be used to align the interests of managers with the long-term interests of their companies, such as long-term sustainable growth and returns, and excessive risk-taking prevention.

Third, resource dependence theory suggests that greater board diversity (or decreased board homogeneity) helps to safeguard the interests of stakeholders, and external directors may be

appointed to represent employees and various interest groups. However, increased board diversity may dampen board efficiency (Michel and Hambrick, 1992).

Fourth, Shleifer and Vishny (1997) suggest that the effects of ownership structures may differ depending on the levels of concentrated ownerships and legal investor protections, which influence managers to pursue certain business strategies and risk-taking (Jensen and Meckling, 1976; Köhler, 2012). Additionally, shareholder influences may differ depending on whether the corporate governance system is an insider or outsider system (Franks and Mayer, 1997).

As in UK-listed companies, shareholders have sufficient influences over the management of their investee companies through the market for corporate control (Aguilera, 2005). On the contrary, Japan-listed companies are likely to be the cross-shareholders whose relationships are long term and whose businesses are affiliated with each other. In summary, the abilities of shareholders to influence managers are likely to be dependent on the comparative powers of individual shareholders, as well as whether the companies operate under insider or outsider systems.

These theoretical keystones form 12 hypotheses, in which 10 hypotheses focus on the effects of the corporate governance mechanisms of UK-listed banks, and the two remaining hypotheses examine the effects of the board characteristics, director share ownerships and ownership structures between UK-listed and Japan-listed banks.

To examine these hypotheses, a database is compiled which consists of 662 Japan-listed and 45 UK-listed bank-years observations between 2005 and 2013. Fixed-effects (FE), random-effects (RE) and generalised method of moments (GMM) Arellano Bond estimations are used to determine the effects of internal corporate governance control mechanisms and institutional share ownerships on bank risk-taking.

The internal corporate governance control mechanisms are composed of board monitoring mechanisms (*ExDir*, *ExDir_T*), board bonding mechanisms (*ExDir_O*, *InDir_O*), and levels of board homogeneity or diversity (*BB*, *AgeRange*). The details of these mechanisms are discussed in chapter four.

In terms of shareholder monitoring, four types of institutional share ownerships are considered: (i) domestic non-financial companies (*DNFC*), (ii) foreign non-financial companies (*FNFC*), (iii) domestic financial institutions (*DFI*), and (vi) foreign financial institutions (*FFI*). The details of the effects of these institutional shareholders are discussed in chapter five.

The levels of risk-taking are measured using the insolvency risk levels (*z-score*), in which the lower value of the *z-score* indicates a higher probability of insolvency risks at banks.

The key findings are as follows. First, apart from domestic financial shareholders, other types of institutional shareholders are likely to have positive impacts on risk-taking of UK-listed banks, i.e. the coefficients of shareholders (who are foreign financial institutions, foreign and domestic non-financial companies) are negatively related to the *z-score.*

Second, domestic financial institutional shareholders have negative effects on the insolvency risk levels of UK-listed and Japan-listed banks, indicating that UK-listed and Japan-listed banks are likely to be subject to stronger shareholder monitoring domestically. One possible explanation is that domestic financial institutional shareholders are likely to have long-term investment horizons, and to be risk averse. Therefore, they are likely to influence the managements of their investee companies to focus on long-term sustainable growth and returns (Murrall, 2011). However, these coefficients are statistically insignificant.

Third, greater levels of external directors lead to increased risk-taking at UK-listed and Japan-listed banks. The findings are inconsistent with the views that external directors act as (risk) monitors and lower agency costs (Jensen and Meckling, 1976).

This chapter concludes that the corporate governance approach to shareholder supremacy weakens board risk monitoring at UK-listed and Japan-listed banks. Meanwhile, domestic financial institutional shareholders may be effective at monitoring risk-taking at Japan-listed and UK-listed banks.

This chapter is structured as follows. Section 7.2 provides overviews of the banking industries, the legal requirements of internal corporate controls, and shareholder protections in the UK and Japan. Section 7.3 reviews the comparative literature that examines internal and external controls. Section 7.4 presents the conceptual framework and its associated hypotheses focusing on the effects of internal controls and the levels of institutional ownerships on risk-taking, and investigates if there are any obvious differences between UK-listed and Japan-listed banks. Section 7.5.1 summarises the data samples. Section 7.5.2 provides descriptions on the variables used in the empirical analyses. Section 7.5.3 provides summary statistics. Section 7.6 describes the methodology used in these empirical assessments. Section 7.7 discusses the results and the associated robustness tests. Section 7.8 contains the conclusion.

7.2 Backgrounds: Corporate and Bank Governance: The UK Versus Japan

7.2.1 Banking Industry

The banking industries in the UK and Japan operate under two contrasting systems: the UK economy is a market-based system, and the Japanese economy is a bank-based system (Allen and Gale, 2000).

In the UK's market-based economy, banks usually provide short-term financing to companies, but companies can also obtain long-term financing by issuing equities or corporate bonds (Bank of England, 2014). Although the UK's banking industry is composed of foreign and domestic banks, foreign banks do not provide any domestic commercial banking services and products (Allen and Gale, 2000, p. 59). According to the Bank of England, the majority of domestic commercial lending – 70 percent of business lending and 75 percent of mortgage lending – was provided by six major banks[29] in 2013 (Bank of England, 2014). Despite banks providing the majority of financing, UK companies can also obtain funds from the capital markets by issuing bonds, equities, or commercial paper.

The UK's banking and financial industries are regulated by the Prudential Regulation Authority (PRA) and the Financial Conduct Authority (FCA). The PRA is part of the Bank of England (BOE), and is responsible for regulating and supervising the UK's banking and financial industries. The objectives of the PRA are to promote the soundness of companies, protect investors and customers, and facilitate effective competition among the UK's banking and financial industries. While the PRA is a governmental authority, the FCA is a statutory independent authority funded by companies which they regulate and it is accountable to HM Treasury. The FCA is customer protection-focused and exists to ensure that the banking and financial industry operates with integrity.

Banks in Japan operate under a bank-based system, and its banks provide financing and governance to domestic companies. The banking industry is comprised of various bank types, including city banks, trust banks, regional banks, bank holding companies, credit associations, and financial institutions which engage in trust businesses.

The Japanese banking industry has traditionally been governed under the convoy system (Nishiguchi, 2011), in which competition among Japanese banks was restricted to branch

[29] The six major UK lenders are Banco Santander, Barclays, HSBC, Lloyds Banking Group, Nationwide, and Royal Bank of Scotland. Banco Santander is not included in the sample data, because it is not a UK-domiciled bank.

expansion, while interest rates were controlled (Hoshi and Kashyap, 2001). Scholars argue that, in the aftermath of the financial deregulations of the late 1990s, the effects of the convoy system have gradually diminished for two reasons. First, the Japanese government allowed large city banks (such as Hokkaido Takushoku Bank) to fail, while it introduced the Financial Reform Act and the Rapid Revitalization Act to provide funds to assist with the orderly closure of failing banks (Imai, 2007). Second, competition among Japanese banks was gradually allowed to increase (Bikker and Spierdijk, 2008). In the absence of an explicit convoy system, the disciplinary effects have arguably been replaced by independent regulators such as the Financial Services Agency (Murata and Hori, 2004), subordinated debt-holders (Baba and Inada, 2009; Imai, 2007), and depositors (Murata and Hori, 2004). It is debatable whether market disciplines and regulatory oversights completely replaced the convoy system, because industry reports show that the Japanese government demonstrated (i) a willingness to support weak banks by directly injecting equity, and (ii) a strong preference to avoid public bond defaults while implicitly protecting subordinated debt-holders (Moody's, 2013).

In summary, UK banks operate in a market-based economy and Japanese banks operate in a bank-based economy. Additionally, UK banks are regulated by governmental and semi-governmental authorities, although Japanese banks are regulated under a similar regulatory framework, they are protected by the convoy system. The following section provides overviews of the legal aspects of corporate governance.

7.2.2 The Legal Requirements of Internal Corporate Controls

Corporate governance legal frameworks differ between the UK and Japan. This is principally due to their legal frameworks and their approaches to corporate governance. The prime objective of the UK corporate governance approach is shareholder supremacy, while the Japanese corporate governance approach is stakeholder supremacy, such as maintaining employment stability (Abe and Hoshi, 2008; Dore, 2000).

The UK is governed by common law and its corporate governance codes operate under the principle of 'comply or explain', which is also known as the Combined Code. Under the principle of 'comply or explain', if companies choose not to comply with the Combined Code, then they must explain their reasons for not doing so.

The Combined Code is consolidated from many corporate governance reports such as the Cadbury Report (1992), the Greenbury Report (1995), the Hampel Report (1988), the Turnbull Report (1999), the Myners Report (2001), the Higgs Review (2003), and the Smith Report (2003). The Combined Code is designed to enhance board monitoring on behalf of shareholders, and to ensure shareholder supremacy (Arcot et al., 2010). The UK's banking

industry is widely considered to be self-governed, to have strong investor protection, and to be strongly regulated.

For example, the Cadbury Code suggests that the role of the chairman and chief executive officer should be separate. The Higgs Review recommends that independent directors should have no material relationships with, or own shares in, the listed companies on which they serve. The combined codes recommend that boards be independent, and highlight that they should consist of 50 percent of independent directors (FRC, 2012, 2003). Walker (2009) suggests that institutional investors should act as stewards in monitoring their investee companies/banks.

Instead of adopting principle-based codes, Japan is governed by civil law. Japanese corporate governance codes are codified and are part of legislative regulation. They are a part of the Company Law (previously known as the Commercial Code) that highlights the board structure requirements of Japanese companies.

Since 2002, the Company Law/Commercial Code requires listed companies to select their corporate governance systems from the traditional *kansayaku* system as well as the new committees systems. The statutory audit and supervisory board which is better known as the *kansayaku*, requires that at least half of the board members should be external directors. *Kansayaku* are also required to have at least one full-time statutory auditor to monitor and supervise the managements of their companies. New committee systems consist of *Secchi gaisha* and *Kansa-kantoku i-inkai secchi gaisha* (a company with an audit and supervisory committee), in which the boards of directors act as the monitors and supervisors of their company managements. Under these new committees systems, boards of directors can also appoint and dismiss executive directors.

In addition to the Company Law, the Japan Audit and Supervisory Board Members Association also provides corporate governance codes. However, these codes are not statutory requirements; they are merely used as a basis for deciding whether companies violate any duties of care.

In summary, there are only a few differences between the legal corporate governance frameworks of the UK and those of Japan, and both countries promote board independence, although their approaches to corporate governance differ.

7.2.3 Institutional Shareholder Monitoring

In terms of shareholder safeguards, La Porta et al. (2000) argue that common law countries have greater shareholder and creditor protections which are likely increase shareholder wealth (La Porta et al., 2002). Although La Porta et al. (1998) show that both the UK and Japan have relatively high levels of shareholder protections[30] among 49 countries they study, there are clear distinctions in the levels of shareholder protections between the two countries. For example, shareholders of Japanese companies benefit from the 'one vote per share' system, while those of UK companies only have one vote, regardless of their holdings[31].

Levels of shareholder protections, such as voting rights, are likely to reflect the abilities of shareholders to influence the affairs of their investee companies, because greater shareholder protections enable shareholders to protest against management decisions which may harm shareholder value. In the absence of sufficient levels of shareholder protections, shareholder monitoring acts as a substitute for the protection of shareholder values.

The effectiveness of shareholder monitoring is likely to be subject to the ownership structures of each company (Shleifer and Vishny, 1997). In the UK, the majority of ownerships are highly dispersed among institutions and individuals (Aguilera, 2005; Allen and Gale, 2000; Franks and Mayer, 1997), in which institutional shareholders have a fiduciary duty to monitor their investee companies. Shareholders may engage with their investee companies through senior independent directors, annual general meetings, and company roadshows (FRC, 2009a).

In additional, the Financial Reporting Council issued the Stewardship Code, which encourages institutional shareholder monitoring through collective engagement, as well as by persuading them to disclose their stewardship responsibilities relating to any engagements with their investee companies (FRC, 2009b).

In summary, the UK's corporate governance codes, such as the Combined Code and the Stewardship Code, implicitly refer to shareholder supremacy. Board monitoring (through external directors) and institutional investor monitoring ensures that company policies are

[30] The degree of shareholder protection is measured by enforcement indictors, which include (i) the efficiency of the judicial system, (ii) the rule of law, (iii) corruption, (iv) the risk of expropriation, (v) the risk of contract repudiation, and (vi) the rating on accounting standards (La Porta et al., 1998).

[31] Voting can be done in two ways at UK companies, which are described under section 320 and section 321 of the Company Act 2006 (CA 2006). According to section 320 of CA 2006, voting can be done "on a show of hands", in which shareholders only have one vote, regardless of their holdings. Shareholders can also demand a poll according to section 321 of CA 2006, in which each shareholder's vote is counted.

aligned with the interests of shareholders, and exist to prevent managers from exploiting their company resources.

Contrary to the UK's, Japan-listed companies are financed and governed by their main banks and the members of their *keiretsu* groups (Aoki et al., 1994), which are block shareholders. In order to improve minority shareholder protections, the Japanese government introduced the Anti-Monopoly Law Reform of 1977 which limits the ability of financial institutions from holding no more than five percent of shares in a single company (Itō, 1992, p. 180).

Additionally, the Japan Corporate Governance Forum[32] (the Forum) and the Financial Services Agency (FSA) also issued various corporate governance guidelines for Japan-listed companies in an attempt to encourage institutional shareholder monitoring. For example, the Forum places an emphasis on increased levels of disclosure, and on the transparency of the performances of their investee companies (*Revised Corporate Governance Principles*, 2001). The Forum also encourages their members to vote in the annual general meetings of their investee companies. However, the Forum does not include any shareholder responsibilities.

The Japanese government has actively attempted to improve the corporate governance of Japanese companies in the aftermath of the Olympus scandal, which took place in 2011. For example, the FSA issued the Japan's Stewardship Code in 2013 and a final proposal on Japan's Corporate Governance Code was launched in 2014. Japan's Stewardship Code uses a principle-based approach (as opposed to a rule-based approach under civil law), and a 'comply and explain' approach. Both approaches are similar to those in the UK. This might indicate that the Japanese governance approach is moving towards the principle-based approach. The introduction of the Japan's Stewardship Code and 'comply and explain' approach governance code indicates that there is an increased focus on the protection of shareholder wealth. Yet, the Japanese corporate governance model largely remains stakeholder supremacy, and the Japanese government has deployed various programmes to support employment stability and small businesses (Haghirian, 2016; Ishikawa et al., 2013; METI, 2013).

[32] The Japan Corporate Governance Forum's corporate governance principles recommend that companies increase their levels of disclose and transparency when reporting their company performances

7.3 Literature Review

7.3.1 Corporate Governance Models: The UK Versus Japan

Although there is only a limited contrast between the legal corporate governance frameworks in both countries, there are sharp distinctions between the UK approach to corporate governance and the Japanese approach (Abe and Hoshi, 2008; Dore, 2000). The primary objective of the UK approach to corporate governance is to increase shareholder value (Llewellyn, 2005), while that of the Japanese approach is to provide financing and governance to their borrowers (Aoki et al., 1994).

The following subsections provide brief literature reviews on internal and external governance in the UK and Japan, and the associated literature is discussed in chapters two, four, five and six in detail.

7.3.1.1 Empirical Studies of Corporate Governance

The majority of agency theory-related empirical studies focus on UK or US companies, which employ the internal governance mechanisms suggested by Jensen and Meckling (1976). These empirical studies assess the effectiveness of internal governance mechanisms (such as board independence) and performance-based incentive remuneration schemes (such as director share ownerships).

Mixed empirical results are found. Studying US companies between 1992 and 1998, Mishra and Nielsen (2000) find a positive relationship between board independence and return on assets. The boards of these companies consist of, on average, of 64 percent of independent directors. The results indicate that greater levels of board independence lower agency costs and enhance company performance. On the contrary, Bhagat and Black (1999) find a negative relationship between board independence and the company performances of US companies between 1985 and 1995, in which the majority of company boards are composed of external directors. The authors suggest that outsider-dominated boards are likely to dampen board efficiencies. One possible explanation for having contradictory results between these two empirical studies is that the external directors, in the latter studies, may lack sufficient levels of company-specific information which could enable them to make effective decisions.

Mixed results are found in studies of performance-based incentive remuneration schemes. Consistent with the bonding mechanism hypothesis (Jensen and Meckling, 1976), Grove et al. (2011) find a positive relationship between levels of executive remunerations and company performances of US commercial banks between 2005 and 2008. Similar results are also shown in a study of technology-based entrepreneurial firms between 1990 and 1995 (Kor and

Sundaramurthy, 2008). The results indicate that knowledge-intensive industries may benefit from performance-based incentive remuneration schemes. However, Mudambi and Nicosia (1998) find that highly concentrated internal director share ownerships dampen company performances, because internal directors may expropriate company resources from other/minority shareholders.

In summary, board independence and performance-based incentive remuneration schemes are only suitable in individual cases or in a particular industry, and both mechanisms should be used concurrently. For example, performance-based incentives may increase board efficiencies, when boards are monitored by external directors who prevent internal directors from expropriating company resources.

7.3.1.2 The UK

7.3.1.2.1 Internal Governance

As per Jensen and Meckling (1976), the internal governance mechanisms are designed to lower agency costs and increase board efficiencies. The appointments of external directors and the introductions of performance-based remuneration schemes are commonly implemented in companies located in Anglo-American countries.

The conventional roles of external directors are to monitor internal directors, and to prevent internal directors from exploiting company resources. Empirical literature assesses monitoring effectiveness by examining the relationship between board independence and company performance (or levels of risk-taking). However, the results are mixed.

Studying US financial companies between 1997 and 2004, Pathan (2009) finds that external directors – who are independent from shareholder influences – are negatively associated with risk-taking. However, the opposite result is found in Minton et al. (2010) whose study consists of US banks between 2003 and 2008. These results suggest that external directors weaken bank governance during deregulation periods, i.e. when a part of the Glass–Steagall Act of 1933 was repealed in 1999.

Nevertheless, a number of studies support the idea that the appointments of external directors improve company performances (Andres and Vallelado, 2008; Kor and Sundaramurthy, 2008; Mishra and Nielsen, 2000). These results indicate that external directors align their company strategies with the interests of shareholders, i.e. enhancing shareholder wealth.

Other commonly-used internal governance mechanisms to enhance shareholder wealth include performance-based remuneration schemes. Scholars argue that internal director share ownerships may incentivise internal directors to pursue risky projects for higher possible returns (Demsetz et al., 1997; Grove et al., 2011).

A number of studies show positive relationships between levels of performance-based remuneration schemes (or internal director share ownerships) and risk-taking. Studying the effects of the remuneration schemes of the chief executive officers (CEOs) of the world's largest banks between 2000 and 2008, Suntheim (2010) finds that performance-based remuneration schemes incentivise risk-taking. In particular, the results show greater effects of performance-based remuneration on risk-taking at US banks. Similar results are found in studies on US banks (Fahlenbrach and Stulz, 2011; Mehran and Rosenberg, 2007).

In summary, the UK corporate governance approach is designed to ensure that the interests of shareholders are attended to. However, this is likely to be at the expense of the interests of stakeholders.

7.3.1.2.2 External Governance

The ownership structures of US and UK companies are characterised as dispersed (OECD, 2017). As a result, there should not be any minority concentrated shareholders owning controlling interests in companies. Nevertheless, UK institutional shareholders, which may only own a small percentage of company shares, are perceived to be effective monitors as a result of their expertise.

Mixed results are found when assessing the effects of shareholders in Anglo-American countries. In studying US companies and banks, scholars find mixed relationships between levels of share ownerships and the return on equity (Bushee et al., 2014; Prowse, 1995), and no relationship between levels of shareholders and market-based performance (Demsetz and Villalonga, 2001). These results indicate that diffuse ownership structures prevent shareholders from monitoring the managements of their investee companies effectively.

In a study of UK non-financial companies between 2000 and 2004, Dong and Ozkan (2008) find that institutional shareholders, who have long investment horizons, are effective monitors. The authors also find that institutional shareholders strengthen the relationship between company performance and executive pay. The findings are consistent with the views that institutional shareholders, that have long-term investment horizons, may act as monitors to limit agency costs by overseeing the management decisions of their investee companies (Jensen and Meckling, 1976; Murrall, 2011; Shleifer and Vishny, 1997).

In summary, in the absence of controlling shareholders, institutional shareholders act as the primary monitors when their investments are sufficiently benefiting from monitoring.

7.3.1.3 Japan

7.3.1.3.1 Internal Governance

Japanese companies have gradually developed a hybrid governance model. Its objective is to increase the role of external directors and to implement performance-based incentive remuneration schemes. The new hybrid model incorporates Anglo-American governance mechanisms with existing institutional frameworks (Abe and Hoshi, 2008; Dore, 2000).

Scholars argue that external directors are less effective on boards of Japanese companies or banks because the majority of Japanese boards are composed of insiders. Therefore, the influences of external directors are limited. Studying the board independence of Japanese manufacturing companies in 1998, Bonn et al. (2004) find no relationship between the ratios of external directors and company performances. Moreover, studying Japanese banks between the 1970s and 1990s, Horiuchi and Shimizu (2001) find that the appointments of *amakudari* to bank boards increase levels of risk-taking, i.e. reducing capital adequacy levels and increasing non-performing loan levels. The results show potential moral hazard problems which *amakudari* may not be effective monitors of, because *amakudari* may be more lenient towards their prospective employers.

In addition, scholars suggest that the external directors of Japanese companies safeguard the interests of shareholder instead of stakeholders (Liu et al., 2011). Studying Japanese companies in 2008, Liu et al. (2011) find that companies with external directors are less likely to reduce dividends during economic downturns in Japan, indicating that external directors may harm the interests of stakeholders.

In terms of performance-based incentives, the empirical findings of Kubo and Saito (2008) show two contrasting results before and after the 1990s: (i) the results suggest that the pay-performance sensitivities of Japanese company presidents are similar to those of senior US company executives prior to the 1990s; and (ii) pay-performance sensitivities decreased after the 1990s as a result of reduced internal director share ownership levels.

Overall, empirical studies show that Anglo-American internal governance mechanisms may not be effective at monitoring risk-taking at banks, or at improving bank performances.

7.3.1.3.2 External Governance

Contrary to Anglo-American countries, the ownership structures of Japanese companies are described as mixed between dispersed and concentrated (OECD, 2017), and their ownership structures were previously concentrated prior to the 1977 reform of the Anti-Monopoly Law, and the Japanese financial crisis of the 1990s. Yet, domestic financial institutions such as main banks remain as substitutes for the external controls of the Anglo-American governance model (Allen and Gale, 2000, chap. 4).

In the case of Japan, outside shareholders have a limited influence on their Japanese companies, because affiliated shareholders with concentrated ownerships have greater influences over the managements of their investee companies. These insider shareholders often belong to the same *keiretsu* or bank-centred groups (insiders), and have controlling interests in the governance of their investee companies/banks. In order to maintain the group system, hostile-takeovers are limited in Japan as a result of cross-shareholdings (Miyajima, 1994; Yafeh, 2000).

Kaplan and Minton (1994) assess the relationships between executive turnovers at US and Japanese non-financial companies between 1980 and 1988, and find similar turnover patterns. These Japanese companies had strong associations with their main banks and affiliated companies. This indicates that cross-shareholders are likely to have an impact on the effectiveness of shareholder monitoring, because they often obtain company-specific information with regard to the business dealings of their investee companies. The results suggest that main banks act as a substitute for Anglo-American systems in monitoring their investee companies.

However, the levels of main bank shareholders and concentrated shareholders may have negative impacts on the return on assets (ROA) of their investee companies, or dampen the stock liquidity of their investee banks. Low liquidity may incentivise shareholders to monitor their investee companies, because it is more difficult for them to sell their shares. However, shareholders have limit capacities to influence the managements of their investee companies (Maug, 1998).

Studying Japanese companies in 2007, Sakawa et al. (2014) find a positive relationship between the levels of outside shareholders and the liquidity of the associated company shares being traded, but also find a negative relationship between the levels of main bank shareholders and the liquidity of the associated company shares being traded. Studying Japanese non-financial companies between 1997 and 2006, Nitta (2008) finds a positive

relationship between the levels of institutional ownerships and ROA, but also suggests that the increased ownerships of cross-shareholders and financial institutions reduces ROA.

These results show that cross-shareholders and financial institutional shareholders are likely to weaken the performances and market liquidity of their investee companies. It is puzzling that cross-shareholding weakens company performances, because cross-shareholders are arguably better monitors than outside shareholders, given that cross-shareholders have greater access to company-specific information as a result of their long-term cross-shareholding and business relationships (Lincoln et al., 1996). The poor company performances could have two explanations. First, cross-shareholders may expropriate the resources of their investee companies. Second, cross-shareholders may forgo short-term profits, and focus on the long-term performances of their investee companies (Lee and O'Neill, 2003), i.e. sustainable growth and returns.

In summary, these empirical results reflect the effects of ownership structures on the relationship-oriented (stakeholder supremacy) governance model (Kaplan, 1997).

7.4 Conceptual Framework and Hypotheses Development

7.4.1 External versus Internal Governance: UK-listed Banks

The conventional views of shareholder monitoring is that diversified shareholders may not be able to gather adequate levels of information to monitor their managers as a result of information asymmetry (Shleifer and Vishny, 1997). Therefore, institutional shareholders may act as delegated monitors, because they are likely to have greater incentives (i.e. owning greater proportions of shares), and have greater expertise.

The investment communities and policy makers encourage institutional shareholders to monitor the risk-taking levels of their investee banks, because they owe fiduciary duties to their beneficiaries. However, institutional shareholders may forgo their monitoring responsibilities or encourage risk-taking, if their investment risks can be diversified in their portfolios (Graves and Waddock, 1990; Murrall, 2011; OECD, 2009). Therefore, institutional shareholders are likely to encourage risk-taking at banks.

Hypothesis 7.1 argues that foreign financial institutional shareholders (*FFI*) encourage risk-taking at UK-listed banks, i.e. a negative relationship exists between *FFI* and the *z-score*. This hypothesis argues that (i) *FFI* suffers from information asymmetry and are unlikely to efficiently monitor risk-taking at banks, or (ii) *FFI* are likely to encourage their investee banks to promote/develop non-lending businesses. As a result, the coefficient of *FFI* is positively associated with the *z-score* of UK-listed banks.

Hypothesis 7.2 suggests a negative relationship exists between foreign non-financial companies (*FNFC*) and the *z-score*. This hypothesis argues that *FNFC* are unlikely to have sufficient understandings of financial companies in order to be effective monitors, because *FNFC* are likely to use different performance indicators to identify the strategic activities and the strategic plans of non-financial companies. Therefore, they may not be able to understand the complexities of banking businesses. Moreover, this hypothesis also argues that *FNFC* may encourage their investee banks to take greater risks for possible higher returns.

Hypothesis 7.3 suggests that a negative relationship exists between domestic financial institutions (*DFI*) and the *z-score*. Although *DFI* are likely to be effective monitors resulting from greater access to domestic businesses, this hypothesis argues that *DFI* are likely to encourage their investee banks to take greater risks for possible higher returns.

Hypothesis 7.4 suggests that a negative relationship exists between domestic non-financial companies (*DNFC*) and the *z-score*. This hypothesis argues that *DNFC* behave similarly to *FNFC*,

which (i) may not have the expertise to monitor financial companies/banks, and (ii) encourage their investee banks to take greater risks for possible greater returns.

At the same time, the corporate governance approach to shareholder supremacy affects the internal governance mechanisms of UK-listed banks. This section argues that the appointments of external directors and the introduction of director share ownerships are designed to monitor company managements, incentivise directors to maximise shareholder wealth, and to align their interests with shareholders. As a result, under the view that expected returns rise with increased risks, greater ratios of external directors, and director share ownerships lead to greater risk-taking at banks (Minton et al., 2010; Saunders et al., 1990).

Hypothesis 7.5 argues that the ratio of external directors (*ExDir*) is negatively associated with the *z-score*. This hypothesis argues that external directors are likely to encourage their banks to take greater risks, as they are hired to safeguard the interests of shareholders and promote shareholder wealth maximisation.

Hypothesis 7.6 argues that a negative relationship exists between external director tenures (*ExDir_T*) and the *z-score* of UK-listed banks, because (i) external director tenures are likely to become more homogeneous with the interests of internal directors, leaving them less able to monitor risks, or (ii) external directors are more eager to prove their abilities to their current and prospective employers as their tenures lengthen (Fama, 1980).

Hypothesis 7.7 argues that a negative relationship exists between the levels of internal director share ownerships (*InDir_O*) and the *z-score* of UK-listed banks, because performance-based incentives are likely to encourage risk-taking at banks (Grove et al., 2011).

Hypothesis 7.8 argues that a negative relationship exists between the levels of external director share ownerships (*ExDir_O*) and the z-score of UK-listed banks, because performance-based incentives are likely to align their interests with those of shareholders and encourage risk-taking at banks (Grove et al., 2011; Jensen and Meckling, 1976)**.**

Moreover, greater board diversity are likely to enhance governance of UK-listed banks. Nakano and Nguyen (2012) find that greater board diversity tends to decrease risk-taking at UK-listed banks, because board diversity decreases the possibilities that extreme decisions are being taken

Hypothesis 7.9 argues that a positive relationship exists between board age diversity (*AgeRange*) and the *z-score* of UK-listed banks, because increased board age diversity is likely to decrease the cohesiveness in decision-making processes (Michel and Hambrick, 1992), and

directors that are dissimilar in age may be better at risk monitoring, because they tend to differ in their risk preferences (Kesner, 1988).

Hypothesis 7.10 suggests that a negative relationship exists between board expert homogeneity (*BB*) and the *z-score* of UK-listed banks, because decreased board expert homogeneity is likely to decrease the cohesiveness in decision-making processes (Michel and Hambrick, 1992).

7.4.2 External versus Internal Governance: The UK Versus Japan

The conventional views are that the Japanese corporate governance model is composed of strong internal controls and weak external controls as a result of the weak market for corporate control and regulatory forbearance (Allen and Gale, 2000; Anderson and Campbell II, 2004; Kang and Shivdasani, 1995). In contrast, the UK model consists of strong external controls and relatively weak internal controls (Allen and Gale, 2000), in which mechanisms such as board independence and performance-based remuneration are designed to align their interests with shareholders (Jensen and Meckling, 1976).

Scholars suggest that external monitoring may be substituted for weak internal monitoring (Weisbach, 1988; Williamson, 1983), or external monitoring can complement strong internal governance controls (Fung and Tsai, 2012; Kim et al., 2007). For example, in Japan, the weak market for corporate control is substituted by long-term shareholder and main bank monitoring, which is arguably able to influence the managements of their investee companies through their long-term relationships (Gibson, 1998; Gilson and Roe, 1993; Kang and Shivdasani, 1995).

In the previous chapters, the empirical studies show the effects of internal governance and shareholder monitoring on risk-taking at Japan-listed banks, which are expected to be the same as to those computed in the current chapter.

The empirical findings of chapter four suggest that: (i) greater ratios of external directors (*ExDir*) tend to increase insolvency risk levels; (ii) increased levels of external director tenures (*ExDir_T*) reduce insolvency risk levels; (iii) greater amounts of internal and external director ownerships (*InDir_O*, *ExDir_O*) tend to increase insolvency risk levels; (iv) greater board expert homogeneity (*BB*) tends to decrease insolvency risk levels; and (v) increased board age diversity (*AgeRange*) increases insolvency risk levels. The results are statistically insignificant in the FE estimations, but the results of the system generalised method of moments (GMM) Arellano Bond estimation show that the ratio of external directors (*ExDir*) is statistically significant at a 10 percent level. The results shows that the internal governance of Japan-listed

banks has remained weak as a result of a lack of board diversity (Nakano and Nguyen, 2012), and the lifetime employment system (OECD, 2009).

Chapter five finds that (i) a negative and statistically significant relationship exists between foreign financial institutional shareholders (*FFI*) and the *z-score*, suggesting that the rise of foreign financial institutional ownership levels increases risk-taking at Japan-listed banks.

Hypothesis 7.11 argues that shareholder supremacy corporate governance mechanisms weaken internal and external controls (i.e. risk monitoring) at UK-listed banks compared to Japan-listed banks, because the internal governance mechanisms of UK-listed bank are designed to align the interests of managements with shareholders, with the aim of shareholder wealth maximisation.

This hypothesis expects that (i) internal governance mechanisms such as board independence (*ExDir*) and internal director share ownerships (*InDir_O*) may increase insolvency risk levels at UK-listed banks; and (ii) shareholder monitoring (domestic and foreign financial institutions (*DFI*, *FFI*) and domestic and foreign non-financial companies (*DNFC*, *FNFC*)) could increase insolvency risk levels at UK-listed banks.

Therefore, this hypothesis expects negative relationships between (i) *ExDir* and the *z-score*, (ii) between *InDir_O* and the *z-score*, (iii) between *DFI* and the *z-score*, (iv) between *FFI* and the *z-score*, (v) between *DNFC* and the *z-score*, and (vi) between *FNFC* and the *z-score.*

This hypothesis argues that external directors who are exposed to the treat of employment termination (Wiseman and Gomez-Mejia, 1998), and are eager to prove their abilities to their current and prospective employers (Fama, 1980), may be tempted to implement strategies to improve their company performances. These strategies may include investing in risky projects with the aim of providing higher returns to lead to maximise shareholder wealth. Second, the hypothesis argues that performance-based incentives such as director share ownerships encourage risk-taking, because managers are motivated to improve their personal wealth (Wiseman and Gomez-Mejia, 1998). Third, the hypothesis argues that institutional shareholders can diversify their investment risks by investing in portfolios, and are likely to encourage their investee banks to take greater risks for greater expected returns. Figure 7.1 shows the risk-monitoring model between the UK and Japan.

Hypothesis 7.12 argues that Japan has stronger shareholder monitoring compared to the UK. This is because the domestic shareholders of Japan-listed banks are required to safeguard the interests of their stakeholders. This hypothesis argues that stakeholders focus on employment stability and business continuation, instead of shareholder wealth maximisation. As a result,

domestic shareholders act as effective risk monitors. This hypothesis expects to find greater numbers of shareholders of Japan-listed banks being positively associated with the *z-score*, compared to those of UK-listed banks.

Figure 7.1 Risk Monitoring Model: The UK versus Japan

	UK	**Japan**
Internal Governance (Board Independence, Director Share Ownerships)	Weak	Weak
External Governance (Shareholder Monitoring)	Weak	Strong

Hypothesis 7.1 - Hypothesis 7.12 are analysed using the following models.

Model 7.1:

$$Y_{2i,t} = \alpha_{i,t} + \beta_1 X_{1i,t-1} + \beta_2 X_{2i,t-1} + \beta_3 X_{1i,t-1} * \mathrm{C}_{i,t-1} + \beta_4 X_{2i,t-1} * \mathrm{C}_{i,t-1} + \beta_5 TobinQ_{i,t-1} + \beta_6 IntInc_{i,t-1} + \beta_7 Post2008_{i,t-1} + \beta_8 TCapR_{i,t-1} + \beta_9 GDP_{i,t-1} + \varepsilon_{i,t}$$

where $Y_{2i,t}$ is the insolvency risk level (*z-score*) of bank *i* in time *t*, and the level of impaired loans (*ImpLoanR*) of bank *i* in time *t*.

$X_{1i,t}$ is the ratio of external directors (*ExDir*) of bank *i* in time *t*, the external director share ownerships (*ExDir_O*) of bank *i* in time *t*, and the lifetime bankers (*BB*) of bank *i* in time *t*.

$X_{2i,t}$ is the average external director tenure (*ExDir_T*) of bank *i* in time *t*, the internal director share ownerships (*InDir_O*) of bank *i* in time *t*, and the age diversity (*AgeRange*) of bank *i* in time *t*.

C is a categorical variable in which 1 equals UK-listed banks, and 0 equals Japan-listed banks.

The levels of market-based performance (*TobinQ*), interest income (*IntInc*), and total capital regulatory ratio (*TCapR*) control for bank-specific effects. *Post2008* controls for year-specific effects. *GDP* controls for country-specific effects.

Model 7.2:

$$Y_{2i,t} = \alpha_{i,t} + \beta_1 X_{1i,t-1} + \beta_2 X_{2i,t-1} + \beta_3 X_{1i,t-1} * \mathrm{C}_{i,t-1} + \beta_4 X_{2i,t-1} * \mathrm{C}_{i,t-1} + \beta_5 IntInc_{i,t-1} + \beta_6 Post2008_{i,t-1} + \beta_7 TobinQ_{i,t-1} + \beta_8 TCapR_{i,t-1} + \beta_9 GDP_{i,t-1} + \varepsilon_{i,t}$$

where $Y_{2i,t}$ is the insolvency risk level (*z-score*) of bank *i* in time *t*, and the level of impaired loans (*ImpLoanR*) of bank *i* in time *t*.

$X_{1i,t}$ is the level of domestic non-financial institutional ownerships (*DNFC*) of bank *i* in time *t*, and the level of domestic financial institutional ownerships (*DFI*) of bank *i* in time *t*.

$X_{2i,t}$ is the level of foreign non-financial institutional ownerships (*FNFC*) of bank *i* in time *t*, and the level of foreign financial institutional ownerships (*FFI*) of bank *i* in time *t*.

C is a categorical variable in which 1 equals UK-listed banks, and 0 equals Japan-listed banks.

The levels of market-based performance (*TobinQ*), interest income (*IntInc*), and total capital regulatory ratio (*TCapR*) control for bank-specific effects. *Post2008* controls for year-specific effects. *GDP* controls for country-specific effects.

The fixed-effects estimations are used to examine Model 7.1 and Model 7.2.

7.5 Data and Variable Descriptions

7.5.1 Data Sample

This chapter examines (i) the effects of institutional ownership structures on the insolvency risk levels of banks, and (ii) the effects of various internal governance mechanisms on the insolvency risk levels of banks. The assessments focus on UK-listed and Japan-listed banks between 2005 and 2013.

The data sample of Japan-listed banks is described in chapters four, five and six. The following only provides descriptions on the data sample of UK-listed banks.

The sample data consists of information relating to the balance sheets and corporate governance of each UK-listed bank. The balance sheet information was extracted from the *Bankscope* database, in which consolidated data are used.

Corporate governance information on UK-listed banks was extracted from annual company reports that were downloaded from the websites of each UK-listed bank.

The information relating to the backgrounds of individual UK-listed bank board directors was hand-collected from individual annual reports. Levels of institutional and director share ownership were extracted from the annual reports of banks, and then cross-checked with the data extracted from the *Bankscope* database.

The constraint on the availability of UK-listed data limits empirical analysis on single country studies. Although the number of UK-listed banks is small compared to that of Japan-listed banks, the majority of lending – 70 percent of business lending and 75 percent of mortgage lending – was provided by six major banks[33] in the UK (Bank of England, 2014). The UK sample should represent the entire population of UK-listed banks.

In addition, the sample set is unbalanced.

7.5.2 Variable Descriptions

This chapter attempts to examine the effects of (i) the levels of institutional share ownerships and (ii) board characteristics and director share ownerships on risk-taking at UK-listed and Japan-listed banks.

[33] The six major UK lenders are Banco Santander, Barclays, HSBC, Lloyds Banking Group, Nationwide, and Royal Bank of Scotland. Banco Santander is not included in the sample data, because it is not a UK-domiciled bank.

The same set of dependent, independent, and control variables are used in chapters four and five. The dependent and control variables are described in sections 4.5.2.1 and 4.5.2.3 of chapter four in detail, and independent variables are described in section 4.5.2.2 of chapter four and section 5.4.2.2 of chapter five in detail.

The following sub-sections briefly present the definitions of dependent, independent, and control variables used in this chapter.

7.5.2.1 Dependent Variables

7.5.2.1.1 Insolvency Risk Levels (*z-score*)

The level of bank risk-taking is a measure of a bank being insolvent (*z-score*), in which the lower value of the *z-score* indicates a higher probability of insolvency risks at a bank (Hannan and Hanweck, 1988; Roy, 1952).

It is often used in a number of empirical studies to examine the relationships between the financial stabilities of countries and their banking sectors (De Nicolo, 2000; Laeven and Levine, 2009; Yeyati and Micco, 2007). The *z-score* is defined as

$$z - score_{i,t} = \frac{car_{i,t} + \sum_{t=0}^{T} \mu_{i,t}}{\sum_{t=0}^{T} \sigma_{i,t}}$$

where the *car* is a ratio of a bank's total equity to its total assets, and $\mu_{i,t}$ and $\sigma_{i,t}$ are the mean and standard deviations of the return on assets (ROA) of bank *i* at time *t*, respectively. ROA is defined as the ratio of net income (loss) to total assets. The *z-score* is a measure of the falling profits which offset equity, and the natural logarithm of the *z-score* is normally distributed.

7.5.2.1.2 Other Dependent Variable: Level of Impaired Loans ($ImpLoanR$)

ImpLoanR is used in the robustness tests. The levels of impaired loans (*ImpLoanR*) are the percentages of impaired loans over gross loans.

7.5.2.2 Independent Variables

7.5.2.2.1 Board Characteristics

Six variables are used to examine the effects of internal governance controls : (i) the ratio of external directors to the total number of board members (*ExDir*), (ii) the average tenure of external directors on boards (*ExDir_T*), (iii) the amount of external director share ownerships (*ExDir_O*), (iv) the amount of internal director share ownerships (*InDir_O*), (v) the ratio of lifetime bankers to the total of number of board members (*BB*), and (vi) the level of age diversity (*AgeRange*).

7.5.2.2.2 Institutional Share Ownerships

Four groups of shareholders are considered: (i) foreign financial institutions (*FFI*), (ii) foreign non-financial companies (*FNFC*), (iii) domestic financial institutions (*DFI*), and (iv) domestic non-financial companies (*DNFC*). The shareholder types are categorised according to Table 5.1 shown in chapter five.

7.5.2.2.3 Dummy Variable

C is a categorical variable in which 1 equals UK-listed banks; and 0 equals Japan-listed banks.

7.5.2.3 Control Variables

Control variables are used to isolate any potential influences on the results. A set of control variables is used to control for bank-specific, and year-specific effects.

Market-based performance (*TobinQ*), interest income (*IntInc*), and the total regulatory capital ratio (*TCapR*) control for bank-specific effects. *GDP* controls for country-specific effects. *Post2008* controls for year-specific effects.

TobinQ is a measure of market-based performance, and is a ratio of the total market value over the total asset value. The level of market-based performance is likely to affect lending and risk-taking strategies (Galloway et al., 1997; Konishi and Yasuda, 2004), because banks may change their asset allocations between lending and non-lending businesses to focus on long-term growth or short-term profits.

IntInc is the level of interest income over gross loans, and controls for bank-specific effects. This is because interest income levels are likely to affect levels of risk-taking (*z-score*, *ImpLoanR*) at banks, i.e. banks are required to earn adequate returns from interest incomes in order to offset their monitoring costs. As a result, the levels of *IntInc* may affect bank corporate governance practices such as the effectiveness of ex ante monitoring, interim monitoring, and ex post monitoring. Therefore, *IntInc* should be controlled for when assessing risk-taking at banks.

TCapR is the total regulatory capital ratio. It is used to measure capital regulatory stringency in literature (Barth et al., 2004), because banks are required to hold a minimum level of capital against their asset risks, i.e. a bank is required to hold a greater level of capital to act as a buffer against a higher level of risk-taking. Therefore, *TCapR* controls for bank-specific effects.

Post2008 is a categorical variable in which 1 equals the years 2008-2013, and 0 equals 2005-2007.

Gross domestic product (*GDP*) controls for country-specific effects, and loan demand effects (Gambacorta and Mistrulli, 2004).

7.5.3 Summary Statistics

Table 7.1 provides a summary of the statistics for the variables used in the empirical analyses. A comparison of UK-listed and Japan-listed bank statistics in the sample shows that, on average, UK-listed banks take greater risks (i.e. having lower *z-score*[34] values) compared to Japan-listed banks. The mean of the *z-score* of UK-listed and Japan-listed banks are 76.75 and 125.25, respectively.

Table 7.4 shows that, on average, UK-listed banks have greater levels of interest incomes (*IntInc*), non-interest incomes (*NIIR*), and regulatory capital ratios (*TCapR*), compared to Japan-listed banks, except for levels of impaired loans (*ImpLoanR*).

The levels of impaired loans of UK-listed banks have increased and are greater than those of Japan-listed banks in 2009. While the average impaired loan ratios of Japan-listed banks remains at 3.68 percent, the average impaired loan ratios of UK-listed banks has increased since 2009, because UK borrowers are unable to pay the interest or repay any of the capital (Dunkley, 2015).

Additionally, the differences of regulatory capital ratios have widened between the two countries' banks since 2009, and the banks of both countries have been under pressure to increase their capital ratios since the 2008 financial crisis (Cohen, 2013).

In terms of board independence, Figure 7.2 shows that UK-listed banks, on average, have greater ratios of external directors on their boards, compared to Japan-listed banks. The figure also shows that the ratios of external directors to the total number of board members of Japan-listed banks have gradually increased from 2005 to 2013. Table 7.1 shows that the average tenures of external directors (*ExDir_T*) at the boards of UK-listed banks are higher than those of Japan-listed banks.

In terms of the patterns of outsider-dominated/insider-dominated boards, Table 7.5 shows that the majority of UK-listed banks have outsider-dominated boards, while the majority of Japan-listed banks have insider-dominated boards. To distinguish between insider-dominated boards, outsider-dominated boards, and mixed boards, this study follows the categorisation technique used in Weisbach (1988). Insider-dominated boards have at least 60 percent of their board members as internal directors. Outsider-dominated boards have no more than 40 percent of their board members as internal directors. A mixed board contains between 40 and 60 percent of their board members as internal directors. According this categorisation, the

[34] The *z-score* measures the level of risk-taking at banks in which the lower value of the *z-score* indicates a higher probability of a bank being insolvent.

majority of Japan-listed bank boards are insider-dominated. This result is expected given that Japan-listed companies can choose to adopt the *kansayaku* system. The *kansayaku* system does not require any external directors.

The mean of the external director tenures (*ExDir_T*) of UK-listed banks are 3.47 years, while those of Japan-listed banks are 1.73. The maximum external director tenures at UK-listed listed banks are seven years, while those of Japan-listed banks are 26 years. In some cases, Japan-listed banks appoint their former retired board directors as external directors, resulting in unusually long external director tenures.

In terms of internal (*InDir_O*) and external (*ExDir_O*) director share ownership structures, Table 7.1 shows that Japan-listed banks, on average, have greater amounts of internal and external director share ownerships, compared to UK-listed banks. It should be noted that UK company law prohibits the independent directors of listed companies from owning shares in the companies on the boards of which they serve, while this restriction does not apply to the external directors of UK-listed companies and any directors of Japan-listed companies. In this thesis, external directors are recorded as the sum of independent and external directors.

In terms of the levels of lifetime bankers (*BB*) and board age homogeneity (age diversity), on average, the levels of lifetime bankers are close to 90 percent at Japan-listed banks, while the UK-listed banks only have 37 percent.

The mean of the board age diversity of Japan-listed banks is lower than that of UK-listed banks, which indicates that the directors of Japan-listed banks tend to be of a similar age. Board age diversity is calculated by subtracting the age of the oldest directors from the youngest directors on the boards.

The levels of lifetime bankers and board age diversity suggest that the boards of Japan-listed banks are more homogeneous, compared to those of UK-listed banks.

In terms of ownership structures, Figure 7.4 and Figure 7.5 show that, on average, the largest shareholders of UK-listed banks have been foreign financial institutions (*FFI*) and their ownership levels increased from 7.17 percent to 31.49 percent from 2007 to 2008, and domestic financial institutions (*DFI*) continued to be the largest shareholders of Japan-listed between 2005 and 2013.

In terms of bank performances, Table 7.1 shows that UK-listed banks, on average, have greater performance levels (*TobinQ*), compared to those of Japan-listed banks.

The correlation matrices of data of UK-listed and Japan-listed banks are presented in Table 7.2 and Table 7.3, respectively. In Table 7.2, *ImpLoanR* is negatively correlated with the *z-score* at a 10 percent significance level. Two variables – *FNFC* and *GBP* – are positively correlated with the *z-score* at 10 percent significance levels.

In Table 7.3, five variables – *FFI*, *ImpLoanR*, *IntInc*, *ExDir*, and *TobinQ* – are negatively correlated with the *z-score* at 10 percent significance levels, i.e. they are positively associated with risk-taking at banks. Five variables – *BB*, *DNFC*, *GDP*, *logA and TCapR* – are positively correlated with the *z-score* at 10 percent significance levels.

In the context of multicollinearity, the variance inflation factor does not exceed five in each model. Each pair of variables, in which the correlation coefficients exceed 0.5, will not be used in the regression model.

Table 7.1 Descriptive statistics: variables used (Japan-listed and UK-listed banks).

This sample consists of 662 Japan-listed bank-year observations and 45 UK-listed bank-year observations between 2005 and 2013.

Variable	Mean	Std. Dev.	Minimum	Maximum	No. of obs.
Japan					
AgeRange	16.38	6.85	0	37.00	662
BB	88.97	13.48	0	100.00	624
DFI	14.14	14.82	0	100.00	662
DNFC	0.86	2.12	0	14.23	662
ExDir	0.10	0.15	0	0.86	657
ExDir_O	0.07	0.50	0	6.59	662
ExDir_T	1.73	3.46	0	26.00	657
FFI	4.76	9.10	0	75.48	662
FNFC	0.37	2.23	0	40.40	662
GDP	0.68	2.69	-5.53	4.71	662
ImpLoanR	3.67	1.32	0.84	10.83	653
InDir_O	0.15	0.31	0	6.86	662
IntInc	1.95	0.41	1.15	4.56	655
NIIR	15.70	13.78	-62.27	191.04	654
Post2008	0.66	0.47	0	1	662
TCapR	11.55	1.96	5.71	19.48	655
TobinQ	0.03	0.02	0.01	0.14	635
z-score	125.25	173.49	-0.85	1,948.99	649
UK					
AgeRange	22.27	3.61	17.00	29.00	45
BB	36.85	8.89	22.73	57.89	45
DFI	14.80	9.25	0	32.14	45
DNFC	0.88	1.35	0	6.28	45
ExDir	0.72	0.09	0.54	0.91	45
ExDir_O	0.01	0.01	0.00	0.06	45
ExDir_T	3.47	1.09	1.67	6.60	45
FFI	21.46	17.20	0	55.49	45
FNFC	1.42	1.94	0	8.08	45
GDP	1.16	2.15	-4.19	3.00	45
ImpLoanR	4.12	2.85	1.24	10.42	45
InDir_O	0.04	0.04	0.00	0.18	45
IntInc	4.96	1.51	2.98	9.23	40
NIIR	46.59	10.68	2.24	62.33	45
Post2008	0.67	0.48	0	1	45
TCapR	14.49	2.35	10.70	18.80	45
TobinQ	0.04	0.04	0.01	0.16	42
z-score	76.75	106.85	2.18	460.38	38

Table 7.2 Pairwise correlation coefficients of UK-listed banks.

* indicates that the pairwise correlation coefficient is statistically significant at a 10 percent level.

	AgeRange	*BB*	*DFI*	*DNFC*	*ExDir*	*ExDir_O*	*ExDir_T*	*FFI*	*FNFC*	*GDP*	*ImpLoanR*	*InDir_O*	*IntInc*	*NIIR*	*Post2008*	*TCapR*	*TobinQ*	*z-score*
AgeRange	1																	
BB	-0.211	1																
DFI	0.1999	-0.2980*	1															
DNFC	0.0683	-0.2650*	0.5512*	1														
ExDir	0.0616	0.4681*	0.0181	0.0669	1													
ExDir_O	0.1673	-0.1869	-0.0907	0.0428	-0.0455	1												
ExDir_T	0.3306*	-0.2593*	0.1051	-0.0354	0.0267	0.4962*	1											
FFI	0.4336*	-0.016	0.6758*	0.4095*	0.2754*	-0.2755*	-0.0026	1										
FNFC	-0.2863*	0.2872*	0.1978	0.3670*	0.2672*	-0.0384	-0.2326	0.1297	1									
GDP	0.0671	-0.074	-0.3902*	-0.0719	0.0012	0.2068	0.2821*	-0.4272*	-0.1432	1								
ImpLoanR	-0.2015	0.5079*	-0.1239	-0.0462	0.5265*	-0.2464	-0.5760*	0.076	0.2637*	-0.1792	1							
InDir_O	0.3103*	-0.2594*	0.3402*	0.3463*	0.1324	-0.1218	-0.0765	0.4028*	0.1398	-0.0453	-0.0374	1						
IntInc	0.1221	-0.5848*	-0.1183	-0.175	-0.3147*	0.5915*	0.5759*	-0.4041*	-0.5093*	0.2293	-0.6060*	-0.2012	1					
NIIR	0.148	-0.008	-0.3749*	-0.0872	0.1559	-0.0764	-0.1702	-0.0622	-0.0762	0.0589	0.2187	0.2064	-0.1022	1				
Post2008	0.1715	0.3744*	0.4245*	0.1073	0.5335*	-0.4201*	-0.3180*	0.7000*	0.225	-0.5278*	0.5706*	0.1963	-0.6950*	-0.1186	1			
TCapR	0.3882*	0.2644*	0.2871*	0.2409	0.5462*	-0.1756	-0.0608	0.6178*	0.3526*	-0.159	0.3054*	0.3374*	-0.5662*	0.0923	0.6505*	1		
TobinQ	-0.4803*	0.4200*	0.2077	0.0372	0.3139*	-0.2169	-0.2607*	0.1424	0.2943*	-0.2475	0.3415*	0.019	-0.3501*	-0.2422	0.3461*	-0.0728	1	
z-score	0.0848	-0.041	0.0255	0.2304	-0.0672	0.1423	0.1278	-0.0514	0.2971*	0.2775*	-0.2727*	-0.1347	-0.0271	-0.0441	-0.2374	0.1255	-0.123	1

Table 7.3 Pairwise correlation coefficients of Japan-listed banks.

* indicates that the pairwise correlation coefficient is statistically significant at a 10 percent level.

	AgeRange	*BB*	*DFI*	*DNFC*	*ExDir*	*ExDir_O*	*ExDir_T*	*FFI*	*FNFC*	*GDP*	*ImpLoanR*	*InDir_O*	*IntInc*	*NIIR*	*Post2008*	*TCapR*	*TobinQ*	*z-score*
AgeRange	1																	
BB	-0.1601*	1																
DFI	0.0595	-0.1546*	1															
DNFC	-0.0567	0.1612*	0.1136*	1														
ExDir	0.4731*	-0.7936*	0.1241*	-0.1309*	1													
ExDir_O	0.2005*	-0.2170*	-0.0034	-0.0472	0.4484*	1												
ExDir_T	0.2992*	-0.2285*	0.0527	-0.0071	0.3008*	0.1607*	1											
FFI	0.2735*	-0.2490*	0.0694*	-0.0715*	0.6029*	0.4593*	0.1379*	1										
FNFC	0.1098*	-0.1430*	0.0564	-0.0361	0.3241*	0.3776*	0.061	0.1954*	1									
GDP	0.0113	0.0009	-0.0116	-0.029	0.0275	-0.0031	-0.0074	-0.1188*	0.0316	1								
ImpLoanR	-0.0662*	-0.1007*	-0.1633*	-0.0816*	0.0119	0.1351*	0.0327	-0.1141*	0.0457	0.0292	1							
InDir_O	0.1539*	-0.0037	-0.1113*	-0.0163	0.0465	-0.0371	-0.0081	0.0418	-0.0384	0.0269	-0.0820*	1						
IntInc	-0.016	-0.1897*	-0.0946*	-0.1166*	0.2248*	0.3797*	0.038	0.1692*	0.2123*	-0.0917*	0.3467*	0.0362	1					
NIIR	0.0884*	-0.2325*	0.1854*	0.0283	0.3057*	0.1704*	0.0791*	0.3010*	0.0224	0.0720*	-0.0842*	0.0541	-0.1550*	1				
Post2008	0.0345	-0.025	0.0247	-0.0027	0.0754*	-0.0066	0.1361*	0.2215*	0.0256	-0.2771*	-0.3056*	-0.0695*	-0.3098*	0.0301	1			
TCapR	0.2535*	0.0557	0.0836*	0.1471*	0.2304*	0.0054	0.2576*	0.3186*	0.0416	0.0204	-0.3407*	-0.018	-0.3821*	0.3048*	0.2144*	1		
TobinQ	-0.0627	-0.1379*	-0.0861*	-0.1205*	0.0304	-0.0081	0.0307	-0.0802*	-0.0056	-0.0524	0.0879*	-0.017	-0.1657*	-0.0953*	0.5298*	-0.2760*	1	
z-score	-0.0203	0.1469*	0.0086	0.0743*	-0.1177*	-0.0607	0.0261	-0.0871*	-0.0405	0.1102*	-0.1445*	-0.0427	-0.2711*	0.031	-0.0257	0.2465*	-0.1147*	1

Table 7.4 A summary of the levels of insolvency risks (*z-score*), interest incomes over gross loans (*IntInc*), impaired loans over gross loans (*ImpLoanR*), non-interest incomes over gross revenues (*NIIR*), and the total regulatory capital ratios (*TCapR*) of UK-listed and Japan-listed banks between 2005 and 2013.

	z-score		*IntInc*		*ImpLoanR*		*NIIR*		*TCapR*	
Year	UK	Japan	UK	Japan	UK	Japan	UK	Japan	UK	Japan
2005		110.41	4.84%	2.07%	1.86%	4.69%	46.97%	15.88%	12.06%	10.69%
2006	112.30	152.69	4.26%	2.08%	1.74%	4.13%	49.72%	16.10%	12.38%	11.12%
2007	132.98	131.80	4.40%	2.23%	1.94%	3.93%	48.39%	13.39%	12.62%	11.03%
2008	22.24	33.63	5.86%	2.18%	2.72%	3.64%	29.97%	4.67%	13.18%	10.75%
2009	28.22	55.18	4.21%	2.04%	5.07%	3.53%	51.29%	16.80%	15.06%	11.69%
2010	53.15	66.08	4.06%	1.93%	6.17%	3.50%	48.04%	18.32%	15.94%	11.92%
2011	142.93	184.52	4.21%	1.79%	6.34%	3.45%	45.13%	17.71%	15.50%	12.19%
2012	83.17	212.33	4.05%	1.66%	5.76%	3.31%	50.56%	19.49%	16.46%	12.30%
2013	53.23	179.09	3.78%	1.55%	5.48%	2.92%	49.23%	18.82%	17.22%	12.20%

Figure 7.2 The average number of external directors on the boards (*ExDir*) of UK-listed and Japan-listed banks between 2005 and 2013.

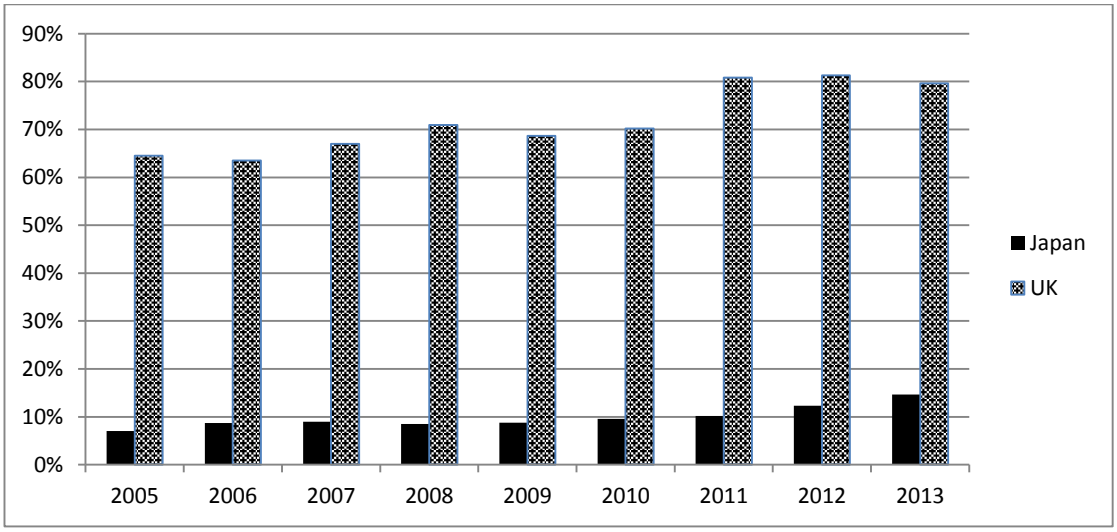


Table 7.5 A summary of the types of boards between UK-listed and Japan-listed banks between 2005 and 2013.

	Mixed Boards		Insider-Dominated Boards		Outsider-Dominated Boards	
Year	UK	Japan	UK	Japan	UK	Japan
2005	20%	0%	0%	96%	80%	4%
2006	40%	1%	0%	95%	60%	4%
2007	20%	0%	0%	96%	80%	4%
2008	0%	3%	0%	96%	100%	1%
2009	20%	4%	0%	95%	80%	1%
2010	0%	3%	0%	95%	100%	3%
2011	0%	3%	0%	95%	100%	3%
2012	0%	4%	0%	95%	100%	1%
2013	0%	3%	0%	96%	100%	1%

Figure 7.3 The average number of external and internal director share ownerships of Japan-listed and UK-listed banks between 2005 and 2013. *ExDir_O* is the percentage of external director share ownerships. *InDir_O* is the percentage of internal director share ownerships.

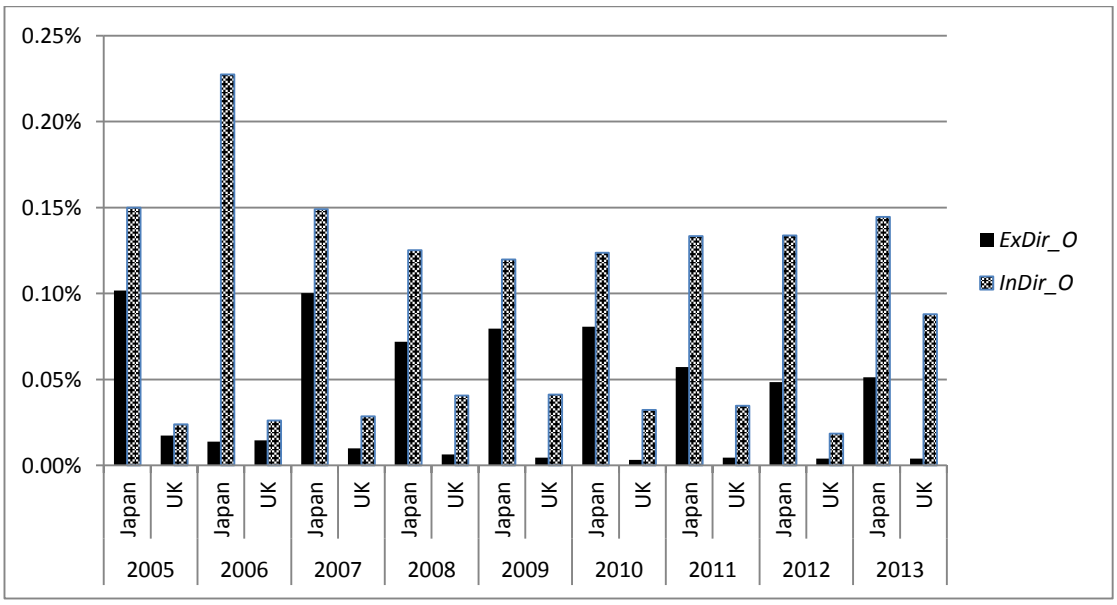


Figure 7.4 The distribution of the ownership structures of Japan-listed and UK-listed banks between 2005 and 2013.

FNFC represents foreign non-financial companies. *FFI* represents foreign financial institutions. *DFI* represents domestic financial institutions. *DNFC* represents domestic non-financial companies.

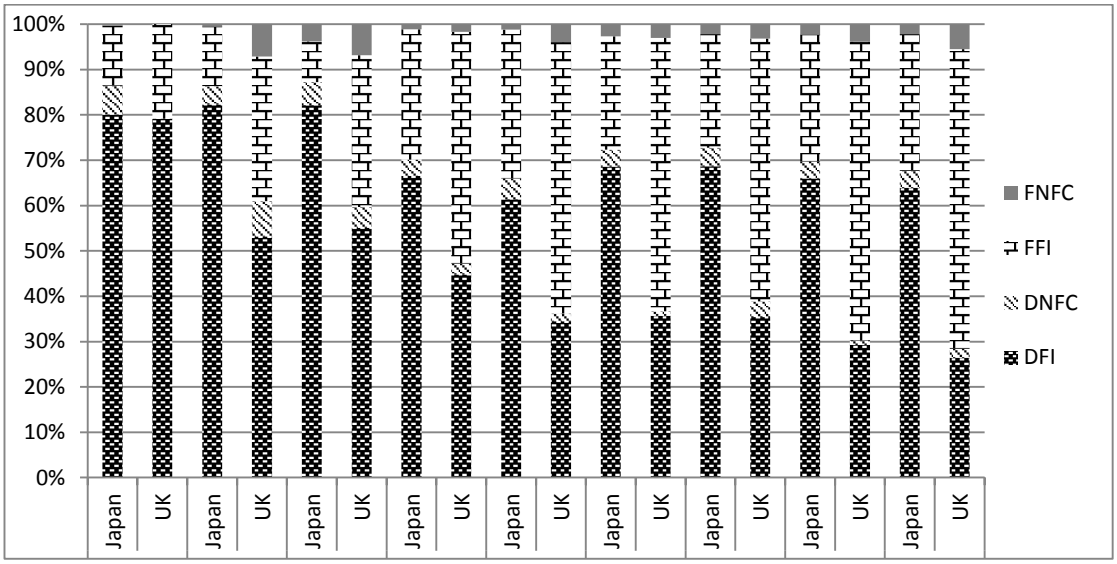
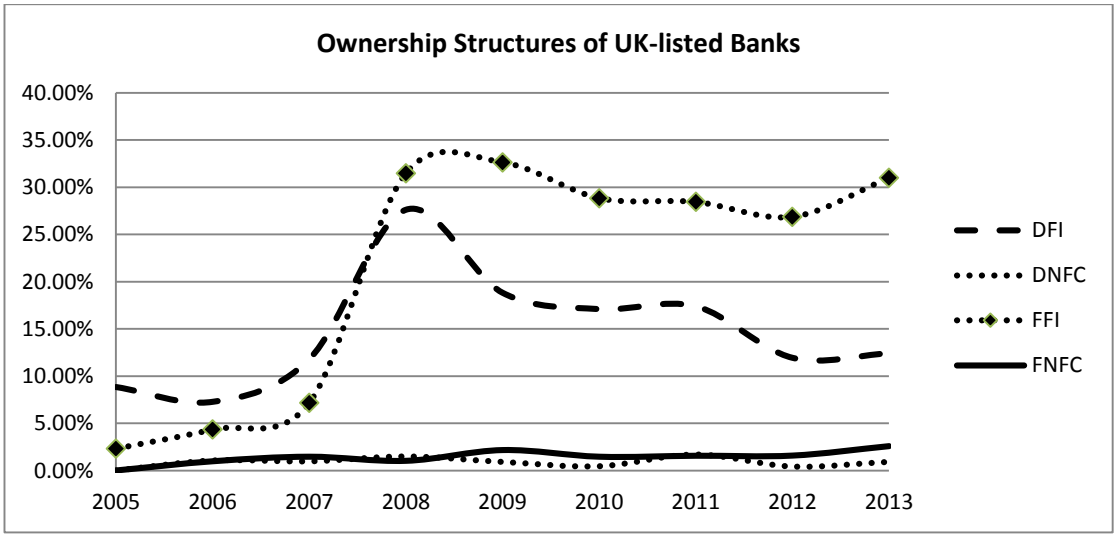
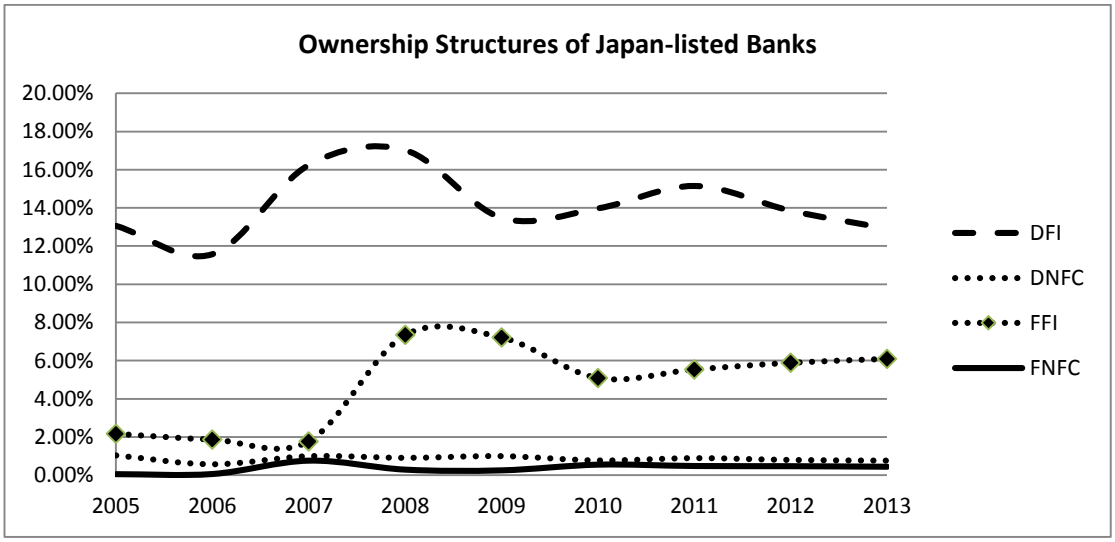


Figure 7.5 Ownership structures between 2005 and 2013: UK-listed banks versus Japan-listed banks.





7.6 Methodology

This chapter examines (i) the effects of four types of institutional shareholders on bank insolvency risk levels, and (ii) the effects of board characteristics and levels of director share ownerships on bank insolvency risk levels. The assessments are based on data consisting of 662 Japan-listed bank-year observations and 45 UK-listed bank-year observations between 2005 and 2013.

It argues that (i) the corporate governance approach to shareholder supremacy weakens the internal governance of UK-listed and Japan-listed banks, and (ii) Japan arguably has greater shareholder monitoring as a result of the insider system, compared to the UK.

In order to examine the effects on insolvency risk levels, fixed-effects (FE), random-effects (RE) and system generalised method of moments (GMM) Arellano Bond estimations are used, which are able to mitigate the problems of endogenous, unobservable heteroskedasticity, and simultaneity.

7.7 Results

The overarching messages from the regression results shown in Table 7.6 and Table 7.7 are that shareholder supremacy weakens UK bank governance, and highlights: (i) the effects of board independence on the increased insolvency risk levels, and (ii) that foreign shareholders are likely to increase risk-taking at banks. This is inconsistent with the views of institutional shareholders encouraging risk-taking (García-Kuhnert et al., 2015; Laeven and Levine, 2009), and the results show that domestic financial institutional shareholders lower risk-taking levels at their investee-banks in the UK and Japan. Regressions adjust standard errors by controlling for clustering at country level, and control for year-effects, bank-specific effects, and country-specific effects.

The results shown in Table 7.6 and Table 7.7 support Hypothesis 7.1, Hypothesis 7.2, Hypothesis 7.4, Hypothesis 7.5, Hypothesis 7.9, Hypothesis 10 and Hypothesis 7.12.

In terms of the model specification test, the Hausman test is used to determine the consistencies and efficiencies of the fixed-effects (FE) estimations. The results of the Hausman tests shown in Table 7.8 and Table 7.10 indicate that random-effects (RE) estimations are preferred. Moreover, the model specification tests for the system generalised method of moments (GMM) Arellano Bond estimation indicates that the instrumental variable(s) and the conditions of autocorrelations are valid in the regression results shown in Table 7.9 and Table 7.11.

However, the results also show that the models are poorly explained, in which the R^2 (overall) are approximately 0.14 in the regression models listed in Table 7.8 and Table 7.10, and the R^2 (between) improves slightly when the regression equations are estimated with the RE specifications.

These results provide five key messages relating to external and internal governance between UK-listed and Japan-listed banks.

First, consistent with Hypothesis 7.1, Hypothesis 7.2 and Hypothesis 7.4, the results of Table 7.6 show *FFI*, *FNFC* and *DNFC* are negatively related to the *z-score*, indicating that UK-listed banks with shareholders, which are foreign financial institutions (*FFI*), foreign non-financial companies (*FNFC*) and domestic non-financial companies (*DNFC*), are likely to take more risks. In terms of robustness, the majority of the results are robust against estimations with the FE and the GMM specifications and with alternative variables (*ImpLoanR*). However, the result of Hypothesis 7.2, showing the relationship between *FNFC* and the *z-score*, is not robust against the GMM estimation shown in Table 7.9, indicating that the risk-taking

behaviours of banks may be affected by unobserved bank characteristics and the lagged risk levels.

Second, contrary to Hypothesis 7.3, UK-listed banks with domestic financial institutional shareholders (*DFI*) are likely to reduce risk-taking levels, indicating that domestic financial institutional shareholders are likely to be effective risk monitors. Two of the possible explanations are (i) they have greater understandings of their domestic business environments (Gehrig, 1993) and are better monitors resulting from lower information asymmetries between themselves and their investee banks; and (ii) they have greater incentives and influences to monitor their domestic investee banks, because any failing domestic banks are likely to have negative impacts on domestic growth, as banks may be reluctant to lend. In terms of robustness, the RE result is robust against regressions estimated with the FE and the GMM specifications.

Third, the result shown in Table 7.7 is consistent with Hypothesis 7.5, indicating that having external directors on boards are likely to encourage risk-taking at UK-listed banks. The finding is inconsistent with the views that external directors act as risk monitors and lower agency costs (Jensen and Meckling, 1976). One possible explanation is that external directors encourage their banks to act in interests of their shareholders who are likely to forgo risk monitoring for maximising their wealth (Terence Tse, 2011). Therefore, the current corporate governance approach to shareholder supremacy weakens risk monitoring. In terms of robustness, the RE result is robust against regressions estimated with the FE and the GMM specifications.

Fourth, the results are consistent with Hypothesis 7.9 and Hypothesis 7.10, suggesting that greater board diversity tends to decrease risk-taking at UK-listed banks. The findings are consistent with the views that diversified boards prevent board members from making extreme decisions (Nakano and Nguyen, 2012), and board members with different experiences are likely to assist their banks in developing new opportunities through their external connections (Pfeffer and Salancik, 1978). Overall, the results signal that bank boards are required to have banking experts to manage the ever-increasing complexities of their banks.

Paradoxically, the results found at UK-listed banks are opposite to those at Japan-listed banks, suggesting that (i) greater age diversity tends to increase levels of insolvency risks at Japan-listed banks, which indicates that greater age diversity may affect board efficiency (Michel and Hambrick, 1992), and affect succession planning (Houle, 1990); and (ii) increased board expertise homogeneity lowers insolvency risk levels at Japan-listed banks.

Fifth, the results shown in Table 7.6 and Table 7.7 indicate that the majority of corporate governance mechanisms fail to lower risk-taking at UK-listed and Japan-listed banks, i.e. *ExDir*, *FFI* and *FNFC* are negatively related to the *z-score*. Surprisingly, the levels of internal director share ownerships (*InDir_O*) are poitively related to the *z-score* of UK-listed banks, but are negatively and statistically significantly related to the *z-score* of Japan-listed banks. This indicates that the use of internal director share ownerships increases risk-taking at Japan-listed banks.

Moreover, the result also shows that, in the UK, shareholders – which are domestic non-financial companies (*DNFC*) – are likely to encourage their investee banks to take greater risks. On the contrary, the result shows that *DNFC* are positively and statistically related to the *z-score*, indicating that Japanese domestic non-financial companies are likely to discourage this their investee banks to take risks. Lastly, the results show that domestic financial institutional shareholders (*DFI*) of UK-listed and Japan-listed banks are likely to act as risk monitors.

In conclusion, board compositions, director share ownerships and ownership structures tend to have different affects on risk-taking at banks in the UK and Japan, indicating that researchers should also consider country-specific characteristics when examining the effectiveness of corporate governance mechanisms.

Table 7.6 A summary of the random-effects regression results of columns (3) and (4) of Table 7.8 that shows the relationships between the institutional ownerships and the *z-score.*

FFI is the level of foreign financial institutional ownerships. *FNFC* is the level of foreign non-financial institutional ownerships. *DFI* is the level of domestic financial institutional ownerships. *DNFC* is the level of domestic non-financial institutional ownerships. ** and *** indicates significance at 5% and 1%, respectively.

	UK	Japan
FFI	-3.317 (= -0.979 - 2.338***)	-2.338***
FNFC	-13.822 (= -13.28 - 0.542)	-0.542
DFI	3.079 (= 2.932 + 0.147)	0.147
DNFC	-7.467 (= -9.864 + 2.397**)	2.397**

Table 7.7 A summary of the random-effects regression results of columns (4), (5) and (6) of Table 7.10 that shows the relationships between board characteristics and the *z-score.*

ExDir is the ratio of external directors to the total number of board members. *ExDir_T* is the average tenure of external directors on boards. *ExDir_O* is the amount of external director share ownerships. *InDir_O* is the amount of internal director share ownerships. *BB* is the ratio of lifetime bankers to the total number of board members. *AgeRange* is board age diversity. *, ** and *** indicates significance at 10%, 5% and 1%, respectively.

	UK	Japan
ExDir	-275.34 (= -74.84 - 200.5***)	-200.5***
ExDir_T	65.322 (= 62.72 + 2.602***)	2.602***
ExDir_O	4,273.55 (= 4,284.5** -10.95*)	-10.95*
InDir_O	37.57 (= 61.05 + -23.48**)	-23.48**
BB	-2.016 (= -2.863 + 0.847**)	0.847**
AgeRange	6.199 (= 8.325 + -2.126***)	-2.126***

Table 7.8 A summary of the results of the fixed-effects (FE) and the random-effects (RE) estimations assessing the relationships between institutional ownerships, and the insolvency risk levels (*z-score*).

L. indicates that the levels of independent variables have a one-year lag. *C* is a categorical variable in which 0 equals Japan-listed banks, and 1 equals UK-listed banks. *FFI* is the level of foreign financial institutional ownerships. *FNFC* is the level of foreign non-financial institutional ownerships. *DFI* is the level of domestic financial institutional ownerships. *DNFC* is the level of domestic non-financial institutional ownerships. *IntInc*, *TCapR*, TobinQ, *Post2008*, and *GDP* are control variables. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively.

The Hausman test is used to test the consistency and efficiency of the FE estimations. The Breusch and Pagan Lagrangian multiplier (LM) test is used to test for whether the variance of the unobserved fixed effects is zero.

Estimation Type	FE		RE	
	(1)	(2)	(3)	(4)
Intercept	13.55	4.233	-31.48	-17.40
	(0.08)	(0.03)	(-0.62)	(-0.38)
L.DFI	0.583		0.147	
	(5.87)		(1.27)	
L.FFI	-1.359		-2.338***	
	(-3.16)		(-25.48)	
*L.DFI*C*	2.702		2.932	
	(0.55)		(0.59)	
*L.FFI*C*	-3.920		-0.979	
	(-0.75)		(-0.66)	
L.DNFC		1.267**		2.397**
		(78.00)		(2.73)
L.FNFC		1.472		-0.542
		(1.87)		(-0.75)
*L.DNFC*C*		-15.79		-9.864
		(-2.36)		(-0.67)
*L.FNFC*C*		-32.29		-13.28
		(-1.19)		(-1.64)
L.TobinQ	-340.5*	-219.9*	-781.6***	-528.8***
	(-12.77)	(-21.09)	(-32.68)	(-5.99)
L.IntInc	-53.57	-45.16	-38.28	-38.41
	(-0.70)	(-0.65)	(-1.21)	(-1.23)
L.TCapR	18.20	17.24	20.37***	18.21***
	(12.30)	(9.36)	(13.17)	(9.04)
L.Post2008	36.30	31.63	49.38***	37.16***
	(2.50)	(2.06)	(10.81)	(13.31)
L.GDP	9.954	10.38	10.11***	10.64***
	(7.16)	(8.51)	(38.85)	(33.24)
No. of obs.	593	593	593	593
R^2	0.091	0.087		
Adj. R^2	0.077	0.073		
R^2 (within)	0.0913	0.0870	0.0877	0.0851
R^2 (between)	0.163	0.170	0.241	0.203
R^2 (overall)	0.119	0.121	0.143	0.130
Hausman test: p-value	0.808	0.723		
LM test: p-value			0.00	0.00

Table 7.9 A summary of the results of the generalised method of moments (GMM) Arellano Bond estimations assessing the relationships between institutional ownerships, and the insolvency risk levels (*z-score*).

L. indicates that the levels of independent variables have a one-year lag. *C* is a categorical variable in which 0 equals Japan-listed banks, and 1 equals UK-listed banks. *FFI* is the level of foreign financial institutional ownerships. *FNFC* is the level of foreign non-financial institutional ownerships. *DFI* is the level of domestic financial institutional ownerships. *DNFC* is the level of domestic non-financial institutional ownerships. *IntInc*, *TCapR*, TobinQ, *Post2008*, and *GDP* are control variables. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. The instruments used for the first-differenced equations are the lagged observations of the explanatory variables, and the instruments used for the levels of equations are the lagged observations of the dependent variable and *TobinQ* (predetermined variable).

The estimations passed the Sargan and the Arellano Bond (AR) tests for the validity of instruments. The Sargan test is used to determine whether the overidentifying restrictions are valid. The Arellano Bond test is used to determine for zero autocorrelation in first-differenced errors, in which the null hypothesis indicates no autocorrelation.

	GMM	
	(1)	(2)
L.DFI	-0.0535	
	(-0.32)	
L.FFI	-1.954***	
	(-4.34)	
*L.DFI*C*	2.233**	
	(2.86)	
*L.FFI*C*	1.143*	
	(2.16)	
L.DNFC		1.052
		(1.21)
L.FNFC		1.967***
		(3.69)
*L.DNFC*C*		-11.34***
		(-7.11)
*L.FNFC*C*		9.652***
		(4.69)
L.z-score	0.468***	0.472***
	(81.15)	(74.45)
TobinQ	-1260.9***	-1292.7***
	(-15.64)	(-15.90)
L.TobinQ	-1041.4***	-860.9***
	(-10.77)	(-16.53)
L.IntInc	-31.31***	-31.65***
	(-8.50)	(-13.71)
L.TCapR	15.93***	15.25***
	(24.01)	(30.18)
L.Post2008	74.57***	66.50***
	(24.22)	(39.86)
L.GDP	8.790***	8.976***
	(27.40)	(26.56)
No. of obs.	587	587
Number of instruments	65	65
Sargan test: p-value	0.126	0.184
Arellano Bond AR(1) test: p-value	0.00353	0.00345
Arellano Bond AR(2) test: p-value	0.265	0.278

Table 7.10 A summary of the results of the fixed effects (FE) and the generalised method of moments (GMM) Arellano Bond estimations assessing the relationships between board characteristics, and the insolvency risk levels (*z-score*).

L. indicates that the independent variables have a one-year lag. *C* is a categorical variable in which 0 equals Japan-listed banks, and 1 equals UK-listed banks. *ExDir* is the ratio of external directors to the total number of board members. *ExDir_T* is the average tenure of external directors on boards. *ExDir_O* is the amount of external director share ownerships. *InDir_O* is the amount of internal director share ownerships. *BB* is the amount of lifetime bankers to the total number of board members. *AgeRange* is board age diversity. *TobinQ*, *IntInc*, *Post2008*, *TCapR* and *GDP* are control variables. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively.

The Hausman test is used to test the consistency and efficiency of the FE estimations. The Breusch and Pagan Lagrangian multiplier (LM) test is used to test for whether the variance of the unobserved fixed effects is zero.

Estimation Type	FE			RE		
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	63.02	63.67	224.8	29.19	46.39	-20.73
	(0.31)	(0.42)	(1.84)	(0.24)	(0.67)	(-0.14)
L.ExDir	-199.7			-200.5***		
	(-2.21)			(-5.07)		
L.ExDir_T	2.752			2.602***		
	(2.14)			(25.17)		
*L.ExDir*C*	-444.8			-74.84		
	(-1.85)			(-1.10)		
*L.ExDir_T*C*	76.67			62.72		
	(0.84)			(1.16)		
L.ExDir_O		-25.10			-10.95*	
		(-2.71)			(-2.31)	
L.InDir_O		-30.10			-23.48**	
		(-1.60)			(-2.77)	
*L.ExDir_O*C*		3693.3			4284.5**	
		(0.81)			(2.80)	
*L.InDir_O*C*		-403.0			61.05	
		(-2.67)			(0.09)	
L.BB			-1.108			0.847**
			(-1.63)			(2.91)
L.AgeRange			-2.533*			-2.126***
			(-16.43)			(-840.69)
*L.BB*C*			-11.01			-2.863
			(-0.89)			(-1.10)
*L.AgeRange*C*			2.656			8.325
			(0.43)			(0.73)
L.TobinQ	-376.0*	-314.7	-398.3	-608.5***	-712.1	-462.4***
	(-15.44)	(-2.25)	(-1.20)	(-4.22)	(-1.90)	(-8.06)
L.IntInc	-65.60	-55.48	-55.99	-53.68	-52.78***	-44.79
	(-0.77)	(-0.69)	(-0.77)	(-1.01)	(-3.83)	(-0.78)
L.Post2008	32.29	30.90	26.51	38.67***	37.33	29.84**
	(2.08)	(1.43)	(1.42)	(6.25)	(1.75)	(2.99)
L.TCapR	18.26**	14.73	14.65*	18.21***	16.17**	16.21***
	(162.47)	(5.16)	(27.24)	(16.28)	(2.75)	(46.26)
L.GDP	10.42	10.44	9.794	10.55***	10.51***	9.791***
	(7.03)	(6.39)	(5.68)	(14.50)	(3.92)	(9.18)
No. of obs.	593	593	569	593	593	569
R^2	0.097	0.088	0.081			
Adj. R^2	0.083	0.074	0.066			
R^2 (within)	0.0968	0.0882	0.0809	0.0943	0.0871	0.0727
R^2 (between)	0.174	0.196	0.0630	0.297	0.221	0.259
R^2 (overall)	0.109	0.129	0.0523	0.158	0.137	0.134
Hausman test: p-value	0.956	0.983	0.128			
LM test: p-value				0.00	0.00	0.00

Table 7.11 A summary of the results of the generalised method of moments (GMM) Arellano Bond estimations assessing the relationships between board characteristics, and the insolvency risk levels (*z-score*).

L. indicates that the independent variables have a one-year lag. *C* is a categorical variable in which 0 equals Japan-listed banks, and 1 equals UK-listed banks. *ExDir* is the ratio of external directors to the total number of board members. *ExDir_T* is the average tenure of external directors on boards. *ExDir_O* is the amount of external director share ownerships. *InDir_O* is the amount of internal director share ownerships. *BB* is the amount of lifetime bankers to the total number of board members. *AgeRange* is board age diversity. *TobinQ*, *IntInc*, *Post2008*, *TCapR* and *GDP* are control variables. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. The instruments used for the first-differenced equations are the lagged observations of the explanatory variables, and the instruments used for the levels of equations are the lagged observations of the dependent variable and *TobinQ* (predetermined variable). The estimations passed the Sargan and the Arellano Bond (AR) tests for the validity of instruments. The Sargan test is used to determine whether the overidentifying restrictions are valid. The Arellano Bond test is used to determine for zero autocorrelation in first-differenced errors, in which the null hypothesis indicates no autocorrelation.

Estimation Type	GMM		
	(1)	(2)	(3)
L.ExDir	-457.1*		
	(-2.44)		
L.ExDir_T	12.07*		
	(2.36)		
*L.ExDir*C*	201.7		
	(0.84)		
*L.ExDir_T*C*	78.10		
	(1.81)		
L.ExDir_O		-8.528	
		(-0.11)	
L.InDir_O		-5.339	
		(-0.08)	
*L.ExDir_O*C*		4392.6	
		(0.95)	
*L.InDir_O*C*		792.7	
		(0.58)	
L.BB			1.418
			(1.62)
L.AgeRange			-4.134
			(-1.54)
*L.BB*C*			5.775
			(0.72)
*L.AgeRange*C*			-1.732
			(-0.10)
L.z-score	0.450***	0.473***	0.462***
	(4.22)	(4.63)	(4.07)
TobinQ	-1129.2	-1218.7	-1375.7
	(-1.07)	(-1.09)	(-1.12)
L.TobinQ	-796.7	-1065.5	-738.5
	(-0.86)	(-1.13)	(-0.69)
L.IntInc	-50.40*	-37.06	-40.31
	(-1.99)	(-1.85)	(-1.19)
L.Post2008	55.94	67.70*	62.28
	(1.87)	(2.46)	(1.76)
L.TCapR	20.11***	16.54***	11.23
	(3.62)	(3.81)	(1.51)
L.GDP	9.281***	9.243***	8.043***
	(3.64)	(3.54)	(3.31)
No. of obs.	587	587	563
Number of instruments	65	65	65
Sargan test: p-value	0.112	0.102	0.140
Arellano Bond AR(1) test: p-value	0.00899	0.00821	0.0114
Arellano Bond AR(2) test: p-value	0.288	0.273	0.292

Table 7.12 A summary of the results of the fixed-effects (FE) estimations examining the relationships between the levels of institutional ownerships, and the levels of impaired loans (*ImpLoanR*).

L. indicates that the levels of independent variables have a one-year lag. *C* is a categorical variable in which 0 equals Japan-listed banks, and 1 equals UK-listed banks. *FFI* is the level of foreign financial institutional ownerships. *FNFC* is the level of foreign non-financial institutional ownerships. *DFI* is the level of domestic financial institutional ownerships. *DNFC* is the level of domestic non-financial institutional ownerships. *IntInc*, *ToninQ*, *TCapR*, *Post2008*, and *GDP* are control variables. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. The Hausman test is used to test the consistency and efficiency of the FE estimations.

Estimation Type	FE	
	(1)	(2)
Intercept	5.724	6.175
	(2.46)	(2.74)
L.DFI	-0.00824	
	(-9.16)	
L.FFI	-0.0333	
	(-3.32)	
*L.DFI*C*	0.0190	
	(0.31)	
*L.FFI*C*	0.101	
	(1.58)	
L.DNFC		-0.0191
		(-5.29)
L.FNFC		0.0450
		(5.48)
*L.DNFC*C*		0.513
		(5.93)
*L.FNFC*C*		0.967
		(2.92)
L.IntInc	-0.0560	-0.168
	(-0.06)	(-0.19)
L.TobinQ	-8.338*	-9.280*
	(-39.72)	(-45.89)
L.TCapR	-0.123**	-0.153
	(-124.19)	(-7.30)
L.Post2008	-0.145	-0.262
	(-1.73)	(-3.76)
L.GDP	-0.0235	-0.0182
	(-0.99)	(-1.06)
No. of obs.	594	594
R^2	0.182	0.184
Adj. R^2	0.169	0.171
R^2 (within)	0.182	0.184
R^2 (between)	0.00664	0.109
R^2 (overall)	0.0483	0.120
Hausman test: p-value	0	0

Table 7.13 A summary of the results of the fixed effects (FE) estimations assessing the relationships between board characteristics, and the levels of impaired loans (*ImpLoanR*).

L. indicates that the independent variables have a one-year lag. *C* is a categorical variable in which 0 equals Japan-listed banks, and 1 equals UK-listed banks. *ExDir* is the ratio of external directors to the total number of board members. *ExDir_T* is the average tenure of external directors on boards. *ExDir_O* is the amount of external director share ownerships. *InDir_O* is the amount of internal director share ownerships. *BB* is the ratio of lifetime bankers to the total number of board members. *AgeRange* is board age diversity. *IntInc*, *TobinQ*, *Post2008*, *TCapR* and *GDP* are control variables. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively. The Hausman test is used to test the consistency and efficiency of the FE estimations.

Estimation Type	FE		
	(1)	(2)	(3)
Intercept	5.116	6.305	2.581
	(1.86)	(3.03)	(1.92)
L.ExDir	-4.087		
	(-3.78)		
L.ExDir_T	-0.0635		
	(-2.31)		
*L.ExDir*C*	15.47		
	(5.97)		
*L.ExDir_T*C*	-1.160		
	(-1.06)		
L.ExDir_O		-0.896*	
		(-13.77)	
L.InDir_O		-1.219	
		(-6.79)	
*L.ExDir_O*C*		-13.93	
		(-0.24)	
*L.InDir_O*C*		43.38*	
		(17.30)	
L.BB			0.0383
			(2.97)
L.AgeRange			0.00121
			(0.36)
*L.BB*C*			0.0952
			(0.49)
*L.AgeRange*C*			-0.0136
			(-0.15)
L.IntInc	0.0594	-0.355	-0.188
	(0.06)	(-0.36)	(-0.17)
L.TobinQ	-2.537	-4.157	-1.435
	(-0.91)	(-5.09)	(-0.26)
L.Post2008	-0.237	-0.502	-0.330
	(-2.51)	(-3.99)	(-1.81)
L.TCapR	-0.0991	-0.109	-0.153*
	(-2.27)	(-9.58)	(-25.47)
L.GDP	-0.0131	-0.0263	-0.0262
	(-0.48)	(-1.19)	(-0.78)
No. of obs.	594	594	570
R^2	0.221	0.193	0.126
Adj. R^2	0.209	0.181	0.112
R^2 (within)	0.221	0.193	0.126
R^2 (between)	0.0882	0.0540	0.0269
R^2 (overall)	0.0738	0.0000445	0.0247
Hausman test: p-value	0	0	0

7.8 Conclusion

This chapter presents empirical assessments by comparing insolvency risk levels at banks between two countries. It focuses on the effects of internal control mechanisms (board characteristics and director share ownerships) and levels of institutional ownerships. The results present two points that may have policy implications when recommending corporate governance policies for banks.

First, the results show that current internal governance mechanisms, such as the appointments of external directors, possibly lead to greater risk-taking by UK-listed bank managements. In summary, the results show that, in the UK, internal governance mechanisms are designed to protect the interests of shareholders and incentivise managers to maximise shareholder wealth, but fail to safeguard the interests of stakeholders.

Second, in Japan, domestic shareholders act as key monitors to their investee banks, because domestic shareholders are also key stakeholders who focus on maintaining long-term relationships and on being long-term investors. However, the results show that Anglo-American internal governance mechanisms such as the appointments of external directors and performance-based incentives may encourage risk-taking at Japan-listed banks. In summary, the Japanese (shareholder) insider system safeguards the interests of stakeholders, and prevents excessive risk-taking, while Anglo-American internal governance mechanisms may encourage risk-taking at Japan-listed banks.

From a policy perspective, states and financial authorities should promote stakeholder monitoring, and refrain from encouraging internal mechanisms that promote only the interests of shareholders.

Chapter 8 Conclusion

The objective of this thesis is to examine the effects of internal governance (board characteristics and director ownerships), and external governance, such as shareholder and regulatory monitoring, of Japan-listed banks. It contains four core chapters.

First, it investigates the effects of the ratios of external directors to the total number of board members (henceforth known as the ratios of external directors), the lengths of external director tenures, the amounts of director share ownerships, the ratios of financial and legal experts to the total number of board members (henceforth known as the ratios of finance and/or legal experts), board expertise homogeneity, and board age diversify on bank lending and risk-taking.

Second, it examines the effects of six types of institutional shareholders on bank lending and risk-taking. Six types of institutional shareholders include foreign and domestic financial institutions, foreign and domestic non-financial companies, and foreign and domestic governments.

Third, it assesses the substitution and complementary effects between internal governance and external monitoring. Three internal governance indices are specially constructed using principal component analysis to reduce the number of independent variables in a single regression analysis. They contain the ratios of external directors to the total number of board members, the lengths of external director tenures, the amounts of director share ownerships, the ratios of financial and legal experts to the total number of board members, board expertise homogeneity, and board age diversify. External governance is referred to as institutional shareholder and regulatory monitoring.

Fourth, it compares the effects of internal governance and institutional shareholder monitoring between UK-listed and Japan-listed banks. It particularly focuses on levels of risk-taking at banks.

This chapter is structured as follows. Section 8.1 provides summaries of the empirical findings. Sections 8.2 and 8.3 discuss the theoretical and policy implications of the empirical findings, respectively. Section 8.4 discusses the shortcomings of this thesis. Section 8.5 discusses the scope for future work.

8.1 Empirical Findings

The objectives of this thesis are to understand the effects of board characteristics, levels of director ownerships, and institutional shareholders on the lending and risk-taking behaviours of Japan-listed banks between 2005 and 2015. The bank lending ratios and the *z-score* are the conceptual variables for measuring lending and risk-taking behaviours, respectively.

Bank lending ratios are used to measure the proportions of the assets allocated to real sector lending that have welfare implications. The *z-score* is a measure of bank-specific insolvency risks, which includes lending and non-lending risks. Two alternative measures, levels of interest incomes and levels of impaired loans, are used as robust measures of bank lending ratios and the *z-score*, respectively.

To mitigate the problems of endogenous, unobservable heteroskedasticity, and simultaneity (Hermalin and Weisbach, 1991; Wintoki et al., 2012), the empirical studies in chapters four to seven are conducted using the fixed-effects, random-effects and system generalised method of moments (GMM) Arellano Bond estimations.

Chapter four first examines the effects of board characteristics and levels of director ownerships on the lending and risk-taking behaviours of Japan-listed banks. Second, it assesses the bank specific factors that affect the likelihood of banks participating in securitisation businesses. The empirical studies cover between 2005 and 2013.

The findings of chapter four suggest that (ch4.i) the increased ratios of external directors raise levels of insolvency risks, but decrease levels of impaired loans; (ch4.ii) internal and external director share ownerships decrease levels of impaired loans; (ch4.iii) greater levels of board homogeneity increase interest incomes; (ch4.iv) the ratios of financial experts are statistically insignificantly associated with all examined dependent variables (*LoanDeps*, *z-score*, *IntInc*, *and ImpLoanR*); (ch4.v) greater ratios of legal experts tend to decrease levels of impaired loans; (ch4.vi) the likelihood of banks with assets and liabilities committees (ALCOs) participating in securitisation businesses is driven by greater ratios of external directors, but that likelihood decreases as ratios of financial experts increase; (ch4.vii) banks with ALCOs and bigger asset sizes and/or lower total regulatory capital ratios are likely to participate in securitisation businesses.

Results (ch4.i) – (ch4.v) highlight the prevalence of insider-dominated boards at Japan-listed banks, where board monitoring tends to be jointly supervised among internal directors. The implementation of board independence is likely to be ineffective as a result of insider-

dominated boards, and a limited supply of qualified directors and the increasing demand for directorships.

Interestingly, no statistically significant relationships are found between variables of internal corporate governance mechanisms (board characteristics and director ownerships), and insolvency risks levels. But statistically significant relationships are found in some variables of internal corporate governance mechanisms and impaired loans. The results show that greater ratios of external directors and legal experts, and increased amounts of internal and external director ownerships are associated with decreased levels of impaired loans, indicating that these mechanisms are effective in monitoring bank lending policies, i.e. preventing their banks from lending to risky industries. But these mechanisms are insufficient at monitoring non-lending businesses.

Results (ch4.vi) – (ch4.vii) highlight the following four points. First, the results suggest that, instead of strengthening monitoring, external directors are likely to be hired for their expertise in developing new business. For example, external directors may be expected to contribute to assisting with the development of complex non-lending businesses such as securitisation. This finding is consistent with result (ch4.i).

Second, the result shows that greater ratios of financial experts on bank boards with ALCOs, tend to decrease the likelihood of banks participating in securitisation businesses, indicating that financial experts are likely to focus on bank balance sheet management (BCBS, 2016a), instead of encouraging their banks to engage in securitisation. In other words, financial experts are likely to be hired to monitor managements and to focus on interest rate and liquidity risks, instead of advising on new business.

Third, banks with bigger asset sizes tend to engage in securitisation. The finding is consistent with Cardone-Riportella et al. (2010), which is not surprising, because bigger banks have greater levels of resources to facilitate complex projects.

Fourth, banks with lower capital ratios tend to securitise their loans, and the finding confirms the regulatory capital arbitrage hypothesis (Dionne and Harchaoui, 2008).

Chapter five examines the effects of levels of institutional share ownerships on the lending and risk-taking behaviours of Japan-listed banks between 2005 and 2013.

The findings of chapter five suggest that (ch5.i) foreign financial institutional shareholders are likely to induce risk-taking at banks; (ch5.ii) domestic governmental shareholders are inclined to encourage their investee banks to take risks; and (ch5.iii) Japanese domestic financial and

non-financial institutional shareholders are insufficient at monitoring risks at their investee banks.

Following the views of Ahmadjian (2008) that institutional investors act as catalysts for transferring foreign corporate mechanisms practices to Japan, result (ch5.i) shows that foreign financial institutional shareholders are at odds with the risk-taking behaviours of the internal directors of Japan-listed banks, indicating that the presence of foreign financial institutional investors encourages risk-taking at Japan-listed banks.

Result (ch5.ii) indicates that, consistent with the views of Levine (2003), state ownerships may help regulators to overcome problems of information asymmetry and may improve bank governance. It also shows that the relationship between domestic governmental ownerships and the *z-score* is negatively and statistically significant when estimated with the random-effects specification, but is positively and statistically insignificant when estimated with the fixed-effects and the system generalised method of moments Arellano Bond estimations specifications.

Result (ch5.iii) shows that the coefficients of domestic financial and non-financial institutions are statistically insignificant when examining the relationships with the insolvency risks and impaired loan ratios. The random-effects estimation result is robust in comparison with the generalised method of moments Arellano Bond estimations. This indicates that domestic institutions may play limited roles in monitoring their investee banks.

To illustrate the interactions between internal and external controls, chapter six assesses the substitution and complementary effects between the internal and external monitoring of Japan-listed banks. Eight elements of internal corporate governance mechanisms are compressed into three indices using principal component analysis. In terms of external monitoring, three external monitors are considered: financial regulators, domestic financial institutional shareholders, and institutional shareholders. Institutional shareholders include domestic and foreign financial institutions, and domestic and foreign non-financial companies.

The findings of chapter six indicate that (ch6.i) internal directors and regulators complementarily monitor bank governance; (ch6.ii) internal director share ownerships are used to align the interests of domestic financial institutional shareholders; as a result, internal director and domestic financial institutional shareholders act as substitute devices in bank governance; and (ch6.iii) external directors and institutional shareholders act as complementary devices in bank governance.

Result (ch6.i), contrary to the substitution hypothesis (Williamson, 1983), suggests that regulatory monitoring and internal director joint monitoring are complementary, whereby internal directors jointly manage and monitor the governance of their banks. In contrast with internal director joint monitoring, regulators only rely on disclosed information to monitor listed banks, indicating possible insufficiencies in regulatory monitoring as a result of information asymmetry.

Result (ch6.ii) shows that a substituted monitoring mechanism exists between internal directors and domestic financial institutional shareholders, indicating that banks with greater levels of domestic financial institutional shareholders are likely to influence the internal directors of their investee banks.

Result (ch6.iii) shows the complementary relationship between external directors and institutional shareholders, indicating that external directors monitor the governance of their banks on behalf of their institutional shareholders. This result confirms that institutional shareholders may only play limited roles in monitoring, although the result suggests that external directors complementarily monitor their investee banks on behalf of their institutional shareholders.

As described in previous chapters, Japan-listed banks have adopted a number of corporate governance mechanisms similar to their Anglo-American counterparts, and their corporate (ch7governance mechanisms have been widely studied. Chapter seven offers a comparative view by assessing the effects of the corporate governance mechanisms used in UK-listed and Japan-listed banks.

Chapter seven first examines the effects of institutional ownership levels and board characteristics (the internal controls) of UK-listed banks on risk-taking. Second, it compares the effectiveness of board risk oversight (internal controls) and shareholder monitoring (external controls) between UK-listed and Japan-listed banks. The empirical studies cover UK-listed and Japan-listed banks between 2005 and 2013.

The findings of chapter seven suggest that (ch7.i) compared to UK-listed banks, the institutional shareholders of Japan-listed banks are likely to play active roles in monitoring risk-taking at banks; (ch7.ii) greater levels of board age and expert diversity at UK-listed banks tend to reduce insolvency risk levels, while the reverse effect occurs at Japan-listed banks; and (ch7.iii) the corporate governance approach to shareholder supremacy increases insolvency levels at Japan-listed and UK-listed banks.

Result (ch7.i) is consistent with the testable hypothesis that institutional shareholders may forgo their monitoring responsibilities or encourage risk-taking. The result is contrary to the conventional view that institutional shareholders have the expertise and incentives to monitor their investee companies (Shleifer and Vishny, 1997). The general assumption is that their risk-taking behaviours may be driven by their short-term investment horizons (Graves and Waddock, 1990; Murrall, 2011; OECD, 2009).

Result (ch7.ii) suggests that board age and expert diversity at UK-listed banks improves board dynamics and succession planning (Houle, 1990), because managers who are dissimilar in age may be better at risk monitoring, but tend to differ in their risk preferences (Berger et al., 2014; Kesner, 1988; Van Ness et al., 2010). On the contrary, the result indicates that board age diversity at Japan-listed banks increases the insolvency risk levels. Two possible explanations are that (i) younger board members are less persuasive among older board members, because they are less authoritative and are likely to have less experience compared to older, existing board members; and (ii) board members with dissimilar backgrounds are often outsiders, and are less influential on insider-dominated boards of Japan-listed banks.

Result (ch7.iii) suggests that the corporate governance approach to shareholder supremacy increases risk-taking at UK-listed and Japan-listed banks, in which board independence induce board members to pursue risky investments for greater returns. The result is consistent with the views that external directors are exposed to employment risks, and are eager to deliver to their shareholders' expectations (Wiseman and Gomez-Mejia, 1998). Second, internal director share ownerships incentivise risky projects for greater returns, because managers are motivated to improve their personal wealth. However, compared to Japan-listed banks, internal director share ownerships have reverse effects on UK-listed banks, i.e. a negative relationship exists between the levels of internal director share ownerships and risk-taking at UK-listed banks. Furthermore, the result shows a positive relationship between the ownership levels of institutional shareholders (except for the domestic financial institutions) and insolvency risk levels at UK-listed banks. Meanwhile, except for the foreign financial and non-financial institutions, the results show negative relationships between the ownership levels of institutional shareholders and the insolvency risk levels of Japan-listed banks. In summary, result (ch7.iii) concludes that a corporate governance approach to shareholder supremacy increases risk-taking.

8.2 Theoretical Implications

The aim in this study is to understand the effects of board characteristics and director share ownerships, and institutional share ownerships on lending and risk-taking. A number of theoretical implications are found in this study.

First, the results in chapter four find no relationship between internal controls (such as external directors, director share ownerships, or board experts) and insolvency risks. But, consistent with agency theory (Jensen and Meckling, 1976), the results show that internal control mechanisms lower impaired loan ratios. The results indicate that monitoring and bonding mechanisms – proposed by the agency framework – lower lending risks (ratios of impaired loans), but fail to lower the insolvency risks. This indicates that bank boards are likely to focus on lending strategies, but may overlook their overall bank risk strategies, or pursue other non-lending businesses such as derivatives trading. Therefore, in bank governance research, agency theory needs to be applied when considering bank risk strategies, which may sufficiently alter the understanding between monitoring mechanisms and risk-taking, and between bonding mechanism and risk-taking.

Second, the results in the second part of chapter four offer some insights on agency theory (Jensen and Meckling, 1976) and resource dependency theory (Pfeffer and Salancik, 1978). The results show that (i) external directors raise the likelihood of banks participating in securitisation businesses, but (ii) financial experts decrease the likelihood. These results also highlight that Japan-listed banks are likely to hire external directors for the purpose of obtaining external resources, and to hire financial experts for monitoring purposes. Therefore, the results suggest that agency and resource dependency theories apply differently in the context of Japanese corporate governance.

Third, the results in chapter five are consistent with Douma et al. (2006), which suggest that shareholders with investment objectives lead to different monitoring effects. The findings emphasise the roles played by foreign financial institutional shareholders and domestic governmental shareholders in monitoring the risk-taking behaviours of banks. Therefore, more theoretical research is required to incorporate the objectives of shareholders, and agency theory.

Fourth, inconsistent with the substitution hypothesis (Williamson, 1983), the results of chapter six show that (i) internal directors complement regulatory monitoring, and (ii) external directors complement institutional shareholder monitoring. Moreover, possible causal linkages may exist between external directors and institutional shareholders, because institutional

shareholders may monitor bank boards directly, as well as appoint external directors as monitors. Lastly, the results in chapter seven emphasise the differences in the roles of institutional shareholders between UK-listed and Japan-listed banks. In examining bank governance, researchers are required to cautiously consider the institutional settings and regulatory environments.

8.3 Policy Implications

Aside from theoretical implications, a number of policy implications are proposed based on the empirical findings of this thesis.

First, the results in chapter four find that banks with external directors are likely to urge their Japan-listed banks to take greater risks, which lead to increase in insolvency risk levels and the likelihood of participating in securitisation businesses. These findings offer insights into the current debates focusing on whether independent external directors are sufficient risk monitors. Policy makers should consider the consequences of promoting board independence as highlighted in Japan's 2015 Corporate Governance Code, because independent external directors may induce risk-taking, instead of enhance risk monitoring.

Second, the results in chapter five show that foreign financial institutional shareholders have negative impacts on risk-taking levels at banks. For example, foreign financial institutional shareholders are likely to forgo the interests of (domestic) stakeholders, and promote the interests of shareholders, such as shareholder wealth maximisation. From a policy perspective, although the existing regulations of most developed countries require foreign shareholders to seek approval form authorities prior to acquiring sufficient portions of bank shares. For example, the European Central Bank requires any (foreign or domestic) investors to seek approval when attempting to acquire more than 10 percent of shares in banks operating in the Eurozone (ECB, 2016). In the United States, according to the Bank Holding Company Act, foreign investors are required to seek approval from the Federal Reserve Board when attempting to acquire more than five percent of a bank's shares (Seitzinger, 2013). Domestic regulators should also be required to consider the types of influences of foreign shareholders on their banking industries, and whether the objectives of foreign investors are compatible with those of the stakeholders of the banks whose shares are being acquired.

Third, the results in chapter six show that the Japanese bank governance model is a system of complementary elements. The boards and regulators work cooperatively to monitor the managements of banks, with which they share similar objectives and pursue coherent policies, i.e. the survival of Japanese banks.

Fourth, the results in chapter six also show a negative relationship between internal director share ownerships and domestic financial institutional ownerships (the economic size of the coefficient on domestic financial institutional ownerships is consequential), but no relationship between internal director ownerships and institutional ownerships. This indicates that internal director ownerships reduce agency conflicts between management and domestic financial shareholders, and domestic financial shareholders act as key monitors on risk-taking at banks. Hence, the results highlight the relationships among domestic financial institutions in Japan.

Fifth, the results in chapter seven show that the corporate governance approach to shareholder supremacy weakens risk monitoring at banks. The results offer important policy implications for the ongoing debates on the sufficiency of corporate governance mechanisms for risk monitoring for banks. Moreover, regulators should limit managerial incentive structures that promote shareholder values, and instead promote alternative managerial incentive structures to align their decision-making processes with the interests of their stakeholders (Llewellyn, 2002).

8.4 The Limitations of the Research

Although some of the results satisfy the robustness tests, they should be interpreted cautiously along with the following limitations.

First, although the problems of endogenous, unobservable heteroskedasticity, and simultaneity have been addressed by the GMM Arellano Bond estimations, scholars argue that problems of weak instruments may arise when the number of lags of the instrumental variables increase (Wintoki et al., 2012).

Second, the sample size of the Japan-listed banks is relatively large compared to that of the UK-listed banks in chapter seven, and the unequal group sizes of these regression analyses may cause two problems: (i) derivations of confidence levels among groups, and (ii) increased effects of heterogeneity of variance (Rusticus and Lovato, 2014).

Third, consistent with previous studies, this thesis only includes listed banks, and ignores other financial institutions such as trust banks and credit associations (Kang and Shivdasani, 1995; Uchida and Tsutsui, 2005). However, it may not provide an overall picture of corporate governance of the Japanese banking industry.

Fourth, although the technique of principal component analysis is used in chapter six, this thesis is not able to assess the effects of the substitution/complementary effects between

internal and external controls on lending and risk-taking, because of the presence of multicollinearity between the variables of internal and external controls.

8.5 The Scope for Future Work

This thesis highlights the problems of the corporate governance approach to shareholder supremacy, and its effectiveness when operating under frameworks of stakeholder supremacy. In this context, researchers could consider further studies on the Japanese corporate governance model, and compare the findings of current studies with countries operating under stakeholder frameworks. The following lists are suggested for future research. However, this list is not exhaustive.

First, Herfindahl indices may be included when studying the effects of ownership structures. Herfindahl indices measure ownership concentrations and weight the effects of controlling shareholders (Baysinger et al., 1991; Demsetz and Lehn, 1985; Demsetz and Villalonga, 2001).

Second, future research could incorporate relationship lending in examining the effects of shareholder monitoring, because shareholders, who finance their businesses from bank borrowings, may have limited influences over the corporate affairs of their banks (Kanaya and Woo, 2000).

Third, future work could focus on the relationships between disclosures, banks and regulators, in which regulatory monitoring may be ineffective as a result of information asymmetry (Suzuki, 2011a).

Fourth, future research could test the effects of the granular levels of financial institutional shareholders on levels of lending (and risk-taking) at banks, because different types of financial institutional shareholders such as insurance companies, private equity companies, and banks are likely to have different investment objectives, which may affect levels of lending (and risk-taking) at their investee banks

A. Appendix

Table A.1 The list of the collected bank data.

Country	Bank	Bank Name in Japanese
Japan	Aozora Bank	（株）あおぞら銀行
Japan	Tomato Bank	（株）トマト銀行
Japan	Fukuoka Financial Group	（株）ふくおかフィナンシャルグループ
Japan	Hokuhoku Financial Group	（株）ほくほくフィナンシャルグループ
Japan	Michinoku Bank	（株）みちのく銀行
Japan	Minato Bank	（株）みなと銀行
Japan	Resona Holdings	（株）りそなホールディングス
Japan	77 Bank	（株）七十七銀行
Japan	Sumitomo Mitsui Financial Group	（株）三井住友フィナンシャルグループ
Japan	Mitsubishi UFJ Financial Group	（株）三菱ＵＦＪフィナンシャル・グループ
Japan	Mie Bank	（株）三重銀行
Japan	Chu Kyo Bank	（株）中京銀行
Japan	Chugoku Bank	（株）中国銀行
Japan	Kei Yo Bank	（株）京葉銀行
Japan	Kyoto Bank	（株）京都銀行
Japan	Iyo Bank	（株）伊予銀行
Japan	Saga Bank	（株）佐賀銀行
Japan	Hachijuni Bank	（株）八十二銀行
Japan	Hokkoku Bank	（株）北國銀行
Japan	Kita-Nippon Bank	（株）北日本銀行
Japan	North Pacific Bank	（株）北洋銀行
Japan	Hokuetsu Bank	（株）北越銀行
Japan	Eighteenth Bank	（株）十八銀行
Japan	Juroku Bank,Ltd	（株）十六銀行
Japan	Chiba Kogyo Bank	（株）千葉興業銀行
Japan	Chiba Bank	（株）千葉銀行
Japan	Nanto Bank	（株）南都銀行
Japan	Bank of Nagoya	（株）名古屋銀行
Japan	Shikoku Bank	（株）四国銀行
Japan	Taiko Bank	（株）大光銀行
Japan	Oita Bank Co. Ltd.	（株）大分銀行
Japan	Ogaki Kyoritsu Bank	（株）大垣共立銀行
Japan	Daito Bank	（株）大東銀行
Japan	Miyazaki Taiyo Bank	（株）宮崎太陽銀行
Japan	Miyazaki Bank	（株）宮崎銀行
Japan	Yamaguchi Financial Group	（株）山口フィナンシャルグループ
Japan	Yamagata Bank	（株）山形銀行
Japan	Yamanashi Chuo Bank	（株）山梨中央銀行

(Table continues overleaf)

Table A.1 (table continues from the previous page)

Country	Bank	Bank Name in Japanese
Japan	San-In Godo Bank	（株）山陰合同銀行
Japan	Bank of Iwate	（株）岩手銀行
Japan	Joyo Bank	（株）常陽銀行
Japan	Hiroshima Bank	（株）広島銀行
Japan	Ehime Bank	（株）愛媛銀行
Japan	Aichi Bank	（株）愛知銀行
Japan	Shinsei Bank	（株）新生銀行
Japan	Tohoku Bank	（株）東北銀行
Japan	Towa Bank	（株）東和銀行
Japan	Higashi-Nippon Bank	（株）東日本銀行
Japan	Toho Bank	（株）東邦銀行
Japan	Tochigi Bank	（株）栃木銀行
Japan	Bank of Yokohama	（株）横浜銀行
Japan	Musashino Bank	（株）武蔵野銀行
Japan	Bank of Okinawa	（株）沖縄銀行
Japan	Shimizu Bank	（株）清水銀行
Japan	Shiga Bank	（株）滋賀銀行
Japan	Bank of Ryukyus	（株）琉球銀行
Japan	Hyakugo Bank	（株）百五銀行
Japan	Hyakujushi Bank	（株）百十四銀行
Japan	Fukui Bank	（株）福井銀行
Japan	Fukushima Bank	（株）福島銀行
Japan	Akita Bank	（株）秋田銀行
Japan	Daisan Bank	（株）第三銀行
Japan	Daishi Bank	（株）第四銀行
Japan	Tsukuba Bank	（株）筑波銀行
Japan	Gunma Bank	（株）群馬銀行
Japan	Higo Bank, Ltd	（株）肥後銀行
Japan	Nishi-Nippon City Bank	（株）西日本シティ銀行
Japan	Nagano Bank	（株）長野銀行
Japan	Kansai Urban Banking Corporation	（株）関西アーバン銀行
Japan	Awa Bank	（株）阿波銀行
Japan	Aomori Bank	（株）青森銀行
Japan	Shizuoka Bank	（株）静岡銀行
Japan	Tottori Bank	（株）鳥取銀行
Japan	Kagoshima Bank	（株）鹿児島銀行
Japan	Suruga Bank Ltd.	（株）スルガ銀行
Japan	Sumitomo Mitsui Trust Holdings	（株）三井住友トラスト・ホールディングス
UK	HSBC Holdings	
UK	Lloyds Banking Group	
UK	Barclays	
UK	Royal Bank of Scotland Group	
UK	Standard Chartered	

Table A.2 The *Bankscope* data used to construct the disclosure index.

Assets/Liabilities	Index	*Bankscope* Items
Assets	S1: Loans by maturity	Loans & Advances to Customers < 3 months
Assets	S1: Loans by maturity	Loans & Advances to Customers 3 - 12 Months
Assets	S1: Loans by maturity	Loans and Advances to Customers 1 - 5 Years
Assets	S1: Loans by maturity	Loans & Advances to Customers > 5 years
Assets	S1: Loans by maturity	Loans & Advances to Banks < 3 Months
Assets	S1: Loans by maturity	Loans & Advances to Banks 3 - 12 Months
Assets	S1: Loans by maturity	Loans & Advances to Banks 1 - 5 Years
Assets	S1: Loans by maturity	Loans & Advances to Banks > 5 Years
Assets	S1: Loans by maturity	Loans and Advances to banks (<3 Months to maturity)
Assets	S2: Loans by type	Residential Mortgage Loans
Assets	S2: Loans by type	Other Mortgage Loans
Assets	S2: Loans by type	Commercial Mortgages
Assets	S2: Loans by type	Lease Financing
Assets	S2: Loans by type	Other Consumer/Retail Loans
Assets	S2: Loans by type	Other Loans
Assets	S3: Loans by counterparty	Other Loans & Advances to Banks
Assets	S3: Loans by counterparty	Loans to other public institutions
Assets	S3: Loans by counterparty	Loans to/guaranteed by sovereigns
Assets	S3: Loans by counterparty	Loans to public institutions in arrear (memo)
Assets	S3: Loans by counterparty	Loans to private sector
Assets	S3: Loans by counterparty	Loans to private sector in arrear (memo)
Assets	S4: Problem loans	Impaired Loans (Memo)
Assets	S4: Problem loans	Overdue Receivables
Assets	S4: Problem loans	Restructured Loans
Assets	S6: Securities by type (detailed breakdown)	Investment securities - Treasury Bills, listed
Assets	S6: Securities by type (detailed breakdown)	Investment securities - Treasury Bills, not listed
Assets	S6: Securities by type (detailed breakdown)	Trading securities - Treasury Bills, listed
Assets	S6: Securities by type (detailed breakdown)	Trading securities - Treasury Bills, not listed
Assets	S6: Securities by type (detailed breakdown)	Covered Bonds
Assets	S6: Securities by type (detailed breakdown)	Investment debt securities (bonds, shares,...) - (if no split)
Assets	S6: Securities by type (detailed breakdown)	Investment debt securities (bonds, shares,...) - trading
Assets	S6: Securities by type (detailed breakdown)	Investment debt securities (bonds, shares,...) - held for sale
Assets	S6: Securities by type (detailed breakdown)	Investment debt securities (bonds, shares,...) - investment
Assets	S6: Securities by type (detailed breakdown)	Convertible bonds
Assets	S6: Securities by type (detailed breakdown)	Warrant bonds
Assets	S6: Securities by type (detailed breakdown)	Bonds, options and other fixed income securities
Assets	S6: Securities by type (detailed breakdown)	Equity investment
Assets	S8: Securities by holding purpose	Investment securities - other securities, listed
Assets	S8: Securities by holding purpose	Investment securities - other securities, not listed
Assets	S8: Securities by holding purpose	Investment securities - shares, listed
Assets	S8: Securities by holding purpose	Investment securities - shares, not listed
Assets	S5: Problem loans by type	Overdue Receivables

(Table continues overleaf)

Table A.2 (table continues from the previous page)

Assets/Liabilities	Index	*Bankscope* Items
Assets	S5: Problem loans by type	Overdue Receivables
Assets	S5: Problem loans by type	Restructured Loans
Assets	S7: Securities by type (coarse breakdown)	Other Securities
Assets	S7: Securities by type (coarse breakdown)	Memo: Government Securities Included Above
Liabilities	S10: Deposit by type of customer	Deposits from Banks
Liabilities	S10: Deposit by type of customer	Deposits & Short term funding
Liabilities	S9: Deposits by maturity	Retail Deposits < 3 months
Liabilities	S9: Deposits by maturity	Retail Deposits 3 - 12 Months
Liabilities	S9: Deposits by maturity	Retail Deposits 1 - 5 Years
Liabilities	S9: Deposits by maturity	Retail Deposits > 5 Years
Liabilities	S9: Deposits by maturity	Other Deposits < 3 Months
Liabilities	S9: Deposits by maturity	Other Deposits 3 - 12 Months
Liabilities	S9: Deposits by maturity	Other Deposits 1 - 5 Years
Liabilities	S9: Deposits by maturity	Other Deposits > 5 Years
Liabilities	S13: Reserves	Loan Loss Reserves (Memo)
Liabilities	S14: Capital	Total Capital
Liabilities	S14: Capital	Tier 1 Ratio %
Liabilities	S14: Capital	Tier 1 Capital
Liabilities	S15: Contingent Liabilities	Other Contingent Liabilities
Liabilities	S16: Off-Balance Sheet Items	First Loss Tranches of Off-Balance Sheet Securitizations
Liabilities	S16: Off-Balance Sheet Items	Managed Securitized Assets Reported Off-Balance Sheet
Liabilities	S18: Loan Loss Provisions	Loan Loss Provisions
Liabilities	S16: Off-Balance Sheet Items	Other Off-Balance Sheet Exposure to Securitizations
Liabilities	S10: Deposit by type of customer	Customer Deposits - Savings
Liabilities	NA	Deposits with banks, advances payable on demand
Liabilities	NA	Convertible bonds
Liabilities	NA	Total Subordinated Debt on Balance Sheet
Liabilities	NA	Money Market Instruments
Liabilities	S12: Long-term funding	Convertible bonds
Liabilities	S12: Long-term funding	Residential Mortgage Loans
Liabilities	S12: Long-term funding	Other Mortgage Loans
Liabilities	S12: Long-term funding	Subordinated Debts (Memo)
Liabilities	S12: Long-term funding	Subordinated Long-Term Debt
Liabilities	S12: Long-term funding	Hybrid capital/near equity/qualifying perpetual debt
Liabilities	S15: Contingent Liabilities	Other Contingent Liabilities
Liabilities	S17: Non-interest Income	Commission & fees income
Liabilities	S17: Non-interest Income	Others - Net Trading Income

B. Appendix

The financial disclosure index (*Disc*) used in this thesis was constructed based on the methodology proposed by Nier and Baumann (2006). The accounting information was extracted from the *Bankscope* database, and was then mapped into the 18 sub-indices listed in Table A.2 of Appendix A.

The financial disclosure index (*Disc*) is defined as:

$$Disc = \frac{1}{20}\sum_{i=1}^{18} S_i$$

where S_i is each sub-index listed in Table A.2.

To construct the financial disclosure index (*Disc*), S_i equals 1 if there is an entry in the *Bankscope* database, otherwise, S_i equals 0. For the capital index S14, S_i equals 1 if there is one entry; S_i equals 2 if there are two entries; and S_i equals 3 if there are three or four entries.

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