UNIVERSITY OF SOUTHERN QUEENSLAND

Environmental Risks, Bank Loan Covenants and the Cost of Bank Loans: An Australian Study

A Dissertation submitted by

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ABSTRACT

There is a growing body of increasingly restrictive environmental legislation surrounding the operation of business within Australia. In conjunction with this, there is heightened awareness and concern from stakeholders who want greater environmental accountability from Australian business. Banks work as a financial intermediary in the economy which is considered as an environmentally friendly sector. However, by extending loans to borrowing firms whose activities impact on the environment, banks' lending businesses are indirectly related to the environment. Accordingly, banks are likely to be exposed to environmental risks in corporate lending due to borrowing firms' environmental activities. As such, banks have an incentive to integrate environmental risks into their credit processes. The literature and banks' practices regarding the integration of environmental risks into banks' credit processes emphasise the evaluation of environmental risks; however, the subsequent control and monitoring of environmental risks is underdeveloped, especially in the context of Australia.

This study examines environmental risk management in the corporate credit processes of major Australian banks. It particularly investigates the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans in the Australian context. The research problem is as follows:

> ***How are environmental risks associated with bank loan covenants and the cost of bank loans in Australian banks' corporate lending?***

Face-to-face semi-structured interviews were undertaken with senior executive bankers in three of the four major Australian banks. These executives are responsible either for corporate lending decision-making or environmental risk management in corporate lending. Two interview checklists were designed for the interviews in a two-stage data collection process. The interviewees were allowed to elaborate on their answers wherever they thought it necessary and the interviews were recorded and transcribed. Given the small sample size, the researcher used critical judgement underpinned by accepted qualitative methods in the literature to manually analyse and extract themes and patterns to address the research problem.

The results of this study indicate that major Australian banks integrate environmental risk management into each stage of the corporate credit process. However, given that they are in the early stages of taking environmental risks into account and because only limited quantifiable environmental data are available, the integration is not sophisticated.

To effectively control and monitor environmental risks, customised environmental covenants are included in bank loan agreements. These environmental covenants are non-financial and are established based on a comprehensive evaluation of environmental issues at industry, borrower and transaction level. Typical environmental covenants are based on environmental obligation compliance and periodic environmental reporting. The findings also suggest that the cost of bank loans will not reflect environmental risks unless these risks impact on the credit ratings of borrowing firms. Although environmental risks are not a specific input of major Australian banks' credit rating models, they are a non-financial factor of expert judgement on the credit ratings of borrowing firms.

As the first study investigating the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans in the Australian context, this study validates the relevance of agency theory in dealing with environmental risks in the relationship between banks and their corporate customers. The findings also fill a gap in existing literature by indicating dimensions, determinants and attributes of environmental risks in major Australian banks' corporate lending. In addition, the findings extend prior literature by identifying the form, contents, tightness, functions and establishment process of environmental covenants used in major Australian banks' corporate lending. Further, this study adds to previous literature by documenting the conditions under which environmental risks impact on the cost of corporate bank loans. Last but not least, this study fills a gap in prior literature by articulating major Australian banks' environmental sustainability transformation in terms of their environmental practices in corporate lending.

This study provides a detailed evaluation of the stage that major Australian banks are up to in their journey towards environmental sustainability in corporate lending. It does this by confirming that environmental risk management is incorporated in each stage of the corporate credit process in major Australian banks and identifying the

corresponding activities in each stage. By indicating that environmental risks should be considered in banks' corporate credit processes, this study has implications for their staff training activities. In addition, by investigating the impact of environmental risks on the cost of corporate bank loans, this study contributes to the enhancement of internal credit rating criteria in major Australian banks by including environmental factors. Furthermore, this study provides insights for the development of borrowing firms' environmental management practices by indicating the importance major Australian banks place on borrowing firms' environmental management in corporate lending. This study also provides a platform for Non-Government Organisations to understand corporate lending decision-making by major Australian banks related to environmental issues.

CERTIFICATION OF DISSERTATION

I certify that the ideas, results, analyses and conclusions reported in this dissertation are entirely my own effort, except where otherwise acknowledged. I also certify that the work is original and has not been previously submitted for any other award, except where otherwise acknowledged.

_____ _____

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ENDORSEMENT

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Dr Geoff Slaughter Date

_____ _____

Professor Julie Cotter Date

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CHAPTER 1 INTRODUCTION

> *The question is no longer whether commercial banks should address the sustainable development aspects of the activities they support, but how they should do it - what substantive standards should they apply? How should they implement them? And how should they assure compliance?*
>
> World Wildlife Fund & BankTrack (2006, p.2)

This study systematically and comprehensively investigates major Australian banks' practices in integrating environmental risks into the corporate credit process[1]. Of particular relevance, the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans in major Australian banks[2] are examined.

1.1 Background and Motivations

This section provides an overview of environmental issues in business and explains the necessity to gain insights into the integration of environmental risks into the corporate credit processes of banks in the Australian context.

[1] The corporate credit process is the process corporate customers go through to have their loan applications approved by banks.

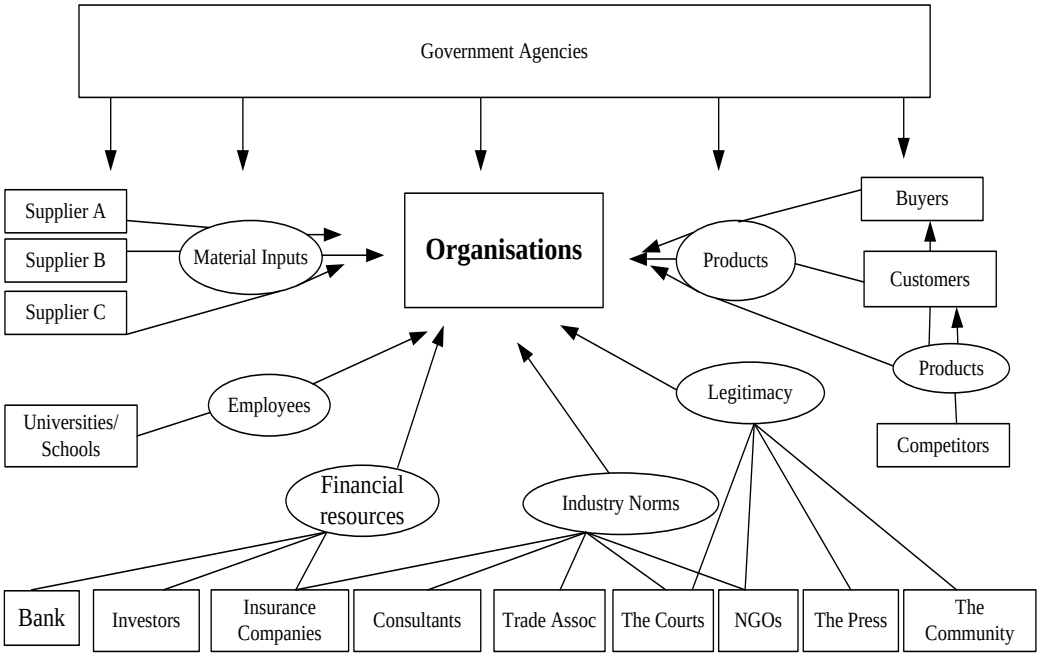
[2] This study aims to investigate the integration of environmental risks into the corporate credit process and particularly the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans in corporate lending by Australian banks. The investigations are based only on major Australian banks as the majority of corporate bank loans in Australia are extended by these banks (Australian Trade Commission 2011a). When referring to banks of interest in this study, 'major Australian banks' and 'banks' are used interchangeably.

1.1.1 Environmental issues in business

Environmental issues are a fundamental part of corporate sustainability considerations and have been the subject of wide ranging research (Connors & Sliva-Gao 2008; Environmental Capital Markets Committee 2000; Feldman, Soyka & Ameer 1997; World Business Council for Sustainable Development 1999). It is widely accepted that environmental issues are likely to affect businesses' cash flows, profitability, market competitiveness, strategic decision-making and viability (Hoffman 2000; Sarkis 2006; Thompson 1998b, 1998a).

Businesses have been subject to ever-increasing pressures from both their stakeholders and legislative bodies regarding environmental issues (see Figure 1.1) (Coulson & Dixon 1995; Elijido-Ten 2007; Thompson 1998a; Watson et al. 2004). Stakeholders of businesses are increasingly environmentally aware and, as such, environmental issues have attracted unprecedented concern in the sustainability debate (Bansal & Howard 1997; Ernst & Young 2003; Magalhaes 2001). Stakeholders with heightened environmental awareness are more likely to show their unfavourable perceptions about businesses engaging in environmentally sensitive activities[3] (Case 1999; World Business Council for Sustainable Development 1999). As a result, businesses are faced with ever-increasing reputational and financial risk deriving from their environmental related activities. Environmental pressures from stakeholders also contribute to tighter environmental legislation (Thompson 1998b).

[3] For the purpose of this study, environmentally sensitive industries/sectors or activities are those that: (1) have capacity to contaminate land, water, air or other natural resources; (2) require a licence or permit to use natural resources, without which they cannot operate; (3) require a licence for emissions and discharges, without which they cannot operate; (4) may incur penalties for environmental reasons; (5) may need to remediate contaminated land or install equipment to treat waste (National Australia Bank 2011).



Source: Adopted from Hoffman (2000, p.17)

Figure 1.1 Sources of Pressure for Corporate Environmental Action

There has been an increase in both the depth and breadth of environmental legislation prompted by legislative bodies in an attempt to mitigate negative environmental impacts and improve the environmental sustainability of businesses (Case 1999; Jenkins et al. 2002; Thompson 1998b). Environmental legislation impacts on businesses through both operating costs and environmental liabilities (Case 1999). The ever-tighter environmental legislation has resulted in increasing compliance costs for operations (e.g., businesses might need to purchase new equipment for their production lines to meet their environmental obligations) (Case 1999). In addition, under tighter environmental legislation businesses are more likely to incur environmental liabilities such as those for remediation of contamination[4], legal penalties and/or compensation for third parties than they otherwise would (Case 1999; Godfrey 2005). The growing incidence of environmental disasters (e.g., unusual and

[4] For the purpose of this study, contamination refers to environmental contamination.

destructive weather patterns) in recent years further evokes public scrutiny into environmental issues, since businesses' unsustainable activities have been blamed for these disasters. Therefore, environmental issues are of high-priority for sustainability and long-term viability of businesses (Charter & Polonsky 1999; World Business Council for Sustainable Development 1999).

1.1.2 Environmental issues and banks—environmental risks

Banks, as one of the financial intermediaries in the economy, generally believe that they have negligible environmental impacts compared to businesses in environmentally sensitive industries (Jeucken & Bouma 2001; PricewaterhouseCoopers 2001; Sarokin & Schulkin 1991). However, by extending loans to borrowing firms that are involved in environmental activities, banks are likely to be exposed to environmental risks (Case 1999; Thompson 1998b, 1998a; Weber, Fenchel & Scholz 2008). For the purpose of this study, environmental risks are interpreted consistently with Case (1999). Case takes a broader point of view, which includes a three-dimensional construct of environmental risks. The three dimensions are direct risk (also referred to as lender liability), indirect risk (also referred to as credit risk) and reputational risk.

There is a view indicated in existing literature that banks have fallen behind in integrating environmental risks into their lending businesses in the last two decades[5] (Jeucken 2001; Jeucken & Bouma 2001; PricewaterhouseCoopers 2001; Thompson 1998a). Banks tended to ignore environmental risks in their lending businesses until the advent of the *Comprehensive Environmental Response, Compensation and*

[5] For the purpose of this study, banks' lending businesses only include corporate lending and lending to small and medium enterprises. Personal lending and project financing are not included.

Liability Act 1980 (CERCLA, also known as Superfund liability) in the United States (Ganzi et al. 1998; Jeucken & Bouma 2001; Weber, Fenchel & Scholz 2008). Under CERCLA, there have been cases[6] where lenders suffered enormous environmental liabilities from environmental damage caused by their insolvent borrowers[7]. Environmental risks in lending businesses, which manifest as environmental liabilities for lenders (lender liability), started to attract the attention of banks in the global market in the 1990s (Case 1999; Coulson & Dixon 1995; Ganzi & Huppman 2006; Ganzi et al. 1998; PricewaterhouseCoopers 2001; Ward 1996).

Furthermore, there is heightened environmental concern from stakeholders and a growing body of increasingly restrictive environmental legislation. Accordingly, banks have acknowledged that borrowing firms' environmental impacts can have both financial and reputational consequences for banks (Jeucken & Bouma 2001; PricewaterhouseCoopers 2001; Sarokin & Schulkin 1991; Thompson 1998a). Therefore, banks are likely to face environmental risks in their lending businesses which can manifest themselves in direct risk (lender liability), indirect risk (credit risk) and reputational risk (Case 1999; Thompson 1998b, 1998a; Weber, Fenchel & Scholz 2008). To succeed, banks need to ensure that their lending decisions finely accord with their overall risk exposure, including environmental risks (Coulson & Monks 1999; Glantz 2003). Consequently, banks are incentivised to incorporate environmental risks into their lending businesses (Coulson & Monks 1999; Thompson 1998b; Weber, Fenchel & Scholz 2008).

[6] For example, the cases of Maryland Bank & Trust Company and Fleet Factors Corporation in the USA.

[7] Environmental liability refers to the costs related to real property that are environmentally contaminated, such as clean-up costs and remediation costs. Environmental liability is directly imposed on borrowing firms. When the borrowing firms are insolvent, there is a possibility that environmental liability will be borne by banks, which is known as lender liability, resulting from environmental aspects of borrowing firms (Case 1999).

Despite the widely-accepted awareness of the integration of environmental risks in banks' lending businesses, there remains vagueness of banks' environmental responsibilities, and limited research has been conducted into how banks integrate environmental risks into their credit processes. The limited work that has been done is mainly based in the USA, UK, and Europe due to the more advanced debate on the significance of environmental risks to banks and more available environmental information (Ernst & Young 2003; PricewaterhouseCoopers 2001). The globalisation of trade and financial markets develops rapidly and thus lending businesses are not confined by national borders (Jeucken 2001; PricewaterhouseCoopers 2001). As such, there is a growing global consensus that promoting environmental sustainability in banks' lending businesses is an international trend, which requires banks' collaboration at an international level (PricewaterhouseCoopers 2001). This international collaboration requires an understanding of the integration of environmental risks into banks' lending businesses across different countries. Consequently, it is imperative that research be undertaken in countries other than the USA, UK and Europe.

1.1.3 Environmental risks and Australian banks

The Australia's economy is one of the strongest and most resilient in the world, which is manifested by approximately two consecutive decades of solid growth (Department of Foreign Affairs and Trade 2011). The performance of the Australian economy throughout the Global Financial Crisis (GFC) further solidifies the position of the Australian economy as one of the most resilient economies in the global market (Australian Trade Commission 2011b). In Australia's economy, the finance service sector is one of the fastest growing sectors and serves as a major and growing

driver for the strength of Australia's economy[8] (Australian Bankers' Association 2004; Department of Foreign Affairs and Trade 2011). In the Australian finance service sector, banks are the main provider of finance services[9]. Their assets account for around 50% of the total assets of the Australian finance service sector (see Table 1.1). Therefore, the healthy and safe operation of banks' lending businesses has a critical role to play in Australia's resilient economy and contributes to the health and resilience of global markets (Australian Trade Commission 2011b).

Table 1.1 Assets of Banks and Their Weights in Total Assets of all Financial Institutions in Australia

	Banks' assets (other than Reserve Bank) (AU$billion)	Total assets of all financial institutions (AU$billion)	Share of banks' total assets of all financial institutions (%)
December 2005	1451.1	3054.8	47.5
December 2006	1720.4	3636.9	47.3
December 2007	2161.3	4344.0	49.8
December 2008	2672.6	4705.3	56.8
December 2009	2582.0	4568.0	56.5
December 2010	2663.4	4675.0	57.0

Source: Reserve Bank of Australia Bulletin B1: Assets of Financial Institutions 2005-2010

Environmental risks facing banks are likely to threaten the health and safety of banks' lending businesses and the critical role Australian banks can play in global markets (Australian Trade Commission 2011b; Ernst & Young 2003; Thompson 1998b). To this end, it is imperative to conduct a study investigating the integration of environmental risks into banks' lending businesses in the Australian context. In

[8] The finance service sector includes commercial banks, investment banks, venture capitalists, asset managers, multilateral development banks and rating agencies. It is used interchangeably with financial institutions in this study.

[9] 'Banks' refers to Australian domestic banks and does not include the Reserve Bank of Australia, building societies and credit unions.

addition, Ernst & Young (2003) indicate that despite the soundness of Australian environmental legislation, there is some doubt about the extent to which environmental legislation is enforced in Australia; and environmental disclosure regulations are less developed when compared to those in the USA, UK and Europe. These issues further contribute to the importance of investigating environmental practices that Australian banks are undertaking to integrate environmental risks into their lending businesses.

1.1.4 Australian banks' commitments and practices to integrate environmental risks into their lending businesses

Contemporaneously with banks' awareness of environmental risks in their lending businesses, it is widely accepted among environmental agencies, non-government organisations (NGOs), market participants and academics that lending decisions by banks have significant implications for promoting the environmental sustainability of businesses (Case 1999; Environment and Finance Research Enterprise 1995; Jeucken 2001; McKenzie & Wolfe 2004). The explanation for this is that through banks' decision-making regarding whether to lend to a borrowing firm, as well as the terms and cost structures under which a loan is extended to the firm, banks are able to shape public perception about what technologies and development activities they are supporting and advancing (Case 1999; Environment and Finance Research Enterprise 1995; PricewaterhouseCoopers 2001).

The growing worldwide awareness among environmental agencies, NGOs, market participants and academics is exemplified by the United Nations Environmental Programme (UNEP) Statement by financial institutions and the Equator Principles (Ganzi & Huppman 2006; Weber, Fenchel & Scholz 2008). The UNEP Statement by

financial institutions demonstrates that identifying and quantifying environmental risks should be considered as '*business as usual*' for risk management in all operations (United Nations Environment Programme Finance Initiative 1997). In Australia, the Australia and New Zealand Banking Group Limited (ANZ), the Commonwealth Bank of Australia (CBA), the National Australia Bank Limited (NAB) and Westpac Banking Corporation (Westpac) are signatories to the UNEP Statement for financial institutions. The Equator Principles provide financial institutions with a benchmark for identifying, assessing and managing environmental risks (The Equator Principles Association 2011). The Equator Principles, designed for project financing, are also expected to be further integrated into the signatory banks' corporate lending practices. Indeed, this has been suggested by BankTrack (2005a). There are currently three major Australian banks adopting the Equator Principles: ANZ, NAB and Westpac. However, both the UNEP Statement for financial institutions and the Equator Principles are voluntary-commitment based and have no mechanism to ensure their implementation (BankTrack 2003; van Gelder, Herder & Kouwenhoven 2010).

Furthermore, there is a recognised trend worldwide that banks, to some extent, perform environmental risk management (ERM) in their credit processes as part of credit risk management (Greene 2006; Magalhaes 2001; Murray, Kelly & Ganzi 1997; Strandberg 2005). ERM in banks' lending businesses aims to minimize foreseeable environmental risks and mitigate unforeseeable environmental risks to acceptable limits (Magalhaes 2001; Murray, Kelly & Ganzi 1997; Strandberg 2005). Weber, Fenchel and Scholz (2008) indicate that there is a lack of environmental risk control and monitoring for most of the banks and the problem lies in the absence of standardised environmental information and mechanisms to control and monitor

environmental risks. However, apart from the research of Weber, Fenchel and Scholz (2008) based on European banks, there is no other literature providing evidence regarding banks' ERM practices to date.

As a result, despite banks' commitments and current practices for integrating environmental risks into their lending businesses, how and to what extent Australian banks translate their environmental commitments into environmental practices remains a mystery (Ernst & Young 2003; O' Sullivan & O' Dwyer 2009; Thompson & Cowton 2004). Inspired by this scarcity of knowledge, there is a view that further research is needed to expand the depth of knowledge on the approaches banks use to integrate environmental risks into their credit processes (Ernst & Young 2003; Thompson 1998b; Thompson & Cowton 2004).

1.1.5 Associations between environmental risks and bank loan covenants, and the cost of bank loans

Incorporating environmental covenants into bank loan agreements can be one of the mechanisms used to factor environmental risks into banks' corporate credit processes (Case 1999). Environmental covenants are one of the components of bank loan agreements and contain promises by borrowing firms to take or avoid certain environmental-related activities (Asian Development Bank 1993; Bekhechi 1999; Case 1999). There is evidence that environmental covenants are the most frequently used mechanism for controlling and monitoring environmental risks that banks are exposed to in their lending businesses (Environment and Finance Research Enterprise 1995; PricewaterhouseCoopers 2000). However, the work of Case (1999) is the most recent academic research in relation to environmental covenants in bank loan agreements. No research has been done to gauge the impacts of changes to the

regulatory, economic and institutional circumstances on environmental covenants during the last decade. Furthermore, with the exception of the research conducted by PricewaterhouseCoopers (2000), there is no available literature regarding how environmental risks incurred by banks in their lending businesses are associated with bank loan covenants in the Australian context. Most importantly, to the knowledge of this researcher, no research has investigated the form, contents, level (tightness), functions or establishment process of environmental covenants.

Apart from environmental covenants in bank loan agreements, the cost of bank loans can also be used for managing environmental risks by incorporating an environmental risk premium and thus differentiating businesses that expose banks to different environmental risks (Barannik 2001). In contrast to this point of view, PricewaterhouseCoopers (2000) indicate that no Australian bank seems to customise the cost of bank loans in terms of environmental risks in their lending businesses. However, there is concern about the soundness of the results presented by PricewaterhouseCoopers in that the report is primarily desktop review-based with only limited consultation with representatives from Australian banks (PricewaterhouseCoopers 2001). As a result, whether and how environmental risks facing banks are associated with the cost of bank loans in their lending businesses remains unknown.

Therefore, to fill the knowledge gaps identified in section 1.1, this study investigates major Australian banks' integration of environmental risks into their corporate credit processes. Of particular relevance, this study examines how environmental risks facing banks in their corporate lending are associated with bank loan covenants and

the cost of bank loans in the Australian context. The source of data for this study is face-to-face interviews with senior executive bankers.

1.2 Statement of the Research Problem and Research Purpose

As discussed above, despite significant interest in banks' environmental practices for integrating environmental risks into their lending businesses, there is still a lack of research investigating banks' practices for factoring environmental risks into their credit processes. Even less research has been conducted in this area in relation to Australian banks. To the knowledge of this researcher, no research has been published examining the associations between environmental risks in banks' corporate lending and 1) bank loan covenants, or 2) the cost of bank loans in the Australian context. With the view to filling the gaps in previous literature, the purpose of this study is to address the research problem:

> ***How are environmental risks associated with bank loan covenants and the cost of bank loans in Australian banks' corporate lending?***

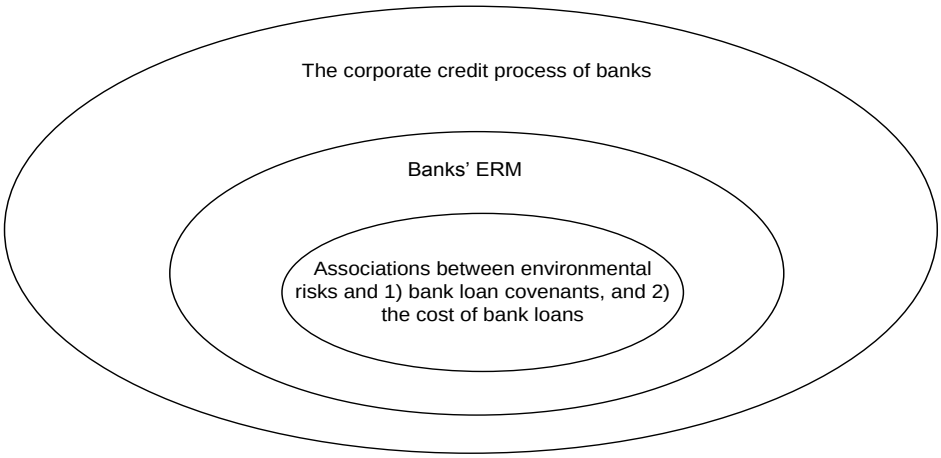
Two research questions (RQ) are developed in order to address this research problem.

> ***RQ1:*** *How are environmental risks in corporate lending associated with bank loan covenants?*
>
> ***RQ2:*** *How are environmental risks in corporate lending associated with the cost of bank loans?*

Before embarking on the exploration on the research questions, several issues need to be clarified, since they form the background information required to address the research questions. These issues include practical knowledge of banks' corporate lending and bankers' interpretations about their corporate lending experiences.

Therefore, they are investigated in the context of providing background information rather than being covered in the research questions. The issues are:

- Definition, dimensions and attributes of environmental risks from banks' perspective, and the determinants of banks' environmental risk exposure;
- Banks' corporate credit processes and ERM in banks' corporate lending (see Figure 1.2); and
- Definition, form, contents, functions and establishment process of loan covenants.



Source: Developed for this study

Figure 1.2 Linkages between the Corporate Credit Processes of Banks, Banks' ERM and the Research Questions[10]

The literature related to the research questions and the above issues is reviewed extensively in Chapter 2. To consolidate the literature related to the research

[10] The establishments of loan covenants and the cost of bank loans are included in corporate credit processes of banks. In addition, as environmental risks impact on banks through lender liability, credit risk and reputational risk, ERM is expected to be undertaken during the corporate credit process. Therefore, this study assumes that the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans are inherent in banks' ERM and corporate credit processes. Aiming to elicit the most informative information and allow bankers to lead interviews, the exploration of the research problem started with an investigation of banks' corporate credit processes.

questions, the theoretical linkages between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans are outlined in the following section (section 1.3). In addition, section 1.3 introduces the research methodology used to answer the research questions and address the research problem.

1.3 Theoretical Perspective and Research Methodology

In this study, agency theory is used to explain the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans. There is a conflict of interest in the relationship between banks (one of the creditors) and borrowing firms, leading to the agency cost of debt (Jensen & Meckling 1976; Smith & Warner 1979). To this end, agency theory suggests the presence of covenants in debt agreements to reduce the agency cost of debt and implies an impact of the residual agency cost of debt on the cost of bank loans.

There is likely to be a conflict of interest related to environmental aspects between banks and borrowing firms when their interests in a given environmental issue are not aligned (Sloep & Blowers 1996). The conflict of interest exposes banks to environmental risks and contributes to the agency cost of debt. Therefore, it is expected that environmental covenants are included in bank loan agreements to align the conflict of interest related to environmental aspects and thus manage environmental risks. Due to the costs of including environmental covenants, the conflict of interest in terms of environmental aspects is not possible to be eliminated and thus there is residual agency cost of debt related to environmental aspects. The residual agency cost of debt is expected to be reflected in the cost of bank loans.

However, there is limited literature regarding how environmental risks facing banks in their corporate lending are associated with covenants and the cost of bank loans. In addition, to the knowledge of the researcher, no relevant research in the Australian context has been published. Therefore, to examine these theoretical linkages, an in-depth understanding of bankers' experiences and perceptions about the impact of environmental risks on covenants and the cost of bank loans in Australian banks' corporate lending is required.

The phenomenological paradigm is the most appropriate for this study, since it focuses on capturing the holistic process of how bankers' experiences and perceptions on the integration of environmental risks into the corporate credit process are perceived and given meaning (Denzin & Lincoln 2011; Patton 2002). Consistent with Patton (2002), this study advocates paradigm-directed methodological appropriateness rather than a paradigm-dictated methodology. Although a quantitative methodology or a mixed methodology could have been employed, a qualitative methodology is considered the most appropriate approach given the research purpose, the research problem and the available sources of data.

This study aims to gain a comprehensive understanding of the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans through investigating bankers' relevant perceptions and experiences. First, bankers' relevant perceptions and experiences are subjective, complex and context-based, and thus they are not able to be predicted and numerically measured as required by a quantitative approach. Second, environmental information regarding the associations in Australia is scarce and subjective. In the first instance, this constrains the statistical analysis of numerical data required by a quantitative approach. In addition,

in-depth investigations and informed interpretations of Australian banks' integration of environmental risks into their corporate credit processes is required to address the research problem. However, this is not able to be achieved by a quantitative approach that rules out emerging insights and interactions between the researcher and the bankers. Third, neither databases nor interviews with bankers can provide the quantifiable environmental information required to address the research problem. Therefore, a quantitative approach is not included in the methodology adopted by this study.

A qualitative methodology emphasises investigating the complexity of the phenomena in their natural settings, capturing relevant emerging insights and thus offering an effective way to generate information that is in-depth, detailed, context based and nuance-considered (Patton 2002). Consequently, a qualitative methodology is the most appropriate approach to facilitating a comprehensive and in-depth understanding of environmental risks in corporate lending and their associations with bank loan covenants and the cost of bank loans.

There are two phases of data collection in this study, which are discussed in detail in Chapter 4. The data for both phases are collected through semi-structured interviews with senior executive bankers from major Australian banks. These bankers are responsible for either corporate lending decision-making or the management of environmental risks in corporate lending. Snowball sampling, one of the strategies of purposive sampling, is adopted due to the difficulty in determining the exact positions and personnel having responsibility for environmental risks in corporate lending. Eight bankers from three of four major Australian banks are interviewed. To facilitate the interviews, two interview checklists are designed for the two phases of

interviewing. The second checklist is based on the first one and revised according to the results of the Phase one interviews and a banker's review.

There is no clear demarcation between data collection and data analysis in qualitative research, and interview data analysis and collection are intertwined in this study (Easterby-Smith, Thorpe & Lowe 2002; Patton 2002). In addition, given the small population and sample size, the qualitative data analysis is manually conducted by the researcher which is underpinned by accepted qualitative methods in the literature (see section 4.4, Chapter 4). Five phases of data analysis (see Figure 4.3) are conducted to produce specific and thick descriptions[11] in a comprehensive and systematic way.

1.4 Definitions for Key Terms

The key terms involved in this study and their definitions are outlined in Table 1.2.

[11] 'Thick' refers to rich, in-depth and context-based.

Table 1.2 Definitions for Key Terms

	Terminology	Definition	Sources
From banks' perspective	**Environmental risks**	Environmental risks arise from the probabilities of environmental risk events occurring caused by borrowing firms' environmental-related activities. Environmental risks have three dimensions: direct risk (lender liability), indirect risk (credit risk) and reputational risk.	(Case 1999; European Bank for Reconstruction and Development 2011; McKenzie & Wolfe 2004; Thompson 1998a)
	Environmental risk management	ERM is the process of systematically identifying environmental risks, analysing the significance of the consequences if environmental risk events occur, the likelihood of their occurring, and borrowers' financial resources to deal with the potential environmental consequences, managing the resulting level of environmental risks to acceptable limits, as well as monitoring environmental risks on an on-going basis.	(Barannik 2001; Magalhaes 2001; Stoklosa 2001)
	Environmental sustainability	Environmental sustainability in banks' lending businesses is largely manifested by banks' ambition to be environmentally sustainable in every facet. It is a dynamic concept, which continues to evolve with the development of the economy and technologies.	(Gerster 2011; Jeucken 2001)
From both banks' and borrowing firms' perspectives	**Environmental covenants**	An environmental covenant in a bank loan agreement is the expression of a borrowing firm's promise to take or to avoid certain environmental-related actions and it is established, to a certain degree, against the borrowing firm's specific environmental issues.	(Asian Development Bank 1993; Bekhechi 1999; Case 1999)
From borrowing firms' perspective	**Environmental management**	Environmental management encompasses all efforts of a borrowing firm to minimize the negative environmental impacts resulting from its operations and products.	(Klassen & McLaughlin 1996)
	Environmental performance	Environmental performance is the result of a borrowing firm's environmental management.	(Case 1999; Praxiom Research Group 2005)

Source: Developed for this study

1.5 Contributions

As mentioned in section 1.1.2, the limited research in relation to the integration of environmental risks into banks' credit processes is mainly based in the USA, UK, and Europe. This can be explained by the more advanced debate on the significance of environmental risks to banks and the availability of a wide range of environmental information in the USA, UK and Europe (Ernst & Young 2003; Schneider 2008; Sharfman & Fernando 2008). However, there are different macroeconomic, institutional and regulatory contexts that Australian banks operate in compared to those in the USA, UK and Europe. In the first instance, the Australian financial market is smaller than that in the USA, UK and Europe (Battellino 1999; Commonwealth of Australia 2002; PricewaterhouseCoopers 2001; Valentine, Ford & Copp 2003). In addition, compared to businesses in the USA, UK and Europe, Australian firms use bank loans as the main source of debt financing rather than public debt (Cotter 1998b; Securities Markets Section 2005; Valentine, Ford & Copp 2003). Furthermore, there is some doubt about the level of enforcement of environmental laws in Australia and the environmental disclosure regulations are less developed when compared to the USA, UK and Europe (Ernst & Young 2003; PricewaterhouseCoopers 2001).

In light of these, as the first study investigating the integration of environmental risks into banks' corporate credit processes in the Australian context, this study contributes to theory in several ways. First, environmental risks from a bank's perspective have been examined in previous literature, leading to a three dimensional construct for environmental risks (Case 1999; Thompson 1998b, 1998a; Weber, Fenchel & Scholz 2008). The three dimensions are direct risk (lender liability),

indirect risk (credit risk) and reputational risk (Case 1999; Thompson 1998b, 1998a; Weber, Fenchel & Scholz 2008). However, limited research has been undertaken into the determinants of environmental risks facing banks and the attributes that differentiate these risks from traditional risks in banks' lending businesses. Most importantly, there is no existing literature on the determinants and attributes of environmental risks in the Australian context. This study attempts to identify the definition, dimensions, determinants and attributes of environmental risks facing Australian banks in their corporate lending.

Second, some researchers argue that environmental risks facing banks are an essential consideration of their credit processes and environmental risks impact on each stage of the credit process (Thompson 1998a; Thompson & Cowton 2004; Ward 1996; Weber, Fenchel & Scholz 2008). However, little attention has been paid to whether and how environmental risks facing banks are considered in each stage of the corporate credit process. To the knowledge of this researcher, this study is the first investigation into whether and how environmental risks are integrated into each stage of Australian banks' corporate credit processes.

Third, the presence of environmental covenants in bank loan agreements for corporate lending has been justified by a number of authors (Case 1999; Environment and Finance Research Enterprise 1995; PricewaterhouseCoopers 2000). The research from Case (1999) provides a specimen of environmental covenants that are mostly used in corporate loan agreements. However, the work by Case is conducted in the last decade and thus the circumstances that it based on are likely to change. In addition, the characteristics of environmental covenants including their form, contents, functions and level (tightness) in bank loan agreements for corporate

lending are rarely investigated due to the confidentiality of bank loan agreements. In Australia, this study is the first to explore the characteristics of environmental covenants by conducting extensive interviews with senior executive bankers in major Australian banks.

Fourth, previous literature suggests that environmental risks facing banks should be factored into the cost of bank loans for the sake of banks' effective risk management (Coulson & Monks 1999; Glantz 2003). However, Case (1999) indicates that the absence of standardised environmental information and concerns about market competitiveness lead to the rare practical case adjusting the cost of bank loans in terms of environmental risks. Particularly, knowledge regarding whether and how environmental risks facing Australian banks in their lending businesses are associated with the cost of bank loans is limited. This study bridges this gap by investigating the association between environmental risks and the cost of bank loans in major Australian banks' corporate lending.

Finally, agency theory provides a rationale for the inclusion of covenants in debt agreements and implications for the adjustment of the cost of debt based on residual risks (Jensen & Meckling 1976; Smith & Warner 1979). This study demonstrates how agency theory has the potential to be applied to the investigation of environmental covenants in bank loan agreements and the association between environmental risks and the cost of bank loans. The results validate the relevance of at least some aspects of agency theory in this context. The following section sets out the research scope, which underlines the focus of this study.

1.6 Delimitations of the Research Scope

There are three predominant delimitations of the research scope. First, banks' lending businesses involve a broad range of activities (lending to small and medium enterprises, and corporate lending) and this study focuses solely on corporate lending. One of the most notable ways that banks affect and are affected by the natural environment is through their corporate lending (Thompson 1998a). Compared with corporate lending which involves considerable amounts of capital, lending to small and medium enterprises has a relatively small impact on the environment and is less affected by it.

In addition, although project financing is likely to have a significant impact on the environment, the Equator Principles provide a systematic global benchmark for banks to manage environmental risks in their project financing. Therefore, this study is conducted only within Australian banks' corporate lending. Syndicated loans are also beyond the scope of this study[12]. There are agency problems between the arrangers and other syndicated participating lenders in that lenders involved in one syndicated loan are usually not informed symmetrically (Mora 2010; Sufi 2007). As such, the agency relationships existing in syndicated loans are multi-level and much more complex than corporate loans provided by an individual bank. The agency problem in the bank-borrower relationship is expected be confounded by that in the arranger-participant relationship.

Second, this study focuses on banks' environmental practices rather than their environmental policies or commitments to environmental initiatives. The reason for

[12] Syndicated loans are provided by at least two lenders and are structured, negotiated and monitored by one or more dominant lenders known as arrangers.

this is that banks' environmental practices are not necessarily reflective of their environmental policies and commitments (Case 1999; Corporate Responsibility Coalition 2005; Rhee & Lee 2003; van Gelder, Herder & Kouwenhoven 2010). Analysing environmental disclosures by borrowing firms and banks is also beyond the scope of this study. While there has been an increase in environmental disclosures by Australian businesses in recent years, the positive information being disclosed far outweighs the negative information suggesting that it is self-laudatory in nature rather than objective (Clarkson, Overell & Chapple 2011; Deegan & Gordon 1996; Deegan & Rankin 1996; Frost & English 2002). As a consequence, environmental disclosures are not necessarily an accurate reflection of the underlying environmental practices of businesses (Clarkson, Overell & Chapple 2011).

Third, this study investigates the integration of environmental risks into the corporate credit process from Australian banks' perspective rather than from borrowing firms' perspective. Therefore, examining the environmental performance and environmental management of borrowing firms is beyond the scope of this study. In addition, it is beyond the research scope to explain in detail how a robust ERM system should be constructed and sustained in Australian banks' corporate lending. Fourth, the emphasis of this study is a qualitative investigation of the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans. Therefore, banks' risk modelling and quantification of environmental risks will not be addressed.

1.7 Outline of the Dissertation

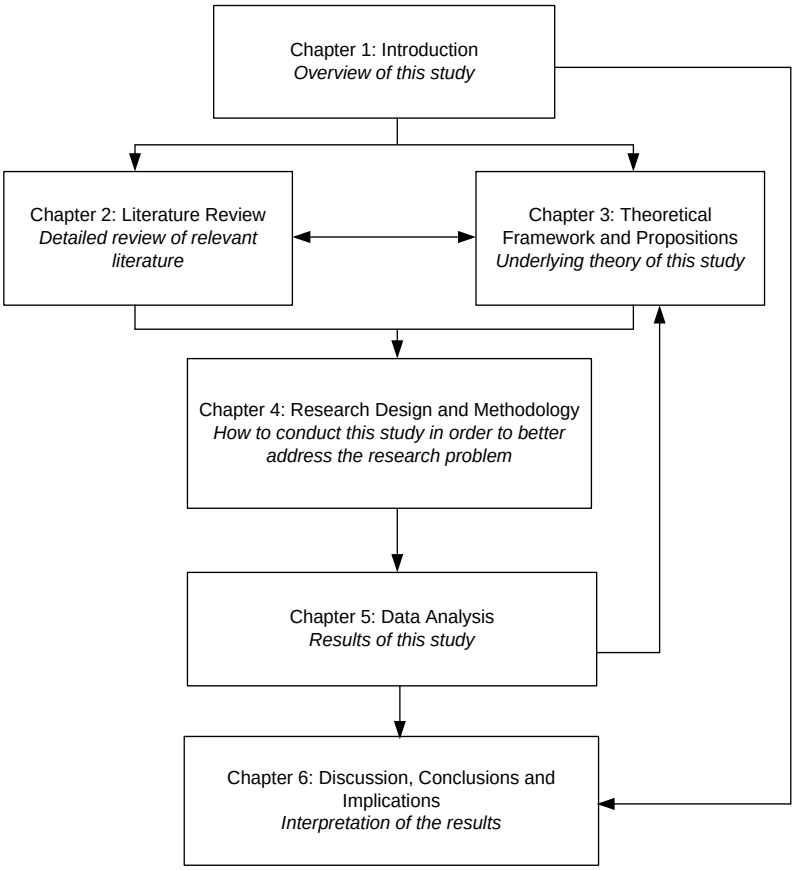
The remainder of this dissertation is organised into five chapters. Chapter 2 examines the relevant literature regarding the integration of environmental risks into banks'

lending businesses. Of particular relevance, it provides a detailed review of the literature regarding environmental risks, environmental covenants and the association between environmental risks and the cost of bank loans.

Chapter 3 discusses agency theory underpinning part of the reviewed literature in Chapter 2, which demonstrates the development of research propositions and thus identifies the theoretical framework. By demonstrating the relevance of agency theory in the relationship between banks and borrowing businesses in terms of environmental risks, Chapter 3 consolidates the literature pertaining to environmental covenants and the association between environmental risks and the cost of bank loans in banks' lending businesses.

Chapter 4 describes and justifies the employed research methodology. It involves the research paradigm underlying the research, thus informing the way in which the research problem and research questions are approached. Chapter 4 also includes a discussion about the research methods for data collection and analysis.

Chapter 5 presents the results and shows the themes and patterns of the collected information. It leads to a conceptual framework for this study. To this end, Chapter 5 presents a comparison between this conceptual framework and the one developed from previous literature and outlined in Chapter 2. The results presented in Chapter 5 also provide the basis for the discussion, conclusions and implications outlined in Chapter 6. Chapter 6 interprets the results in view of previous literature, articulates the implications for theory and practice, and specifies the limitations. Figure 1.3 sets out the structural framework for this dissertation.



Source: Developed for this study

Figure 1.3 Structural Framework of the Dissertation

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

Chapter 1 provides an overview for this study by presenting the background and motivations, the contributions and the research scope. Chapter 2 reviews the literature on environmental risks in corporate lending of banks. Environmental risks have three dimensions, namely, direct risk (lender liability), indirect risk (credit risk) and reputational risk. They are likely to expose banks to significant financial and reputational losses in both the short- and long-term. To protect banks from potential losses, environmental initiatives arise which seek to establish principles for banks to follow when dealing with environmental risks in their lending businesses. The environmental initiatives involving banks and banks' ERM are also discussed in Chapter 2. Of particular relevance to the research problem, this chapter provides a review of the associations between environmental risks facing banks and 1) bank loan covenants, and 2) the cost of bank loans.

This remainder of this chapter is organised as follows (see Figure 2.1). Section 2.2 presents interpretations of environmental risks based on prior literature and places them in the context of this study; it also reviews the determinants of environmental risks facing banks in their lending businesses[13]. Section 2.3 reviews previous research on the United Nations Environmental Programme Finance Initiative (UNEP FI) and the Equator Principles, which banks can voluntarily become signatories of to demonstrate their environmental commitments. Prior literature related to banks' ERM is discussed in section 2.4, while section 2.5 provides information about bank

[13] 'Environmental risks facing banks' and 'banks' environmental risk exposure' are used interchangeably throughout the study. They include the content and the significance of environmental risks in banks' corporate lending.

loan covenants, which serves as background knowledge for the discussion of environmental covenants in section 2.6. Section 2.7 presents the association between environmental risks facing banks and the cost of bank loans. The conceptual framework based on the literature reviewed in previous sections is discussed in section 2.8, which is followed by a summary of the main themes of this chapter. Figure 2.1 provides a diagrammatic view of the structure of Chapter 2.

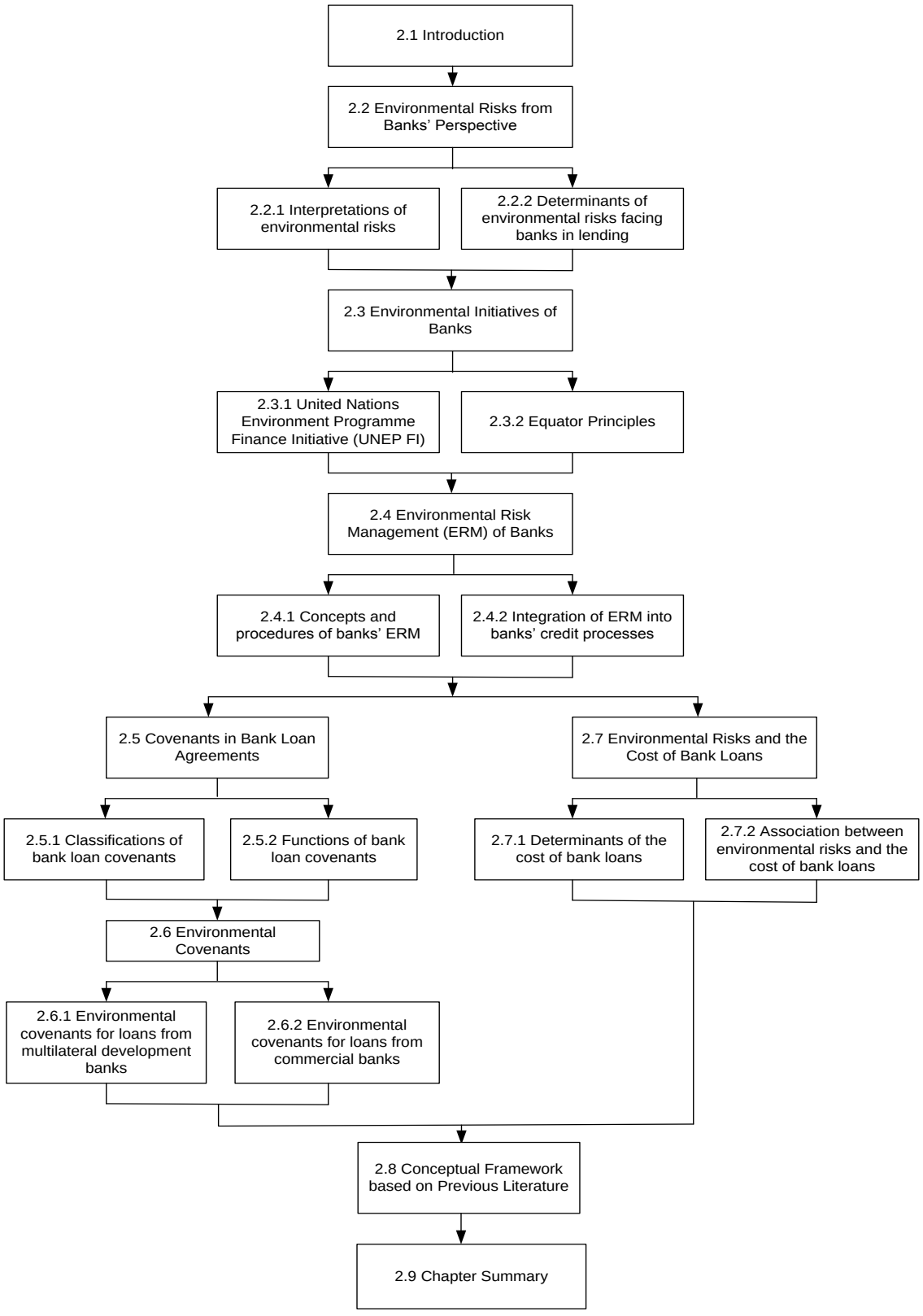


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Figure 2.1 Structure of Chapter 2

2.2 Environmental Risks from Banks' Perspective

Generally, environmental risks arise from the probabilities of environmental risk events occurring (Brady 2005). Depending on various perspectives and foci, environmental risks can have different specific interpretations within a given framework (Barannik 2001; Thompson 1998b). Environmental risks in this study are discussed from banks' perspective.

2.2.1 Interpretations of environmental risks

This section reviews two interpretations of environmental risks in the literature: one is from UNEP and the other is from Case (1999). In addition, how these two interpretations align with each other is articulated. As such, an understanding of the dimensions of environmental risks is obtained and provides background information for the research problem.

Driven by the development of environmental legislation, UNEP groups environmental risks into the following classifications for commercial lenders (Vaughan 1994):

Commercial lending and credit extension (debt) risks

a. *Reduced value of collateralized property*
   - *Cost of cleanup is capitalized into property value*
   - *Property transactions may be prohibited until cleanup occurs*

b. *Potential lender liability*
   - *Cleanup of contamination on collateralized property in which the bank takes an interest*
   - *Personal injures*
   - *Property damages*

c. Risk of loan default by debtors

- *Cash flow problems due to cleanup costs or other environmental liabilities*
- *Reduced priority of repayment under bankruptcy*

Case (1999) also interprets environmental risks from a commercial bank's perspective. His classification is similar to that of UNEP, but is more comprehensive since it takes stakeholders' increasing environmental awareness into consideration. Case (1999) identifies that environmental risks in banks' corporate lending have three dimensions:

Direct risk

When a bank incurs legal environmental liability caused by insolvent borrowers, direct risk arises (Case 1999). Under environmental legislation, environmental liability is likely to be borne by the polluters, the owners, the occupier or the operators of a site where environmental risk events arise (Bates & Lipman 1998; Case 1999; Labatt & White 2002). That is, environmental liability is likely to be put on the parties that have an element of control over an environmental risk event (Case 1999). When a bank forecloses on land or real property held as collateral[14] [15] and the property is environmentally contaminated, the bank is likely to be liable for the contamination (Case 1999; Coulson & Dixon 1995; Coulson & Monks 1999). It is possible that the bank will be required to pay cleaning-up and/or remediation costs for the environmental damage (Case 1999; Ward 1996). These costs can be extremely significant with no relation to the loan principal or the original value of the collateral (Case 1999; Ward 1996).

[14] 'Forecloses on land or real property held as collateral' refers to the proceedings initiated by a bank to repossess the collateral when borrowing firms default on loans.
[15] Collateral is a common feature of a bank loan, which provides security for a bank. It is in the form of specific assets from borrowing firms.

Indirect risk

Indirect risk arises when environmental issues impair a borrowing firm's ability to repay its bank loan (Case 1999). With environmental legislation becoming more restrictive and stakeholders' environmental awareness growing, borrowing firms face increased exposure to environmental costs (Case 1999; Magalhaes 2001). The environmental costs imposed on borrowing firms can be in the form of costs of legal compliance, costs of pollution clean-up, fines for non-compliance with environmental legislation and any loss resulting from reputational damage (Case 1999; Thompson 1998b). These environmental costs have adverse impacts on a firm's profitability and its cash flows which, in turn, reduce the firm's ability to repay its bank loans (Case 1999; Thompson 1998b).

Indirect risk also occurs when there is contamination of land or real property held as collateral or environmental legislation restricting the usage of the assets held as collateral (Case 1999; Thompson 1998b). The contamination or restriction impairs the value and saleability of the collateral. Given that collateral is a borrowing firm's pledge to secure its repayment to a bank, there is a higher exposure to credit risk for the bank when the value and saleability of collateral are impaired (Case 1999; Thompson 1998b). It is worth noting that the probability of a bank's exposure to indirect risk is much higher than that of its exposure to direct risk (Case 1999).

Reputational risk

Reputational risk is likely to emerge when banks extend loans to or have associations with firms that are environmentally irresponsible[16] (Case 1999). Associating with

[16] 'Associations' can refer to any transactions between banks and their borrowing firms in addition to credit extension.

these firms results in more exposure to consumer boycott, media exposures and other stakeholders' scrutiny of banks (Case 1999; Thompson 1998b). As such, it can lead to reputational damage for banks and impair their long-term viability (Case 1999; Ethical Investment Research Service 2006; Thompson 1998b). Therefore, reputational risk also plays a significant role in banks' lending decision-making processes (Case 1999).

Both interpretations of environmental risks from UNEP and Case cover environmental risks resulting from borrowing firms' legal compliance and they are compatible with each other. The UNEP risk classifications *'Reduced value of collateralized property'* and *'Risk of loan default by debtors'* fall into the indirect risk category, which are related to the repayment ability of borrowers and the value of collateral. The risk classification *'Potential lender liability'* can be categorized as direct risk which is defined as the possibility for banks to incur environmental liabilities resulting from borrowing firms' environmental impacts. In addition to environmental risks associated with borrowing firms' compliance with environmental legislation, the interpretation by Case (1999) also embraces reputational risk related to borrowing firms' environmental reputation.

Although reputational risk is considered the most difficult to financially identify and quantify, it has emerged as a major concern for banks in their corporate lending (Case 1999; Thompson 1998b). The reason for this concern is that reputational risk is likely to pose a significant threat to banks' long-term viability (Case 1999; Coulson 2001; Labatt & White 2002; Thompson 1998b). HSBC, one of the world's leading commercial banks, claims that reputational risk is one manifestation of environmental risks in its lending businesses (HSBC 2012). Reputational risk is

considered and assessed as an integral part of HSBC's risk management system and corporate sustainability practices (HSBC 2012). Consequently, the interpretation of environmental risks from Case (1999) which embraces reputational risk is more comprehensive and thorough than the UNEP classifications.

However, there is scant knowledge regarding Australian banks' interpretation of environmental risks in their corporate lending. Following the review of the dimensions of environmental risks in banks' corporate lending, the next section considers factors determining banks' exposure to environmental risks.

2.2.2 Determinants of environmental risks facing banks in lending

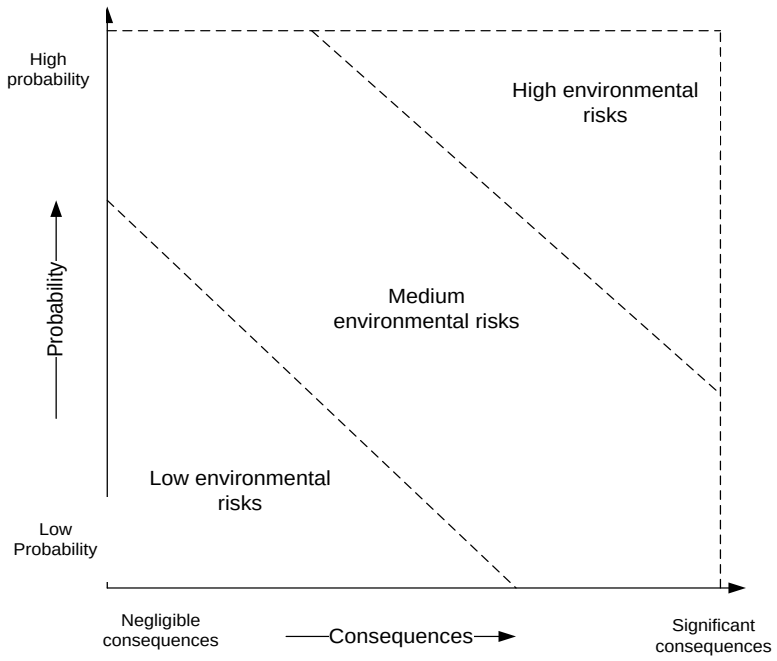
To understand whether and how environmental risks facing banks are associated with bank loan covenants and the cost of bank loans, banks' environmental risk exposure needs to be evaluated. This section provides an understanding of the considerations when evaluating banks' environmental risk exposure in their lending businesses.

According to Bowden, Lane and Martin (2001), risk is the function of the probability of a risk event emerging and the potential consequences of the emerging risk event. Therefore, environmental risks facing organisations are the combination of 1) the probability of environmental risk events occurring, and 2) the magnitude of the potential consequences resulting from the environmental risk events[17] (Barannik 2001; Brady 2005) (see Figure 2.2). From banks' perspective, their exposure to environmental risks in lending businesses is mainly determined by the following

[17] Environmental risk events are those caused by borrowers' environmental activities.

factors[18] (European Bank for Reconstruction and Development 2011; McKenzie & Wolfe 2004):

- the consequences of environmental risk events if they occur;
- borrowing firms' environmental management quality which determines the probability of environmental risk events occurring[19]; and
- financial capability of borrowing firms to deal with their potential environmental consequences.



Source: Adapted from Brady (2005, p.213) and Barannik (2001, p.250)

Figure 2.2 Components of Environmental Risks

[18] The terms and value of loans also influence banks' exposure to environmental risks in their lending businesses. However, in order to obtain generally accepted determinants of banks' exposure to environmental risks, the choice is made not to include an explicit differentiation by characteristics of loans. Therefore, they are beyond the scope of this study and are not discussed in this study.
[19] The definition of borrowing firms' environmental management is as described in Chapter 1.

The potential consequences of environmental risk events

As discussed above, banks are likely to be exposed to environmental liability, loss of loan principal and interest, as well as reputational damage in their corporate lending when an environmental risk event occurs (Case 1999; Labatt & White 2002). Depending on the environmental activities borrowing firms are involved in, the significance of the potential consequences of an environmental risk event is different (European Bank for Reconstruction and Development 2011). Borrowing firms in environmentally sensitive industries present a higher potential for significant environmental consequences than those in environmentally friendly industries (Coulson & Monks 1999; Thompson 1998a). If the potential consequences of an environmental risk event is significant, but the probability of the environmental risk event emerging is low and/or there is sound financial capacity to deal with the potential environmental consequences, banks' exposure to environmental risks will be reduced (Barannik 2001; Brady 2005).

The quality of borrowing firms' environmental management and borrowing firms' financial capacity

Borrowing firms in environmentally sensitive industries do not necessarily expose banks to significant environmental risks that are beyond the acceptable range of banks, provided they have sound environmental management practices in place (Coulson & Monks 1999; Thompson 1998a). There is also an argument that borrowing firms operating in environmentally friendly industries can impose considerable environmental risks on banks if they have inferior environmental management quality (Thompson 1998a).

Case (1999) argues that borrowers' environmental management quality plays a critical role in determining banks' exposure to environmental risks in their corporate lending. This view is supported by Thompson (1998a) in his interview with a senior bank representative. The senior bank representative states that *'...sound environmental management is seen as indicative of quality management, an essential ingredient for a viable and successful business, and this endears the bank towards the borrower'* (Thompson 1998a, p.248).

The quality of borrowing firms' environmental management is influential on the likelihood of environmental risk events occurring (European Bank for Reconstruction and Development 2011; Sharfman & Fernando 2008). It is therefore a key consideration in banks' environmental review for lending decision-making (International Finance Corporation 2012; McKenzie & Wolfe 2004). Coulson and Monks (1999) indicate that the likelihood of environmental risk events actually occurring is low if environmental issues are well-managed by borrowing firms. As such, all other things being equal, banks' exposure to environmental risks will be lower than it otherwise would be if a borrowing firm has sound environmental management (European Bank for Reconstruction and Development 2011).

European Bank for Reconstruction and Development (EBRD)[20] (2011) also indicates that sound financial capability of borrowing firms can offset the potential consequences of environmental risk events in certain circumstances. This is supported by the results provided by McKenzie and Wolfe (2004) who indicate that the capitalisation of borrowing firms in UK banks' corporate lending can compensate for the consequences of the emerging environmental risk events. There is an

[20] EBRD is owned by 63 countries and 2 intergovernmental organisations, namely, the European Union (EU) and the European Investment Bank (EIB) (European Bank for Reconstruction and Development 2012).

assumption that a well-capitalised firm is more capable of dealing with the financial consequences of its environmental impacts (McKenzie & Wolfe 2004). Therefore, McKenzie and Wolfe consider borrowing firms' capitalisation as a reflection of their financial capability.

However, it is not always the case that sound financial capability of borrowing firms can mitigate banks' exposure to environmental risks. Reputation built-up over decades can be damaged overnight if a severe environmental risk event occurs (Broomhill 2007). Therefore, borrowing firms who have the potential for significant environmental impacts (e.g., groundwater contamination) are usually under greater scrutiny from stakeholders and thus are more likely to have vulnerable reputation. By extending loans to these firms, banks are more likely to incur reputational damage (Case 1999; European Bank for Reconstruction and Development 2011). In such circumstances, even if borrowing firms have sufficient financial resources to cover the significant potential environmental consequences and the probability of environmental risk events occurring is acceptable by banks, there are still high environmental risks facing banks (European Bank for Reconstruction and Development 2011).

In the Australian context, there is no research investigating the determinants of banks' exposure to environmental risks in their corporate lending. However, despite the absence of relevant research, there has been an increasing awareness of environmental risks in Australian banks resulting from growing restrictive environmental legislation and stakeholders' increasing environmental awareness (Ernst & Young 2003). This recognition has been exemplified by major Australian banks' involvement in the UNEP FI and the Equator Principles. The UNEP FI and

the Equator Principles are major international initiatives within banks endeavouring to promote environmental sustainability (International Finance Corporation 2007). Both these international initiatives deal with environmental risks facing banks. UNEP FI and the Equator Principles are discussed in section 2.3.

2.3 Environmental Initiatives of Banks

By reviewing banks' environmental initiatives, this section demonstrates banks' commitments to managing environmental risks in banking. It aims to identify whether bank loan covenants and the cost of bank loans are suggested by guidelines and/or principles of these environmental initiatives as mechanisms to manage environmental risks.

It has been acknowledged that banks are of significant importance in advancing environmental sustainability through direct and indirect influences on the firms they finance[21] (Environment and Finance Research Enterprise 1995; O' Sullivan & O' Dwyer 2009). Notable initiatives of banks' responding to environmental sustainability include the UNEP FI and the Equator Principles (Ganzi & Huppman 2006; Weber, Fenchel & Scholz 2008). The signatories of the UNEP FI commit to incorporating environmental risks into all facets of their lending businesses. The Equator Principles provide banks with a benchmark for managing environmental risks in their project financing. However, project financing is only a *'niche market'* in banks' overall financing activities (van Gelder, Herder & Kouwenhoven 2010). It is widely accepted among the signatory banks that environmental risks are associated

[21] Direct influence involves scrutinising a borrowing firm to ensure it complies with applied environmental legislation and/or standards as well as providing the firm with information and consultation to assist with its ERM and environmental practices. Indirect influence refers to a bank's decision regarding whether to lend to a borrowing firm, as well as the terms and cost structures under which a loan is extended to the firm.

with all their lending businesses and thus environmental responsibility should be thoroughly applied in banks' lending businesses (BankTrack 2005b; van Gelder, Herder & Kouwenhoven 2010). Consequently, BankTrack (2005a) suggests that the Equator Principles should be further integrated into the signatory banks' corporate credit processes. Section 2.3.1 and 2.3.2 examine the UNEP FI and the Equator Principles respectively.

2.3.1 United Nations Environment Programme Finance Initiative (UNEP FI)

Inspired by the role banks play in promoting environmental sustainability, UNEP[22] has been working closely with banks globally since the 1990s. In 1991, UNEP, together with Deutsche Bank, HSBC Holdings, Natwest, Royal Bank of Canada and Westpac, launched the concept of the UNEP FI in their endeavour to promote banks' environmental awareness. After several years of development, the UNEP FI was eventually formed by merging the UNEP Financial Institutions Initiative (FII) and the UNEP Insurance Industry Initiative (III) in 2003. There are over 200 signatory financial institutions from approximately 40 countries under the UNEP FI (United Nations Environment Programme Finance Initiative 2011b). The UNEP FI encourages environmental considerations at all levels of lending businesses of financial institutions. Its mission is '*…to identify, promote, and realise the adoption of best environmental and sustainability practice at all levels of financial institution operations*' (United Nations Environment Programme Finance Initiative 2011b, 2011a).

[22] UNEP, established in 1972, is the designated authority of the United Nations system in environmental issues at the global and regional level. Its mandate is to coordinate the development of environmental policy consensus by keeping the global environment under review and bringing emerging issues to the attention of governments and the international community for action (United Nations Environment Programme 2011).

In Australia, ANZ, CBA, NAB and Westpac are the bank signatories to the *UNEP Statement by Financial Institutions on the Environment & Sustainable Development* (referred to as the UNEP Statement in the following sections). The section *'Environmental Management and Financial Institutions'* in the UNEP Statement demonstrates that identifying and quantifying environmental risks should be considered as '*business as usual*'. Therefore, awareness of integrating environmental risks into banks' lending businesses is exemplified by banks' commitment to the UNEP Statement (Thompson & Cowton 2004).

However, compliance with the UNEP Statement is voluntary and there is no mechanism to monitor whether and how signatory banks translate their environmental commitment into practices (van Gelder, Herder & Kouwenhoven 2010). Simply committing to the UNEP Statement is therefore not necessarily representative of environmentally responsible strategies and practices of the signatory banks (Corporate Responsibility Coalition 2005; Rhee & Lee 2003; van Gelder, Herder & Kouwenhoven 2010). In addition, to date very limited research has been undertaken that examines the accountability of the signatory banks' environmental commitment to the UNEP Statement, let alone how these banks translate the commitment into their environmental strategies and practices (Corporate Responsibility Coalition 2005; O' Sullivan & O' Dwyer 2009). Consequently, to what extent signatory banks' environmental practices reflect their commitment to the UNEP Statement is still unclear (Thompson & Cowton 2004). The continuous development of environmental initiatives has been sharply accelerated by the advent of the Equator Principles which reflect the recent trend towards environmental sustainability (Ganzi & Huppman 2006).

2.3.2 Equator Principals

On 4 June 2003, ten leading financial institutions from seven countries launched the Equator Principles which are voluntary-commitment based[23]. The Equator Principles are built on the Performance Standards on Social and Environmental Sustainability of the International Finance Corporation (IFC) and on the World Bank Group Environmental, Health, and Safety Guidelines (EHS Guidelines)[24]. These principles and guidelines that deal with environmental risks facing financial institutions are the most well-known and widely-tested in global markets. The Equator Principles are applied to banks' project financing with total costs of US$10 million or more (The Equator Principles Association 2011).

The introduction of the Equator Principles was the first time that there has been clear principles providing a consistent approach to managing environmental risks for banks' project financing (BankTrack 2005a). The adopters of the Equator Principles aim to (Equator Principles Financial Institutions 2006, p.1):

> *…ensure that the projects we finance are developed in a manner that is socially responsible and reflect sound environmental management practices. By doing so, negative impacts on project-affected ecosystems and communities should be avoided where possible, and if these impacts are unavoidable, they should be reduced, mitigated and/or compensated for appropriately.*

[23] The ten leading financial institutions are ABN AMRO Bank, N.V., Barclays plc, Citi, Crédit Lyonnais, Credit Suisse First Boston, HVB Group, Rabobank Group, The Royal Bank of Scotland, WestLB AG, and Westpac Banking Corporation.

[24] IFC is a member of the World Bank Group, which is responsible for private sector investment. The detail of Performance Standards can be sourced from http://www.ifc.org/ifcext/sustainability.nsf/Content/PerformanceStandards and http://www.ifc.org/ifcext/sustainability.nsf/Content/EHSGuidelines provides EHS Guidelines.

It is estimated that more than 70% of the project financing by volume in emerging markets is under the guidance of the Equator Principles and 73 financial institutions operating in more than 100 countries have adopted the Equator Principles (The Equator Principles Association 2011). In light of this, most of the leading financial institutions worldwide are involved with the Equator Principles[25]. The Equator Principles provide banks with a global benchmark for identifying, assessing and managing environmental risks in their project financing[26]. The Equator Principles have three signatory banks in Australia: ANZ, NAB and Westpac.

When implementing the Equator Principles, the signatory banks are allowed to make some changes where appropriate (Cornwell et al. 2005; Equator Principles Financial Institutions Network 2009; Thomas 2004). In addition, the Equator Principles are voluntary-commitment based, and there is no mechanism to ensure their implementation (BankTrack 2003). As such, it is difficult to identify whether and to what extent signatory banks implement the principles in their project financing (Thomas 2004). This is evidenced in the research conducted by Scholtens and Dam (2007). They indicate that although there is increased awareness of environmental risks among signatory banks of the Equator Principles, limited evidence has been provided on whether these banks' practices are aligned with their environmental policies and commitments.

[25] By saying 'involved with', the underlying assumption is that when signatory financial institutions provide project financing, they will require other participating financial institutions that are not signatories to also comply with the Equator Principles.

[26] Project financing is *'…a method of funding in which the lender looks primarily to the revenues generated by a single project, both as the source of repayment and as security for the exposure. This type of financing is usually for large, complex and expensive installations that might include, for example, power plants, chemical processing plants, mines, transportation infrastructure, environment, and telecommunications infrastructure'* (The Equator Principles Association 2010).

To track the implementation of the Equator Principles, BankTrack (2005a) assesses 26 signatory banks' implementation of the Equator Principles in their project financing. The assessment is in the areas of external reporting and transparency, adoption and application, procedures and standards, implementation challenges and impact. BankTrack finds that the majority of banks do not perform well in their implementation of the Equator Principles. Specifically, the reporting of the implementation of the Equator Principles is limited, leading to poor transparency (BankTrack 2005a). Furthermore, according to a recent assessment report from Mori (2007), the transparency and accountability of the Equator Principles implementation remains problematic. O'Sullivan and O'Dwyer (2009) also indicate that there is a lack of implementation and accountability mechanisms to ensure signatory banks' adherence to the Equator Principles.

In sum, despite the environmental initiatives that suggest the implementation of ERM in banks' lending businesses, a systematic mechanism to effectively implement these guidelines and principles is underdeveloped (Corporate Responsibility Coalition 2005). Similarly, Ernst & Young (2003) conclude that there is a disconnection between Australian banks' recognition of environmental risks and their practices related to ERM in their lending businesses. Literature on banks' ERM is reviewed in the section below.

2.4 Environmental Risk Management (ERM) of Banks

This section provides a review of the concepts and procedures of ERM, and the integration of ERM into banks' corporate credit processes. The review yields an understanding of banks' environmental risk identification, assessment, control and

monitoring. The associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans are implied in this review.

As discussed in section 2.2, banks are likely to be exposed to environmental risks in their corporate lending. There are significant financial and reputational consequences of environmental risks for both the short- and long-term. As such, an increasing number of banks globally have adopted ERM in their lending businesses in order to manage their environmental risk exposure and maintain their long-term development and viability (Greene 2006; Magalhaes 2001; Murray, Kelly & Ganzi 1997; Strandberg 2005). ERM has become a growing international trend among commercial banks, and aims to minimize banks' foreseeable environmental risks and mitigate their unforeseeable environmental risks to an acceptable range (Darrell 2008; Magalhaes 2001).

2.4.1 Concepts and procedures of banks' ERM

In 1995, UNEP sponsored a global survey on environmental policies and practices of financial institutions, which was conducted by Environment and Finance Research Enterprise (1995). The results of this survey indicate that more than 80% of the respondents incorporate certain levels of ERM in their lending businesses. However, most of the ERM activities focus on the evaluation of banks' environmental risk exposure before lending decisions are made, and the least importance is placed on environmental risk monitoring (Environment and Finance Research Enterprise 1995). Murray, Kelly and Ganzi (1997) argue that an ideal ERM should also include post-transaction monitoring which is defined as banks' monitoring practices of environmental risks in the on-going process during the life of loans. Stakeholders' environmental awareness is growing over time, environmental legislation is changing

and banks' understanding of environmental risks in their lending businesses is continually developing (International Finance Corporation 2007; Jeucken & Bouma 2001; PricewaterhouseCoopers 2001; Thompson 1998a). As such, on-going monitoring during the life of loans is of significant importance to capture the changes and respond accordingly (Barannik 2001; Magalhaes 2001).

To this end, Stoklosa (2001) presents a comprehensive view arguing that ERM is a process of systematically identifying the potential environmental risk events, analysing the likelihood of environmental risk events occurring and the significance of the consequences if they occur, and managing the resulting level of environmental risks to acceptable limits. Therefore, ERM within banks is generally considered as a systematic and consistent process of identifying, assessing, controlling and monitoring environmental risks facing banks in their lending businesses.

As for the procedures of ERM, there is relatively consistent view. FDIC (1993, 2006), Barannik (2001) and EBRD (2011) systematically recommend elements of the ERM procedures of banks. Among them, EBRD (2011) sets out the following ERM procedures, which can be considered as a combination of ERM procedures and FDIC and Barannik:

- environmental screening through preliminary identification and assessment of environmental risks; environmental screening assigns initial environmental risk grades (e.g., low, medium and high), which underpins the decision of whether to proceed with a loan application and, if so, to what extent further environmental risk evaluation should be undertaken;

- environmental risk evaluation in terms of the initial environmental risk grades[27];
- controlling banks' exposure to environmental risks to an acceptable range; and
- environmental risk monitoring, which includes on-going monitoring of borrowers' environmental obligation compliance and their business operating performance, and evaluating the potential environmental liabilities before taking title of any real property[28].

However, the majority of the literature regarding ERM in banks' lending businesses focuses on environmental risk identification and assessment [29](Coulson & Monks 1999; Thompson & Cowton 2004). Therefore, there is limited knowledge about banks' environmental risk control and monitoring in the literature. In addition, environmental risk control and monitoring have been largely overlooked by banks in their ERM practices (Environment and Finance Research Enterprise 1995; Weber, Fenchel & Scholz 2008). As such, there is limited knowledge on banks' environmental practices in controlling and monitoring environmental risks. This can be partly explained by the lacking of quality environmental data[30] and appropriate analytical instruments required to quantify and price banks' environmental risk exposure (Coulson & Monks 1999; Ernst & Young 2003). Consequentely, there is an absence of sufficient control and effective monitoring for environmental risks in banks' lending businesses.

[27] Environmental risk evaluation consists of environmental risk identification and assessment.
[28] Borrowers' environmental obligation compliance includes environmental legislation and operating license compliance and their compliance with terms and conditions under loan agreements.
[29] Environmental risk identification and assessment refer to the evaluation regarding the sources of environmental risks, the probability of environmental risks events emerging and the consequences if they emerge.
[30] The criteria for quality information include relevant, rich and standardised.

In Australia, it is well recognised among banks that environmental risks are likely to impact on their lending businesses, which can lead to significant financial and reputational consequences (Ernst & Young 2003; PricewaterhouseCoopers 2001). However, no research regarding banks' ERM in their lending businesses has been published in the Australian context.

Several authors have found that evaluation of environmental risks are being increasingly accepted by banks as an essential part of their credit processes (Thompson 1998a; Thompson & Cowton 2004; Ward 1996; Weber, Fenchel & Scholz 2008). Particularly, Case (1999) argues that the integration of environmental risks into banks' corporate credit processes plays a significant role in the success of banks' ERM. Following this point of view, section 2.4.2 reviews the literature on the consideration of environmental risks in banks' credit processes.

2.4.2 Integration of ERM into banks' credit processes

A global survey on environmental policies and practices of financial institutions by the Environment and Finance Research Enterprise (1995) indicates that financial institutions are more likely to incorporate environmental risks into their credit risk management processes than their overall credit processes. It concludes that 94% of the respondents integrate environmental risks into their credit risk management processes. Ganzi and Huppman (2006) also provide evidence that environmental risks have been incorporated into the credit risk management process by the majority

of the world's large banks[31]. Banks' credit risk management aims to '…*maximise a bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters'* (Basel Committee on Banking Supervision 2000, p.1). According to Weber, Fenchel and Scholz (2008), the process of credit risk management can be categorised into five phases:

- credit risk rating;
- credit risk costing;
- credit risk pricing;
- credit risk monitoring; and
- work out.

Credit risk rating involves conducting a credit evaluation to determine the probability that a borrowing firm will default on a loan and the expected loss given the default (Weber, Fenchel & Scholz 2008). To effectively and efficiently manage credit risk, a costing is needed to quantify banks' credit risk exposure. In the credit risk pricing phase, the identified estimated costs will be translated into a premium charged to the borrower (Weber, Fenchel & Scholz 2008). Monitoring of credit risk is conducted throughout the life of the loan. If there is deterioration of the borrowing firm's capability to repay the loan or it defaults on the loan, a workout program will be put in place. The work out program aims to reduce banks' losses due to credit-related issues and to get the borrowing firm back on track (Weber, Fenchel & Scholz 2008).

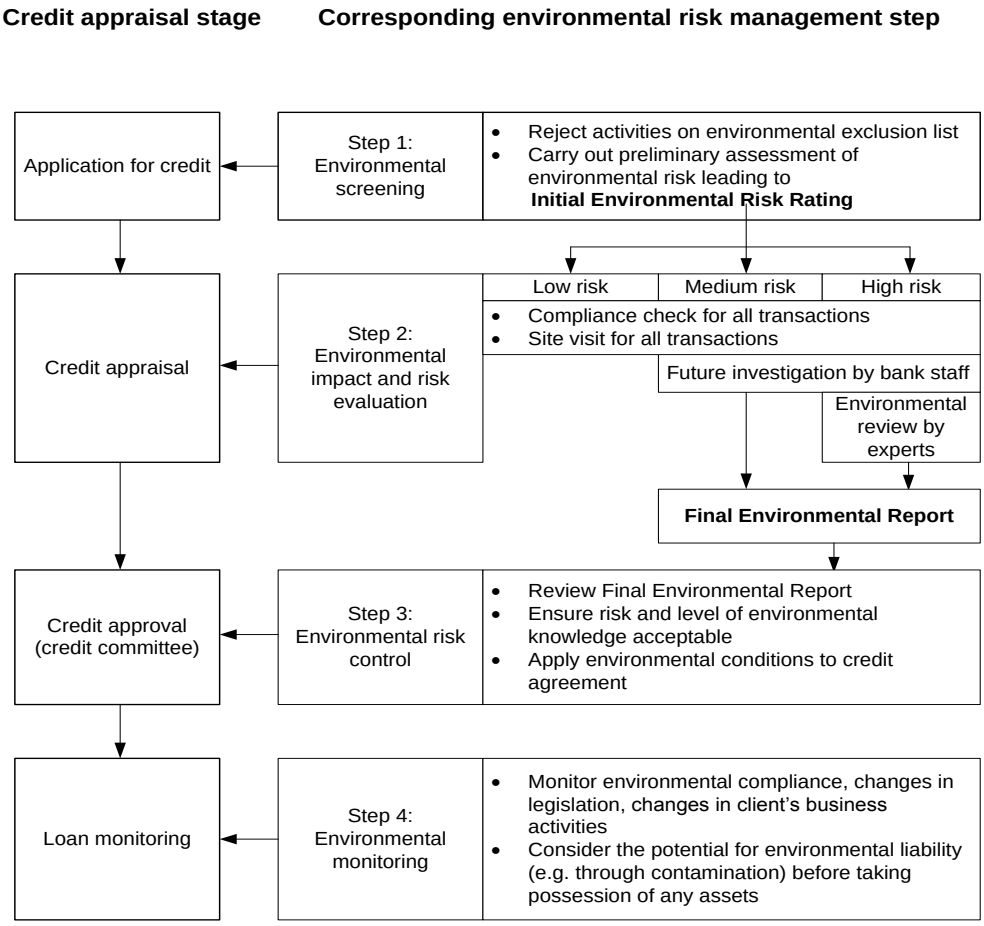
Based on the discussion of the concepts and procedures of ERM in section 2.4.1, it is clear that ERM is compatible with the credit risk management process. Both fall into

[31] The study conducted by Ganzi and Huppman (2006) is based on interviews with 38 leading financial institutions: ABN Amro, Allianz, Banca Intesa, Banco Santander, Bank of America, Bank of Montreal, Barclays, BBVA, BNP Paribas, Chase Morgan, CIBC, Citigroup, CALYON, Credit Suisse, Deutsche Bank, Dexia, Dexia Crediop, FMO, Fortis, HSBC, HVB, ING, KBC, KfW, Morley Asset Mgt., Lloyds TSB, Och-Ziff Hedge Fund, Rabobank, Royal Bank of Canada, Royal Bank of Scotland, SNS Bank, Societe Generale, Standard Chartered, Unicredito Italiano, West LB, Westpac and two others that chose not to be mentioned by name.

the procedures of risk identification, assessment, control and monitoring. In addition, environmental risks impact on every phase of the credit risk management process (Weber, Fenchel & Scholz 2008). Therefore, Weber, Fenchel and Scholz (2008) suggest that environmental risks should be integrated into all phases of the credit risk management process. By fully embedding ERM into the credit risk management process, banks can better manage risks and meet the expectations of their stakeholders (Weber, Fenchel & Scholz 2008).

Although credit risk management is a core component of banks' credit processes (Basel Committee on Banking Supervision 2000), integrating environmental risks into the credit risk management process mainly reflects banks recognition of credit risk related to borrowers' environmental impacts. For the purpose of effective management of banks' overall risk exposure in corporate lending, environmental risks should be integrated into the corporate credit process as *'business as usual'* (Case 1999; Ganzi & Huppman 2006). The EBRD is proactive in promoting environmental sustainability in banks' lending businesses. EBRD (2011) provides a manual[32] for ERM in banks' corporate credit processes by illustrating banks' ERM procedures and the integration of ERM into each phase of the corporate credit process (see Figure 2.3).

[32] This manual is designed for financial institutions supported by EBRD funding and it is also valuable and relevant for other financial institutions (European Bank for Reconstruction and Development 2011).



Source: EBRD (2011): Environmental and social risk management manual

Figure 2.3 Environmental Risk Management and the Corporate Credit Process

Despite the systematic guidance for integrating ERM into banks' corporate credit processes, to the knowledge of the researcher there is no available evidence about how and to what extent this manual is implemented by EBRD's partner banks or by banks beyond EBRD countries of operations[33], including Australia. In addition, Weber, Fenchel and Scholz (2008) indicate that the credit risk rating phase is where environmental risks are most often considered by European banks; while environmental risks are scarcely incorporated in the credit risk costing, pricing and

[33] EBRD countries of operations include Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Estonia, FYR Macedonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Mongolia, Montenegro, Poland, Romania, Russia, Serbia, Slovak Republic, Slovenia, Tajikistan, Turkey, Turkmenistan, Ukraine, and Uzbekistan.

monitoring phases. The reasons for this include: a lack of suitable analytical instruments for quantifying and pricing environmental risks, integrating environmental risks into each phase of the credit risk management process is not economically sound, and banks' credit risk experts do not have sufficient knowledge on environmental risks (Weber, Fenchel & Scholz 2008). Given that credit risk management is a core component of banks' credit processes, there is an implication that the reasons hindering the integration of environmental risks into credit risk management also impede their integration into banks' corporate credit processes. Therefore, due to the absence of any relevant evidence, banks' environmental practices in terms of integrating environmental risks into their corporate credit processes remain essentially unknown.

In the Australian context, Ernst & Young (2003) consult with Australian financial institutions regarding the integration of environmental risks in their credit processes. The results of the consultation show that approximately 90% of the participating Australian financial institutions (banks are included) integrate environmental risks into their credit processes, with 57% of them reviewing environmental risks on a 'regular' or 'routine' basis. Responding to this trend, recognition that environmental risks need to be incorporated in banks' credit processes has increased in Australia (Ernst & Young 2003). However, the actual practice of integrating environmental risks into Australian banks' credit processes remains underdeveloped (Ernst & Young 2003; PricewaterhouseCoopers 2001). As such, more research in this area is needed in the Australian context. As an important mechanism to manage environmental risks, covenants in bank loan agreements are reviewed in the following section (section 2.5).

2.5 Covenants in Bank Loan Agreements

The literature about the classifications and functions of traditional bank loan covenants is reviewed in this section. Although environmental covenants are not in the form of traditional covenants, they are bank loan covenants in nature. To this end, this section provides fundamental knowledge for the discussion of environmental covenants (see section 2.6).

Bank loans usually have covenants imposing requirements or restrictions on borrowing firms with the purpose of protecting the interests of banks (Carey et al. 1993; Mather 1999). Covenants in bank loan agreements are the result of negotiations between banks and borrowing firms, and aim to ensure that bank loans are and will be financially served as anticipated by banks (Fight 2004). They provide frameworks for the financing plans between banks and borrowing firms (Glantz 2003). Therefore, negotiating practical and effective covenants in loan agreements is of significant importance to both banks and borrowing firms (Mather & Peirson 2006). Section 2.5.1 outlines the classifications of bank loan covenants: a) affirmative covenants and negative covenants, and b) financial covenants and non-financial covenants. The functions of covenants are presented in section 2.5.2.

2.5.1 Classifications of bank loan covenants

Generally, covenants in bank loan agreements include affirmative covenants and negative covenants (Booth & Chua 1995; Paglia 2007; Strahan 1999). Affirmative covenants are requirements that borrowing firms have to meet (Carey et al. 1993; Paglia 2007). The requirements can include maintaining borrowing firms' current business and complying with their obligations in terms of applied legislation and

bank loan agreements[34]. Negative covenants are used to restrict borrowing firms from undertaking certain activities which are likely to impair banks' interests in their lending businesses (Booth & Chua 1995; Glantz 2003; Paglia 2007; Strahan 1999).

Financial covenants, based on financial statements[35], are considered as a subset of negative covenants (Carey et al. 1993; Paglia 2007). Financial covenants are defined as '*…covenants that use accounting data in their formulation either as an absolute amount or as the numerator and/or denominator of a ratio'* (Mather & Peirson 2006, p.286). Non-financial covenants are requirements or restrictions on borrowing firms' business activities and/or policies rather than in the form of accounting numbers (e.g., requirement for borrowing firms to report periodically and restriction on their asset sales)[36] (Ramsay & Sidhu 1998).

Based on an examination of a sample of large bank loans in the DealScan database in the year 1989[37], Booth and Chua (1995) find that covenants for large bank loans are mainly negative covenants. Further, they conclude that in large bank loans the negative covenants are usually financial covenants. Although there is little supportive evidence showing that financial covenants take the primary proportion in the applied covenants, financial covenants are one of the typical forms of covenants in bank loan agreements (Moir & Sudarsanam 2007). Paglia (2007) conducts research on the type and frequency of covenants included in large bank loan agreements using 238 large bank loans in the TearSheet database from 1992 to 1994[38]. Paglia (2007) provides supportive evidence that the majority of covenants for large bank loans are negative

[34] Maintaining current business is the requirement for borrowing firms to stay in the same business.
[35] Financial statements include the balance sheet, income statement and cash flow statement.
[36] Non-financial covenants can be either affirmative covenants or negative covenants.
[37] The median loan size of the sample is US $36 million and the mean loan size is $184 million, with 96% of the sample loans above $1million in size.
[38] The median loan size of the sample is US $200 million and the mean loan size is $ 431 million.

covenants and that 96.2% of the sample bank loan agreements include financial covenants.

Financial covenants in bank loan agreements are frequently used since they are directly measurable and verifiable (Paglia 2007). In addition, financial covenants have a lower monitoring cost than non-financial covenants, as there is no incremental cost for banks in accessing the required financial statements (Cotter 1998a). Most of the research regarding bank loan covenants in the Australian context focuses on financial covenants (Cotter 1998a, 1998b; Mather 1999; Mather & Peirson 2006).

Cotter (1998a) examines the frequently used financial covenants in Australian bank loan agreements by conducting interviews with senior corporate bankers from ANZ, CBA, NAB and Westpac and analysing the extracts of 23 actual bank loan agreements. According both to the interviews and the bank loan agreement analysis, Cotter (1998a) finds that leverage and interest coverage covenants are the most frequently used in bank loan agreements for listed Australian firms[39]. Mather (1999) and Ramsay and Sidhu (1998) investigate the usage of financial covenants in Australian bank loan agreements almost at the same time as the research by Cotter (1998a) and present consistent findings[40]. In addition, Mather indicates that the likelihood of including financial covenants in Australian bank loan agreements increases with the loan size and Australian banks are more likely to include financial covenants in loan agreements for unsecured loans.

[39] Leverage ratio=Total liabilities to total tangible assets; Interest coverage ratio=Earnings before Interest and Taxes (EBIT) to interest expenses.

[40] The research by Mather (1999) is based on interviews with 48 bank loan officers from 19 Australian and foreign trading banks and divisions of banks in Melbourne and Sydney. The sample used by Ramsay and Sidhu (1998) comprises 14 Australian bank loan agreements and 2 law firm standard loan agreements.

Mather and Peirson (2006) add to the reliability of the extant information about bank loan covenants by analysing a comparatively large sample of Australian bank loan agreements in a more recent period (41 Australian bank loan agreements dated between 1993-2000). They indicate that the restrictions on interest cover ratios and leverage ratios are the most commonly used financial covenants. This conclusion confirms the findings about financial covenants usage in Australian bank loan agreements in previous research (Cotter 1998a; Mather 1999; Ramsay & Sidhu 1998).

In addition to financial covenants, Ramsay and Sidhu (1998) provide evidence on the use of non-financial covenants in Australian bank loan agreements. They indicate that non-financial covenants are most pervasively used in Australian bank loans in relation to bonding activities, financing, and production and investment[41]. However, the results are based on a small sample (14 bank loan agreements) (Mather & Peirson 2006), and thus difficult to generalise. As this study focuses on environmental covenants which are only employed by a small amount of Australian banks, it is reasonable to have a small sample size. In addition, there is no conclusion about specific non-financial covenants that are the most frequently used in Australian bank loan agreements.

With the exception of Cotter (1998b), Ramsay and Sidhu (1998), Mather (1999), and Mather and Peirson (2006), there has been little research investigating covenants included in Australian bank loan agreements. This can be partly explained by the private nature of bank loan agreements and thereby a lack of available data relevant to bank loan covenants (Mather 1999; Ramsay & Sidhu 1998). To understand why

[41] Non-financial covenants on bonding activities can include requirements for borrowing firms to report periodically, to comply with environmental legislation, to make their asset movements notified, to purchase insurance, to hedge exposures and to provide the application of proceeds from asset sales. Non-financial covenants for production and investment involve requirements for banks' approval of asset purchase, new acquisition and any changes in the nature of business (Ramsay & Sidhu 1998).

banks include covenants in loan agreements, the functions of bank loan covenants are examined in the following section.

2.5.2 Functions of bank loan covenants

The information asymmetry between shareholders and creditors is one of the pervasive imperfections inherent in capital markets. Due to the information asymmetry, firm managers (acting on behalf of shareholders) have an information advantage regarding the borrowing firms, and are likely to undertake activities that benefit shareholders by expropriating wealth from creditors (referred to as banks in this study) (Smith & Warner 1979). Without sufficient control and monitoring, these activities can be either unobservable by banks or beyond their control, thereby leading to wealth transfer from banks to shareholders of borrowing firms (Bazzana 2010; Carey et al. 1993; Mather 1999).

Covenants provide a mechanism for controlling these wealth transfer activities, and thus alleviating the conflict of interest between borrowing firms and banks (Bazzana 2010; Carey et al. 1993; El-Gazzar & Pastena 1991; Paglia 2007; Smith & Warner 1979). Covenants play an ex post role whereby banks have rights/authorities to force borrowing firms into bankruptcy, renegotiate the contract terms, put more restrictions on firms or call in the loans when covenants are breached (Carey et al. 1993; Paglia 2007). These authors also indicate that covenants play an ex ante role by placing requirements or restrictions to constrain borrowing firms' ability to engage in activities that are detrimental to banks' interests (Carey et al. 1993; Paglia 2007). Particularly, through the control of asset substitution and underinvestment, covenants can help enhance borrowing firm value (Carey et al. 1993; Smith & Warner 1979).

The enhanced firm value benefits banks by strengthening their claims on borrowing firms' assets (Carey et al. 1993; Smith & Warner 1979).

Furthermore, bank loan covenants can work as a monitoring strategy for banks during the life of loans (Bazzana 2010; Carey et al. 1993). Covenants provide early warning signals of the deterioration and/or changes of borrowing firms' performance by including a buffer in the restrictiveness of covenants[42] (Cotter 1998b; Day & Taylor 1998; Dichev & Skinner 2002). If covenants are violated, banks have the opportunity to react before the borrowing firms actually default on their loans, and thus banks are able to maintain close scrutiny over the borrowing firms during the life of loans (Dichev & Skinner 2002). Consequently, covenants are considered to be an important mechanism in controlling and monitoring risks for banks in their lending businesses (Bazzana 2010; Paglia 2007).

In the Australian context, Cotter (1998a) indicates that providing early warning signals for current and potential concerns during the life of loans is the purpose of including covenants. The establishment of bank loan covenants is based on banks' risk exposure that results from the likelihood of wealth transferring from banks to shareholders of borrowing firms (Cotter 1998a; Mather 1999). Knowledge about the establishment process of bank loan covenants is of significant importance to the management of environmental risks. However, little is known about this establishment process. Other than the research of Cotter (1998a), there is little literature investigating the functions of bank loan covenants in Australia. In addition, the research of Cotter was conducted before the year 1998 and the macroeconomic,

[42] A buffer in the restrictiveness of a covenant refers to the room between the restrictive level of the covenant and the unacceptable situation of a borrower.

institutional and regulatory situations have changed since that time [43](Mather & Peirson 2006). Banks' knowledge regarding covenants is expected to evolve accordingly.

Apart from traditional risks facing banks, environmental risks, stemming from environmental impacts of borrowing firms, are another risk banks need to consider in their lending businesses[44] (Coulson & Monks 1999; Ernst & Young 2003). Therefore, whether and how bank loan covenants are used for managing environmental risks facing banks in their lending businesses are worth noting. There is research indicating that loan covenants are one of the most powerful and the most widely used tools to manage environmental risks in banks' lending businesses[45] (BankTrack 2003; Environment and Finance Research Enterprise 1995). In this regard, literature about the impact of environmental risks facing banks in their lending businesses on bank loan covenants is reviewed in section 2.6.

2.6 Environmental Covenants

To gain an understanding of whether and how bank loan covenants are used as a mechanism to manage environmental risks, this section reviews the literature about environmental covenants in bank loan agreements. To date, there is limited literature regarding environmental covenants in bank loan agreements. A large part of the available, though limited, literature is on the basis of multilateral development banks, such as the World Bank and the Asian Development Bank (ADB). Literature about environmental covenants used by multiple development banks is reviewed in section

[43] An example of the changes is the Global Financial Crisis (GFC) in the late 2000s and the development of Basel III in response to the GFC.
[44] Traditional risks refer to mainstream risks such as tax, regulatory, credit and operational risk.
[45] Managing environmental risks refers to controlling and monitoring environmental risks in this study.

2.6.1 and section 2.6.2 examines environmental covenants for loans from commercial banks.

2.6.1 Environmental covenants for loans from multilateral development banks

Since the 1970s, the World Bank has been taking environmental issues into its consideration in project financing which takes up a large proportion of the World Bank's activities (Bekhechi 1999). Environmental covenants also started to be included in the World Bank's loan agreements during the 1970s (Bekhechi 1999). The World Bank's Environmental Assessment (EA) policy, making environmental assessment mandatory, was issued in 1989[46]. The EA policy aims to promote environmental sustainability development by preventing, minimizing, mitigating or compensating for any environmental and social concerns (World Bank Group 1999). Since then, environmental covenants have become a common feature of the World Bank's loan agreements for project financing (Bekhechi 1999).

According to Bekhechi, an environmental covenant is defined as the expression of a promise made by borrowers to take environment-related actions. The inclusion of environmental covenants stipulates the borrower *'…to carry out the project with due diligence and due regard to environmental and ecological factors'* (Bekhechi 1999, p.302). They can be in the following forms suggested by the World Bank in its lending businesses (Bekhechi 1999, p.305):

[46] EA is a process whose breadth, depth and type of analysis depend on the nature, scale and potential environmental impact of the proposed project. EA evaluates a project's potential environmental risks and impacts in its area of influence; examines project alternatives; identifies ways of improving project selection, siting, planning, design and implementation by preventing, minimizing, mitigating or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation (The World Bank 2012).

1) *the definition of environmental actions to be taken into the schedule related to project description and implementation, including the establishment of a specific environmental unit, training of staff, recruitment of consultants to advise on environmental issues and solutions;*
2) *the preparation and/or implementation of environmental studies, plans or policies;*
3) *the submission of reports to the Bank at specific periods of project implementation;*
4) *the carrying out of consultation with stakeholders;*
5) *the purchase, installation and operation of specific equipment to fight, control or reduce pollution;*
6) *the enactment of existing or issuance of new legislations, standards and guidelines;*
7) *the enforcement of existing or issuance of new legislation, standards and guidelines;*
8) *provision of resources for environmental purpose;*
9) *carrying out of environmental studies, including environmental impact assessment; and*
10) *the carrying out of consultation of project affected peoples.*

The ADB has also incorporated environmental issues into its lending businesses to encourage sustainable development among its developing member countries[47]. The incorporation can be achieved by employing environmental covenants in bank loan agreements (Asian Development Bank 1993). The interpretation of environmental covenants made by the ADB is *'...undertakings that a borrower makes in accepting a Bank loan, and they reflect the importance that both parties to the loan agreement place on environmental matters'* (Asian Development Bank 1993, p.iii). The undertakings include both requirements for borrowers to take certain actions and restrictions to avoid taking certain actions (Asian Development Bank 1993).

[47] ADB is an international development finance institution whose mission is to help its developing member countries reduce poverty and improve the quality of life of their people. More details can be sourced from http://www.adb.org.

Therefore, it is consistent with and broader than the definition by Bekhechi (1999). The foci of the sample environmental covenants in loan agreements provided by Asian Development Bank (1993) centre around the following items:

(1) issuance of environmental policies;
(2) legislation and regulation compliance;
(3) external standards application, such as international standards and the ADB guidelines;
(4) environmental considerations in project design and implementation;
(5) environmental management system;
(6) clean technologies installation;
(7) budget allocation for environmental purpose;
(8) periodic reporting to the Bank; and
(9) communication with stakeholders.

Based on the above discussion, it is clear that environmental covenants recommended by the World Bank and the ADB have consistent foci which are demonstrated as follows:

- borrowers' issuance of environmental policies;
- periodic environmental reporting and applied legislation and regulation compliance;
- environmental management activities (adoption of environmental management system and/or environmental management practices such as environmental impact assessment);
- financial resources for environmental purpose, application of environmentally friendly technologies; and

- stakeholder communications.

Both Bekhechi (1999) and the Asian Development Bank (1993) argue that the formulation of environmental covenants should be customised to borrowers' circumstances. For the World Bank and the ADB, borrowers refer to borrowing countries. Therefore, borrowers' circumstances can include relevant national environmental strategy and legislation, and/or the strength of national institutions responsible for ensuring the protection and management of the environment.

As a multilateral development bank, the World Bank's loan agreements are between the World Bank and its member countries' governments rather than individual firms, and thus the World Bank works on a different premise from commercial banks (Bekhechi 1999; Sarokin & Schulkin 1991). However, making business profitable is an important feature they have in common and the World Bank's environmental practices have had considerable effect on commercial banks (Sarokin & Schulkin 1991), as has the ADB. According to Jeucken and Bouma (2001), the environmental standards and practices from multilateral development banks play a critical role in promoting environmental sustainability in commercial banks' lending businesses. As such, environmental covenants in loan agreements from the World Bank and the ADB are expected to be models for commercial banks when dealing with environmental risks in lending businesses.

2.6.2 Environmental covenants for loans from commercial banks

Environmental covenants for project financing

Project financing, generally targeting large and expensive infrastructures, plays a critical role in enhancing financing development in the global market. To cope with

the environmental and social issues that project financing may encounter and promote environmental sustainability in project financing, the Equator Principles were developed (The Equator Principles Association 2011). Principle 8, a significant advantage of the Equator Principles, requires the incorporation of environmental covenants in loan agreements of banks' project financing (Equator Principles Financial Institutions 2006). Principle 8 states that:

> *For Category A and B projects*[48]*, the borrower will covenant in financing documentation:*
> *a) to comply with all relevant host country social and environmental laws, regulations and permits in all material respects;*
> *b) to comply with the Action Plan (AP)*[49] *(where applicable) during the construction and operation of the project in all material respects;*
> *c) to provide periodic reports in a format agreed with Equator Principles Financial Institutions (EPFIs) (with the frequency of these reports proportionate to the severity of impacts, or as required by law, but not less than annually), prepared by in-house staff or third party experts, that i) document compliance with the AP (where applicable), and ii) provide representation of compliance with relevant local, state and host country social and environmental laws, regulations and permits; and*
> *d) to decommission the facilities, where applicable and appropriate, in accordance with an agreed decommissioning plan.*
> *Where a borrower is not in compliance with its social and environmental covenants, EPFIs will work with the borrower to bring it back into compliance to the extent feasible, and if the borrower fails to re-establish*

[48] Category A refers to *'Projects with potential significant adverse social or environmental impacts that are diverse, irreversible or unprecedented'*. Category B is *'Projects with potential limited adverse social or environmental impacts that are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures'* (Equator Principles Financial Institutions 2006).

[49] The Action Plan may range from a brief description of routine mitigation measures to a series of documents (e.g., resettlement action plan, indigenous peoples plan, emergency preparedness and response plan, decommissioning plan). The level of detail and complexity of the Action Plan and the priority of the identified measures and actions will be commensurate with the project's potential impacts and risks (Equator Principles Financial Institutions 2006).

compliance within an agreed grace period, EPFIs reserve the right to exercise remedies, as they consider appropriate.

Therefore, the general environmental covenants recommended by the Equator Principles include compliance with all relevant environmental legislation, regulations and guidelines, the implementation of full Environmental Management Plan towards A and B projects as well as periodic reporting on compliance and implementation. However, the Equator Principles are voluntary compliance-based and there is no mechanism ensuring the implementation of these principles (BankTrack 2003; Thomas 2004). Therefore, it is still unclear whether and how banks that adopt the Equator Principles incorporate environmental covenants in their loan agreements. Furthermore, the Equator Principles are designed for banks' project financing. Although the Equator Principles are suggested to be applied into banks' other lending businesses (BankTrack 2005b, 2005a), very little knowledge is available regarding whether and how they are implemented in banks' corporate lending.

Environmental covenants for banks' lending businesses

Environment and Finance Research Enterprise (1995) conducted a global survey on financial institutions' environmental policies and practices in their lending businesses. The results show that 55% of the participants incorporate environmental covenants into their loan agreements. There is also argument that the incorporation of environmental covenants in corporate loan agreements is likely to be effective in mitigating banks' environmental risks exposure, and thus contributes to banks' overall risk minimization (Case 1999). In addition, Case (1999) provides specimen environmental covenants which are suggested to be incorporated into banks' corporate loan agreements (see Appendix 1). The foci of specimen environmental

covenants from Case (1999) are: (1) protecting banks from incurring any direct or indirect environmental liabilities resulting from borrowers' environmental impacts; (2) borrowers' compliance with applied environmental legislation and operating permits; and (3) borrowers' periodic reporting to banks about their environmental activities that could impair their ability to repay the loans. Apart from these most important and commonly used environmental covenants, there are environmental covenants restricting borrowing firms from undertaking certain activities (Case 1999).

By comparison, in addition to borrowers' compliance with applied environmental legislation and periodic environmental reporting, environmental covenants presented by Asian Development Bank (1993), Bekhechi (1999) and the Equator Principles pay considerable attention to borrowers' environmental management practices. The specimen environmental covenants provided by Case (1999) do not include requirements for borrowing firms to undertake environmental management activities. However, Case (1999) indicates that an evaluation of borrowing firms' environmental management practices is required to protect banks from financial losses related to borrowing firms' environmental impacts. Consequently, there is an implication that environmental management practices of borrowing firms attract significant attention from banks in their corporate lending.

The specimen environmental covenants provided by Case can be interpreted as the expression of promises to take or avoid environment-related actions; that is, they are consistent in nature with environmental covenants defined by Asian Development Bank (1993). Accordingly, environmental covenants can be interpreted as: An environmental covenant in bank loan agreements is the expression of a borrowing firm's promise to take or to avoid certain environmental-related actions.

Based on the above discussions, it appears that typical environmental covenants for both multilateral development banks and commercial banks are:

- requirement for compliance with applied environmental obligations (environmental legislation, licence to operate, and/or undertakings in bank loan agreements apart from covenants);
- requirement for periodic environmental reporting to inform banks of borrowers' environmental practices as part of the on-going loan monitoring process; and
- requirement for certain environmental management practices by borrowers.

Accordingly, typical environmental covenants are affirmative non-financial covenants. However, there is little research providing explanations for it and investigating the process of establishing these environmental covenants. In addition, no research has been done examining the effectiveness of the typical environmental covenants in managing banks' environmental risk exposure.

Consistent with Bekhechi (1999) and Asian Development Bank (1993), Case (1999) also indicates that environmental covenants need to be negotiated against borrowing firms' environmental aspects to better protect banks from environmental risks. However, according to Case, the extent that environmental covenants are customised in terms of borrowing firms' specific environmental issues is generally confined to which typical environmental covenants should be included. For example, compliance with environmental legislation is of particular importance to borrowing firms who need environmental authorisations to operate; periodic environmental reporting is especially useful in monitoring environmental concerns identified during environmental due diligence (Case 1999).

Australian evidence on the presence of environmental covenants in bank loan agreements is provided by PricewaterhouseCoopers (2000). The survey by PricewaterhouseCoopers reveals that the most frequently used mechanism by Australian banks to manage their environmental risk exposure is environmental covenants. However, the form, contents, functions and establishment process of environmental covenants[50] in Australian bank loan agreements remain unknown. Apart from the research of PricewaterhouseCoopers (2000), there is no published literature investigating environmental covenants in Australian banks' lending businesses. Consequently, further research regarding environmental covenants in bank loan agreements is needed in the Australian context.

In addition to environmental covenants in bank loan agreements, the cost of bank loans is expected to be used in managing environmental risks by incorporating an environmental risk premium (Barannik 2001). To this end, the impact of environmental risks on the cost of bank loans is discussed in the following section.

2.7 Environmental Risks and the Cost of Bank Loans

Section 2.7.1 demonstrates the determinants of the cost of bank loans; this aims to provide a basis that whether environmental risks are likely to be considered as one of the factors of the cost of bank loans in previous literature. Following this, section 2.7.2 reviews the literature regarding the association between environmental risks facing banks and the cost of bank loans.

[50] The contents of covenants refer to borrowing firms' activities that restrictions or requirements are placed on; that is, what a covenant is about.

2.7.1 Determinants of the cost of bank loans

According to Merton (1974), the price of corporate debt draws essentially on the following items: (1) the required rate of return on risk free debt (e.g., government bonds or very high-grade corporate bonds); (2) the debt agreement terms (e.g., maturity, covenants); and (3) default risk arising from the probability of a firm's failure to fulfil its obligations according to the agreement. Of these items, the determinant of a firm's cost of debt is the firm's default risk (Bhojraj & Sengupta 2003; Longstaff, Mithal & Neis 2005; Merton 1974; Sharfman & Fernando 2008). Default risk derives from the possibility of a borrower's insolvency on its debt and obligations (Crosbie & Bohn 2003). Credit risk is also frequently mentioned in previous literature which mostly refers to '*…the potential that a bank borrower or counterparty will fail to meet its obligation in accordance with agreed terms'* (Basel Committee on Banking Supervision 2000, p.1). In this context, default risk and credit risk can be used interchangeably. This dissertation uses credit risk for consistency, and defines it as the likelihood that a borrowing firm fails to fulfil its obligations on the loan.

Credit risk has been the leading risk for banks and has been the focus of banks' lending businesses (Basel Committee on Banking Supervision 2000; Santomero 1997). Ganzi et al. (1998) also state that borrowers' ability to repay banks in full their principal plus interest obligations is the focus of banks' lending businesses. Firms with higher credit risk are likely to pay a higher cost of bank loans to compensate for the extra credit risk banks incur (Morgan & Ashcraft 2003; Sharfman & Fernando 2008; Strahan 1999). The credit risk facing banks is identified by Case (1999, p.33) as:

- *the customer credit quality, which in turn is measured by the credit grade- an objective assessment of the probability of default by either an internal system or (for investment grade borrowers) the 'rating' of an external credit agency, such as Moody's or Standard and Poor's. Typically, internal system use increasingly complex mathematical models to predict the probability of default, which take into account a combination of quantitative factors (such as balance sheet size and strength, profitability, capital gearing) and qualitative ones (such as management, financial reporting, industry sector prospects);*
- *the degree of loss on default, which is dependent upon the realisation values of collateral/security held. Generally 'default values' for the degree of loss are assumed based upon statistical evidence of actual, historical, realisations and losses.*

Therefore, the determinants of credit risk facing banks include both quantitative factors that are incorporated in banks' internal credit rating models, and qualitative factors requiring banks' subjective judgements[51]. One of the primary quantitative considerations is borrowing firms' financial strengths, such as profitability, cash flow, capitalisation and balance sheet strength. The quality of borrowing firms' management and banks' perceptions towards the industries' prospects are two primary qualitative considerations.

The *Principles for the Management of Credit Risk* developed by the Basel Committee on Banking Supervision (2000) demonstrates that all current and potential credit risk factors need to be identified and assessed to effectively manage credit risk in banks' lending businesses [52]. As discussed in section 2.2, environmental risks facing banks in their lending businesses can impact on banks through credit risk.

[51] Detailed discussions of the factors in determining banks' credit risk are beyond the scope of this study.
[52] According to the interpretation of credit risk from the Basel Committee on Banking Supervision (2000), credit risk can be translated to default risk.

Therefore, as one of the credit risk factors, environmental risks are suggested to be integrated into banks' credit risk management in previous literature (Thompson & Cowton 2004; Weber, Fenchel & Scholz 2008). Consequently, environmental risks are likely to be reflected in the cost of bank loans. Section 2.7.2 examines the association between environmental risks and the cost of bank loans.

2.7.2 Association between environmental risks and the cost of bank loans

Goss and Roberts (2011) examine the relationship between corporate social responsibility (CSR) and the cost of bank loans based on a sample of 3996 loans to 1265 US firms from 1991 to 2006. They conclude that banks punish firms with inferior levels of CSR by charging a higher cost of bank loans. For the worst CSR performers, banks charge 18 basis points more. Goss and Roberts (2011) take CSR as an overall concept and therefore make no conclusion regarding the impact of just environmental risks on the cost of bank loans.

Specifically in terms of the linkage between environmental risks facng banks in their corporate lending and the cost of bank loans, Coulson and Monks (1999) indicate that higher environmental risks facing banks are likely to result in a higher cost of bank loans. They also provide evidence that the National Westminster Bank and the Co-operative Bank offer a lower cost of bank loans for borrowing firms that demonstrate environmental sustainability commitment. The implication is that lower environmental risks facing banks in their corporate lending are likely to result in a lower cost of bank loans for borrowing firms. However, this study is UK-based and it is not clear whether the results can be generalized outside the UK.

In addition, Case (1999) provides theoretical options to have environmental risks facing banks reflected in the cost of bank loans. He states that environmental risks facing banks will be incorporated into the cost of bank loans when one or more of the following conditions occurs:

- influencing the internal credit ratings of borrowing firms;
- influencing the value and saleability of collateral; and
- influencing the grading of industry prospects.

However, Case (1999) indicates that, in practice, environmental risks are rarely integrated in the cost of bank loans. He provides the following explanations. First, due to the lack of relevant environmental data, the financial impact of environmental risks is difficult to fully estimate (Case 1999). As such, the integration of environmental risks into the cost of bank loans is impeded. Second, there is concern that banks are likely to lose their price competitiveness in the loan market if they include an environmental risk premium in the cost of bank loans (Case 1999). The price competitiveness concern is of more importance in explaining why environmental risks are rarely integrated in the cost of bank loans (Case 1999).

In the Australian context, in a study commissioned by the Minister for the Environment and Heritage, PricewaterhouseCoopers (2001) evaluate environmental practices of Australian financial institutions compared to the global trend of environmental sustainability. PricewaterhouseCoopers report that Australian banks are not differentiating the cost of bank loans against environmental risks facing banks. However, this report is based on a desktop review with only limited consultation with representatives from Australian banks (PricewaterhouseCoopers 2001), and thus there is concern that the results are not substantive. With the

exception of the report from PricewaterhouseCoopers (2001), there is no evidence in Australia in relation to whether and how environmental risks facing banks in their lending businesses are related to the cost of bank loans. As such, a proposition is developed to investigate whether and how banks' exposure to environmental risks in their corporate lending are associated with the cost of bank loans. This is discussed in more detail in Chapter 3. The following section develops a conceptual framework based on previous literature reviewed in this Chapter.

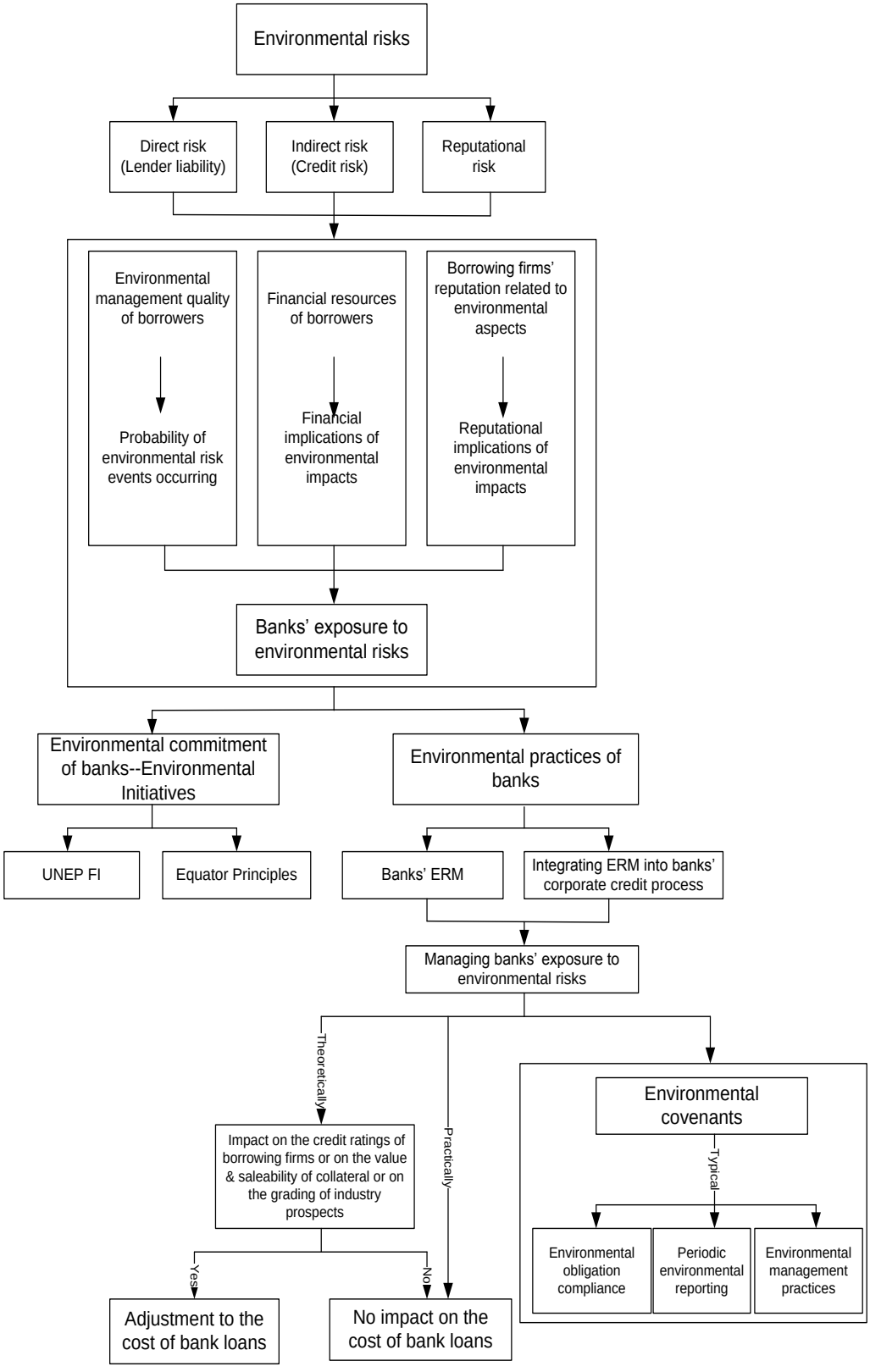
2.8 Conceptual Framework Based on Previous Literature

Based on discussion in the above sections, a conceptual framework is developed (see Figure 2.4). This conceptual framework is based on banks' lending businesses rather than just corporate lending. In addition, most of the evidence shown in this conceptual framework is from banks in the USA, UK and Europe. In spite of these shortcomings, the development of the interview checklists for this study is based on this conceptual framework, and thus it can be tested in interviews with senior executive bankers of major Australian banks. This research aims to form a view about whether this conceptual framework is applicable to Australian banks' corporate lending. A second conceptual framework is developed based on the results derived from the interviews. A comparison of the two conceptual frameworks is demonstrated in Chapter 6, which is inherent in discussion of the results.

The conceptual framework based on previous literature shows that environmental risks impact on banks in their corporate lending through direct risk (lender liability), indirect risk (credit risk) and reputational risk. Banks' exposure to environmental risks is the motivation for banks to integrate environmental risks into their corporate credit processes. To this end, literature regarding the determinants of banks'

environmental risk exposure is reviewed. Banks' environmental risk exposure is a function of the potential consequences of an environmental risk event, the probability of the environmental risk event emerging and borrowing firms' available financial resources to deal with their potential environmental consequences.

Following this, both banks' commitments and their practices of integrating environmental risks into their credit processes are discussed. The UNEP Statement and the Equator Principles represent signatory banks' environmental commitments to dealing with environmental risks. The Equator Principles also provide banks with guidance for ERM in their project financing. Recognising that banks' environmental practices are not necessarily related to their environmental commitments (Corporate Responsibility Coalition 2005; Rhee & Lee 2003; van Gelder, Herder & Kouwenhoven 2010), banks' environmental practices in managing environmental risks are reviewed. Banks' ERM processes and their integration into the corporate credit process are discussed. As an integral part of banks' ERM, the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans are then reviewed.



Source: Developed for this study

Figure 2.4 Conceptual Framework from Previous Literature

Bank loan covenants and the cost of bank loans are expected to be the mechanisms used for controlling and monitoring environmental risks facing banks. Environmental covenants are frequently used as a mechanism to manage banks' environmental risk exposure (Environment and Finance Research Enterprise 1995; PricewaterhouseCoopers 2000). Environmental covenants that are typically included in bank loan agreement include requirements of borrowing firms' environmental obligation compliance, periodic environmental reporting and environmental management practices.

Case (1999) indicates that theoretically environmental risks are reflected in the cost of bank loans through their impact on credit ratings of borrowing firms, value and saleability of collateral, and perceptions towards industry prospects. However, due to the lack of relevant environmental information and banks' concern about their loan price competitiveness in the market, environmental risks do not generally impact on the cost of bank loans in corporate lending (Case 1999).

2.9 Chapter Summary

This chapter synthesizes the previous literature relevant to the research problem. It reviews environmental risks from banks' point of view and their integration into banks' corporate credit processes from a broader perspective. The associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans are also reviewed as a specific research focus. Agency theory underpins these associations and is explained in Chapter 3. Chapter 3 also develops the propositions and outlines the theoretical framework.

CHAPTER 3 THEORETICAL FRAMEWORK AND PROPOSITIONS

3.1 Introduction

Building on the review of the extant literature in Chapter 2, this chapter sets out the theoretical framework and propositions. It commences by restating the research problem and questions. Agency theory is then explained in section 3.3 as it relates to this research. Based on the discussion in section 3.3, section 3.4 applies agency theory to environmental risks. This theory is expected to underpin the presence of environmental covenants and the relationship between environmental risks and the cost of bank loans. Following this, section 3.5 sets out the development of the research propositions. Herein, the theoretical linkages between environmental risks and bank loan covenants and the cost of bank loans are outlined, and the literature underlying the theoretical framework is placed in context. The theoretical framework consolidates the literature about environmental risks, banks' ERM, environmental covenants in bank loan agreements and the cost of bank loans. Figure 3.1 graphically depicts the structure of this chapter.

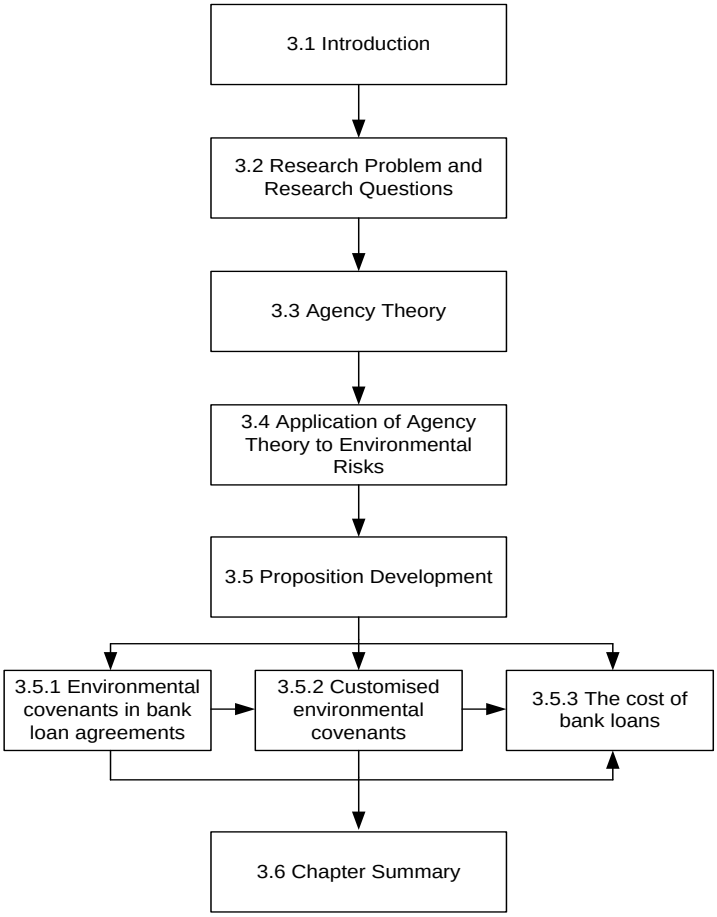


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Figure 3.1 Structure of Chapter 3

3.2 Research Problem and Research Questions

As indicated in Chapter 1, this study aims to address the research problem:

> ***How are environmental risks associated with bank loan covenants and the cost of bank loans in Australian banks' corporate lending?***

Two research questions are developed in order to address this research problem.

RQ1: *How are environmental risks in corporate lending associated with bank loan covenants?*

RQ2: *How are environmental risks in corporate lending associated with the cost of bank loans?*

Agency theory underpins the associations between environmental risks facing banks in their corporate lending and 1) bank loan covenants, and 2) the cost of bank loans. The following section presents a detailed review of agency theory.

3.3 Agency Theory

Agency theory can be used to explain the agency problem that exists in relationship between creditors and shareholders of firms and provides insights for the design of debt agreements governing the agency relationship. According to Jensen and Meckling (1976, p.5), an agency relationship is '*…a contract under which the principal(s) engage the agent to perform some service on their behalf which involves delegating some decision making authority to the agent'*. Given the assumptions of self-interest and asymmetric information, there is a conflict of interest in the agency relationship between creditors and shareholders (Jensen & Meckling 1976; Smith & Warner 1979). This implies that borrowing firms (on behalf of their shareholders) will look after their own interest at the expense of creditors; which is known as the agency problem (Jensen & Meckling 1976; Smith & Warner 1979). According to Smith and Warner (1979), there are four main sources of the interest conflict inherent in the shareholder-creditor relationship:

Dividend payout: The dividend payout problem arises when a borrowing firm's shareholders are paid a liquidating dividend[53] leaving worthless claims for creditors.

[53] Liquidating dividend is a dividend payment to shareholders that exceeds a firm's retained earnings.

Claim dilution: The claim dilution problem arises when the manager of a firm issues additional debt of the same or higher priority. The existing creditors have to share the firm's assets with more claimants than they otherwise would.

Asset substitution: Asset substitution results from the substitution of low risk projects with high risk projects. It transfers wealth from creditors to shareholders of a borrowing firm. Creditors bear all the downside risk of the borrowing firm but do not share in its upside profit (Deegan 2009; Peirson 2010). That is, the losses are diluted by creditors if the borrowing firm fails on risky projects; while if it succeeds creditors only obtain a fixed amount of the profit. To this end, the borrowing firm has an incentive to undertake risky activities.

Underinvestment: According to Myers (1977), the market value of a firm is composed of both the present value of its tangible assets and intangible assets. Intangible assets are in the form of future investment opportunities. A firm with outstanding debt can have incentives to reject a project with positive net present value if the project benefits creditors over shareholders. Underinvestment arises under this condition.

If dividend payout and claim dilution happen during the life of debts, there is less compensation to the loss given default of creditors than there otherwise would be. As such, other things being equal, risks facing creditors are higher. In addition, shareholders of a firm share losses with creditors but keep all the upside profits of projects or investments (Deegan 2009; Peirson 2010). Therefore, they have a strong incentive to increase their risk taking, which is likely to expose creditors to higher risks. Accordingly, the conflict of interest between creditors and shareholders contributes to risks facing creditors.

Agency theory assumes that rational creditors recognise the incentives borrowing firms have for wealth exploitation and thus the corresponding risks facing them. To this end, creditors will forecast the effects of such actions and price debt accordingly (Smith & Warner 1979). The incremental price imposed on the debt as a result is the agency cost of debt (Jensen & Meckling 1976). As a consequence, the agency cost of debt will be borne by shareholders of firms and thus there is an incentive for them to reduce it. Including covenants in debt agreements is an effective way to reduce the agency cost of debt (Jensen & Meckling 1976; Smith & Warner 1979). Covenants are used to manage risks facing creditors by imposing limits on borrowing firms' ability to transfer wealth from creditors to shareholders [54](Jensen & Meckling 1976; Smith & Warner 1979).

One underlying assumption inherent in agency theory is that covenants can induce opportunity costs for borrowing firms by constraining their operating flexibility and investing opportunities (Jensen & Meckling 1976; Smith & Warner 1979). The opportunity costs are part of the agency cost of debt. Agency cost of debt also includes the costs of writing covenants, monitoring borrowing firms' covenant compliance and enforcing covenants in the event of breaching (Jensen & Meckling 1976). There is a trade-off between the benefits resulting from the constraint of covenants and the costs imposed by the covenants (Jensen & Meckling 1976; Smith & Warner 1979).

Therefore, it is impossible for covenants to completely protect creditors from borrowing firms' incentives to benefit shareholders over creditors (Jensen & Meckling 1976; Smith & Warner 1979). The implication is that despite the inclusion

[54] In this study, one of the assumptions is that banks are risk averse. Banks take measures to control their risk exposure with the expectation of reducing the risk exposure as much as they can.

of covenants, they are unlikely to completely align the interests of creditors and borrowing firms and thus there is still residual agency cost of debt resulting from the residual conflict of interest. The implication is that the residual agency cost of debt is reflected in the cost of debt.

As one of the creditors of firms, banks are expected to derive useful insights from agency theory which can be applied in the relationship between themselves and borrowing firms. A discussion of agency theory in the context of this study is presented in the following section.

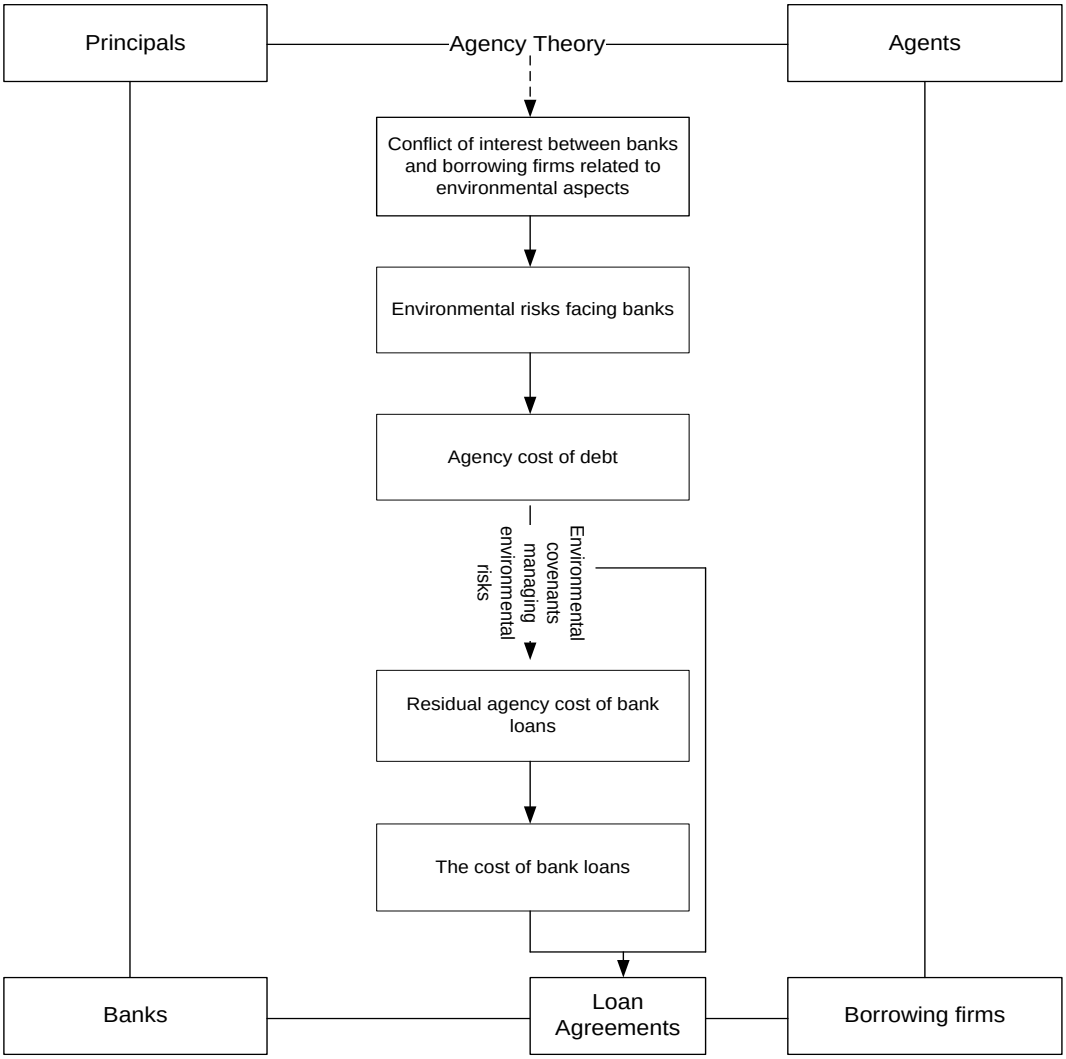
3.4 Application of Agency Theory to Environmental Risks

In relation to bank loans, the banks that provide loans to firms are principals, and the firms acting on behalf of their shareholders are agents. The conflict of interest between banks and borrowing firms leads to the potential for borrowing firms to make decisions benefiting their shareholders over their lending banks. The conflict of interest represents part of the risks facing banks in their lending businesses. However, banks are expected to recognise this interest conflict and thus the potential, and to take actions to reduce the expected costs of this agency problem.

A conflict of interest related to environmental aspects is likely to arise where the interests of the parties involved in a given environmental issue are not aligned with each other (Sloep & Blowers 1996). Take borrowing firms' environmental disclosure as an example. Bankers require more disclosures about borrowing firms' environmental contamination clean-up costs, breaches of environmental standards, and contingent liability data when appraising borrowing firms' credit worthiness (Thompson & Cowton 2004). However, the majority of the environmental

information disclosed by borrowing firms is positive and favourable to borrowing firms' reputation (Clarkson, Overell & Chapple 2011; Deegan & Gordon 1996; Deegan & Rankin 1996; Frost & English 2002). This implies that environmental disclosure is self-laudatory in nature rather than objective (Deegan & Rankin 1996), and it is not necessarily indicative of the underlying environmental performance (Clarkson, Overell & Chapple 2011). Another example is borrowing firms' environmental management. Banks expect high quality environmental management of borrowing firms to reduce the probability of environmental risk events occurring (Coulson & Monks 1999; European Bank for Reconstruction and Development 2011; Sharfman & Fernando 2008). Although borrowing firms are likely to have environmental policies and commitments to managing environmental issues, their environmental management practices are not necessarily reflective of their environmental policies and commitments (Case 1999; Corporate Responsibility Coalition 2005; Rhee & Lee 2003; van Gelder, Herder & Kouwenhoven 2010).

Accordingly, by extending loans to a borrowing firm, banks are likely to face environmental risks that result from any conflict of interest related to the firm's environmental aspects. Therefore environmental risks facing banks in their lending businesses contribute to the agency cost of debt (see Figure 3.2). According to agency theory, one way to reduce the agency cost of debt is to include covenants in bank loan agreements limiting managerial behaviours that benefit shareholders of borrowing firms over banks. Covenants aiming to align the conflict of interest related to environmental aspects are expected to be included in bank loan agreements; that is, environmental covenants that are used to manage environmental risks are expected to be put in place.



Source: Developed for this study

Figure 3.2 Theoretical Framework

Similar to traditional covenants, there are costs attached to the presence of environmental covenants. Accordingly, environmental covenants are unlikely to completely protect banks from environmental risks that result from the interest conflict between banks and borrowing firms in terms of environmental aspects. Thus, there is still a residual agency cost of debt resulting from the residual conflict of interest in terms of environmental aspects. As implied by agency theory, the residual agency cost of debt is expected to be priced into the cost of bank loans. Three

research propositions are developed based on the theoretical framework shown above. These propositions address the research questions and the research problem, and are developed in the following section.

3.5 Proposition Development

Section 3.5.1 articulates the rationale for the presence of environmental covenants in bank loan agreements. Following this, the question of whether environmental covenants are customised in terms of environmental risks facing banks is discussed in section 3.5.2.

3.5.1 Environmental covenants in bank loan agreements

There is a growing body of increasingly restrictive environmental legislation worldwide, as well as increased scrutiny into environmental issues from businesses' stakeholders (Al-Tuwaijri, Christensen & Hughes 2004; Case 1999; Charter & Polonsky 1999; Connors & Sliva-Gao 2008; Environmental Capital Markets Committee 2000; Ernst & Young 2003). As discussed in Chapter 2, under these circumstances environmental risks manifest themselves as direct risk (lender liability), indirect risk (credit risk) and reputational risk in banks' lending businesses.

Lender liability is likely to be borne by banks under environmental legislation, and can take the form of clean-up and/or remediation costs for the environmental damage caused by borrowing firms. Banks are expected to take actions to protect themselves from the costs of lender liability which are usually significant. In addition, banks' environmental risk exposure that results from borrowing firms' environmental activities can lead to incremental credit risk for banks (Case 1999; Greene 2006; Thompson 1998a). On one side, with the growing body of restrictive environmental

legislation, borrowing firms have increased exposure to environmental costs which impair their ability to repay loans according to bank loan agreements (Case 1999). On the other side, if real properties held as collateral by banks are environmentally contaminated, banks will suffer lower security from the impaired value and saleability of the contaminated collateral. There is evidence that banks are increasingly integrating environmental risks into their credit risk evaluation (PricewaterhouseCoopers 2001; Thompson & Cowton 2004; Weber, Fenchel & Scholz 2008).

Environmental risks can impair banks' reputation, which is known as reputational risk. Businesses' reputation is a composition of perceptions from the businesses' key stakeholders who play a significant role in their long-term viability (Fombrun 1996). Given the increasing scrutiny into environmental aspects from businesses' stakeholders, environmental aspects have been an important element of businesses' reputation since the 1990s (Fombrun 1996; Miles & Covin 2000).

Based on the above discussions, environmental risks are an integral part of banks' overall risks that result from the conflict of interest between banks and borrowing firms. According to agency theory, covenants are included in bank loan agreements to alleviate the conflict of interest and thus manage the corresponding risks. Therefore, covenants that are designed to manage environmental risks are expected to be included in bank loan agreements. According to the definition of environmental covenants provided in section 2.6 of Chapter 2, these covenants are known as environmental covenants. Previous literature provides evidence that environmental covenants are one of the most valuable and widely used tools to manage environmental risks in banks' lending businesses (BankTrack 2003; Environment

and Finance Research Enterprise 1995). EBRD (2011) further provides a real example showing the value of environmental covenants (see Appendix 2). The above discussion leads to Proposition 1a:

Proposition 1a: There are environmental covenants in bank loan agreements to manage environmental risks.

3.5.2 Customised environmental covenants

As discussed above, the inclusion of bank loan covenants aims to minimise the conflict of interest between banks and borrowing firms. The conflict of interest in turn depends on borrowing firms' circumstances that are likely to expose banks to risks[55](Mather & Peirson 2006; Moir & Sudarsanam 2007). Bank loan covenants are directly negotiated between banks and borrowing firms and they are renegotiation-flexible (Carey et al. 1993; Dichev & Skinner 2002; Mather 1999; Mather & Peirson 2006; Moir & Sudarsanam 2007). As such, there is an optimal structure of bank loan covenants that effectively manages the conflict of interest between banks and borrowing firms[56] (Mather & Peirson 2006; Moir & Sudarsanam 2007). The optimal structure of bank loan covenants is tailored in terms of banks' risk exposure, and it is demanded by banks and agreed to by borrowing firms[57] (Moir & Sudarsanam 2007).

[55] Borrowing firms' circumstances involve their business nature and financial performance, as well as the situations about the macroeconomics, market, industry and legislation under which borrowing firms are operating.

[56] The structure of bank loan covenants consists of the content and restrictiveness of the covenants. The content refers to borrowing firms' activities that restrictions or requirements are placed on and the restrictiveness is composed of the tightness and number of bank loan covenants.

[57] There is evidence that covenants are calibrated based on banks' risk exposure. El-Gazzar and Pastena (1991) find that there are more restrictive covenants for borrowing firms exposing banks to higher risks, and those exposing banks to lower risks are able to negotiate less restrictive covenants. Cotter (1998b) argues that the choice of covenants to be included in bank loan agreements is based on banks' financial risk exposure.

Accordingly, to effectively manage environmental risks facing banks in their corporate lending, environmental covenants in bank loan agreements are expected to be tailored in terms of banks' environmental risk exposure. As discussed in Chapter 2, banks' environmental risk exposure is determined by the potential consequences of a borrowing firm's environmental issues, and the borrowing firm's management and financial capability to deal with the environmental issues. To a certain extent, Case (1999) provides supporting argument that environmental covenants in corporate loan agreements need to be negotiated based on a firm's specific environmental issues. The above discussion leads to Proposition 1b:

Proposition 1b: Environmental covenants are customised in terms of environmental risks facing banks.

3.5.3 The cost of bank loans

The inclusion of a covenant in a bank loan agreement depends on the trade-off between the marginal benefit from the constraint of the covenant and the marginal cost imposed by the inclusion of the covenant (Bradley & Roberts 2004; Smith & Warner 1979). According to agency theory, including a set of detailed and wide-ranging bank loan covenants that aims to eliminate risks facing banks is extremely costly. Therefore, covenants will not be able to completely protect banks from their risk exposure (Jensen & Meckling 1976). Accordingly, there remain residual risks facing banks even when there are covenants in bank loan agreements. The agency cost of debt corresponding to the residual risks is expected to be reflected in the cost of bank loans.

There are three scenarios in which a relationship between environmental risks facing banks and the cost of bank loans are predicted. Assuming that there are two borrowing firms, and other things being equal, firm A exposes banks to lower environmental risks, while the loan to firm B leads to higher environmental risks.

Scenario 1: Supposing there are environmental covenants in bank loan agreements, but they are not customised to banks' environmental risk exposure in their corporate lending. As discussed above, banks are expected to recognise the conflict of interest related to environmental aspects and therefore they are likely to take actions to minimise the conflict. The costs induced by these actions are part of the agency cost of debt. Other things being equal, higher environmental risks facing banks lead to higher agency cost of debt. The same amount of agency cost of debt is assumed to be reduced by environmental covenants that are not differentiated in terms of environmental risks facing banks. As such, there is less residual agency cost of debt for firm A than that for firm B. The residual agency cost of debt is expected to be priced into the cost of bank loans. Therefore, under this scenario, lower environmental risk exposure is anticipated to result in a lower cost of bank loans and a higher cost of bank loans are expected to be imposed on firm B.

Scenario 2: Supposing there are environmental covenants in bank loan agreements and they are tailored towards environmental risks facing banks. As such, environmental covenants place different constraint on firm A and firm B. Supposing environmental covenants with higher constraint are included in bank loan agreements for firm B. These environmental covenants reduce banks' environmental risk exposure from firm B to the same extent as the residual environmental risk exposure from firm A. Accordingly, there is the same amount of agency cost of debt that

results from the same amount of residual environmental risk exposure. However, the cost of bank loan for firm B is not the same as that for firm A at this point. Higher enforcing costs, monitoring costs and opportunity costs induced by the incremental constraint from environmental covenants for firm B are added to the total agency cost of debt incurred by firm B. These incremental costs offset part of the benefit from including environmental covenants with higher constraint for firm B. Therefore, the total agency cost of debt for firm B is still higher than that for firm A, which indicates a higher cost of bank loans for firm B. Another supposition is that there are environmental covenants with higher constraint for firm B than those for firm A, but banks' residual environmental risk exposure related to firm B is still higher than that resulting from firm A. Under this scenario, firm B would still expect a higher cost of debt than firm A [58].

Scenario 3: Supposing there are no environmental covenants in bank loan agreements. With no environmental covenant mitigating the agency cost of debt, the agency cost of debt resulting from banks' environmental risk exposure will be fully priced into the cost of bank loans. Other things being equal, firm A will have a lower agency cost of debt than firm B. Accordingly, lower environmental risk exposure for banks is likely to correspond to a lower cost of bank loans, ceteris paribus. Together, the above discussions under three scenarios rationalise Proposition 2:

Proposition 2: Environmental risks facing banks are factored into the cost of bank loans.

[58] More residual environmental risk exposure resulting from firm B leads to a higher residual agency cost of debt. There is also incremental agency cost of debt imposed by the incremental constraint of environmental covenants for firm B. Consequently, higher agency cost of debt is incurred by firm B, which leads to a higher cost of bank loans for firm B. As a result, lower environmental risks facing banks are expected to result in a lower cost of bank loans for firm A; higher environmental risk exposure for banks are likely to result in a higher cost of bank loans for firm B.

3.6 Chapter Summary

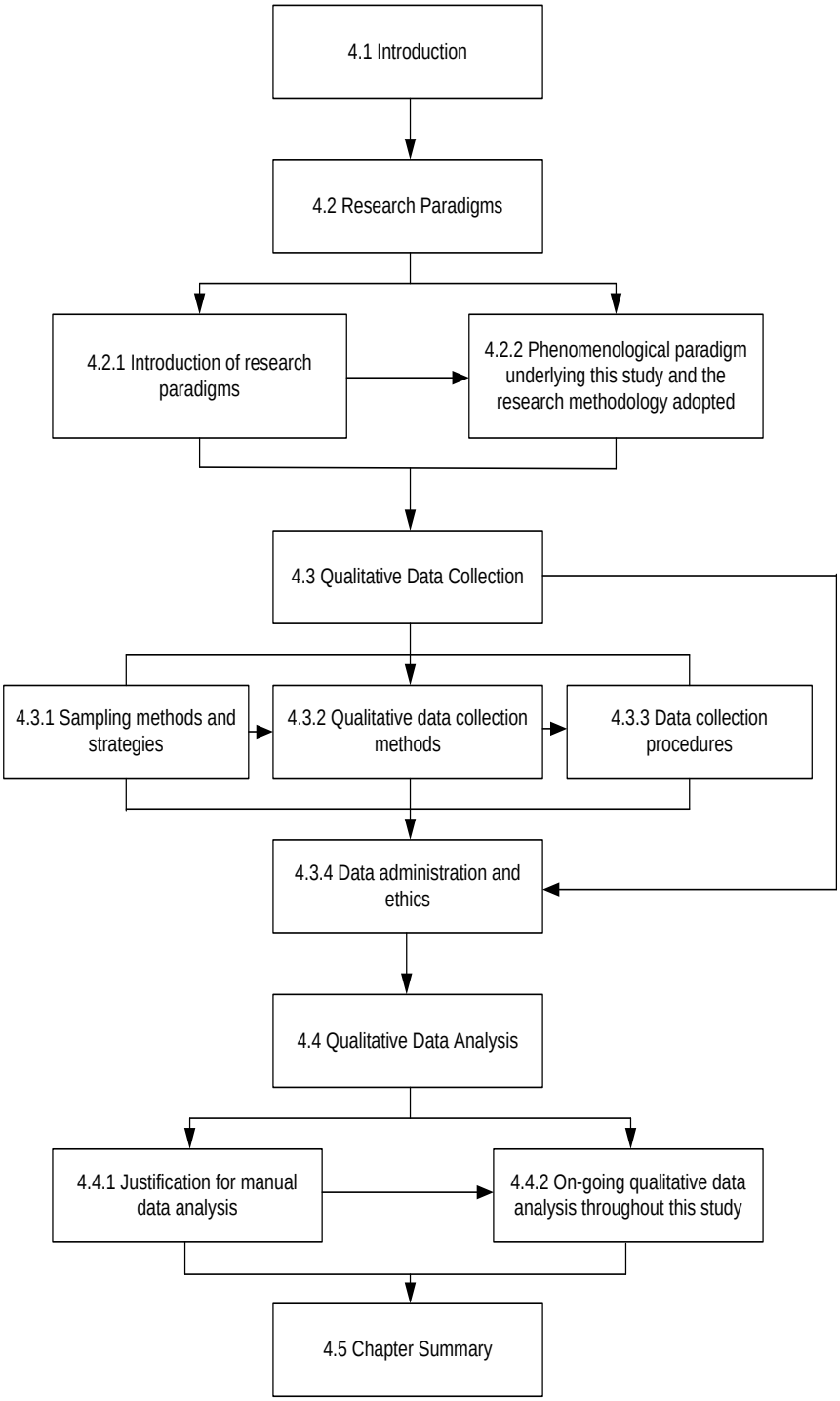
To investigate environmental risks facing banks in their corporate lending, the conflict of interest between banks and borrowing firms is an important consideration. Agency theory is typically used to depict the shareholder-creditor relationship, which rationalises the usage of covenants and the cost of debt as protections for creditors' interests. This chapter develops propositions on the basis that agency theory is likely to be useful in explaining the relationship between banks (creditors) and borrowing firms (on behalf of their shareholders) in relation to environmental risks. The following chapter presents the research methodology used to address the propositions and thus the research problem.

CHAPTER 4 RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

Chapter 3 details the theoretical framework and develops propositions grounded in agency theory and the relevant literature. This chapter outlines the research methodology adopted for this study and the methods employed to address the research propositions and the research questions. The research methodology and the research design are informed by the research paradigm underlying this study[59]. Research paradigms provide conceptual and practical implications for a researcher's methodological choices in a research design (Creswell 2007; Guba 1990). This chapter begins by providing a rationale for the underlying research paradigm, research methodology and research design adopted in this study (Creswell 2007; Guba 1990). Although a detailed examination of research paradigms is well beyond the research scope, a brief overview is presented to provide an adequate context for the approach taken in this study. Following this, the research design is described in terms of how the chosen research methodology is implemented. The research design includes the sampling methods and strategies, methods and procedures for data collection and data analysis. Finally, a summary of this chapter is presented to synthesise the main points of the chapter. The structure of Chapter 4 is outlined in Figure 4.1.

[59] Research methodology is defined as a conceptualised strategy to approach this study. By research design, this study refers to a logical process of how research methodology is empirically implemented in a specific study, which connects research paradigms to practices.



Source: Developed for this study

Figure 4.1 Structure of Chapter 4

4.2 Research Paradigms

This section provides an overview of research paradigms and justifies the utility of the phenomenological paradigm for the purpose of this study. The rationale for using a qualitative methodology is also presented.

4.2.1 Introduction of research paradigms

A research paradigm is a set of basic beliefs or philosophical assumptions about the nature of reality and how researchers can understand that reality from a given research perspective (Creswell 2007; Guba 1990; Guba & Lincoln 1994; Healy & Perry 2000; Myers 2008; Patton 2002). There are long-standing arguments between paradigmatic and methodological dimensions within both qualitative and quantitative approaches to research, leading to inconsistent paradigm categorisations (Patton 2002). Interchangeable usage of different terms intertwined with the long-standing debates has led to confusion about how paradigms should be interpreted, categorised and applied (Easterby-Smith, Thorpe & Lowe 2002). Although a detailed examination of research paradigms and categorisations are beyond the scope of this thesis, a brief review is presented below to justify the research paradigm that underpins this study and the research methods adopted to best address the research problem.

Guba and Lincoln (2005) classify research paradigms into positivism, postpositivism, critical theory, constructivism and participatory, while Neuman (2006) classifies three main research paradigms as positivist, interpretive and critical theory. Neuman (2006) stresses that positivist and interpretive approaches are central to contemporary research. Alternatively, Easterby-Smith, Thorpe and Lowe (2002) argue that there

are two traditional competing research paradigms—positivism and social constructionism[60].

However, there are overlaps between and among the categorisations of research paradigms (Klenke 2008; Patton 2002). Critical theory is composed of feminism, materialism and the participatory paradigm, which represents personal choices of researchers within certain paradigms and thus lacks clarity in distinguishing between paradigms (Creswell 2007; Denzin & Lincoln 2011; Klenke 2008). To some extent, postpositivism can be considered as the modified version of positivism (Guba 1990). Both positivism and postpositivism assert that reality exists externally and objectively, and the knowledge of reality is value-free from researchers and the participants; and they insist reality can be studied in science that ultimately aims to predict and control phenomena (Guba 1990; Guba & Lincoln 2005; Patton 2002). What constructivism, social constructionism and the interpretive paradigm share in common is their phenomenological base. Phenomenology assumes that reality is subjective and thus has multiple co-constructed realities by researchers and participants in natural settings. Therefore, in this study the approach taken is consistent with Patton (2002) who concludes that there are two historically competing research paradigms, positivism and phenomenology (see Table 4.1).

[60] Constructionism has been considered as an interpretive approach consistent with Habermas (1970). It is often used interchangeably with constructivism despite the distinctions between them (Easterby-Smith, Thorpe & Lowe 2002). The discussion regarding the distinctions is far beyond the scope of this study.

Table 4.1 Conceptual Principles for Phenomenological and Positivism Paradigms

Philosophical assumptions	Phenomenological paradigm	Positivism paradigm
Nature of the reality	Reality is subjective and multiple, as seen by participants in the study	Reality is objective and single, and it exists externally
How to know about the reality	Researcher attempts to lessen distance between himself/herself and that being researched Researcher acknowledges that research is value laden and that biases are present, while taking a neutral nonjudgmental stance toward whatever emerging ideas Researcher uses inductive logic, studies the phenomenon within its context, and uses an emerging design	Researchers maintains a distance with that being researched Value, biases and confounding factors can be avoid by manipulations Researcher uses deductive logic and a pre-determined design Knowledge of reality is conventionally summarised in the form of time- and context-free generalizations

Source: Creswell (2007), Patton (2002), Lincoln and Guba (2005; 1985)

Positivism primarily involves deductive reasoning and a quantitative approach. It assumes that the reality is objectively given which is independent of the interest of the researchers and the instruments used by the researchers (Easterby-Smith, Thorpe & Lowe 2002; Guba & Lincoln 1994; Myers 2008). Researchers holding positivism assert primarily quantitative measurements and analyses towards the phenomena under study, as well as cause-effect relationships (Denzin & Lincoln 2011; Patton 2002). It typically emphasizes a pre-determined research design within which the generalisations of knowledge are deductive and time- and context-free (Guba 1990; Guba & Lincoln 1994). Given the nature of this study, a quantitative deductive study underpinned by a positive paradigm is not appropriate.

By comprarision, the phenomenological paradigm assumes that the social reality subjectively exists and the knowledge of the reality is constructed through the interactions between researchers and the participants in natural settings (Klenke 2008;

Patton 2002). Therefore, researchers with a phenomenological paradigm focus on holistically understanding the phenomena under study by inductively investigating how experiences regarding the phenomena are perceived and given meaning within context (Healy & Perry 2000; Maxwell 2005; Patton 2002). Thus, a phenomenological paradigm is best suited to an emerging research design that uses inductive and qualitative approaches as is the case in this study.

4.2.2 Phenomenological paradigm underlying this study and the research methodology adopted

Justification of the phenomenological paradigm underlying this study

The approach taken in this study sits within a phenomenological paradigm which informs the legitimacy and rationale of this study (Easterby-Smith, Thorpe & Lowe 2002; Patton 2002). The researcher's philosophical assumptions to the social world are consistent with the phenomenological paradigm. This study seeks an in-depth understanding of whether and how environmental risks are associated with covenants and the cost of bank loans in corporate lending by Australian banks. This understanding requires the researcher to interpret bankers' experiences of corporate loan extension and for those interpretations to be as close to the constructions originally presented by the bankers as possible. To achieve an informed and sophiciticated interpretation of bankers' experiences and perceptions, the researcher needs to put herself *'in other person's shoes'* which suggests close personal interactions with the participating bankers (Patton 2002). This is consistent with and reflective of a phenomenological paradigm which focuses on capturing the holistic process of how people's experiences are perceived and given meaning (Denzin & Lincoln 2011; Patton 2002). In addition, given that the data are sourced from

participating bankers' perceptions using face-to-face interviews, it is not possible that the researcher can detach herself from the process of collecting information and the interpretation of the information. As such, this study does not fit into the principles of positivism which emphasise objectivity and value-free interpretations.

This study is based on Australian banks which sit in a different context from their counterparts in the USA, Europe and UK. Although environmental legislation in Australia is strict, there is some doubt about the extent to which it is implemented, and environmental disclosure regulation is less developed when compared to that in the USA, Europe and UK (Ernst & Young 2003; PricewaterhouseCoopers 2001). In addition, the Australian banking market is smaller and has relatively fewer players compared to that in the USA, Europe and UK (PricewaterhouseCoopers 2001). The unique context is critical for the comprehensive understanding of the integration of environmental risks into Australian banks' corporate credit processes. Furthermore, the awareness of environmental risks among Australian banks is increasing and the significance of environmental risks to banks is developing (Ernst & Young 2003). This is expected to impact on the role environmental risks play in Australian banks' corporate credit processes. Therefore, by focusing on the dynamic process of how bankers perceive and make sense of their experiences, the phenomenological paradigm better underpins this study than positivism which stresses time and context-free generalisations (Patton 2002).

Justification of the qualitative methodology adopted

Committing to the phenomenological paradigm does not necessarily mean a qualitative methodology is employed and a quantitative methodology is excluded. Unconsciously adhering to methodology that is dictated by a paradigm is likely to

result in a reduction of adaptability and appropriateness of the methodology, and thus lead to bias (Patton 2002). The researcher advocates a paradigm-directed methodological appropriateness rather than a paradigm-dictated methodology, which is consistent with the view of Patton (2002). This study could have been conducted by employing a quantitative methodology or a mixed methodology. However, given the research problem and that the available sources of data do not lend themselves to a purely quantitative methodology or a mixed methodology, a qualitative methodology is considered the most appropriate approach.

First, to address the research problem, descriptions are required of Australian banks' corporate credit processes, environmental risks, as well as the impact environmental risks have on covenants and the cost of bank loans. These descriptions are obtained by investigating and interpreting bankers' relevant perceptions and experiences. A qualitative approach offers effective ways to generate information which is in-depth, detailed, context based and nuance-considered (Patton 2002). To this end, a qualitative approach enables comprehensive and in-depth investigations and informed interpretations of phenomena in relation to the research problem.

Second, a qualitative approach is characteristics of exploration and discovery, and focuses on responsiveness (Denzin & Lincoln 2011; Patton 2002). Accordingly, a qualitative approach is especially appropriate for research which is new or has little relevant previous literature (Myers 2008). There is limited research about banks' evaluation of environmental risks, as well as the associations between environmental risks and bank loan covenants and the cost of bank loans in the Australian context. In addition, databases of relevant environmental data are scarce in Australia. By

following a qualitative approach, exploration of participating bankers' perceptions, experiences and judgement regarding the research problem are allowed.

Third, the perceptions, judgement and interpretations of bankers about their experiences of integrating environmental risks into the corporate credit process are subjective, complex and not observable. That is, the information required to address the research problem is in the form of contextualised data rather than standardised numerical data. In addition, they are grounded in the macroeconomic, institutional and regulatory contexts that Australian banks operate in. Therefore, they are difficult to be pre-determined, numerically measured and controlled. A quantitative approach that aims to statistically analyse numerical data and identify causes of an observed phenomenon by controlling all relevant variables is as a result not applied (Creswell 2009; Neuman 2006). Furthermore, the understanding of bankers' perceptions, judgement and interpretations about their relevant experiences requires the researcher's personal interaction with the participating bankers in the natural setting. However, the personal interaction is excluded by a quantitative approach.

Fourth, Australian banks operate in different macroeconomic, institutional and regulatory contexts to their counterparts in the USA, Europe and UK. In addition, the contexts are continually developing. This is likely to influence the way banks integrate environmental risks into their corporate credit processes, and thus new insights are expected to emerge as this study unfolds. Therefore, to better address the research problem, the researcher was required to be open to any relevant emerging information and be immersed in the natural setting and the extracted information. A quantitative approach from a scientific view stresses deduction, making the context and meanings masked (Lincoln & Guba 1985; Marshall & Rossman 2006; Patton

2002). With this approach, it is likely that this study would ignore highly relevant information that are not predicted and quantified in terms of the ways bank loan covenants and the cost of bank loans are established and how environmental risks are integrated in the corporate credit process in the Australian context (Lincoln & Guba 1985; Marshall & Rossman 2006; Patton 2002). In addition, emerging insights would be ruled out in a quantitative approach due to its close-ended questions and the structured format in data collection (Creswell 2009; Neuman 2006). By comparison, a qualitative approach is more appropriate which emphasises understanding the complexity of the phenomena under investigation in their natural settings and capturing relevant emerging insights (Patton 2002).

Fifth, a mixed methodology is not appropriate for this study either. This study originally planned to adopt a mixed methodology and use a two-stage sequential exploratory strategy. This approach would have commenced by exploring the research problem through a qualitative approach, followed by subsequent quantitative analysis (Creswell 2009). However, as this study unfolded, the quantitative component was deemed impractical and not applicable to this study. In the first instance, there are very few databases that provide standardised relevant environmental data in Australia (Ernst & Young 2003). Furthermore, the interviews with senior executive bankers from major Australian banks revealed that the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans are not linear and the constructs are difficult to quantify. Therefore, it is not possible to collect quantifiable environmental data related to the research problem from participating banks. Accordingly, attempting to add a quantitative component to the methodology is unlikely to contribute to addressing the research problem (*Encyclopedia of research design* 2010).

Last but not least, although there are initial propositions and a predetermined focus for the interviews deriving from previous literature and agency theory, it does not mean this study should adopt a quantitative methodology or a mixed methodology. According to Patton (2002), *'openness through inductive analysis'* is a strategic ideal of a qualitative approach rather than its characteristic, and therefore conducting a study inductively in practice is a matter of degree. A qualitative approach is primarily inductive, while a deductive approach is allowed to be combined as appropriate (Patton 2002). Therefore, this study lends itself to a qualitative methodology rather than a quantitative methodology or a mixed methodology. Under the guidance of a qualitative methodology, the next section discusses the collection of qualitative data.

4.3 Qualitative Data Collection

A qualitative approach is used to investigate how environmental risks facing banks are associated with bank loan covenants and the cost of bank loans. This is achieved by gaining an understanding of bankers' experiences and perceptions in integrating environmental risks into the corporate credit process (Creswell 2009). The qualitative data collection for this study includes the following elements: 1) sample selection which sets the boundaries (section 4.3.1); 2) qualitative data collection through face-to-face semi-structured interviews (section 4.3.2); 3) qualitative data collection procedures that show a flowing picture of data collection for this study (section 4.3.3); and 4) data administration and ethics (section 4.3.4).

Sampling is fundamental to the research design and a well-defined sampling process plays a significant role in determining the quality of the research (Marshall & Rossman 2006). Therefore, sampling decisions should be made at the outset of the

research design and thus are the starting point of the data collection procedures in this study (Marshall & Rossman 2006).

4.3.1 Sampling methods and strategies

This study adopts a qualitative approach from a phenomenological perspective, which indicates a procedure of studying information-rich bankers in-depth through extensive interactions between the researcher and the bankers (Patton 2002; Rubin & Rubin 2005). A purposive sampling method and a snowball sampling strategy were employed to identify the most knowledgeable bankers who are best able to illuminate the research questions.

Justification of the usage of a purposive sampling method and a snowball sampling strategy

The purpose of this study is to generate extensive understanding about environmental risks in banks' corporate credit processes and particularly their associations with bank loan covenants and the cost of bank loans. Therefore, the research requires the selection of bankers who are experts in the corporate credit process and the integration of environmental risks into this process (Neuman 2006; Patton 2002). Targeting a group of bankers that represent a statistically accurate sample of the entire population of bankers for generalizations is not the focus of this study. The sample bankers need high level expertise about environmental risks in the corporate credit process and an in-depth understanding of their associations with bank loan covenants and the cost of bank loans. As such, by selecting the most knowledgeable bankers to gain insights and thus achieve an extensive understanding of the research problem, a purposive sampling method is considered appropriate (Neuman 2006;

Patton 2002). In addition, major Australian banks are the sample units of analysis and the expert senior executive bankers are chosen as representatives of the banks they work for. Thus the utility of purposive sampling is supported by Leedy and Ormrod (2009) who claim that purposive sampling is particularly appropriate when information-rich individuals are chosen to represent the targeted organisations.

Purposive sampling methods comprise of various strategies, each of which serves a different purpose. Among these strategies, snowball sampling is designed to identify a sample with specific characteristics, knowledge and/or skill and is adopted by this study (Neuman 2006; Patton 2002). There is limited literature on whether and how environmental risks are integrated in major Australian banks' corporate credit processes. Therefore, it is difficult to determine whether there are positions in major Australian banks that are responsible for managing environmental risks in corporate lending; and if so, whether they are positions set specially for managing environmental risks in corporate lending or are more generic credit positions whose incumbents have the power to make corporate lending decisions. Given this limited knowledge, it was difficult for the researcher to identify who should be the target bankers that are able to provide rich information as required to address the research problem. In addition, bankers who have the power to make decisions on corporate lending or bankers who are responsible for dealing with environmental risks in the corporate credit process should be senior executives of banks. Accordingly, gaining access to them is difficult and time-consuming. Consequently, there is limited information regarding the ERM personnel in major Australian banks and it was not possible to decide the precise sample size ahead of time (Neuman 2006; Patton 2002). Accordingly, a flexible and emergent sampling strategy is required.

The characteristics of snowball sampling make it useful for identifying the most expert and knowledgeable bankers in major Australian banks. Snowball sampling is particularly appropriate for this study as the most suitable bankers are hard to identify and gain access to (Neuman 2006; Patton 2002).

Procedures of the snowball sampling process

The snowball sampling process started with two suitable bankers that the researcher was able to gain access to and then spread out through the networks initiated by these initial bankers. The snowball sampling process is multistage, which stops either when the sample network closes or when it is at the limits of a study's ability to handle it (Neuman 2006; Patton 2002). Specific to this study, the sample network closed in the second phase of interviewing when no new bankers in major Australian banks were recommended by the interviewed bankers.

In this study, banks are the units of analysis. In the first instance, the selection of banks as sample units was required. The four major Australian banks, ANZ, CBA, NAB and Westpac, were targeted. There are two groups of banks in the Australian debt market: high lending volume banks and other banks. High lending volume banks are the four major Australian banks. They dominate in the Australian banking sector and have the largest market share in corporate lending (Australian Trade Commission 2011a). Other banks are much smaller in both size and lending volume in the market. In addition, the linkage between banks' corporate lending and the environment are the most prominent in large banks (Thompson 1998a). The explanation is that large banks have better capability to attract large borrowing firms and extend a large amount of funds which are likely to have more impact on the environment (Thompson 1998a). Furthermore, the four major Australian banks are

active in the global environmental initiatives of financial institutions. ANZ, CBA, NAB and Westpac are the only four signatory Australian banks of the UNEP Statement. The Equator Principles, providing financial institutions a benchmark for ERM in their project financing, are adopted by ANZ, NAB and Westpac.

There is limited knowledge regarding how environmental risks are integrated into major Australian banks' corporate credit processes. The associations between environmental risks facing banks and 1) bank loan covenants, and 2) the cost of bank loans remain unknown in the Australian context. Therefore, it is not possible to determine the exact senior executive positions in these banks that have knowledge of integrating environmental risks into banks' corporate credit processes before data collection starts. Consequently, one or two senior executives who are likely to have the power to make corporate lending decisions in each major Australian bank were targeted at the outset[61].

Emails seeking opportunities for interviews, together with a brief overview of this study, were first sent to senior executive bankers who are likely to be responsible for corporate lending decision-making in the four major Australian banks. Two of the bankers from different banks replied. One of them (referred to as Banker 1) consented to a face-to-face interview[62] and the other replied with a recommendation of a senior executive banker responsible for managing environmental risks in this

[61] As this study aims to investigate environmental risks in banks' corporate credit processes, the interviewees need to be someone who is familiar with the considerations in the corporate credit process. Senior executives in banks' sustainability area know environmental risks well at the strategic level; however, they might not have sufficient knowledge regarding the specific corporate credit process; while a manager at the operating level might not have as comprehensive knowledge as the senior executive who can make corporate lending decisions. Therefore, a banker making corporate lending decisions is most likely the one who has sophisticated knowledge of the corporate credit process, and environmental risks as well as their associations with bank loan covenants and the cost of bank loans.

[62] Banker 1 brought another banker (referred to as Banker 2) who deals with environmental risks in this bank's lending businesses to the interview. That is, the first interview was with two bankers.

bank's lending businesses. A phone call was made by the latter banker and the interview was agreed to by the recommended senior executive (referred to as Banker 3). Starting with the initial senior executives and with the guidance of the snowball sampling strategy, two more senior executives in two major Australian banks were accessed. The first senior executive (referred to as Banker 4) is a senior executive decision-maker for corporate lending who also deals with environmental risks in corporate lending and the second one (referred to as Banker 5) is responsible for group risks of the bank[63].

Following the initial interviews and concurrent data transcription, the researcher realised that to address the research problem, more information would be needed to achieve the required depth, detail and richness. Accordingly, using the snowball sampling strategy, the sample was enlarged to include three more expert bankers in senior executive positions from the three participating banks as the second phase of interviewing. One banker (referred to as Banker 6) is in the position of corporate lending decision-making, another one (referred to as Banker 7) works as a risk manager and the third one (referred to as Banker 8) is in charge of environmental risks of the bank. In addition, Banker 4 offered a second chance for a further interview which was included in the second phase of interviewing. This banker also reviewed the guiding topics and key issues in the interview checklist used in the phase one interviews, which made the updated interview checklist more practical and applicable. This updated interview checklist was used for all of the second phase interviews.

[63] Banker 3 and Banker 4 are from the same bank. Banker 5 is from a different major Australian bank to Bankers 1, 2, 3, and 4. In summary, the first round interviews were conducted with five bankers from three major Australian banks.

Using the snowball sampling strategy, the researcher was able to enlarge the sample network by probing more senior executive bankers who have expert knowledge about environmental risks in banks' corporate lending. As a result, deeper insights into the research problem were obtained. As more bankers with relevant knowledge were brought into the network, an in-depth understanding of whether and how environmental risks are integrated into banks' corporate credit processes was obtained. Although the researcher made every effort to have all major Australian banks involved, only three of the four banks participated in this study; that is, the response rate is 75%. Based on the snowball sampling strategy outlined in this section, the data collection procedures are outlined in the following section.

4.3.2 Qualitative data collection methods

A qualitative approach from a phenomenological perspective aims to explore a deeper understanding of bankers' experiences and perceptions in integrating environmental risks into the corporate credit process in the Australian context (Marshall & Rossman 2006). To achieve this deeper understanding, qualitative data needs to be gathered which is in-depth, detailed, context based and nuance-considered. There are three main methods to collect qualitative data: observations, open-ended interviews and written documents (Creswell 2009; Patton 2002) (see Table 4.2).

Table 4.2 Qualitative Data Collection Methods and Options within Methods

Qualitative data collection methods	Descriptions	Options within types
Observation	Fieldwork descriptions of observable human experience, e.g., activities, interpersonal interactions, organizational or community processes. Data consists of field notes: rich, detailed descriptions, including the context within which the observations are made.	Observation-when watching from the outside Participant observation –not only observe people doing things, but participate to some extent in these activities as well
Open-ended interviews	Open-ended questions and probes yield in-depth responses about people's experience and perceptions. Data consists of verbatim quotations with sufficient context to be interpretable.	one-in-one, in person interview Focus group interview Telephone interview E-mail internet interview
Written documents	Written materials and other documents which can be sourced from organizational, clinical or programs records; official publications and reports; and written responses to open-ended surveys. Data consists of excerpts from documents captured in a way that records and preserves context.	Public documents, such as minutes of meetings or newspapers Private documents, such as journals, diaries or letters

Source: Myers (2008), Creswell (2009) and Patton (2002)

Justifications of the methods adopted by this study for collecting qualitative data

As mentioned earlier, to understand how environmental risks facing banks are associated with bank loan covenants and the cost of bank loans, this study investigates the corporate credit processes of major Australian banks. Data were collected through semi-structured interviews with the senior executive bankers who are responsible for corporate lending or ERM in lending. The interviews were conducted face-to-face. Due to the involvement of bankers' perceptions, values and worldviews in the investigation process, open-ended interviews with the bankers at senior executive level are considered to be the most appropriate in capturing a deeper

understanding about the integration of environmental risks into banks' corporate credit processes (Marshall & Rossman 2006; Patton 2002).

Open-ended interviews are productive in yielding abundant useful information and consist of three strategies (see Table 4.3) serving different purposes (Leedy & Ormrod 2009). They play a significant role in collecting qualitative data in business and management disciplines by *'...permitting us to see that which is not ordinarily on view and examine that which is looked at but seldom seen'* (Marshall & Rossman 2006; Myers 2008; Rubin & Rubin 2005, p.vii). Open-ended interviews are particularly useful to gain an understanding of how environmental risks impact on banks' corporate credit processes in the Australian context. At present there is limited knowledge in this area.

Semi-structured, rather than structured or unstructured interviews were chosen as the most suitable type of open-ended interviews. Structured open-ended interviews are not appropriate for this study due to the constraint they are likely to impose on the natural flow of the interviews (Patton 2002). In addition, bias that results from the interviewer's opinions, experiences and knowledge in designing the instruments for interviews are likely to emerge during structured open-ended interviews (Myers 2008; Patton 2002). The constraint and bias will reduce the validity and reliability of the data. Unstructured interviews do not fit into this study either. With unstructured interviews, questions can be asked in different ways for different bankers, which can lead to a lack of comparability and reliability of the collected data (Patton 2002; Rubin & Rubin 2005).

To obtain the required information about whether and how environmental risks are integrated into banks' corporate credit processes in sufficient depth and detail, major

areas and topics in interviews need to be identified and followed up (Rubin & Rubin 2005). The semi-structured interview is the basic form of open-ended interview in a qualitative study. It outlines central topics and issues which are flexible in both wording and sequencing and new foci are allowed to emerge in the course of data collection (Patton 2002; Sarantakos 1998). The structured component of the semi-structured interview ensures the data from different bankers are collected in a systematic and comparable way, which enhances the reliability of data. The unstructured component allows new insights to emerge, current foci to be adjusted, and follow-up questions probing depth and detail to be asked as an integral part of the interview process (Kumar 2010; Patton 2002). The unstructured component helps improve data validity.

Through semi-structured interviews, specific and rich descriptions of the bankers' experiences and perceptions on the integration of environmental risks into banks' corporate credit processes were obtained. Accordingly, an understanding about how environmental risks facing banks in their corporate lending are associated with bank loan covenants and the cost of bank loans was captured (Rubin & Rubin 2005).

Furthermore, banks' published environmental policies, corporate responsibility reports and website publications related to environmental risks in corporate lending were reviewed substantially for the purpose of developing interview checklists. This process added insights into and formed the basis of the guiding topics and the key issues for the interview checklists. Before interviews were conducted, very limited knowledge about the research problem existed. Therefore, the researcher comprehensively reviewed these documents and website publications without designing a review checklist that pre-determines the foci of the reviewing. By not

using a review checklist, the researcher obtained a holistic view of banks' environmental policies and commitments and gained rich information. Given this substantial work before conducting interviews with bankers, relevant environmental information in these documents and website publications was well-reflected in interview checklists and tested by the interviews. Therefore, the review of the published environmental policies, corporate responsibility reports and banks' website information plays a significant role in the soundness of the interview checklists and hence the quality of the interview data.

The data triangulation through the review of the published environmental information and the interviews with senior executive bankers helps to improve the reliability of the collected data by testing consistency among the data that results from these two sources (Creswell 2009; Neuman 2006; Patton 2002). At the same time, the data triangulation enhances the data validity by providing a cross-data validity check[64]. At the end of each interview the banker was asked whether a blank corporate loan application form is available. However, they indicated that there is no such application form for corporate lending.

[64] Reliability and validity do not have the same meaning in qualitative research as they have in quantitative research. In qualitative research, researchers conceptualise reliability as dependability and consistency. They consider a range of data sources and employ multiple methods to enhance reliability. Validity stresses authenticity which means offering a fair, honest and balanced account of social life from the viewpoint of the people who live it every day. To improve validity, qualitative researchers focus on the extent to which their interpretations of phenomena under investigation reflect what is actually occurring (Neuman 2006).

Table 4.3 Strategies of Open-Ended Interviews

Strategies of open-ended interviews	Characteristics	Advantages	Disadvantages
Unstructured interviews	Questions emerge from the immediate context and are asked in the natural course of things There is no predetermination of question topics or wording	Maximum flexibility, spontaneity, and responsiveness to individual differences and situational changes Questions can be personalised to deepen communication with the interviewees by increasing the salience and relevance of questions It is possible to make use of the immediate surroundings and situation to increase the concreteness and immediacy of the interview questions	Time-consuming Much more conversational skill requirement to the interviewers to reduce the interviewers bias Sensitive to individual and situation difference Lack of comparability of both the questions asked and the responses Data organization and analysis can be quite difficult
Semi-structured interviews	Topics and issues to be covered are specified in advance, in outline form Interviewer decides sequence and wording of questions in the course of the interview New questions might emerge during the conversation	Well-planned in using the limited available time The data collection for each participant is systematic and comprehensive by delimiting in advance the focused subjects Allowing interviewers to build a conversation, to word questions spontaneously, and to establish a conversation style within focused subjects Allowing interviewees' perceptions and experiences emerge Logic gaps in data can be anticipated and closed	Important and salient topics may be inadvertently omitted Interviewer flexibility in sequencing and wording questions can result in substantially different responses from different perspectives, thus reducing the comparability of responses There is likelihood that more information will be collected from some participants than from others, which stipulates the concern about the reliability of the conclusion

Structured open-ended interviews	The use of pre-formulated questions, strict regulated with regard to the order of the questions, and sometimes regulated with regard to the time available Questions are worded in a completely open-ended format	The interview is highly focused so that interviewing time is used efficiently The reliability and comparability of the data is enhanced It provides uniform information thereby the data analysis is easier	Lack of flexibility and emergent questions are not allowed It does not permit the interviewer to pursue topics or issues that were not anticipated when the interview was written, and thus the flexibility and emergent themes It reduces the extent to which individual differences and circumstances can be queried

Sources: Patton (2002) and Myers (2008)

Data collection instruments

Data are collected in the context of major Australian banks' corporate lending, with the aim of gaining an extensive understanding on environmental risks and their associations with bank loan covenants and the cost of bank loans. There are two interview checklists (interview checklist 1 and 2) used as data collection instruments for the semi-structured interviews. Interview checklist 1 is used in the first phase of interviewing and interview checklist 2 is for the second phase of interviewing.

The interview checklists are designed to generate information regarding environmental risks, their integration into the corporate credit processes of major Australian banks, and particularly their impact on bank loan covenants and the cost of bank loans. By delimiting guiding topics in interview checklists, more systematic and comprehensive information is obtained than otherwise would be (Patton 2002). The interview checklists are accompanied by a consent form (Appendix 3) required by the Human Research Ethics of the University of Southern Queensland (USQ). A cover letter (Appendix 4) is attached and it provides a self-introduction by the researcher, together with an overview of the research purpose, benefits of participation and ethical clearance.

Interview checklist 1 (Appendix 5) was employed to collect data from senior executive bankers in Phase one interviewing. The senior executive bankers are familiar with both the policies (including environmental policies) of their banks and the integration of environmental risks into their banks' corporate credit processes in practice. The development of interview checklist 1 is based on the conceptual framework from previous literature and the review of banks' published environmental policies, corporate responsibility reports and website publications

related to environmental risks. Interview checklist 1 consists of five guiding topics, starting with broad general questions and then narrowing down to key issues. Adjustments to the guiding topics and key issues are allowed where necessary in the course of data collection.

The first and second guiding topics seek general information on banks' lending businesses and how a corporate loan application is processed (the corporate credit process); the third one addresses the negotiation process for corporate loan agreements. The last two guiding topics cover environmental risks in banks' corporate lending, risk management of the banks (ERM is included), as well as whether and how environmental risks facing banks impact on bank loan covenants and the cost of bank loans. At the end of each interview, the banker was asked whether he/she would like to raise any relevant issues that were not covered by the interview. This was to make sure that the interview encompassed all valuable information required to address the research problem.

After the first phase of interviewing with senior executive bankers of the three major Australian banks, the collected data was analysed and aggregated. Emerging themes were captured by the analysis and included in the aggregated results. A draft of interview checklist 2 was developed based on the aggregated results from the first phase of interviewing. The researcher then discussed the guiding topics and key issues included in the draft checklist with Banker 4 who participated in the first phase of interviewing. This banker read through all of the guiding topics and key issues in the draft to ensure they were properly articulated and covered the main environmental aspects in corporate lending. The interview checklist for the second phase of interviewing was finalised following this banker's review, which is known

as interview checklist 2 (Appendix 6). It is similar to interview checklist 1, except for some minor adjustments to the guiding topics and key issues, as well as the inclusion of several emergent themes from the first phase of interviewing. Table 4.4 below shows how the guiding topics and key issues in interview checklist 2 link with the research questions[65]. The strategies and procedures for data collection and data analysis from the first phase of interviewing were replicated in interviews comprising Phase two data collection.

[65] Interview checklist 2 is more comprehensive and sophisticated than interview checklist 1. It is an updated version of interview checklist 1. Therefore, the link between the guiding questions and key issues in interview checklist 2 and the research questions covers and extends that between the guiding questions and key issues in interview checklist 1 and the research questions.

Table 4.4 Linkage between the Interview Checklist and the Research Questions

Interview guiding questions	Purpose	Expected linkage with research questions
What are the categorisations of your bank's lending businesses and how much weight is given to each categorisation?	To obtain information on banks' general lending activities and determine whether corporate lending is a considerable proportion of banks' lending businesses To identify the dominant products in corporate lending To make clear whether corporate loans are usually secured or not	**It serves as background knowledge for this study. It also contributes to the justification of the research scope.** It first provides an overview of the categorisations of banks' lending activities, which identifies how significant corporate lending is. Under the broad lending framework, further information on banks' corporate lending is then sourced. By understanding the products and the security status of corporate lending, it provides justification of why this study does not classify the credit process and environmental risk management process in terms of products and security status of corporate loans.
How does your bank process corporate loan applications? (The stages in this process to approve corporate loan applications)	To identify the flow of banks' corporate credit processes (the process to approve corporate loan applications) To obtain an idea of whether there are environmental considerations in the corporate credit process and where they fit in To identify the activities in each stage of the corporate credit process To source information on borrowing firms' bargaining power and its impact on the corporate credit process	**The corporate credit process is where 1) environmental risk management, and 2) the impacts of environmental risks on loan covenants and the cost of bank loans are investigated.** First, it demonstrates banks' corporate credit processes, which serves as background information for the research questions and the research problem. Second, it intends to elicit information on whether and where environmental risks are integrated in the corporate credit process.
What is the process to establish corporate loan documentations?	To source the information on bank loan covenants (the provider, form, functions, determinants and establishment process) To source the information on the cost of bank loans (the determinants and renegotiation process) To elicit whether and how environmental risks are reflected in bank	**The establishments of loan covenants and the cost of bank loans are included in the corporate credit process.** Information on whether environmental risks are reflected by loan covenants and loan price is elicited.

	loans covenants and the cost of bank loans To identify the impacts of borrowing firms' bargaining power on loan covenants and the cost of bank loans	
How does your bank assess and manage risks in corporate lending?	To gain general information on risks considered in corporate lending To identify whether environmental risks are integrated in the corporate credit process and how environmental risks impact on other risks To investigate the role environmental risks plays in banks' corporate credit processes To elicit banks' interpretations of the definition, evaluation and management of environmental risks To obtain qualitative data on how environmental risks are associated with loan covenants and the cost of bank loans in corporate lending	**It provides a framework for environmental risk management.** Therefore, information on how environmental risk management fits into banks' corporate credit processes is sourced. Address how banks evaluate environmental risks in their corporate lending, based on which research question 1 and 2 is expected to address. RQ1: How are environmental risks in corporate lending associated with bank loan covenants? RQ2: How are environmental risks in corporate lending associated with the cost of bank loans?
Are there environmental covenants in the loan agreements between your bank and corporate clients?	To confirm whether and how environmental risks are reflected in bank loan covenants To elicit knowledge of the form, the content and the level (tightness) of environmental covenants To gain qualitative data on how environmental covenants are customised in terms of environmental risks To obtain information on how the application of the Equator Principles in project financing impact on corporate lending, especially around the introduction of environmental covenants	Answer research question 1 RQ1: How are environmental risks in corporate lending associated with bank loan covenants?

Source: Developed for this study

4.3.3 Data collection procedures

Interviews were conducted during the period from September 2010 to June 2011. The interview checklists, together with a consent form and a cover letter were sent to the senior executive bankers ahead of time. This was to ensure the bankers were informed of the research purpose, the benefits of participating and the ethical clearance with regard to participants' rights and confidentiality. This process contributed to the consistent understanding of this study by different bankers and to the reliability of their responses (Creswell 2009). In turn, the consistent understanding and reliable responses helped enhance the reliability of the collected data (Creswell 2009). After the bankers consented to participate, the researcher organised interviews in terms of time, date and location to align with the availability of the bankers.

Each interview took approximately 75 minutes on average. After a brief introduction of the research purposes and the interviewing procedures to follow, bankers were asked questions which covered the predetermined guiding topics and the key issues in the interview checklist. As mentioned in Chapter 2, there is limited knowledge about the integration of environmental risks into banks' corporate credit processes and this study is exploratory in nature. Therefore, to elicit more informative data, the researcher did not comment or make judgements on bankers' responses during the interviews and new themes were allowed to emerge. The sequence and the wording of guiding topics and the subsequent key issues were dependent on where the bankers led the interview to. As such, the interviews flowed naturally. This approach contributed to generating rich and nuance-considered information required for a deeper understanding and enhanced the validity of data. The natural flow of the

interviews also helped to mitigate bias resulting from the involvement of the researcher's opinions and thus contributed to the data validity. Follow-up questions were asked seeking depth, detail and clarification where necessary (Patton 2002).

Interviews were recorded using a digital recorder for the purpose of data interpretation and data rechecking during and after the data collection. The recording of interviews was permitted by each banker. Recording enabled the researcher to interact with bankers more actively during interviews and thus allowed the researcher to formulate appropriate follow-up questions where necessary (Patton 2002). In addition, it enhanced the accuracy of the collected data (Myers 2008; Patton 2002). Apart from interview recordings, interview notes were also taken. Interview notes were in the form of key phrases and major points from the bankers' responses (Patton 2002; Sarantakos 1998). They were used as memos for the researcher to formulate follow-up questions during interviews. Taking interview notes is also expected to be a signal for bankers; that is, it indicates what they are saying is of significant importance to the researcher and thereby encourages more responses (Patton 2002).

Interviews were transcribed as soon as possible after each interview to enhance the data validity (Neuman 2006; Patton 2002). The recordings and their corresponding transcriptions were then sent to the researcher's supervisors for checking. This led to a sound basis for the subsequent data analysis. Once each data transcription was checked by the supervisors, information was classified into each key issue under the guiding topics of the employed interview checklist. The relevant emergent themes from each interview were also captured and included in the following interviews for

verification. This is the initial data analysis for each interview during the data collection procedure (see details in section 4.4.2).

The classified data and the emergent themes for each interview were then sent to the corresponding banker for review and clarification, which added rigor and validity to the data (Patton 2002). Once the researcher received every banker's review and clarification, summarising and aggregating based on all the revised data were undertaken (see details in section 4.4.2). Interview checklist 2 was then developed based on interview checklist 1, the aggregated results of the first phase of interviewing and a review of the draft checklist from Banker 4. This process helped elicit more specific, detailed and in-depth information on the integration of environmental risks into major Australian banks' corporate credit processes. Accordingly, the validity of this study was enhanced. The second phase of interviewing replicated the data collection procedures in the first phase of interviewing.

4.3.4 Data administration and ethics

Due to the involvement of human participants, ethics clarification is required by the Human Research Ethics Committee of the USQ. This study was granted Human Ethics Clearance (Appendix 7) on 26 February, 2010 given the appropriate ethical considerations regarding voluntary participation, confidentiality, anonymity, deception and reporting accuracy. Guided by these ethical considerations, this study was conducted using sound ethical practices. Bankers were informed of the research purpose and procedures; and that there were no anticipated physical, psychological or economic risks to them. Their participation was completely voluntary and they

had the right to refuse to answer any questions or withdraw from the study at any time.

The confidentiality of bankers was respected and protected. The consent forms from bankers were stored in a locked cabinet. The responses from bankers were recorded by the researcher under the permission of the bankers. The recordings, the subsequent data transcripts and summary in terms of the guiding topics and the key issues in interview checklists were kept in a separate hard drive which was also locked in a cabinet. All data were coded to ensure the anonymity of both the bankers and the banks they belong to. The names of the bankers or the banks were also not identified in the aggregated results. Following the interviews with bankers, qualitative data analysis was conducted to interpret bankers' experiences of integrating environmental risks into their banks' corporate credit processes. Qualitative data analysis is described in section 4.4.

4.4 Qualitative Data Analysis

Although in qualitative research there is no clear distinction between data collection and data analysis, the analysis that happens during the data collection process is usually incomplete and incomprehensive (Easterby-Smith, Thorpe & Lowe 2002; Patton 2002). To systematically analyse the collected data and advance knowledge regarding the integration of environmental risks into major Australian banks' corporate credit processes, data analysis methods and procedures are described in this section.

Qualitative data analysis is a process of endowing raw data with order, structure and interpretation, which transforms the qualitative data into meaningful information

(Marshall & Rossman 2006; Myers 2008). Qualitative data analysis demonstrates how the raw data regarding environmental risks in major Australian banks' corporate lending are transformed into meaningful and convincing interpretations with the methods employed and the procedures followed.

4.4.1 Justification for manual data analysis

Miles and Huberman (1994, p.16) argue that there are '*…few agree-on canons for qualitative data analysis, in the sense of shared ground rules for drawing conclusions and verifying their sturdiness*'. This view is grounded in the fact that qualitative data are derived from the phenomenological paradigm (Denzin & Lincoln 2011; Richardson 2000). The phenomenological paradigm underlying this study questions any methods of revealing an ultimate truth and asserts that '*No specific method or practice can be privileged over another*' (Denzin & Lincoln 2011, p.6; Richardson 2000). In addition, standardised qualitative analysis methods are likely to constrain the effectiveness of the researcher's investigation on the research problem given her unique intellectual competence, investigatory style and the available resources (Coffey & Atkinson 1996). With a phenomenological perspective, this study therefore employs *'...a wide range of interconnected methods, hoping always to get a better fix on the subject matter at hand'* (Denzin & Lincoln 2011, p.3). Furthermore, given that every stage of the qualitative approach relies on a researcher's experiences, worldviews and competence, the appropriateness of the qualitative data analysis methods and procedures adopted by this study depend on the experience and capability of the researcher (Patton 2002). Consequently, the qualitative data analysis in this study aims to generate detail-rich, context-sensitive and bankers' experience-reflective interpretations about the integration of

environmental risks into major Australian banks' corporate credit processes with the researcher's full effort (Neuman 2006; Patton 2002).

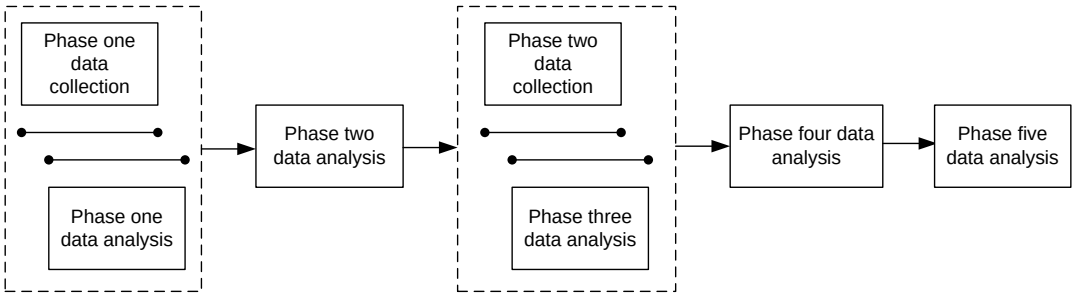
The qualitative data analysis was conducted manually. The researcher's experiences, perceptions, judgement and understandings were involved in interpreting interviewees' responses. Computer packages for qualitative data analysis (e.g., *NVivo* and *Atlas/ti*) are available, which make the processing of non-numerical unstructured data computerised. However, they are more desirable in studies that have *'...too much data for a single person to reasonably code'* (Myers 2008, p.178). This study only has a small number (8) of interviews and thereby it requires the researcher's critical judgement and comprehensive interpretation of the responses from the eight bankers. A qualitative data analysis software package is unlikely to achieve the comprehensive and critical judgement and understanding required to address the research problem (Myers 2008). This view is supported by Easterby-Smith, Thorpe and Lowe (2002, p.129) who argue that qualitative data analysis with a computerised software package is likely to overlook the *'...understandings of the quality of ideas and experiences'*. In addition, qualitative data analysis software is not sufficiently context-sensitive to capture the clues provided by the non-verbal data such as the bankers' facial expressions or body language during interviews. As such, to interpret specific and rich descriptions in a comprehensive and systematic way, the researcher manually conducted the qualitative data analysis.

There is potential researcher bias in qualitative data analysis given the involvement of the researcher's perceptions, judgement and interpretations in the analytical process. Acknowledging the potential biases, the researcher has made every effort to

minimise them and enhance the reliability of the results throughout the analytical process. The procedures of data analysis are outlined in section 4.4.2.

4.4.2 On-going qualitative data analysis throughout this study

There is no clear distinction between data collection and data analysis in qualitative research (Easterby-Smith, Thorpe & Lowe 2002; Miles & Huberman 1994; Patton 2002). Five phases of qualitative data analysis and two phases of qualitative data collection were undertaken in this study (see Figure 4.2). Qualitative data analysis spread across this study, with the first three phases being concurrent with the two phases of data collection and the other two phases of data analysis undertaken after the data collection (Easterby-Smith, Thorpe & Lowe 2002; Neuman 2006). The data analysis concurrent with the data collection allowed the identification of emerging themes as well as their verification in the following interviews (see Figure 4.3) (Miles & Huberman 1994; Rubin & Rubin 2005). Therefore, based on the themes and patterns illuminating the research problem, this study builds coherent and comprehensive understandings towards environmental risks in major Australian banks' corporate lending and their impacts on bank loan covenants and the cost of bank loans.

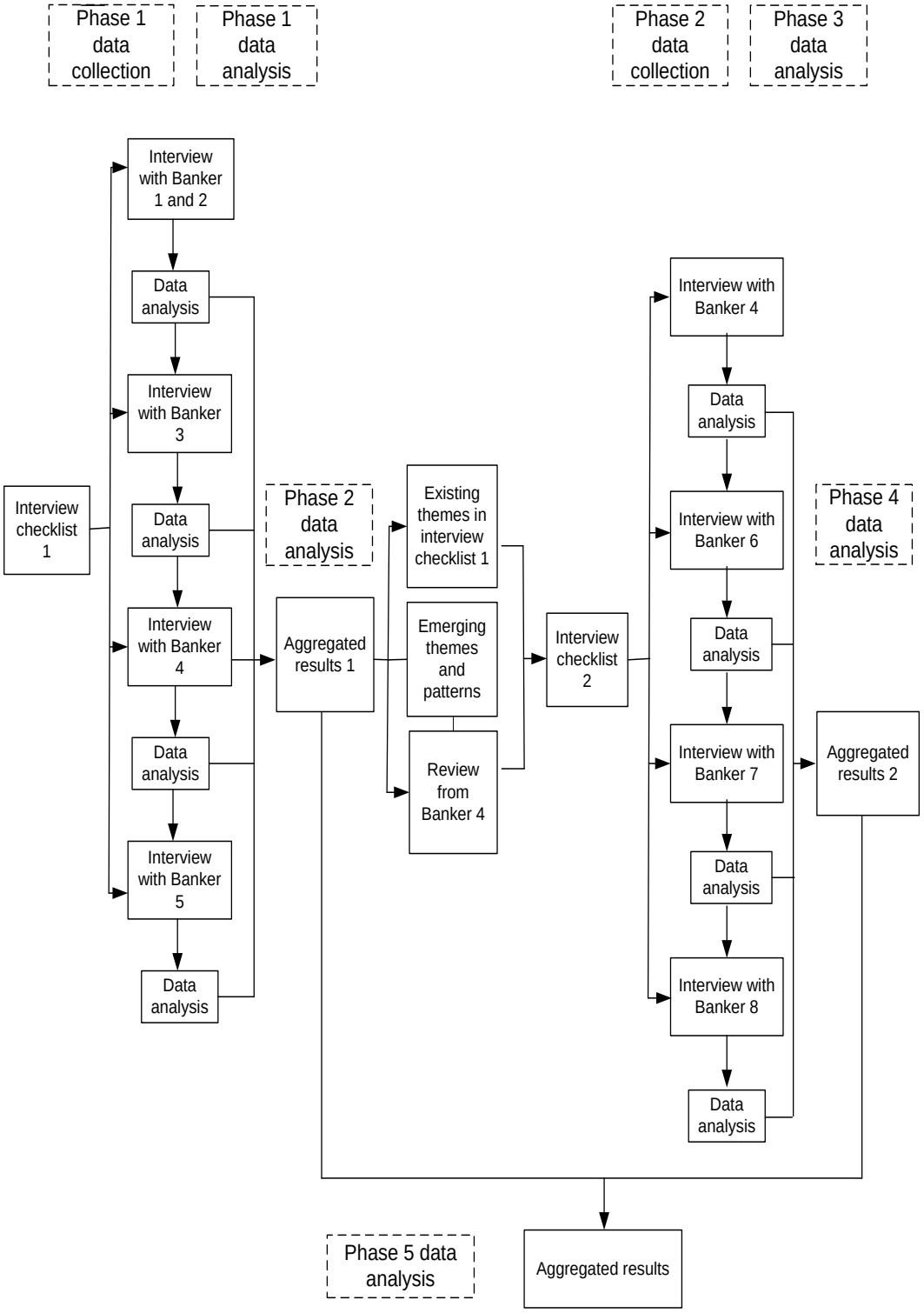


Source: Developed for this study

Figure 4.2 Relationship between Data Collection and Data Analysis

As shown in Figure 4.3 below, there are eight interviews: four are in Phase one data collection and the other four are in Phase two data collection. Phase one and Phase two data collection employ the same strategies and procedures; the difference is that interview checklist 2 is used in Phase two data collection and is based on the aggregated results from the first phase of interviewing.

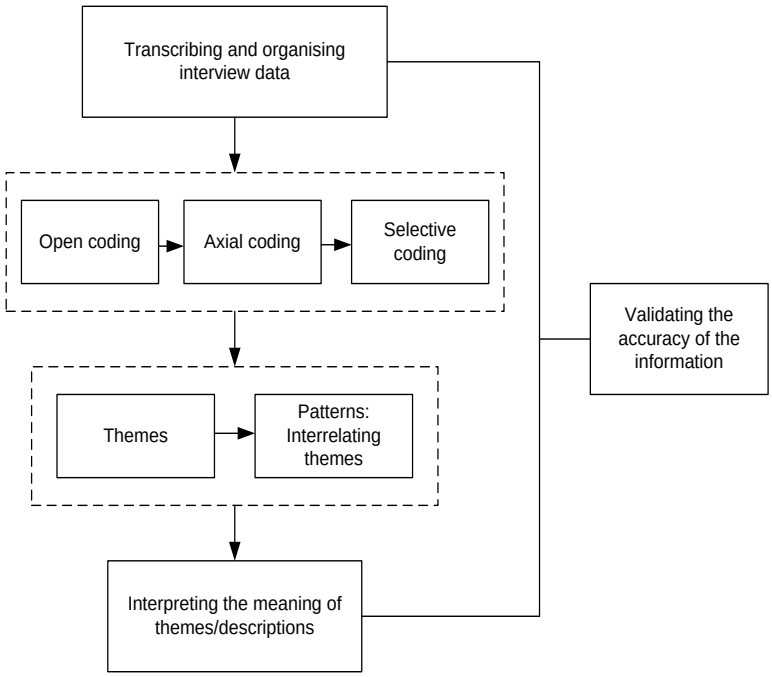
The first phase of data analysis was conducted concurrently with the first phase of interviewing and Phase three data analysis was undertaken concurrently with the second phase of interviewing. These two phases of data analysis are preliminary analysis, which only involves data transcribing and open coding. Phase two data analysis led to aggregated results related to the interviews with Bankers 1, 2, 3, 4 and 5. Data collected from the interviews with Bankers 4, 6, 7 and 8 were classified in terms of interview checklist 2, which formed the basis for the fourth phase of data analysis. The final phase of data analysis (Phase five data analysis) resulted in the overall aggregated results, which was based on the two sets of aggregated results resulting from the two phases of interviewing. Phase two, Phase four and Phase five data analysis share the same analytic strategy and procedures.



Source: Developed for this study

Figure 4.3 Data Collection and Data Analysis

The qualitative data analysis procedures used in this study are adapted from those provided by Creswell (2009) and Neuman (2006) (see Figure 4.4). The procedures started with transcribing and organising the data immediately after each interview. Second, the transcription for each interview was summarised in terms of the guiding topics and key issues in the applied interview checklist, and emerging themes were captured. This was done as soon as possible after each interview, which contributed to the accuracy of the data and thus the data validity (Neuman 2006). Summaries were then sent back to corresponding bankers for review, which contributed to the accuracy and rigor of the data. Meanwhile, each summary was finalised before the following interviews so that emerging themes could be included in the following interviews as additional questions for the purpose of verification. The researcher paid as much care as possible to ensure the interviews flowed naturally even when additional questions were included.



Source: Adapted from Creswell (2009, p.185) and Neuman (2006, p.511)

Figure 4.4 Qualitative Data Analysis Procedures

Next is the process of coding which condenses the mass of data into *'...conceptual categories and create themes or concepts'* (Neuman 2006, p.510). There are three levels of coding: open coding, axial coding and selective coding (Neuman 2006).

Open coding

Coding in Phase one and Phase three data analysis is open coding which is the first attempt to condense the mass of data by categorising the summaries into initial themes (Neuman 2006). The initial themes of this study result from research questions, prior literatures, terminologies used by participating bankers and emerging insights from the data. In the open coding process, the researcher moved back and forth between the themes and their corresponding details, making sure the initial themes were appropriately extracted and *'...captured the richness of the phenomenon'* (Neuman 2006, p.512). However, open coding does not elaborate on initial themes and thus does not identify the conceptual and structural connections among these themes (Neuman 2006). Axial coding was conducted to achieve this.

Axial coding

Axial coding is the second level of qualitative data coding, which was undertaken in both Phase two and Phase four data analysis. It requires the researcher to categorise and conceptualise the initial themes resulting from the open coding process (Miles & Huberman 1994; Neuman 2006). The categorisation and conceptualisation involved clustering similar initial themes together, dividing themes with multiple levels into subcategories, sorting closely related themes into a broader theme and structuring the themes in terms of their conceptual linkages (Miles & Huberman 1994; Neuman 2006). In the process of axial coding, data were further condensed and categorised,

and core themes of this study were identified. In addition, reliability of this study was enhanced in the process of consolidating similar and closely related initial themes into core themes (Neuman 2006). The multiple evidence where these initial themes are extracted is considered sound support for the core themes (Neuman 2006).

Selective coding[66]

Selective coding, the last level of coding, was conducted in Phase five data analysis. Selective coding involved examining both the transcribed data and the themes identified by open coding and axial coding. It aims to identify systematic information that is able to illustrate the core themes as well as the conceptual and structural interrelationship among them (which is referred to as 'pattern') (Neuman 2006).

The three levels of systematic coding (open coding, axial coding and selective coding) result in the identification of core themes and patterns for this study. In the process of coding, the names and positions of bankers were not identified and they were listed as Bankers 1, 2, 3, 4, 5, 6, 7, and 8 to ensure confidentiality. Interpretations of themes and patterns are demonstrated in Chapter 5 and Chapter 6.

4.5 Chapter Summary

Chapter 4 explains and justifies the research methodology and the research methods employed in this study. Given that research paradigms are of significant importance to a researcher's methodological choices, various research paradigms are evaluated and the phenomenological paradigm is considered the most appropriate for this study.

[66] The design of this study is based on the theoretical framework which is presented in Chapter 3 and the interviews are semi-structured. Therefore, the core themes and their conceptual linkages deriving from axial coding are already the single storyline of this study.

Adhering to the view of paradigm-directed methodological appropriateness, the qualitative approach is justified as the most appropriate research methodology. Face-to-face semi-structured interviews are chosen as the qualitative data source. There are two interview checklists used as the instruments in interviews, the design of which is closely aligned with the research questions. As this study involves human beings, ethical considerations are clarified by specifying the measures taken for qualitative data administration and explaining the rights of the participating bankers.

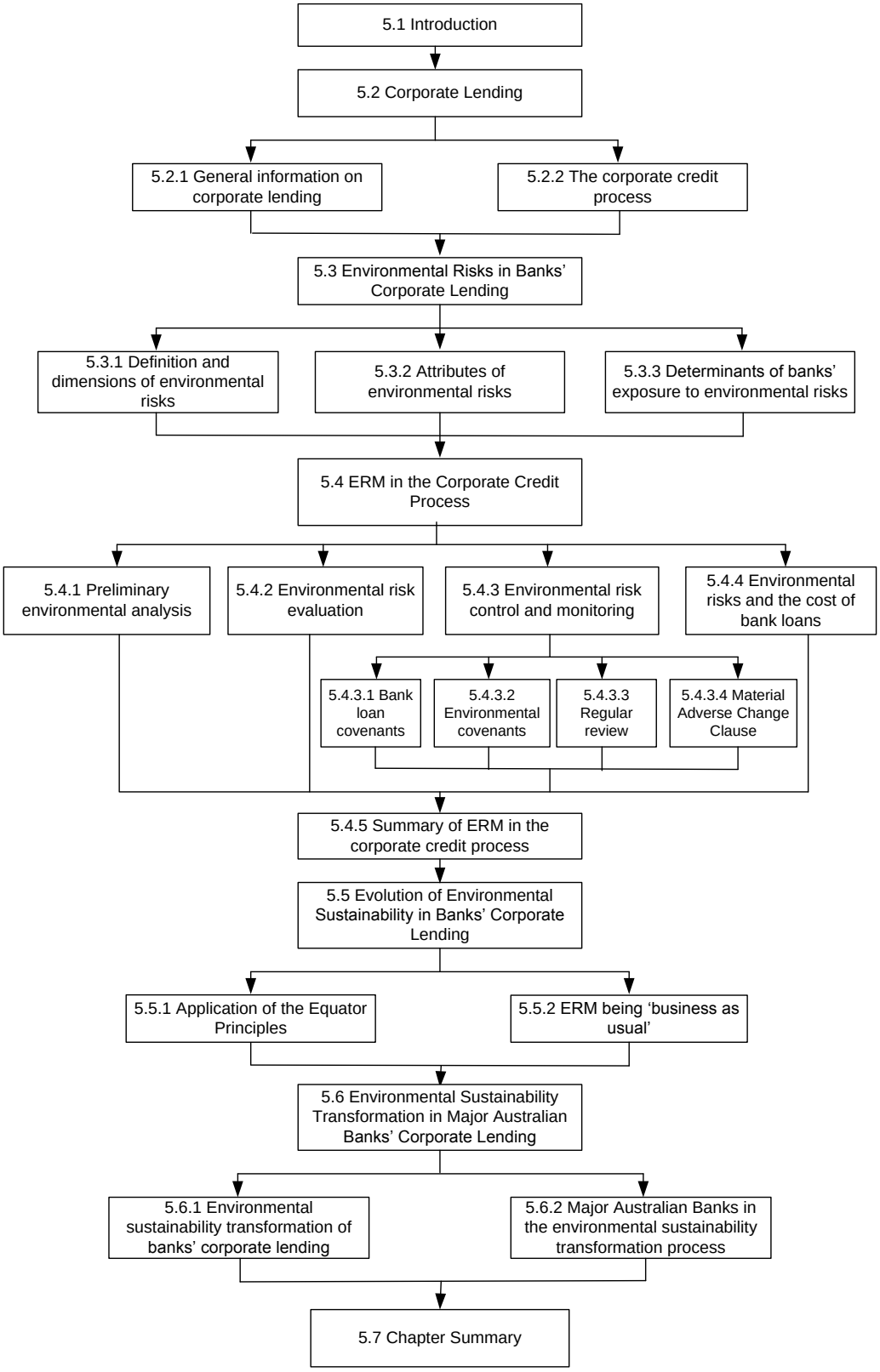
As presented in Figure 4.3, qualitative data analysis is undertaken both concurrently and after data collection. Acknowledging that there are no agreed-upon rules for qualitative data analysis, the researcher analysed the interview data manually seeking in-depth and comprehensive understanding of environmental risks in major Australian banks' corporate lending, their integration into the corporate credit process and particularly their impacts on bank loan covenants and the cost of bank loans. This chapter outlines the frameworks to obtain the required data addressing the research problem and to analyse the collected data; the results of the data analysis are presented in Chapter 5.

CHAPTER 5 DATA ANALYSIS

5.1 Introduction

Chapter 4 details the research methods chosen to best answer the research questions and thus address the research problem. The aim of chapter 5 is to present the results of investigations into the integration of environmental risks into major Australian banks' corporate credit processes, particularly the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans.

This chapter commences with a broader picture which incorporates general information about major Australian banks' corporate lending and their corporate credit processes (section 5.2). This broader picture serves as the matrix for the associations between environmental risks and 1) loan covenants, and 2) the cost of bank loans. Section 5.3 reports on results regarding environmental risks facing major Australian banks in corporate lending. Section 5.4 introduces ERM in major Australian banks' corporate lending and demonstrates how ERM is integrated into their corporate credit processes. Particularly, findings about the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans are also presented in section 5.4. Section 5.5 provides findings about major Australian banks' evolution towards environmental sustainability in their corporate lending which is an emerging theme. Additional analysis of this emerging theme is presented in section 5.6. This is followed by a summary of the key research findings. A discussion of these results in the context of the prior literature is left for Chapter 6. The structure of this chapter is demonstrated in Figure 5.1:



Source: Developed for this study

Figure 5.1 Structure of Chapter 5

5.2 Corporate Lending

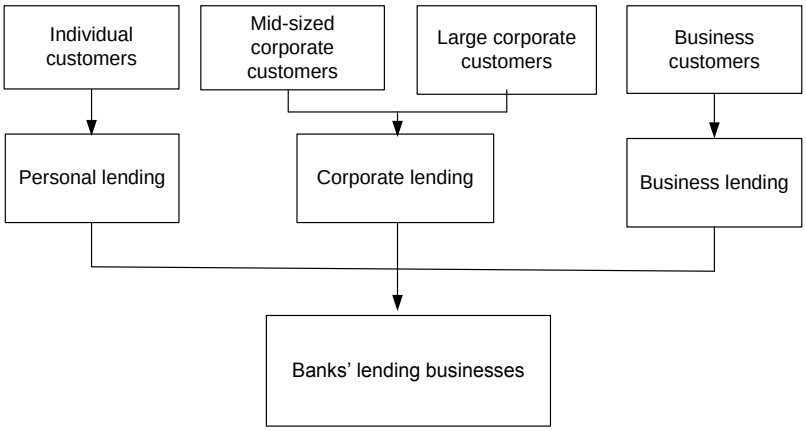
This study focuses on major Australian banks' corporate lending. Accordingly, section 5.2.1 presents the findings regarding senior executive bankers' fundamental views on corporate lending, which justifies the focus on corporate loans. Section 5.2.2 further demonstrates how a corporate loan application of a corporate customer is processed, which is known as the corporate credit process.

5.2.1 General information on corporate lending

Exploratory interviews with senior executive bankers[67] indicate that major Australian banks generally segment their majority lending businesses into personal lending, business lending and corporate lending[68] (see Figure 5.2). Personal lending is principally lending to individuals (e.g., car loans, home loans) and business lending predominately deals with small and medium sized businesses which are privately owned. Personal and business loans are generally secured by customers' properties. As one of the majority lending businesses of major Australian banks, corporate lending usually has two components: one is lending to mid-sized corporate customers, and the other is loans extended to banks' top tier corporate customers[69]. Bankers indicate that project finance is a form of *'specialised lending activity'*, which usually involves equity investors and a syndicate of banks and/or other financial

[67] Senior executive bankers, participating bankers and bankers in this study are used interchangeably, and refer to the interviewees.
[68] There are different bases to segment banks' lending business; one bank uses turnover of customers and the other two banks segment their lending business with the size of loans extended to customers. Even for turnover, there are different references under different circumstances. Therefore, this study does not delve into this aspect.
[69] Mid-sized corporate customers can be listed companies on Australian Securities Exchange (ASX), but not all of the mid-sized customers are listed companies on ASX. Top tier corporate customers refer to large companies, e.g., ASX 200, Top 200 or the equivalent companies.

institutions[70]. Bankers further state that although project finance is also one focus of major Australian banks, it is *'...only a small portion of banks' overall lending'*. In one bank, project finance takes up less than 2% of its total loans. The proportions project finance takes in other banks are similar.



Source: Developed for this study

Figure 5.2 Banks' Segmentation of Lending Businesses

Banks aim to provide a broad spectrum of corporate loan products. Relationship managers customise loan products specific to their corporate customers' needs based on banks' policies and corporate customers' overall positions. Loans for mid-sized corporate customers are generally secured, while those for the top tier corporate customers are predominately unsecured and are usually cash flow based.

Bankers state that whether the corporate customers are mid-sized corporate or large corporate as banks' top tier corporate customers, the same process is followed when approving corporate loan applications; that is, the corporate credit process is the

[70] For specialised lending, the primary or only source of cash flow is income from the asset being financed. Specialised lending is a collective term for a couple of financing forms.

same for all corporate customers. However, the activities undertaken in the process are tailored specifically to the corporate customers and the transactions.

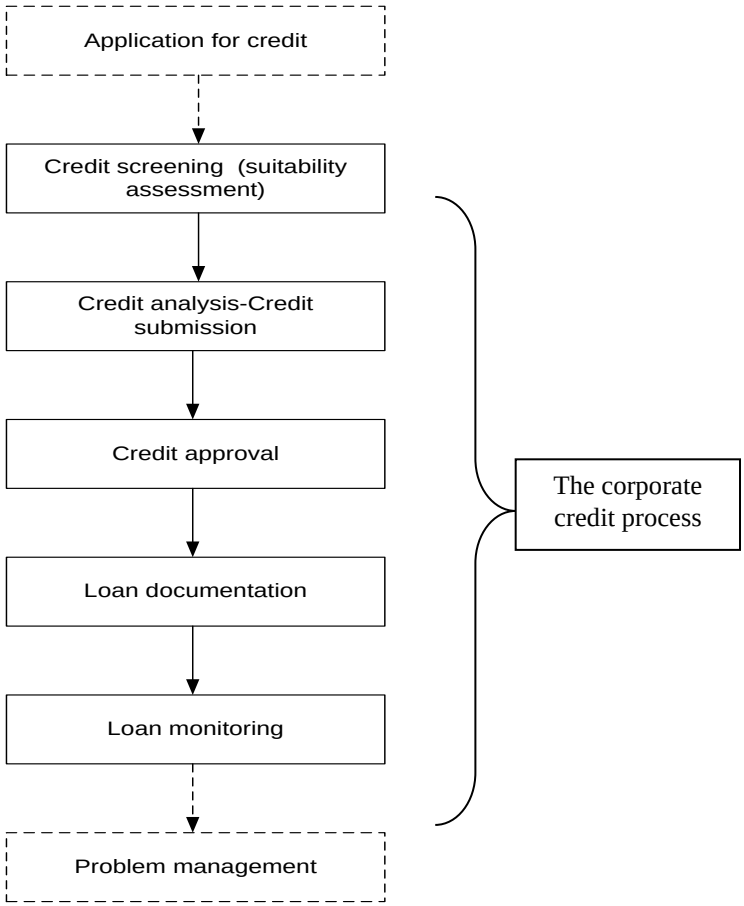
5.2.2 The corporate credit process

According to bankers, both existing corporate customers and prospective corporate customers go through the same corporate credit process in major Australian banks; the difference is on *'the level of rigor and depth'* of the corporate credit process[71].

Credit screening stage — On-boarding decisions

Bankers indicate that for a prospective corporate customer, '*full customer evaluation'* is required (see Figure 5.3). Accordingly, in the words of one banker, *'...there needs to be an assessment of a prospective corporate customer's suitability before taking it on board'*[72]. This view is supported by bankers in the other two banks and is defined as credit screening. They indicate that the screening is conducted at industry/sector, prospective corporate customer and transaction level against the bank's strategy, credit policy and reputational focus. The screening leads to a view on whether any identified risks are beyond the bank's risk appetite[73]. As a result, on-boarding decisions are made.

[71] For the purpose of this study, the focus is on the corporate credit process and ERM for new corporate customers.
[72] According to bankers, taking a prospective corporate customer 'on-board' refers to a bank's decision to initiate a relationship with the prospective corporate customer and the subsequent decision to proceed to a transaction with the corporate customer.
[73] A bank's risk appetite refers to the amount and type of risk that the bank is prepared to pursue, retain or take. It is a core instrument aligning a bank's strategy, capital allocation and risks.



Source: Developed for this study

Figure 5.3 The Corporate Credit Process

The first banker discussed above classifies the assessment of prospective corporate customers' suitability as a separate stage from the bank's corporate credit process; while credit screening is considered as an integral part of the corporate credit process in the latter two banks. Bankers of the latter two banks describe the screening as the *'...origination stage which is the starting point of [the bank's] corporate credit process'*. However, whether this preliminary stage is considered as a separate stage or an integral part of a bank's corporate credit process, it sets *'threshold requirements'* for prospective corporate customers. In addition, bankers indicate that activities undertaken in making a corporate lending decision are not linear and can

happen concurrently. That is, it is difficult to draw a line between activities in the preliminary stage and those in other stages of banks' corporate credit processes. Furthermore, bankers point out that *'...part of the risks are identified and assessed during the process [credit screening]' and thus the results of the initial screening are part of the credit submission'*[74]. Thereby, it is not appropriate to make a clear distinction between credit screening and other stages in banks' corporate credit processes. Consequently, for the purpose of this study, credit screening is considered as the first stage in banks' corporate credit processes. Credit screening generally involves:

> *...the initial investigations on the customers' licences to operate, their compliance with relevant obligations, the nature of the customers' businesses, whether the customers' operations are consistent with the bank's strategy, credit policy and guidelines, whether there is potential reputational risk exposure for the bank that is beyond its risk tolerance*[75].

Banks are likely to reject prospective corporate customers' loan applications at the outset if any of the following situations exist:

- prospective corporate customers are in breach of any applied legislation;
- potential reputational risk is beyond the bank's acceptable range; and
- transactions with the prospective corporate customers are contrary to the bank's values and policies.

Banks' credit policies play a critical role in credit screening by *'...establishing the bank's risk appetite and the acceptable range of loan applications'*. They set the

[74] Credit submission is the credit report that results from credit evaluation (both preliminary evaluation and further credit evaluation) and is prepared for the Credit Officers to approve.
[75] For the purpose of this study, risk tolerance, risk appetite and the acceptable range of risks have the same meaning, and are regulated by the bank's relevant policies.

threshold requirements for prospective corporate customers. Once the transactions with prospective corporate customers are viewed as suitable, credit analysis that shapes the credit submission can be conducted.

Credit analysis stage — Credit submission

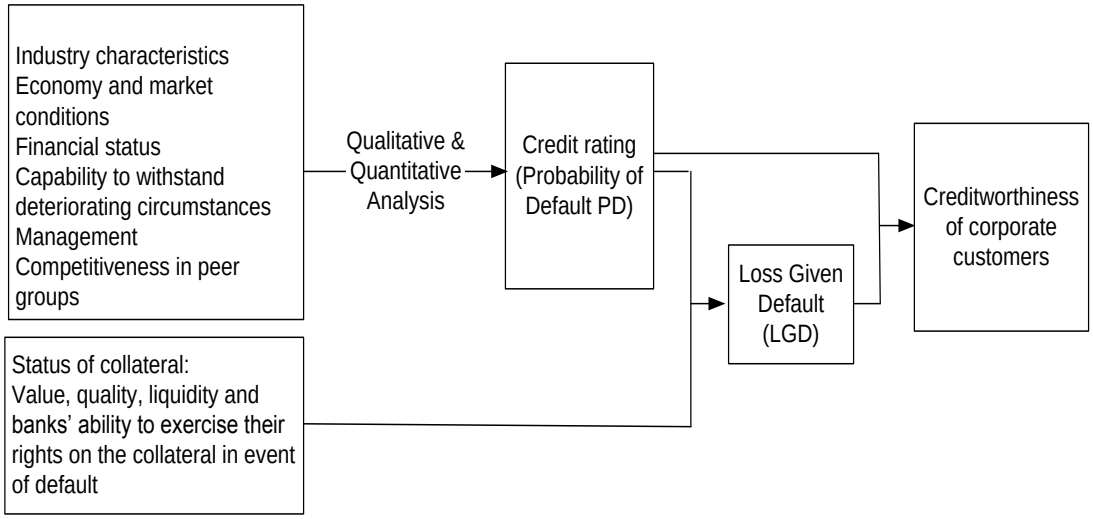
Credit submission generally requires:

> *…comprehensive evaluation of the Probability of Default (credit rating)*[76] *and the Loss Given Default, as well as a resultant loan structure where loan covenants, loan pricing and capital allocation are included.*

As stated by bankers, *'The evaluation of the Probability of Default and the Loss Given Default is the centrepiece and the fundamental part of the credit submission'*. The Probability of Default (PD) measures the probability that a corporate customer will default on its loan over given time horizons, and is manifested in the credit rating of the corporate customer. The Loss Given Default (LGD) measures a bank's credit loss in the event of loan default. The PD and the LGD co-determine the creditworthiness of a corporate customer. To determine the PD and the LGD, credit analysis needs to identify and assess risks and risk mitigations[77]. Therefore, the factors considered in credit analysis are surrounding the drivers for risks and risk mitigations (see Figure 5.4).

[76] Credit rating reflects a bank's estimation of borrowing firms' willingness and capability to meet their financial obligations in full and on time (Standard & Poor's 2011).

[77] According to Basel II, insurance, guarantees, hedging and collateral are all considered as risk mitigations. For the purpose of this study, risk mitigations refer to collateral pledged by corporate customers that aims to reduce the consequences if a risk event occurs. Insurance, guarantees and hedging are classified into risk transfer and thus are beyond the scope of this study.



Source: Developed for this study

Figure 5.4 Factors Determining the Credit Risk Profile of Corporate Customers

Bankers state that there is analysis around the economic and market situations affecting a corporate customer, the industry the corporate customer sits in, the corporate customer's current and expected financial status, its capability to withstand deteriorating circumstances and the quality of its management. Peer analysis is also undertaken as part of the credit analysis to *'...evaluate the corporate customer's competitiveness and soundness among its peers in the same industry'*. According to the information sourced from bankers, credit analysis is *'quantitatively and qualitatively balanced'*. Quantitatively, banks have *'...internal risk models which come up with a credit rating for each corporate customer'*; and this is a standardised process. However, the credit rating is not altogether risk model-driven; it is also supported by *'expert judgement'*. Based on comprehensive understandings of corporate customers and transactions as well as past experiences regarding the corporate credit process, credit analysts and credit officers make qualitative

judgements on the credit ratings emanating from risk models. Adjustments to the credit ratings from the internal risk models are allowed where appropriate.

As for the LGD, one banker states that *'What can offset the LGD to some extent is the collateral [pledged by corporate customers]'*. This statement is supported by bankers from the other two banks. These bankers indicate that collateral that has high value, high quality and high liquidity can, to a large degree, reduce the LGD. To determine the LGD, there is analysis on the status of collateral pledged by corporate customers. When referring to the status of collateral, it usually includes the value and liquidity of collateral and banks' ability to exercise their rights in the event of default.

Based on the credit analysis on risks and risk mitigations, and the negotiation between a bank and its corporate customer, the loan structure for approval is proposed[78]. It aims to minimise the bank's potential losses and maximise protection for the bank's interests for the particular case. Once the credit submission is ready, the corporate credit process goes to credit approval stage.

Credit approval stage

According to bankers, a credit approval decision is made *'...on the basis that risks have been effectively analysed and appropriately mitigated, in accordance with the bank's strategy, credit policy and relevant standards, to be compatible with the bank's risk appetite'*. Once a corporate loan application is approved by a bank based on the credit submission, the agreed loan structure should be documented as a legal agreement between the bank and its corporate customer.

[78] For the purpose of this study, a loan structure involves loan amount, loan price, loan covenants and other terms and conditions.

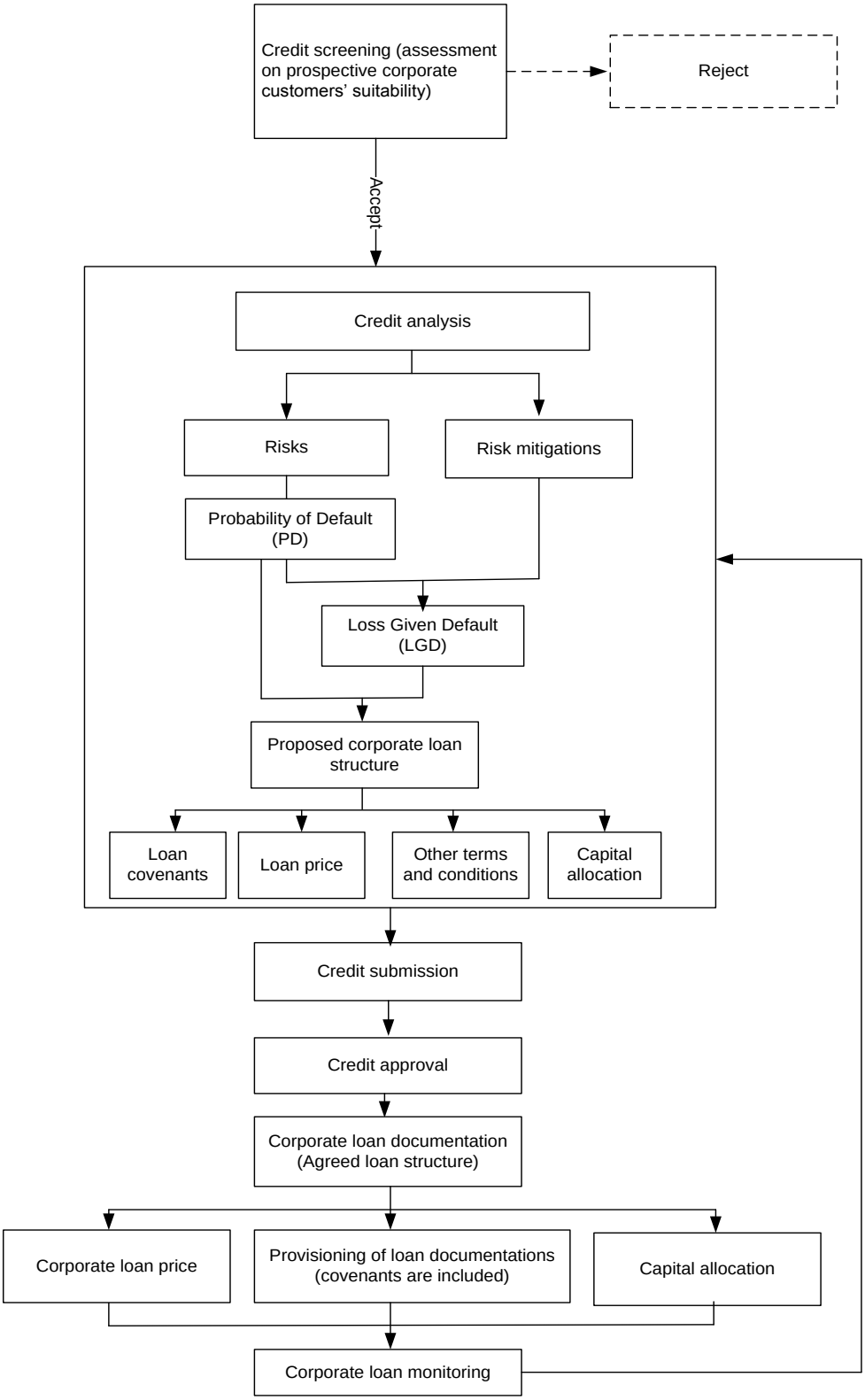
Documentation stage

In the documentation stage, the cost of bank loans, loan covenants and other terms and conditions under which a corporate loan is extended are documented as a corporate loan agreement. The legal agreement protects a bank's interests in corporate lending.

Loan monitoring stage

Loan monitoring starts once loans are disbursed. It involves regular reviews of *'…the changes of corporate customers' circumstances (i.e. macroeconomics, regulation, industry/sector prospect, markets, and financial status and management of corporate customers), and their on-going compliance with relevant legislation and loan agreement items'*. Loan monitoring aims to ensure the on-going performance of corporate customers is consistent with banks' expectations and compatible with banks' risk appetites. The primary monitoring tools of banks are *'…the applied legislation on corporate customers and loan agreements bonding the bank and corporate customers'*. During the life of a loan, problem management is needed when a risk event occurs. The detail of problem management is beyond the scope of this study and is not provided.

Bankers further add that although there can be a flow chart for banks' corporate credit processes as shown in Figure 5.3, the activities undertaken in the processes are not linear. These activities can be undertaken concurrently and back and forth in the corporate credit process (see Figure 5.5).



Source: Developed for this study

Figure 5.5 Activities in the Corporate Credit Process

As shown in Figure 5.5, there is a preliminary assessment of prospective corporate customers to evaluate whether they are suitable for banks; that is, a screening process for prospective corporate customers. If a bank decides to proceed with a prospective corporate customer, the results of the preliminary assessment will be considered as the basis for the subsequent credit analysis and added as part of the credit submission. Credit analysis is conducted regarding the PD and the LGD. On the basis of the credit analysis, the bank is able to negotiate the cost of bank loans, loan covenants and amount, as well as other terms and conditions to be included in the bank loan agreement. Credit analysis and the subsequent negotiation between the bank and the corporate customer regarding loan structure form the credit submission. Once the credit submission is approved by the Credit Officer, the proposed loan structure is documented as a legal contract which is known as a bank loan agreement. A bank loan agreement is used as a dominant tool in the loan monitoring stage. Given that circumstances of corporate customers change during the life of loans, loan monitoring, a post-transaction stage, is carried out as an on-going process.

The above discussions centre around the corporate credit process related to traditional risks for banks. Section 5.3 presents the rationale for the integration of environmental risks into banks' corporate credit processes.

5.3 Environmental Risks in Banks' Corporate Lending

This section presents bankers' views of environmental risks in banks' corporate lending. Section 5.3.1 demonstrates the findings about the definition and dimensions of environmental risks. Findings about the attributes of environmental risks are

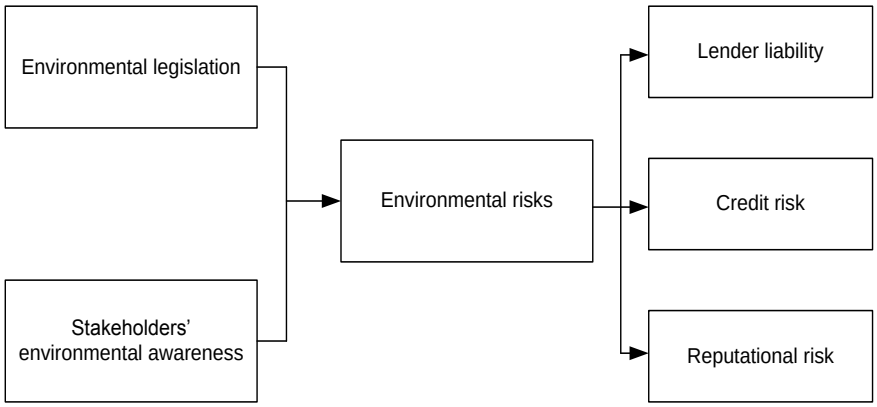
outlined in section 5.3.2. Following this, bankers' perceptions about the determinants of environmental risks facing banks are provided in section 5.3.3.

5.3.1 Definition and dimensions of environmental risks

One banker provides a general definition of environmental risks:

> *Environmental risks result from the impacts corporate customers are going to have on the environment, which are driven by environmental legislation and stakeholders' environmental awareness.*

Definitions of environmental risks from other bankers are consistent with this statement. Bankers indicate that environmental risks are unlikely to be quantified and quarantined from other risks in corporate lending. From a banker's point of view, environmental risks in corporate lending manifest themselves by way of lender liability, credit risk and reputational risk for banks[79](see Figure 5.6).



Source: Developed for this study

Figure 5.6 Drivers and Dimensions of Environmental Risks

[79] During the interviews, bankers confirm that lender liability is also referred to as direct risk; and credit risk can be used interchangeably with indirect risk.

Lender liability

Banks are concerned with lender liability which is usually in the form of clean-up costs for environmental damage and other environmental claims under applied environmental legislation. These costs and claims result from corporate customers' environmental impacts but are borne by banks when corporate customers are insolvent. The likelihood of lender liability is evaluated via environmental due diligence to ensure there is no potential lender liability for banks within banks' predicative ranges. Further, if a corporate loan comes to the point of default, banks need to consider how to exercise rights on the corporate customer and/or its assets to avoid lender liability. However, to the bankers' knowledge, there is no known case of a bank incurring lender liability due to loans extended to its corporate customers in Australia.

According to the bankers interviewed, *'Environmental risks can have considerable impacts on corporate customers' financial positions and can ruin the customers' reputation overnight'.* Major Australian banks are more concerned with credit risk and reputational risk that result from corporate customers' environmental issues.

Credit risk

One banker points out that *'The bank's concern from a credit risk point of view is predominantly on the probability that environmental issues will force corporate customers to default on their bank loans'*. There is consensus among bankers on this point of view. Bankers indicate that this probability is primarily driven by environmental legislation and the explanations for it are provided. Tighter environmental legislation can *'...result in increasing costs of the enterprises'*

business (e.g., enterprises need to have different premises and management systems to manage pollution for water, air and land, or charges for emissions to water, air and land are increased)'. Bankers state that the higher costs imposed by the tighter environmental legislation are likely to be passed on to consumers through the sales of corporate customers' goods and services. Consequently, tighter environmental legislation is likely to *'...lead to a higher cost on the goods and services of enterprises that are involved in environmentally sensitive activities'*. The higher prices of goods and services are likely to impair corporate customers' competitiveness and profitability in the market.

In addition, under environmental legislation, considerable environmental sanctions and claims are likely to be imposed on corporate customers who engage in environmentally sensitive activities. These sanctions and claims *'...negatively impact on the corporate customers' financial volatility and thus on their profitability and competitiveness'*. As a consequence, corporate customers' capability to repay their loans is impaired. One banker further states that:

> *Environmental risks may also show themselves in insurance cost that is against environmental risk events; insurance cost is likely to have impacts on corporate customers' cash flows and therefore have impacts on their overall credit standings*.

There is no discussion around insurance cost against environmental issues from other bankers. However, by influencing credit ratings of corporate customers, insurance cost is likely to impact on corporate customers' capability to repay bank loans.

Furthermore, the values and saleability of real properties can be impaired by contamination on the real properties. If real properties held as collateral by banks are

contaminated, the LGD for banks is higher. Bankers also indicate that banks will not accept contaminated real properties as collateral for loans under any condition. However, there are some cases where contamination of collateral occurs during the life of loans, and this is described by bankers as '*a disaster*' for banks.

Reputational risk

Reputational risk evaluation is considered as an integral part of banks' corporate credit processes. The reputation of banks is vulnerable to environmental scrutiny from the public and NGOs if they associate with transactions that cause environmental risk events or businesses with unfavourable environmental reputation. Accordingly, banks are likely to incur reputational risk due to these associations.

All participating bankers state that *'Reputational risk is judgemental and is not included in the bank's risk models'*. It is not possible for banks to quantify reputational risk, where reputational risk committees or their delegates are needed to make corporate lending decisions regarding reputational risk. One banker indicates that:

> *If the bank has the view that a corporate customer's business may present reputational risk for it, the reputational risk aspects of the particular corporate customer or transaction will be referenced to a reputational risk committee or its delegate to make a lending decision. The reputation risk committee is chaired by the Chief Risk Officer of the bank.*

The other banks have consistent systems to deal with reputational risk. Bankers indicate that reputation risk committees conduct evaluation at industry, corporate customer and transaction level in accordance with banks' policies and other relevant standards. The reputation risk committees are at the highest level of banks, and

involve senior executives and Chief Credit Officers. Generally, banks *'...tend to steer clear from highly controversial customers and transactions'*.

5.3.2 Attributes of environmental risks

Bankers articulate that the emergence of environmental risk events is much more dramatic than any other risk events. For example, when a corporate customer's revenue trends downwards, it is a signal of a financial risk event for banks. Banks will accordingly take actions before the financial situation of the corporate customer becomes unacceptable. However, there is usually a lack of such a signal for the emergence of an environmental risk event. In addition, bankers indicate that the consequences of an emerging environmental risk event are often catastrophic.

Consequently, it is unlikely that environmental risks are *'...to be precisely contemplated in corporate customers' financial forecasts as well as in the bank's credit approval process'*[80]. As such, environmental risks are considered a non-financial evaluation for corporate customers and transactions. Bankers indicate that as a qualitative input into credit analysis, environmental risks are likely to impact on the creditworthiness of corporate customers in certain circumstances.

5.3.3 Determinants of banks' exposure to environmental risks

There is consensus among bankers that:

> *The industry/sector a corporate customer belongs to, the quality of its management towards environmental issues and its financial resources to deal with environmental impacts are the key considerations when determining the bank's environmental risk exposure.*

[80] Bankers indicate that the credit process and the credit approval process are used interchangeably.

Industries/sectors that corporate customers belong to

Bankers have a consistent view that *'...environmental risks are usually associated with industries/sectors that corporate customers sit in'*. They also indicate that the significance of the consequences if an environmental risk event occurs depends on the industry/sector that a corporate customer belongs to. They provide further explanation as follows:

> *Corporate customers in environmentally sensitive industries/sectors are dealing with operations and/or products that can have catastrophic contamination on the environment in various forms. Therefore, other things being equal, the probability that environmental impacts force the corporate customers to default on their bank loans is higher. Accordingly, the bank assigns much higher weight on environmental issues of these corporate customers than those of corporate customers in environmentally friendly industries/sectors.*

An example is provided by one banker to support the above explanation:

> *...for example, if an environmental incident is caused by a corporate customer in the oil and gas industry, there will be a massive environmental claim (e.g., clean-up and remediation costs) against the corporate customer. The financial viability and volatility of that corporate customer will be largely affected.*

However, bankers comment that it does not mean banks prefer not to lend to corporate customers in environmentally sensitive industries/sectors. Corporate customers in environmentally sensitive industries/sectors do not necessarily expose banks to environmental risks that are beyond their acceptable ranges.

Quality of corporate customers' environmental management and their financial capability

There is consensus among bankers that:

> *Significant environmental issues of corporate customers do not necessarily mean that the bank won't finance the corporate customers or will impose punitive higher prices [cost of bank loans]. The key dimensions are the quality of their environmental management, how experienced the management is, as well as whether the corporate customers make commitments and have sufficient financial resources to manage emerging environmental issues. We [the bank] are prepared to take on environmental risks as long as we are comfortable with the corporate customers' environmental management and their financial capacity to deal with emerging environmental issues.*

Bankers provide consistent explanations for this opinion. They indicate that corporate customers' environmental management has a critical impact on the probability that environmental risk events occur. This is evidenced in the words of one banker:

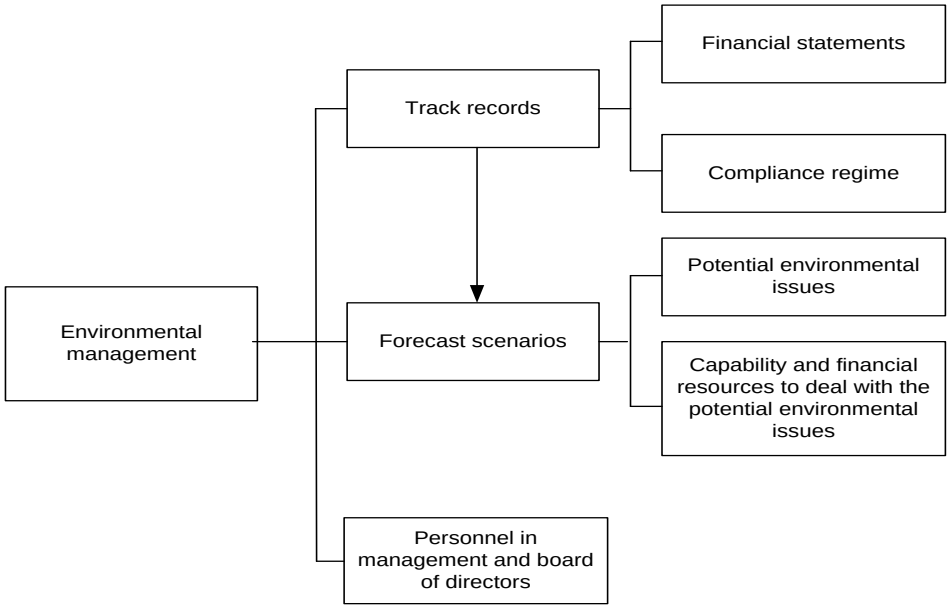
> *If corporate customers have been managing their environmental issues well and environmental risk events are not emerging, the probability of environmental risk events actually emerging is lower than their peers that do not have such good track records.*

According to the bankers interviewed, in addition to checks on the track records of corporate customers' environmental management, a prospective assessment of their environmental management is required. With regard to the factors involved in the assessment of corporate customers' environmental management (see Figure 5.7), there is consensus among bankers that:

When assessing the track record of a corporate customer's environmental management, the considerations are mainly the corporate customer's financial statements and compliance regime it has in place. If a bank loan is of large amount, it [the bank] is likely to get independent consultancies to review them [statements and compliance regime] both when the bank takes the corporate customer on-board and on an ongoing basis to pick up any environmental issues.

The bank also does prospective evaluation, involving what environmental issues there are and what resources do the corporate customer needs to fix the environmental issues without taking the credit to the level that the bank is not comfortable with.

…[The bank] will see who are in the main management and board of directors now, have they been in the positions in the past, and will they change going forward. If a key person in management or board of directors of a corporate customer leaves, the bank will take it as a trigger to relook at the corporate customer's management.



Source: Developed for this study

Figure 5.7 Factors in the Assessment of Corporate Customers' Environmental Management

In spite of the statements above, bankers indicate that these factors are not solely sufficient to determine the quality of corporate customers' environmental management. To this end, bankers add that dialogue or discussions between banks and corporate customers are of significant importance by providing banks with further opportunities to better understand corporate customers' environmental management. Based on the retrospective and prospective assessment of corporate customers' environmental management, as well as the dialogue/discussions, banks can make judgements on the quality of corporate customers' environmental management.

Bankers further indicate that robust financial capability of corporate customers in dealing with environmental issues can, to a certain degree, offset the consequences of emerging environmental risk events. Therefore, corporate customers' financial capability can play an important role in determining banks' exposure to environmental risks.

However, bankers emphasise that if significant potential reputational risk exists, banks choose not to lend at the outset even though corporate customers have sound environmental management and sufficient financial resources to manage their environmental issues (see details in section 5.4.1). The reason for this is that '…*the bank could never charge enough for the impact on its reputation'.*

Based on the findings outlined in section 5.3, environmental risks are likely to expose banks to significant financial and reputational losses in both the short- and long-term in corporate lending. In the words of one banker, *'The consideration of environmental issues is critical for any organisations' viability under the tighter environmental legislation and the increasing scrutiny from stakeholders'*. To

mitigate the impacts resulting from environmental risks and make more responsible corporate lending decisions, ERM in banks' corporate credit processes is of paramount importance. The findings about banks' ERM are documented in section 5.4.

5.4 ERM in the Corporate Credit Process

There is a consistent view among bankers that:

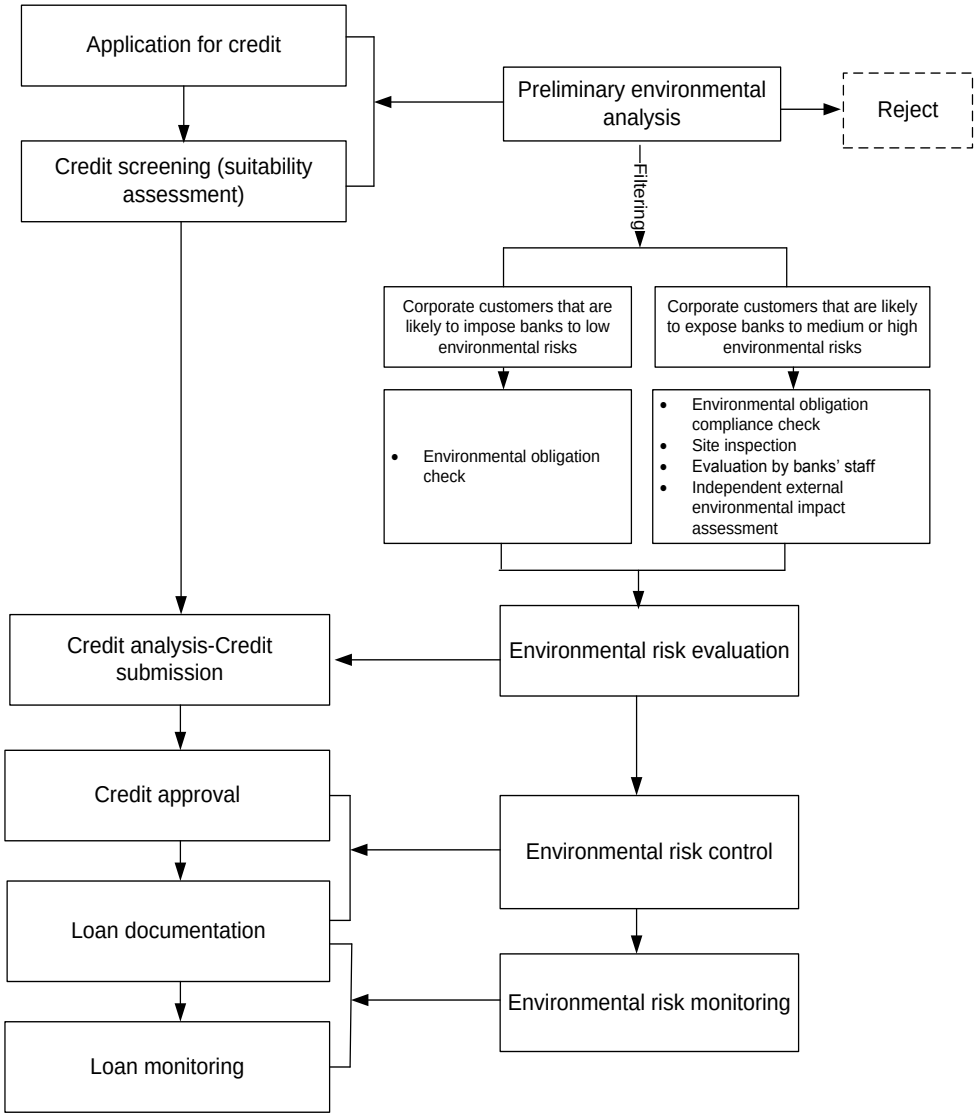
> *When the bank is looking at environmental risks, the most important thing is that the bank has a general framework that everyone understands. The framework is compiled from the thoughts of people that really understand the sector and the transaction, so that environmental risks can be identified and dealt with appropriately and effectively.*

To this end, bankers further indicate that ERM in banks' corporate lending is composed of:

- Initial environmental risk identification and assessment based on readily available information of corporate customers. This leads to the decision on whether to proceed with a loan application and to what extent further environmental risk evaluation should be undertaken if the loan application is to proceed.
- Identifying the potential environmental risk events based on further environmental risk investigation.
- Assessing the likelihood of environmental risk events occurring, the significance of the consequences if environmental risk events emerge and corporate customers' financial resources that are allocated to their environmental impacts.

- Controlling banks' exposure to environmental risks within their acceptable limits.
- Monitoring environmental risks on an on-going basis, which includes the continuous evaluation on environmental conditions of corporate customers and any real property held as collateral.

These components are specified in sections 5.4.1, 5.4.2 and 5.4.3. In addition, in the words of one banker, *'Environmental risks are different from traditional risks, but they are one risk of many and the bank considers them as one critical input into the credit approval process'*. This point of view is supported by other bankers who indicate that environmental risks are a highly influential indicator in banks' corporate credit processes. Accordingly, bankers claim that ERM is considered an integral part of banks' corporate credit processes; that is, ERM is inherent in every stage of banks' corporate credit processes (see Figure 5.8).



Source: Developed for this study

Figure 5.8 ERM in the Corporate Credit Process

5.4.1 Preliminary environmental analysis

As discussed in section 5.2.2, there is a credit screening process where preliminary assessments for prospective corporate customers and transactions are undertaken. Corresponding to this, there is a preliminary environmental analysis stage in the

ERM process. In the preliminary environmental analysis stage, banks' strategies, values and environmental policies play a fundamental role by setting threshold requirements for prospective corporate customers. Bankers have consistent views that:

> *…[the bank] has to consider prospective corporate customers' activities against our [the bank] own corporate responsibility and whether they [the prospective corporate customers] are operating in a manner that is consistent with our values.*

Additionally, bankers indicate that there are group environmental policies that provide guidance for integrating environmental risks into banks' lending businesses. They serve as *'…overarching frameworks to screen and filter prospective corporate customers in terms of their environmental issues'*. In addition to an overarching environmental policy, one bank has specific environmental policies for particular environmentally sensitive industries/sectors [81](e.g., water, forestry and forest, and energy). The specific environmental policies are used by this bank to screen and filter prospective corporate customers in these particular industries/sectors.

To obtain the information required by the preliminary environmental analysis, banks provide prospective corporate customers with questionnaires. The structural questions in banks' questionnaires generally cover the following factors:

> *It [the questionnaire] aims to identify environmental issues of prospective corporate customers and transactions, applied environmental legislation, the way prospective corporate customers are going to manage environmental*

[81] According to the bankers interviewed, *'…extending loans to corporate customers in environmentally sensitive industries/sectors is more likely to expose the bank to medium or high environmental risks'*.

issues in their businesses, and also their commitment and financial capacity to managing these issues.

Through questionnaires, banks can obtain initial understandings of *'...prospective corporate customers' nature of business, their legislative compliance and their environmental management'*. On the basis of the initial understandings, banks are able to screen prospective corporate customers against their strategies, values and environmental policies. The screening leads to two levels of initial decision-making. The first level leads to a decision about whether a bank should reject a prospective corporate customer or not. If the bank decides to on-board the prospective corporate customer, a subsequent decision is needed to determine the grade of environmental risks (low, medium and high) the corporate customer is likely to expose the bank to[82]. This initial environmental risk grade determines the level and rigor of the subsequent environmental analysis undertaken for the corporate customer.

Discussion with bankers indicates that from an environmental point of view, if a prospective corporate customer is in breach of any applied environmental obligations, banks generally choose not to lend in the first place. If a prospective corporate customer has a poor track record of compliance with applied environmental obligations, banks either reject the prospective corporate customer or consider it as a corporate customer that exposes banks to medium or high environmental risks. In addition, bankers have a consistent view that *'The bank chooses not to lend if it has an initial perception that they [prospective corporate customers] don't have responsible and adequate environmental management'*. Furthermore, there is

[82] The environmental risk grade is an initial classification, which might be changed in the environmental risk evaluation stage. In the preliminary environmental analysis stage, the analysis is usually based on information that is easily to access, such as a desk-top review and the questionnaire survey.

consensus among bankers that *'The bank usually avoids associating with companies with unfavourable environmental reputation, as reputation can be destroyed overnight but takes long term to build.'*

Once a prospective corporate customer is considered as suitable and an initial environmental risk grade is assigned, the following stage is to evaluate environmental risks facing banks. The results of the evaluation are an input into the credit submission of the corporate credit process.

5.4.2 Environmental risk evaluation

Bankers articulate that environmental risk evaluation is an integral part of credit analysis in the corporate credit process and the results of environmental risk evaluation are included in the credit submission. Bankers consider environmental risk evaluation to be a similar process to other traditional risk evaluation in the corporate credit process. This is evidenced in a statement:

> *With environmental risks, the same thing, the bank needs to understand environmental issues a corporate customer and a transaction face with, how environmental issues are managed by the corporate customer, and what are the likely changes of environmental aspects of the corporate customer during the life of the loan. The bank also needs to understand whether environmental risks the bank is exposed to are consistent with environmental risks that it has supported.*

Accordingly, environmental risk evaluation aims to:

> *...gain a good understanding of a corporate customer's environmental aspects, its compliance with applied environmental legislation, its capability to manage environmental issues and its financial resources to address the*

environmental consequences resulting from emerging environmental risk events.

As mentioned in section 5.4.1, the initial environmental risk grade resulting from preliminary environmental analysis determines the form, level and rigor of the activities in the environmental risk evaluation stage. The evaluation of environmental risks is more detailed, more rigorous and involves more actions when dealing with corporate customers who are likely to expose banks to medium and high environmental risks[83]. Bankers have a consistent view that:

Environmental obligation compliance check is for all corporate customers. Environmental investigations by the bank's analysts and/or credit officers are conducted for corporate customers that are likely to expose us [the bank] to medium and high environmental risks. Independent external environmental impact assessment and site inspections are likely to be conducted where appropriate when dealing with corporate customers in environmentally sensitive industries/sectors.

According to the bankers interviewed, most environmental issues are governed by the compliance framework under Australian environmental legislation and reviewed regularly by government authorities. All companies are required to comply with applied environmental legislation from their local government, state government and federal government. It is a minimum requirement for corporate customers.

From a retrospective perspective, banks are looking at corporate customers' track records of their compliance with applied environmental legislation. If environmental legislation was breached, details about the reasons, levels and resultant management

[83] Corporate customers in environmentally sensitive industries/sectors usually expose banks to medium and high environmental risks. Corporate customers in environmentally friendly industries/sectors usually expose banks to low environmental risks; in certain circumstances, they can also expose banks to medium environmental risks, e.g., when corporate customers have poor quality of environmental management.

are required. For corporate customers exposing banks to medium and high environmental risks, banks also ask for notices from environmental authorities such as the Environmental Protection Authority (EPA)[84]. Furthermore, banks forecast the changes of the applied environmental legislation and their impact on corporate customers' ability to repay bank loans. Therefore, banks conduct environmental obligation compliance checks by *'...reviewing whether and to what extent the compliance framework has been adhered to [by corporate customers]'* and *'...predicting the impact that potential changes of environmental legislation are going to have on corporate customers' repayment ability'*.

For corporate customers that are likely to expose banks to medium and high environmental risks, there is investigation around corporate customers' environmental aspects undertaken by banks' analysts and/or credit officers. Independent external environmental impact assessment and site inspections are also undertaken for these corporate customers. The environmental investigation by bank staff involves analytical instruments and expert judgement, and independent external environmental impact assessment and site inspections require environmental expertise. Accordingly, a detailed discussion of those aspects is not provided by bankers and is beyond the scope of this study. On the basis of an appropriate environmental risk evaluation, banks are likely to effectively manage their environmental risk exposure.

[84] The notices are for these corporate customers' environmental offences. Generally, environmental authorities like the EPA always keep an eye on environmentally sensitive industries/sectors. They regularly report on any emerging environmental risk event.

5.4.3 Environmental risk control and monitoring

Bankers indicate that environmental covenants in loan agreements and regular reviews of corporate customers' environmental aspects are the widely used mechanisms to control and monitor environmental risks. Additionally, two bankers suggest the inclusion of a Material Adverse Change Clause in loan agreements to manage environmental risks. However, the cost of bank loans is not considered by bankers as a mechanism to control or monitor environmental risks facing banks.

Section 5.4.3.1 provides findings about the form, contents, determinants and functions of bank loan covenants. Following these, findings about environmental covenants are presented in section 5.4.3.2. Bankers' opinions on regular reviews to control and monitor environmental risks are provided in section 5.4.3.3. The rationale by bankers for using the Material Adverse Change Clause to manage environmental risks is provided in section 5.4.3.4.

5.4.3.1 Bank loan covenants

Loan covenants are required by major Australian banks in corporate lending, as *'…they [covenants] protect the bank's interests from the deterioration of corporate customers' financial status and/or changes of corporate customers' circumstances'*. In this regard, bankers indicate that loan covenants need to be *'practical and effective'*. To achieve this, bankers claim that it is necessary to *'…undertake comprehensive credit analysis of particular corporate customers and transactions, which addresses each risk, risk mitigation, and justifies why the transactions with the corporate customers meet required credit and economic requirements'*.

The form and contents of loan covenants

As indicated by bankers, covenants in corporate loan agreements are predominantly financial covenants. Bankers provide consistent explanations that *'They [financial covenants] are quantitative and objective, thereby are easier to measure and monitor'*. One banker states that:

> *Covenants for corporate lending predominantly rely on the balance sheet strength of corporate customers. They are normally gearing covenants, cash flow covenants or interest cover covenants. Gearing covenants are used more frequently'*[85].

Consistent with this banker's viewpoint, other bankers also point out that loan covenants are generally balance sheet covenants, which are typically in the form of gearing covenants, interest cover covenants or debt service cover covenants (cash flow cover covenants).

Bankers indicate that covenants mentioned above are only the key covenants in major Australian banks' corporate lending; other covenants that are customised in terms of the particular circumstances of corporate customers are also applied[86]. As stated by one banker and supported by opinions of other bankers, *'There is always scope for either a credit officer or a relationship manager adding covenants that are specific to that particular corporate customer and transaction'*. As such, there are

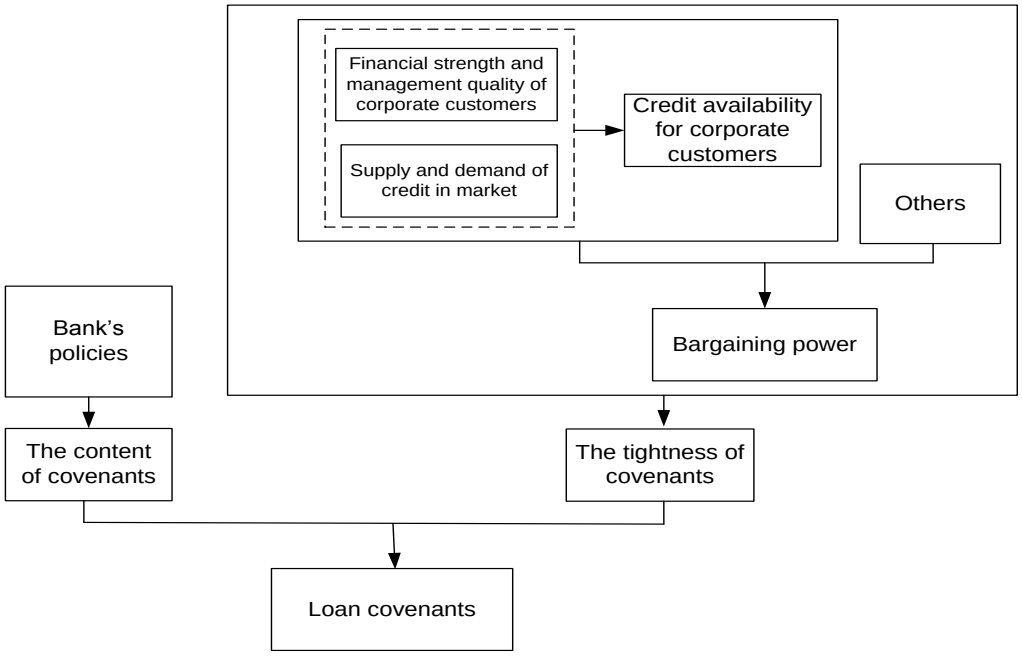
[85]According to bankers, gearing can be either net debt over net debt plus equity, or a net debt over EBITDA (Earnings before interest and taxes, less depreciation and amortization). Increased gearing raises the probability of financial distress of corporate customers.

[86] One banker provides examples of specific covenants: supply bank with a copy of audited financial accounts at an agreed frequency and within a reasonable timeframe of the date to which the accounts relate; advise bank of any Event of Default, Review Event or Potential Event of Default occurring; material litigation, asset write-downs, any material change in its business, the nature of its business, or its internal management; any change in its ownership or control; maintain adequate environmental risk management and comply with all relevant environmental laws; no disposal of substantial assets or grant security over assets to another party without the bank's consent.

numerous contextual judgements deployed in the establishment process of loan covenants.

Determinants of bank loan covenants

Bankers indicate that *'It [the setting of covenants] is predominantly determined by a combination of the bank's policies and the circumstances of a corporate customer'*[87]. According to bankers, covenants in corporate loan agreements usually have three components: a standard suite of covenants stipulated by banks' policies that every corporate customer has to abide by, the industry/sector-based covenants for corporate customers in particular industries/sectors, and specific covenants customised to particular corporate customers. Figure 5.9 depicts the determinants of bank loan covenants.



Source: Developed for this study

Figure 5.9 Determinants of Loan Covenants

[87] Setting of covenants or covenant setting refers to the contents and tightness of covenants.

In the words of one banker, *'There are not a lot of arguments about which covenants a corporate customer should have in a loan agreement, but about the level [tightness] of covenants'*. Other bankers also comment that the negotiations of loan covenants between banks and corporate customers focus on the level (tightness) of covenants banks can impose. Banks measure the tightness of covenants by the latitude for corporate customers to run their businesses without breaching their covenants. With tight covenants, *'…there is not much latitude for them [corporate customers] to go around in running their businesses'*.

Bankers consider bargaining power of corporate customers as the determinant of the level (tightness) of covenants in corporate loan agreements. This is evidenced in the following statements from three bankers:

> *The primary determinant of the strength of a covenant package a corporate customer can negotiate is its bargaining power.*
>
> *Generally, covenants for corporate customers in the top end market are weak [soft] because they [top end market corporate customers] have strong bargaining power.*
>
> *Corporate customers with strong bargaining power are likely to have softer covenants, as they are usually experienced and advanced in management.*

Bankers describe bargaining power as *'…the extent to which the bank is prepared to give something up to win or retain a corporate customer'*. The reason corporate customers with stronger bargaining power are able to negotiate softer covenants is also provided by bankers. Bankers indicate that corporate customers with strong bargaining power are likely to have less volatile cash flows, higher competitiveness

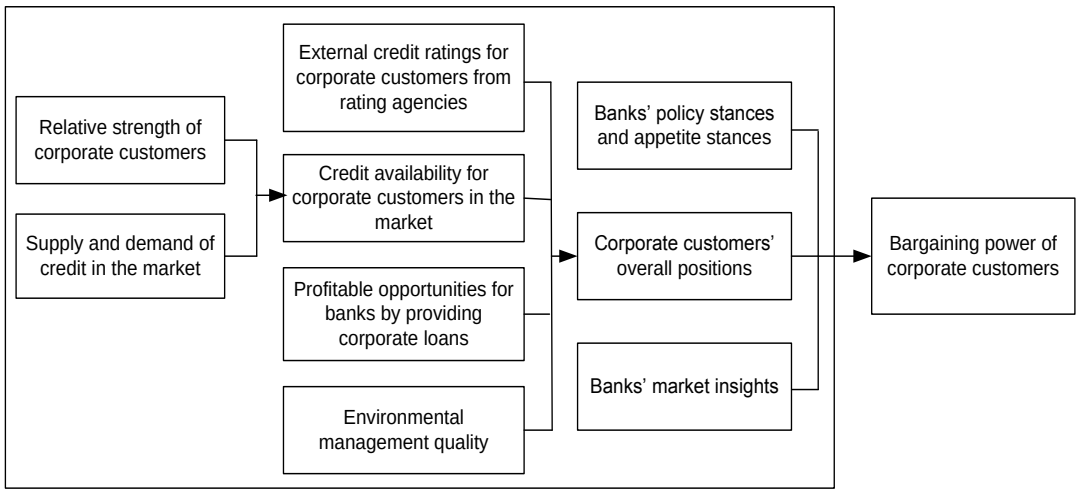
compared to their peers, better capability of management and favourable perceptions from their stakeholders.

Bankers indicate that bargaining power of corporate customers needs to be considered on the basis of banks' *'policy stance and appetite stance'*. Corporate customers' overall positions also have a critical role to play in determining their bargaining power. To this end, discussion with bankers indicates that '*Bargaining power of a corporate customer is predominately measured by the relative strength of the corporate customer and the competition among banks bidding for the corporate customer'*[88]. The supply and demand effect in the market and the relative strength of a corporate customer determine the competition among banks bidding for the corporate customer and thus determine the credit availability for it. Bankers add that external credit ratings of corporate customers from rating agencies (e.g., Standard & Poor's and Moody's) can be used as one reference to evaluate corporate customers' bargaining power. In addition, there is consensus among bankers that *'...profitable opportunities that corporate customers might present to the bank'*, to a certain degree, influence the bargaining power of corporate customers. Furthermore, quality of environmental management by corporate customers contributes to their bargaining power (see details in section 5.4.3.2).

From the perspective of bankers, bargaining power of corporate customers is '*highly contextual and dynamic'* and *'The bank has a lot of market insights into what's happening in the market and thus understands the bargaining powers of its customers'.* That is, critical and comprehensive judgements in contexts by banks are involved in determining bargaining power. Therefore, a thorough evaluation of

[88] The relative strength of a corporate customer involves the analysis on the corporate customer's financial strength and management quality.

bargaining power of corporate customers is beyond the research scope. This study only focuses on documenting the determinants of bargaining power mentioned by bankers (see Figure 5.10).



Source: Developed for this study

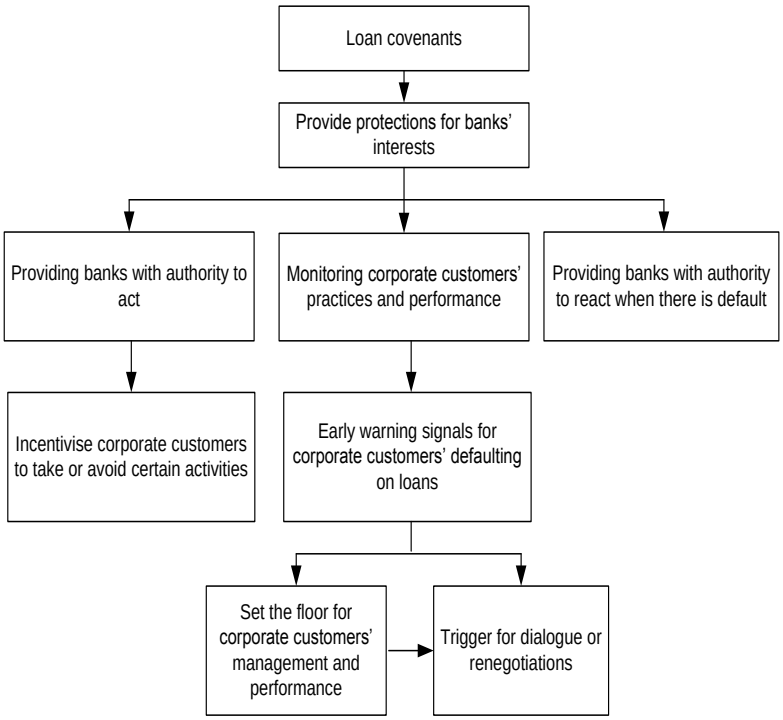
Figure 5.10 Determinants of Corporate Customers' Bargaining Power

It is worth noting that covenants are not able to provide banks with complete protection from risks. According to bankers, it is unlikely that covenants are able to cover every potential risk. Bankers indicate that the circumstances of a corporate customer are changing over time and the changes are not always predictable by banks. In addition, they emphasise that bank loan covenants need to be practical and effective; too much constraint will be costly and inapplicable.

Functions of loan covenants

There is consensus among bankers that *'Covenants are around managing risks, which allows the bank to keep an eye on its corporate customers and have authority to act and/or react'.* Exploratory interviews with bankers reveal that there are several

approaches through which loan covenants provide protections for banks' interests in their corporate lending (see Figure 5.11).



Source: Developed for this study

Figure 5.11 Functions of Loan Covenants

According to bankers, covenants indicate whether a corporate customer is performing as anticipated by banks and *'...provide the bank with the authority/rights to react for remediating the deteriorations of the corporate customer's financial position or the changes in the circumstances [of the corporate customer] before [the corporate customer] defaulting on the loan'*. Accordingly, covenants can provide banks with *'early warning signals'* for corporate customers' defaulting on their loans.

Bankers further provide consistent opinions that loan covenants work as early warning signals. In the words of one banker:

> *Bank sets the level [tightness] of covenants including buffers, which provides early warning signals for the bank to react before situations become unacceptable. For example, there might be interest cover covenants or covenants requiring that a corporate customer has to maintain a certain amount of capital. Because of the buffers inherent in the level of covenants, when the corporate customer breaches those covenants, it is still likely to have room away from defaulting on its loans.*

Due to the early warning signals, banks are able to *'...set the floor for corporate customers' management and performance'* and *'...work as drivers for dialogue or negotiations between the bank and corporate customers'*. In this regard, a statement from one banker and supported by other bankers' views is:

> *If their [corporate customers'] management quality deteriorates and thus their performance trends downwards to a certain degree, covenants will be breached. What the covenants can do is provide a mechanism to trigger discussions between the corporate customers and the bank.*

By triggering dialogue or discussions between corporate customers and banks, covenants in turn provide banks with an opportunity to gain a further understanding of the corporate customers' management quality. This viewpoint is well-reflected in one banker's statement:

> *The qualitative inputs [into the credit submission] such as the quality of corporate customers' management are difficult to measure. The dialogue or discussions between the bank and corporate customers provide opportunities for the bank to have a better understanding on the corporate customers and their management quality. Through the dialogue or discussions with customers, the bank is able to form perceptions or judgements on the*

corporate customers' management quality and decide whether to trust the corporate customers or not.

In addition, exploratory interviews with bankers reveal that banks are *'...empowered to incentivise corporate customers to take certain actions or to avoid certain activities'* by including particular covenants in loan agreements. The particular covenants can include requirements for corporate customers to provide banks with periodic financial reporting or not to sell assets without permission from banks. Furthermore, when corporate customers become insolvent, covenants are likely to provide banks with authority to react to minimise their losses.

Section 5.4.3.1 reports findings about the form, contents, determinants and functions of traditional bank loan covenants. Covenants related to environmental aspects are delineated by bankers in the following section.

5.4.3.2 Environmental covenants

All bankers indicate that there are environmental covenants in corporate loan agreements that are used to manage environmental risks facing banks. Bankers further point out that the establishment process of environmental covenants is similar to that of traditional covenants in bank loan agreements. They indicate that environmental covenants are established based on a comprehensive analysis of environmental aspects at industry/sector, corporate customer and transaction level.

The form and contents of environmental covenants

As stated by one banker and supported by the points of view of other bankers, '*There are environmental covenants in bank loan contracts, but they are not in the form of financial covenants'*. Bankers explain that the consequences of an emerging

environmental risk event are usually catastrophic, and thus the resultant variability/volatility of cash flows is likely to go beyond a bank's acceptable range. In addition, environmental issues of corporate customers are not *'cash flow dynamics'* although they can result in massive financial consequences for corporate customers. Accordingly, banks are not able to fold their environmental risk exposure into accounting numbers, and thus environmental covenants are non-financial covenants.

Furthermore, bankers provide information about typical environmental covenants in corporate loan agreements. There is consensus among bankers:

> *Given that a lot of environmental aspects are already governed by the compliance framework, environmental covenants are typically a requirement for corporate customers to comply with environmental legislation or to maintain their operating certificates. What we [the bank] want is to make sure the compliance framework has been adhered to [by corporate customers]*.

They also indicate that providing banks with a periodic environmental report is another typical environmental covenant for corporate customers. With this environmental covenant, banks are able to regularly review corporate customers' practices and performance related to environmental aspects. Interviews with bankers reveal that environmental covenants in corporate loan agreements are largely typical environmental covenants. The explanation is demonstrated below:

> *Environmental issues have so much to cover, e.g. polluting the water, air, soil, knocking down the trees. There are so many issues under the environment and there is no way we [the bank] can put specific environmental covenants in terms of these environmental issues in a loan document.*

However, bankers have consistent opinions that *'...whether and to what extent environmental covenants go beyond the typical requirements of environmental*

disclosure and corporate customers' compliance with their environmental obligations is determined by the particular circumstances of corporate customers'. Following this point of view, bankers consistently articulate that:

> *We [the bank] would customise the structure of environmental covenants based on a thorough understanding of environmental issues inherent in the industries/sectors, corporate customers and the transactions. There are different environmental issues (type and significance) in different industries/sectors and for different corporate customers. So the first thing is we [the bank] need to understand the industries/sectors and the corporate customers, and what environmental issues there are. We [the bank] then need to look at the actual deals [transactions] that are being done and what environmental issues they [transactions] are giving rise to.*

To support this articulation, bankers provide specimens of specific environmental covenants. In the words of one banker:

> *Most mining projects have rehabilitation liabilities. Environmental covenants are likely to be in place on a mining operation to make sure that the corporate customer retains sufficient cash to meet its environmental liabilities at the end of the period [of the operation]. When financing a power station, the bank can put covenants claiming that the bank will refinance the customer only on the basis that the customer invests in renewable energy technology.*

The tightness of environmental covenants

All bankers claim that environmental covenants are not only customised by their contents, but the tightness of environmental covenants is also tailored in terms of banks' environmental risk exposure. This point of view is evidenced in a statement by one banker:

If a corporate customer is in an environmentally friendly industry, the bank generally relies on the corporate customer's compliance with applied environmental legislation and its [operating] licence. But there are also corporate customers that the bank wants to understand how they get to comply depending on the environmental risks they expose the bank to. For corporate customers in environmentally sensitive industries, the bank would introduce environmental covenants that enable it to examine the corporate customers' compliance with their environmental obligations more regularly and ask for more disclosures and more regular reviews on what the corporate customers are doing to manage their environmental issues.

As stated in section 5.4.3.1, a corporate customer with strong bargaining power is likely to have softer covenants which provide the corporate customer with more latitude to run its business without breaching the covenants. Bankers indicate that a corporate customer with strong bargaining power is also likely to have softer environmental covenants in loan agreements. The implication is that banks' environmental risk exposure is likely to be lower when extending loans to a corporate customer with strong bargaining power. An explanation for this is also provided by bankers.

The industry/sector in which a corporate customer sits, the quality of the corporate customer's environmental management, and its financial resources to deal with environmental issues determine banks' exposure to environmental risks (see details in section 5.3.3). With regard to environmental aspects of a corporate customer and its bargaining power, there is consensus among bankers that:

Corporate customers' management of environmental issues go into bargaining power as well. If we [the bank] have customers that have stronger bargaining power but significant environmental issues, my experience with these corporate customers is that they are very big and very well capitalised

and they are very sophisticated. On the whole they are leading the world in managing environmental issues.

Customers with strong bargaining power usually are advanced and sophisticated in evaluating and managing environmental issues. From those customers, the financial system learns a lot; they are mostly the ones that trended towards best practice[89] *in environmental management.*

Functions of environmental covenants

Bankers point out that environmental covenants, structured around banks' exposure to environmental risks, are designed to make sure banks have the authority to take actions if environmental risks facing them become more than what they forecast at loan origination. Bankers further indicate that environmental covenants are necessary for banks to monitor corporate customers' environmental practices and performance as an on-going process. In the words of one banker:

We [the bank] think it is appropriate to apply environmental covenants for monitoring corporate customers' compliance with applied environmental legislation and their operating licences. Environmental covenants are also necessary for the bank to review how they [corporate customers] manage their environmental issues on a regular basis.

However, bankers indicate that the emergence of an environmental risk event is more dramatic and environmental covenants are not in the form of financial covenants. Therefore, it is unlikely for environmental covenants to provide banks with early warning signals for the emergence of an environmental risk event.

[89] For the purpose of this study, corporate customers' best practice in environmental management refers to energy and water efficiency, recycling and waste reduction.

To this end, bankers point out that environmental covenants alone are not sufficient to control and monitor environmental risks given their attributes[90]. Bankers imply that environmental covenants and financial covenants can be integrated into one systematic mechanism to manage environmental risks. However, they further comment that banks are at an early stage in establishing the point where environmental covenants and financial covenants are able to cooperate effectively and efficiently.

Under this circumstance, to ensure that corporate customers are performing as banks anticipate and that banks are aware of the changes in corporate customers' credit ratings related to environmental aspects, banks need to conduct regular reviews. According to bankers, there is *'...annual review or review that is more often on environmental aspects of corporate customers depending on their circumstances'*. Findings related to regular reviews by banks of their corporate customers are discussed in the following section.

5.4.3.3 Regular review

Bankers express a consistent view that:

> *Once we [the bank] put a deal in place, every year the transaction and the corporate customer need to be reviewed. The review allows us [the bank] to relook at the corporate customer and the transaction as well as relook at how the loan is performing. If we [the bank] are not happy with what the corporate customer is doing in terms of managing its environmental issues, we [the bank] will look to exit the relationship.*

As for the factors involved in a regular review, there is consensus among bankers:

[90] The attributes of environmental risks is as described in section 5.3.2.

We [the bank] review the prospects of the industry a corporate customer sits in, financial performance of the corporate customer, its management, its competitive practices and we [the bank] look to satisfy ourselves that the direction of the corporate customer is relatively consistent with what we [the bank] have previously forecast.

During regular reviews, it is possible that changes in corporate customers' circumstances are identified. As already mentioned in the previous section, it is not possible and extremely costly for environmental covenants to cover all environmental aspects. Therefore, it is necessary for banks to have the ability and authority to conduct investigations into corporate customers where necessary. Inspired by this point of view, two bankers suggest that the Material Adverse Change Clause can be used to manage environmental risks. Findings about the Material Adverse Change Clause can be found in section 5.4.3.4.

5.4.3.4 Material Adverse Change Clause

Bankers mention that the inclusion of a Material Adverse Change Clause in loan agreements can provide banks with ability and authority to review the circumstances of corporate customers where necessary. This is evidenced in the following statement:

Generally, in most of loan documents [loan agreements] the bank has what's called a Material Adverse Change Clause. Instead of calling the loan immediately, the bank has the right to review the loan first if something has materially changed during the life of the loan. In such case, the bank normally put a time frame to see what the corporate customer is going to do, how it is going to fix the issues and what have been changed; the corporate customer normally has 30 days or 60 days. At the end of the period, if the bank is still not content with the circumstances, the bank can cease the relationship.

Bankers interviewed claim that there is no such case to date where a Material Adverse Change Clause has been applied to manage environmental risks. However, given the attributes of environmental risks, one banker states that *'I suppose it [the Material Adverse Change Clause] can be applied if there is significant environmental risks facing the bank'*. Another banker from a different bank expresses a similar view, while the other bankers do not make statements related to the inclusion of a Material Adverse Change Clause in managing environmental risks.

Section 5.4.3 provides findings in relation to mechanisms to control and monitor environmental risks in corporate lending. Following this, section 5.4.4 demonstrates the findings about the cost of bank loans and reasons that it is not considered as a mechanism to manage banks' environmental risk exposure in corporate lending.

5.4.4 Environmental risks and the cost of bank loans

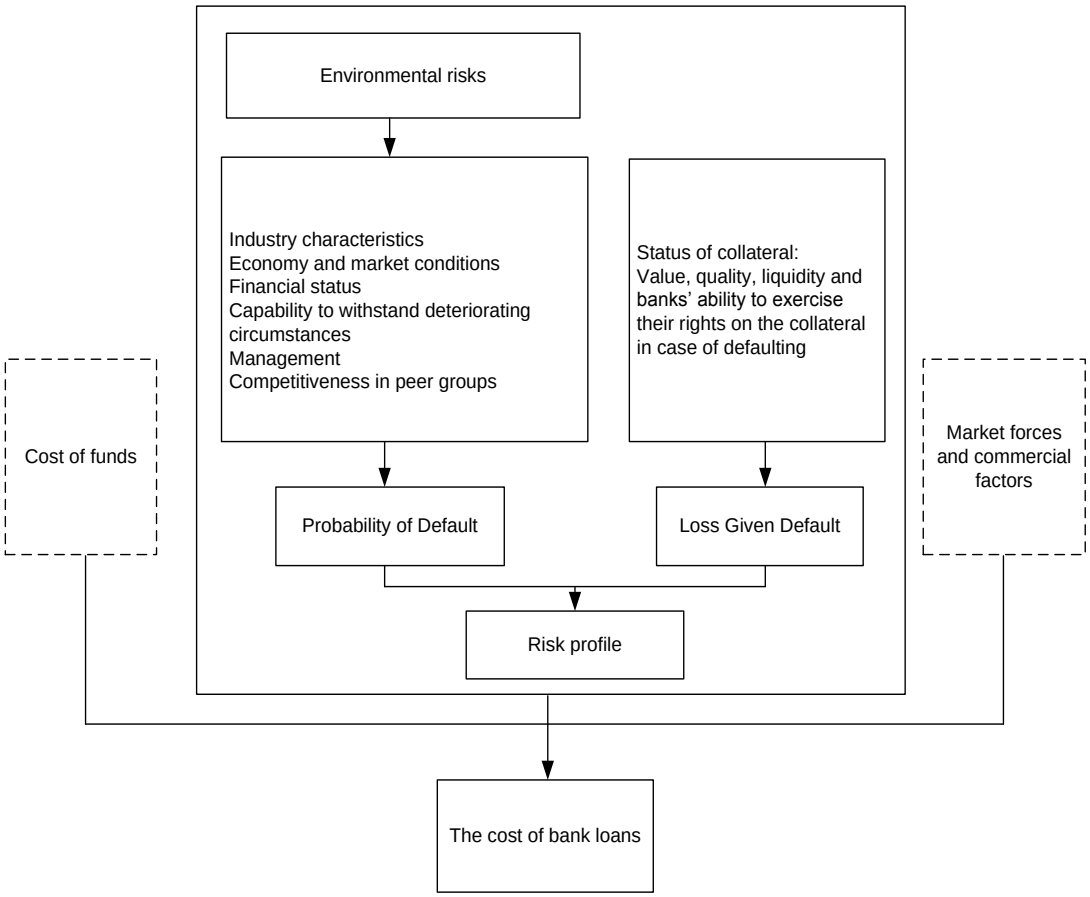
Determinants of the cost of bank loans

Bankers view the cost of bank loans as the price banks charge for loans extended to customers. Based on the opinions of the bankers interviewed, Figure 5.12 provides a diagrammatic view of the factors that determine the cost of bank loans.

According to bankers, *'The bank has an internal pricing model, which is predominantly the function of the PD and the LGD, thereby it [the cost of bank loans] is meant to reflect risks'*. Bankers provide extended articulation for this point of view. The articulation is well-reflected in a statement of one banker:

> *We [the bank] should always be paid by an appropriate risk premium, that is, we [the bank] should be paid for the risk we are taking. Thus, if we are*

lending to a high credit quality borrower [corporate customer], and the expected loss given default is low, the price [cost of bank loans] should be a lot less than if we are lending to a low credit quality borrower [corporate customer] where the expected loss given default is high. What can offset the risk premium to some extent is whether the loan is secured or not. This impacts the loss given default. If the bank has a very good security so that even if the customer can no longer make that payment i.e. defaults, the bank will not lose any money because the security is of such high value. Therefore, the price of a loan should be determined by the bank's required return on equity, the credit quality of the borrower [corporate customer] and the expected loss given default.



Source: Developed for this study

Figure 5.12 Components of the Cost of Bank Loans

However, bankers mention that the cost of bank loans is also influenced, to a large degree, by commercial factors and market forces[91]. This is well-reflected in the following statements by two bankers:

> *Market forces play an important role in determining the cost of bank loans by shaping the final cost of bank loans. For example, if the bank prices a loan as X while the market suggests a price of 0.5X, the bank is likely to take a lower price that is compatible with the price suggested by the market.*

> *The pricing process is not equivalent to a process that is all about identifying risks and making sure they are all mitigated. There are also commercial factors there determining the price. For example, if we [the bank] think there are additional profitable products we can sell to the customers, we are likely to put down the price on the debt to ensure we get the products [profitable opportunities]*.

The impact of environmental risks facing banks on the cost of bank loans

Bankers have a consistent view that *'...the cost of capital [the cost of bank loans] won't build in a premium for environmental risks unless environmental risks impact on credit ratings of corporate customers'*. In bankers' opinions, this is the only way that environmental risks facing banks are able to impact on the cost of bank loans. In addition, bankers indicate that environmental risks are a qualitative input to the PD. To this end, there is consensus among bankers:

> *Environmental risks are not directly associated with loan price [the cost of bank loans]. They are not built into the bank's internal risk models. But they do come into our [the bank's] corporate lending decision-making. We [the bank] make a value judgement on whether that is a significant exposure to*

[91] Market forces refer to the demand and supply of credit in the market.

environmental risks and may adjust risk grade [credit rating] based on the value judgement.

Bankers further indicate that to have environmental risks reflected in banks' credit rating models for corporate customers, environmental legislation needs to be in place. Environmental legislation is likely to result in incremental costs for companies involved in environmentally irresponsible activities. The incremental costs can be in the form of compliance costs (e.g., companies might need to have different premises to manage their contamination). Compliance costs are likely to be passed onto the companies' goods and/or services, resulting in less price competitiveness in the market. There can also be environmental liabilities (e.g., environmental sanctions, penalties or remediation costs) if companies are not managing their environmental issues as required by environmental legislation. The environmental liabilities can lead to volatile cash flows of companies and reputational damage, and thereby the companies' credit ratings are influenced.

Further, bankers claim that buying behaviour of consumers in the market plays a significant role. By paying a premium for companies devoting themselves to environmentally efficient activities or boycotting companies that are environmentally irresponsible, environmental risks facing banks will have a flow impact on corporate customers' credit ratings through credit rating models. This concept is articulated clearly in a statement by one banker:

…to make the financial system differentiate customers exposing the bank to significant environmental risks by imposing a higher cost of capital, restrictive covenants, and/or set higher entry level to capital, the purchasers need to show their disfavour towards the products and services provided by these companies. Purchasers' buying behaviour in the marketplace influences

the cash flow profiles of the companies and thus influences the profitability and competitiveness of these companies, which will further impact the companies' credit ratings.

An example provided by a different banker supports the above statement:

If consumers are prepared to pay a premium for electricity from a renewable powered company, this company will generate more cash flows, and become more profitable, more sustainable and more competitive in the market [than a traditional coal fire powered company]. As a result, it [the renewable powered company] will get a better credit rating.

The impact of environmental covenants on the cost of bank loans

The bankers interviewed provide inconsistent views about whether the inclusion of environmental covenants in corporate loan agreements impact on the cost of bank loans. Bankers from two banks indicate that environmental covenants impact on the cost of bank loans by influencing the PD and the LGD. They explain that:

Loan covenants and loan price are interactive with each other at the security point of view and a credit rating point of view.

The setting of covenants is input to both the probability of default and the loss given default. Therefore, covenants impact on the loan price [the cost of bank loans] in part.

However, other bankers indicate that environmental covenants do not generally impact on the cost of bank loans. One banker states: *'Personally I don't think a price can be put on covenants because the power and rights to act is worth so much'*. This is supported by the opinion of another banker: *'It is difficult to quantify what the compliance with environmental covenants means in terms of risk and thus it is unlikely to put a value on it'*.

Section 5.4.4 indicates that the cost of bank loans is primarily determined by the PD and the LGD and influenced by commercial factors and market forces. Environmental risks will be reflected in the cost of bank loans only when they impact on the PD of corporate customers. However, the impact is predicted based on expert judgement rather than banks' credit rating models. As for the impact of environmental covenants on the cost of bank loans, inconsistent views among bankers are provided. The next section presents a summary of ERM in the corporate credit process.

5.4.5 Summary of ERM in the corporate credit process

As shown in Table 5.1, there are five stages in banks' corporate credit processes, namely, credit screening, credit analysis, credit approval, loan documentation and loan monitoring. Banks' ERM is embedded in their corporate credit processes. Preliminary environmental analysis is an integral part of the credit screening process. Environmental risk evaluation is inherent in the credit analysis and its results are included in the credit submission. Environmental risk control and monitoring are the last two stages corresponding to loan documentation and monitoring. There are activities dealing with environmental risks in each stage of ERM.

The findings show that there are environmental covenants which are not in the form of financial covenants. Environmental covenants are established based on a thorough understanding of corporate customers, industries/sectors the corporate customers belong to and transactions. Additionally, there is consensus among bankers that the form and structure of environmental covenants are tailored according to banks' environmental risk exposure. However, environmental covenants do not have the

function of providing early warning signals as financial covenants do. To better manage environmental risks, regular reviews are conducted by banks, together with environmental covenants. The foci of banks' regular reviews are:

- corporate customers' compliance with their environmental obligations;
- potential changes in relevant environmental legislation and the impact of the changes on corporate customers' loan repayment ability; and
- corporate customers' environmental management quality and financial capability.

Table 5.1 The Corporate Credit Process and Environmental Practices of Major Australian Banks

<table>
<tr><th>Stages in banks' corporate credit processes</th><th>Phases in the environmental risk management Process</th><th>Environmental practices of major Australian banks</th><th>Evolution to environmental sustainability</th></tr>
<tr><td>Credit screening</td><td>Preliminary environmental analysis</td><td>Initial environmental screening and rating based on the information collected through desktop review and applied questionnaires.</td><td rowspan="5">Applying the essence of the Equator Principles into banks' corporate lending;

Conduct ERM in the corporate credit process as 'business as usual'.</td></tr>
<tr><td>Credit analysis -credit submission</td><td>Environmental risk evaluation</td><td>Environmental obligation compliance check for all corporate customers;
Investigations into environmental aspects by banks' analysts and/or credit officers for corporate customers that expose banks to medium or high environmental risks;
Site inspection and independent external environmental impact assessment for corporate customers that expose banks to medium or high environmental risks.</td></tr>
<tr><td>Credit approval – Credit submission</td><td rowspan="3">Environmental risk control; and Environmental risk monitoring.</td><td>Negotiations regarding bank loan structures (applied environmental covenants, appropriate cost of bank loans and the amount of the loans).</td></tr>
<tr><td>Loan documentation</td><td>Documenting the approved loan structure as legal agreements.</td></tr>
<tr><td>Loan monitoring</td><td>Conduct regular reviews around corporate customers' compliance with environmental obligations, changes of the circumstances of corporate customers and the impact of the changes on the corporate customers' loan repayment ability.</td></tr>
</table>

Source: Developed for this study

Given the comparatively dramatic emergence and catastrophic consequences of environmental risk events, two bankers support the application of a Material Adverse Change Clause in managing environmental risks, which has not been put into practice and calls for further investigation.

It is generally assumed that the cost of bank loans should reflect environmental risks facing banks. However, environmental risks are not built into the cost of bank loans unless they impact on the credit ratings of corporate customers. Whether environmental risks impact on corporate customers' credit ratings and the significance of the impact are judgementally determined.

The evidence presented so far indicates that, as financial intermediaries in the economy, banks are on an evolutional journey towards incorporating environmental sustainability in their corporate lending. The following section outlines bankers' opinions about the evolution of environmental sustainability in corporate lending.

5.5 Evolution of Environmental Sustainability in Banks' Corporate Lending

The environmental sustainability evolution of a bank involves '…*being more aware of environmental risks in the bank's lending businesses and conducting ERM as business as usual.* The bankers interviewed indicate that signing up to the Equator Principles was a milestone in banks' journey of environmental sustainability evolution.

5.5.1 Application of the Equator Principles

All the participating banks in this study are signatories to the Equator Principles. Bankers from two of the participating banks indicate that the Equator Principles impact on their banks' corporate lending. They further indicate that the impact of the Equator Principles on banks' corporate lending requires *'mindset change'* towards environmental risks within banks. They articulate their banks' practices that are being used to achieve the mindset change. This is evidenced in the following statement:

> *The Equator Principles are all about facilitating a bank's business by guiding the bank to manage environmental risks facing it. They [the Equator Principles] were put in place to allow banks to lend in an environmentally and socially responsible manner.*
> *We [the bank] are up skilling relationship managers so that they can have a better understanding of the Equator Principles. Through the up skilling process the relationship managers will have the ability to apply those principles [the Equator Principles] in every transaction they are dealing with. In addition, we [the bank] try to capture the important parts of the Equator Principles within environmental and social governance risk policy. As such our people are able to apply an environmental and social risk lens when they look at deals [transactions]*.

The essence of the mindset change towards environmental risks is to have a framework that incorporates environmental risks as an integral part of banks' corporate credit processes; that is, considering ERM as *'business as usual'* in the corporate credit process.

5.5.2 ERM being 'business as usual'

Banks promote the process of conducting ERM as *'business as usual'* by engaging with corporate customers about managing environmental issues within their businesses. In the words of one banker:

> *We [the bank] engage with corporate customers; we meet with them regularly and talk with them about what they are doing with their environmental management. Engaging with corporate customers is critical for the bank. Our experience is that they [corporate customers] are the very best sources, they are close to environmental issues and they know more about the consequences of them. That is the best way for the bank to manage environmental risks facing it. If a company that is socially and environmentally irresponsible seeks goods and services from the bank, the bank probably will reject the company. If an existing customer starts to become socially and environmentally irresponsible, the bank will engage with the customer and evaluating how it is trending towards best practice. The relationship will be ceased if the bank is not comfortable with the results. If they were legitimately trying to trend towards best practice, we would help them to trend towards best practice.*

Therefore, although banks are not sophisticated and well-developed in implementing ERM as *'business as usual'*, they are trying their best in the journey towards environmental sustainability. Bankers further indicate that embedding environmental considerations in decision-making has become a trend for all businesses. They predict that the management of environmental issues in Australian businesses will increasingly become *'business as usual'*. The assumption underlying the prediction is articulated in the following statement by one banker:

> *Companies are mostly aware of environmental issues for the sake of their own viability. An emerging environmental risk event can have impact on a*

company's cash flow profile, competitiveness compared to its peers, financial capability of management and its reputation among stakeholders. Given that [the impact], it [the company] tends to be proactive in dealing with environmental issues. Therefore, it is not the financial system that influences companies' management of environmental issues; it is their business as usual for survival that matters. Whether companies are small or big, environmental aspects relate to the viability of their businesses.

This banker further provides an example in understanding the above statement, which is stated as:

…say the bank is lending to a Thai restaurant or abattoirs. There are council regulations about the water consumption of these businesses, which is likely to impact on the operating costs of these businesses. Therefore, these businesses need to tune environmental aspects into their businesses for long-term survival.

Section 5.5 presents banks' evolution to environmental sustainability in their corporate lending. This requires banks to conduct systematic and sophisticated ERM in their corporate credit processes and consider the integration of ERM into the corporate credit process as *'business as usual'*. In addition to bankers' responses related to addressing the research problem, the results reveal bankers' opinions about their banks' environmental sustainability transformation in corporate lending. This emerges from the results and is discussed in section 5.6.

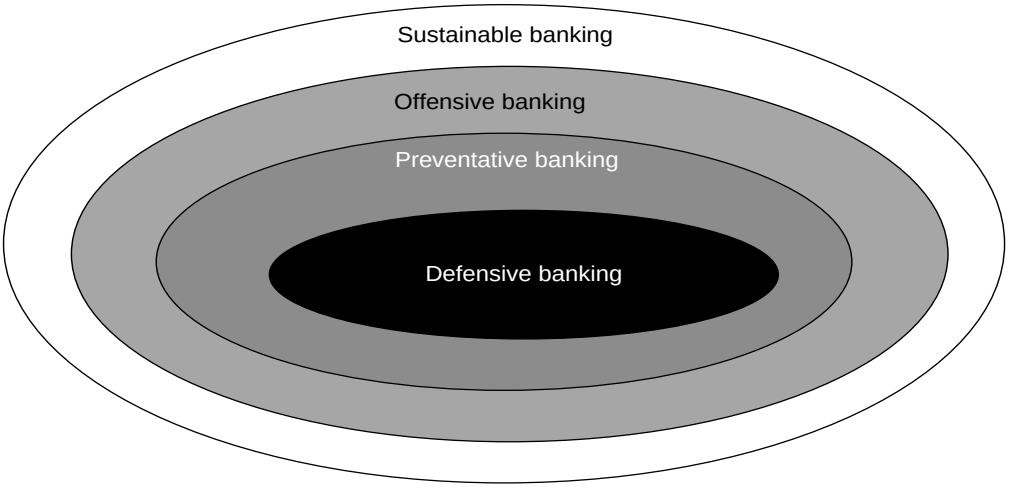
5.6 Environmental Sustainability Transformation in Major Australian Banks' Corporate Lending

Bankers indicate that banks are at an early stage of development towards environmental sustainability in corporate lending and they are still evolving in this

journey. To provide some context for this emerging theme, some additional analysis is undertaken in this chapter. To identify the positions of major Australian banks in this journey, this study classifies major Australian banks' environmental practices presented in the results into the stages of the environmental sustainability transformation process. The benchmark environmental sustainability transformation process is adopted from Jeucken (2001). The stages of this environmental sustainability transformation process are outlined in Section 5.6.1. Following this, the classification of major Australian banks' environmental practices into these stages is discussed in section 5.6.2.

5.6.1 Environmental sustainability transformation of banks' corporate lending

Jeucken (2001) develops a model portraying the stages that banks generally go through towards sustainable banking (see Figure 5.13). He indicates that this model can not only be used by banks as a whole, it is also applicable for banks' departments in their development towards sustainability. The terms 'defensive', 'preventative' and 'offensive' in the model are defined from an environmental perspective (Jeucken & Bouma 2001). Consequently, this study uses the model by Jeucken (2001) as a benchmark for evaluating the environmental sustainability transformation of major Australian banks in corporate lending.



Source: Adopted from Jeucken (2001, p.71)

Figure 5.13 A Typology of Banking and Sustainable Development

As shown in this model, there are four stages in the environmental sustainability transformation processes of banks. Defensive banking is the first stage in this journey, in which banks view environmental considerations as a burden and thus an additional cost. Defensive banks[92] show their resentment to every environmental attempt of legislative bodies and they are not aware of environmental risks in banks' corporate credit processes. Particularly in this stage, *'...environmental management is seen as an avoidable cost'* (Jeucken & Bouma 2001, p.33). The second stage is preventative banking, with environmental legislation and the pressures from stakeholders being the key drivers for environmental considerations in banks' corporate lending. Banks in this stage do not want to go beyond current environmental legislation or that which will be put into effect in the near future. In this stage, banks' attitude is somewhat passive as they only consider the risk side arising from environmental issues in their corporate lending. ERM in the corporate credit process is the focus of preventative banks.

[92] Defensive banks refer to the banks in defensive stage.

In the third stage, offensive banking, banks' environmental practices are not only driven by their environmental risk exposure, they also seek profitable opportunities by developing new markets (e.g., environmental technology), products and/or services to promote environmentally friendly activities[93]. A win-win situation at the micro-level is the key for banks to be offensive in relation to environmental issues in corporate lending; namely, *'...activities that benefit the environment have a pay-off period that lies within the required time frame and the level of risk is deemed acceptable'* (Jeucken 2001, p.73). Offensive banks are proactive, creative and innovative in dealing with environmental risks in corporate lending.

Sustainable banking includes all elements involved in preventative and offensive stages. It requires that *'...[a bank's] internal activities meet the requirements of sustainable business and in which its external activities (such as lending and investments) are focused on valuing and stimulating sustainability among customers and other entities in society'* (Jeucken 2001, p.73). In this stage, banks see environmental sustainability as an advantage and an opportunity for their development and viability. What the banks in environmental sustainability stage are looking for is the highest environmentally sustainable rate of return rather than the highest financial rate of return (Jeucken & Bouma 2001). Banks are not able to achieve environmental sustainability unless environmental risks are completely priced by the market. However, according to Jeucken (2001), the role banks want to play in society is important in achieving environmental sustainability in corporate lending. As such, banks that are ambitious and putting effort into integrating

[93] This study only focuses on major Australian banks' exposure to environmental risks and their management of environmental risks in corporate lending. The profitable opportunities resulting from environmental issues are beyond the scope of this study.

environmental sustainability in their corporate lending, despite not yet being sophisticated, can also be considered as environmentally sustainable banks.

To determine the position where major Australian banks are in the environmental sustainability transformation in corporate lending, a SWOT analysis of their environmental practices is undertaken in section 5.6.2.

5.6.2 Major Australian banks in the environmental sustainability transformation process

The SWOT analysis is presented below (see Table 5.2).

Table 5.2 SWOT Analysis for Environmental Practices in Major Australian Banks' Corporate Lending

Strength	Weakness
• Banks have shown their consciousness of building and maintaining their reputation through sound environmental practices • Banks have integrated environmental risks into each stage of the corporate credit process • There are environmental covenants customised in terms of environmental risks in bank loan agreements • Increasing engagement with corporate customers who have well-performed environmental management • Banks aspire to embed environmental sustainability into their values, cultures and strategies and they are taking actions to achieve this aspiration (e.g., up skilling their staff to apply the Equator Principles into every transaction)	• Disconnection between banks' growing environmental awareness and the practices to integrate environmental risks in their corporate credit processes • To what extent banks' environmental practices are reflective of their commitments to the Equator Principles and UNEP FI is not clear • Environmental considerations by banks are driven by environmental legislation and stakeholders' environmental awareness • The impact environmental risks can have on the credit ratings of corporate customers, and on the cost of bank loans is predicted by subjective judgements
Opportunity	**Threat**
• Banks have the potential to show their favourable perceptions towards environmentally responsible activities and companies, as well as innovative technologies • Australian government actively involves in the UNEP activities regarding environmental issues (e.g., cleaner production, environmentally responsible consumption, and ozone) is helpful in fostering a mindset changing in society and thus a better understanding on the integration of environmental risks into banks' lending decision-making • There is a potential for banks to develop a systematic mechanism which incorporate both environmental and financial covenants in managing environmental risks • The Material Adverse Change Clause can be used in managing environmental risks	• There is an absence of strict environmental legislation enforcement in Australia, impairing the effectiveness of environmental legislation (Ernst & Young 2003; International Finance Corporation 2007; PricewaterhouseCoopers 2001) • There is an absence of standardised environmental information, and thus it is difficult to quantify environmental risks • There is a lack of analytical tools and modelling techniques to support a sophisticated integration of environmental risks into banks' corporate credit processes

Source: Developed for this study

Using the sustainability transformation model in banking from Jeucken (2001) and based on the SWOT analysis for major Australian banks' environmental practices in corporate lending, these environmental practices are classified into their corresponding stages in the environmental sustainability transformation process (see Table 5.3).

Table 5.3 Classification of Major Australian Banks' Environmental Practices into the Environmental Sustainability Transformation Process

Environmental sustainability transformation in lending businesses	Environmental practices in major Australian banks' corporate lending
Defensive	None
Preventative	None
Preventative & Offensive[94]	Banks have integrated environmental risks into each stage of the corporate credit process. They are aware of the necessity to manage environmental risks as *'business as usual'* in their corporate lending There are environmental covenants customised in terms of environmental risks in bank loan agreements
Offensive	Banks have shown consciousness of building and maintaining their reputation through sound environmental practices
Offensive & Sustainable	Increasing engagement with corporate customers who have well-performed environmental management
Sustainable	Banks aspire to embed environmental sustainability into their values, cultures and strategies and they have taken actions towards this aspiration (e.g., up skilling their staff to apply the Equator Principles in every transaction)

Source: Developed for this study

Based on the above discussion, this study draws conclusion about the position of major Australian banks in the environmental sustainability transformation process in terms of their environmental practices in corporate lending. Major Australian banks' environmental considerations and due diligence are still driven by environmental

[94] Environmental practices on the border between preventative and offensive fall in this category. They are beyond preventative lending but fall short of offensive lending.

legislation and stakeholders' environmental awareness, which fits into the preventative stage. However, most of their environmental practices surpass the preventative stage in nature.

Preventative and offensive

The signing of the Equator Principles and the UNEP FI indicates banks' commitment to deal with environmental risks proactively and thoroughly, which could have been classified into the offensive stage. Given the doubt on the implementation of these environmental commitments to date, they are considered as practices beyond preventative lending, but yet offensive. The practices in relation to banks' ERM in the corporate credit process and the inclusion of customised environmental covenants in corporate loan agreements are also on the border between preventative and offensive lending. Aiming to mitigate environmental risks, banks' ERM should have been classified into the preventative stage. It is the intention of banks to integrate ERM into their corporate credit processes as *'business as usual'* that makes this practice go beyond purely preventative lending. At the same time, there is a disconnection between this intention and their ERM in practice. Consequently, banks' ERM practice is beyond preventative but still does not quite reach the offensive stage.

With regard to environmental covenants, the results indicate that typical environmental covenants focus on environmental obligation (e.g., environmental legislation and disclosure requirements) compliance. In addition to this, banks also take a step further by customising environmental covenants in terms of environmental risks facing them. As such, the inclusion of customised environmental covenants in corporate loan agreements belongs to the stage between preventative and offensive.

Offensive

Banks are aware of and put effort into building and maintaining their brand values by taking measures that benefit the environment, which is a win-win situation in the medium to long term. According to Jeucken (2001), these environmental practices are considered offensive.

Offensive and sustainable

The results indicate that banks are increasingly engaged with their corporate customers, and seeking environmental best practice in their corporate lending. Corporate customers have a better understanding about the potential consequences of their environmental issues and the probability of these environmental risk events occurring. Therefore, constructive engagement with corporate customers can make banks better informed of environmental risks and generate long-term value for them. At the same time, banks also aim to stimulate environmental sustainability among these corporate customers. However, the engagement at this stage tends to only focus on the niche corporate customers who have high quality environmental management.

Sustainable

According to Jeucken (2001), in addition to banks' environmental practices, their aspiration to embed environmental sustainability into their intrinsic values is essential to environmentally sustainable banking. The results show that major Australian banks have the desire to integrate environmental sustainability into their values, cultures, strategies and all activities. As a result, they are applying extra effort to turn the aspiration into proactive environmental practices.

Section 5.6 provides the discussion and classification of major Australian banks' environmental practices into the stages of the environmental sustainability transformation process. On the basis of the discussion and classification, this study concludes that major Australian banks are oriented to environmental sustainability in corporate lending although their environmental practices are yet to be environmentally sustainable. Given that the profitable opportunities resulting from environmental issues are beyond the research scope, the conclusion is only based on major Australian banks' practices of ERM in the corporate credit process.

5.7 Chapter Summary

The interviews with senior executive bankers from major Australian banks show that corporate lending represents an important component of their lending businesses. This chapter reports the findings of investigations into major Australian banks' corporate credit processes and their ERM in this process. Specifically, the results in relation to the associations between environmental risks, and 1) loan covenants, and 2) the cost of bank loans are documented in this chapter. In addition, as mentioned in Chapter 4, this study follows an emerging research design aiming to extract themes and patterns from bankers' interpretations of their relevant perceptions and experiences. Major Australian banks' environmental sustainability transformation in terms of their environmental practices in corporate lending is an emerging theme. To this end, this chapter presents additional analysis of this emerging theme. Chapter 6 provides further discussion regarding the findings presented in this chapter. Specifically, Chapter 6 answers each research question and thus addresses the research problem.

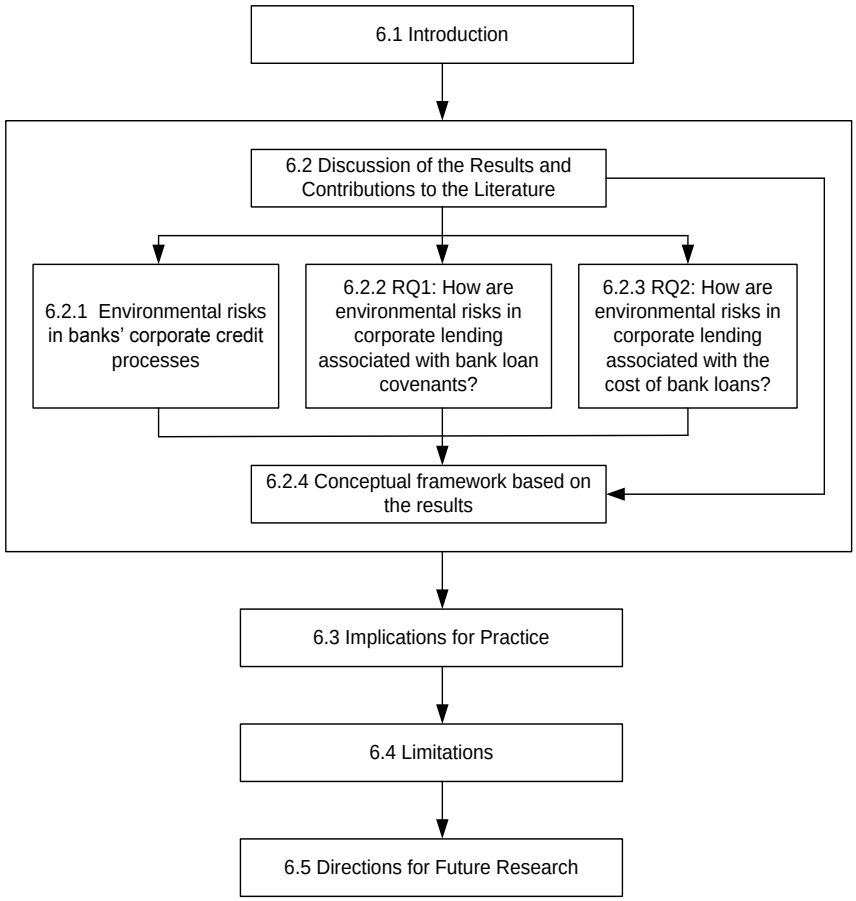
CHAPTER 6 DISCUSSION, CONCLUSIONS AND IMPLICATIONS

6.1 Introduction

As discussed in previous chapters, it is widely accepted that there are heightened environmental concerns in the business world due to increasing environmental scrutiny from the public and a growing body of increasingly restrictive environmental legislation. As one of the critical financial intermediaries in the economy, banks are of significant importance in promoting environmental sustainability by incorporating a consideration of environmental risks into their lending businesses. Corporate lending is an area where banks can have a significant impact on the environmental responsibility of borrowing firms. Inspired by these perspectives, this study investigates how environmental risks are considered in the corporate credit processes of major Australian banks. Of particular relevance are the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans. This chapter sets out the conclusions for the research problem outlined in Chapter 1.

> ***How are environmental risks associated with bank loan covenants and the cost of bank loans in Australian banks' corporate lending?***

The outline of this chapter is as follows (see also Figure 6.1). A discussion of the results based on previous literature and contributions to the literature are elucidated in section 6.2. Following this section, implications for practice are discussed in section 6.3. The perceived limitations of this study are then outlined in section 6.4, followed by a discussion on future research directions in section 6.5.



Source: Developed for this study

Figure 6.1 Structure of Chapter 6

6.2 Discussion of the Results and Contributions to the Literature

This section discusses the results in the context of prior literature. To start with, the results regarding why environmental risks are considered in banks' corporate credit processes and the extent to which they are incorporated into the processes are discussed as background to the research questions.

6.2.1 Environmental risks in banks' corporate credit processes

The results of this study reveal that environmental risks facing banks derive from the uncertainties around the financial and reputational impacts that environmental issues can have under environmental legislation and stakeholders' environmental scrutiny. This is in alignment with prior literature on environmental risks as presented in Chapter 2. In the literature, environmental risks are defined as the uncertainty about the future impacts of loans related to environmental issues on banks from both financial and reputational perspectives (Case 1999; Thompson 1998b; Weber, Scholz & Michalik 2010).

In addition, this study finds that environmental risks contribute to the overall risks that banks are faced with in their corporate lending. However, environmental risks are different from traditional risks as environmental risk events usually emerge more dramatically and can have catastrophic impacts for banks. That is, environmental risks are not a financial driver in most companies, but have the potential to have a catastrophic impact on companies' financial performance. Therefore, it is difficult to predict and quantify environmental risks, and thus they cannot be accurately contemplated in corporate customers' financial forecasts. There is previous literature providing a dimensional construct for environmental risks which classifies these risks as a new set of risks compared to traditional risks (Case 1999; Coulson & Dixon 1995; Thompson 1998b; Weber, Fenchel & Scholz 2008). However, to the knowledge of the researcher, there are few previous studies identifying the attributes of environmental risks and thus differentiating environmental risks from traditional risks and justifying the unquantifiable nature of environmental risks as this study does.

Dimensions and determinants of environmental risks facing banks

As discussed in chapter 2, from a lending bank's perspective, environmental risks impact on banks through direct risk (lender liability), indirect risk (credit risk) and reputational risk (Case 1999; Thompson & Cowton 2004). Other things being equal, the probability of direct risk (lender liability) being borne by a bank is lower than that of indirect risk (credit risk) and reputational risk (Case 1999; Thompson & Cowton 2004). The results confirm previous literature in relation to the dimensions of environmental risks that manifest in banks' corporate lending.

The findings of Ernst & Young (2003) indicate that there is less significance of environmental risks for Australian banks than for banks in the USA, Europe and UK. This can be explained by the fact that no case has demonstrated significant environmental liabilities borne by Australian banks (Ernst & Young 2003). However, the research from Ernst & Young does not clearly identify the primary concerns leading to the integration of environmental risks into Australian banks' corporate credit processes. This study extends the findings of Ernst & Young on this point. The results of this study indicate that among the three dimensions of environmental risks, major Australian banks are most concerned with credit risk and reputational risk related to environmental aspects of their corporate customers. According to the exploratory interviews with bankers, the primary reason for this is that the likelihood of environmental liability being borne by banks is rare in Australia, while credit risk and reputational risk related to environmental issues occur much more often. The results also reveal that major Australian banks have had negative experiences with substantial losses that result from corporate customers' defaulting on their loans. Furthermore, NGOs have increasingly criticised major Australian banks' lending for

certain environmentally sensitive activities such as coal-fired power stations, which is the *'soft underbelly'* of these banks' reputation.

With regard to the determinants of environmental risks facing banks, the results indicate that the industry/sector that a corporate customer belongs to plays a fundamental role in determining environmental risks. The assessment of environmental issues at the industry/sector level determines the potential consequences of environmental risk events. Different industries/sectors have different environmental issues which expose banks to different environmental risks (the content). In addition, other things being equal, some industries/sectors (e.g., steel production, mining, fertiliser or explosives production) expose banks to higher environmental risks than other industries (e.g., service industries) due to the activities they are involved in.

The next level of assessment of environmental issues is in terms of the corporate customer and the transaction. The quality of corporate customers' environmental management is important in determining the probability of environmental risk events emerging. To this end, corporate customers in environmentally sensitive industries do not necessarily expose banks to significant environmental risks. That is, if corporate customers have been managing their environmental issues well, banks assume a lower probability of environmental risk events emerging. The results also demonstrate that the financial capacity of corporate customers to deal with environmental issues is another factor that has a key impact on environmental risks facing banks. This is in line with the research from Weber, Scholz and Michalik (2010) who argue that borrowing firms with a sound financial basis are more capable of compensating for their potential environmental consequences.

Banks need to make sure that corporate customers understand their potential environmental consequences, they commit to managing their environmental issues and they have adequate management capacity and financial resources in place to deploy if necessary. While EBRD (2011) presents similar factors determining banks' exposure to environmental risks, it is an instruction manual for banks having partnerships with EBRD rather than a research paper. In addition, although the research from Thompson (1998b) indicates that a borrower's environmental risk exposure is a function of both its industry type and the effectiveness of its environmental management, the research is from a borrower's perspective rather than from a bank's standpoint. To the knowledge of the researcher, no known published research has comprehensively investigated the determinants of environmental risks facing banks in corporate lending in the Australian context as this study does.

ERM

Due to the impacts environmental risks can have on banks in corporate lending, there are increasing numbers of banks developing mechanisms that aim to adequately and appropriately integrate environmental risks into their corporate credit processes and thus minimize the adverse environmental impacts on banks (Thompson & Cowton 2004; Weber, Fenchel & Scholz 2008; Weber, Scholz & Michalik 2010). The results of this study provide supportive and extended evidence for this argument. First and foremost, the results show that banks conduct ERM to systematically identify, assess, control and monitor environmental risks in banks' corporate lending. Second, the results indicate that banks consider ERM as an integral part of the corporate credit process and this is required for an adequate risk management of corporate lending. That is, banks integrate environmental risks into all phases of their corporate credit

processes. The results also reveal that if environmental risks are not considered in all phases of banks' corporate credit processes, banks are running the risk of losing their capital, impairing their reputation and impeding their viability by having an inadequate risk management system. Furthermore, the activities that are required in the procedures of the ERM process are demonstrated in the results (see details in section 5.4, Chapter 5).

The above results are consistent with the procedures and activities of banks' ERM that are provided in the instruction manual by EBRD (2011). EBRD illustrates how ERM fits into procedures of the corporate credit process (see details in Figure 2.3) and it is reflected in the results of this study. However, there is no known published work examining banks' environmental practices in each phase of the corporate credit process. To this end, this study extends prior literature by specifically investigating the consideration of environmental risks in each phase of banks' corporate credit processes. Furthermore, although the results indicate that environmental risks are difficult to be quarantined from other risks facing banks and are difficult to quantify, this study shows that environmental risks are a qualitative input into each phase of banks' corporate credit processes.

To demonstrate how banks control and monitor environmental risks in the corporate credit process, the remainder of section 6.2 presents the results regarding the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans. Discussion around the results and contributions to the literature are also presented in this section.

6.2.2 RQ1: How are environmental risks in corporate lending associated with bank loan covenants?

To address this research question, there are two propositions formulated as follows:

P1a: There are environmental covenants in bank loan agreements to manage environmental risks.

The results of this study support P1a, which indicate that environmental covenants in loan agreements are one of the mechanisms used to manage environmental risks in banks' corporate lending. This coincides with the point of view from Case (1999) who claims that the inclusion of environmental covenants in loan agreements for corporate customers involved in environmentally sensitive activities can protect banks' ability to demand loan repayments. In addition, based on a global survey of how financial institutions deal with environmental risks, Environment and Finance Research Enterprise (1995) concludes that environmental covenants in loan agreements are a widely-accepted mechanism for managing environmental risks in banks' lending businesses. Another survey of Australian financial institutions arranged by PricewaterhouseCoopers (2000) identifies a similar trend. That is, environmental covenants in loan agreements are frequently used by Australian financial institutions to manage environmental risks.

Previous literature indicates the inclusion and provides examples of environmental covenants in banks' corporate lending. In spite of this, there is limited systematic investigation into the form and contents of environmental covenants, or the corresponding reasons for their inclusion. This study fills this gap by presenting integrated results about the usage, form and contents of environmental covenants.

Further, it provides explanations for the form and contents of these environmental covenants.

The results indicate that environmental covenants are not in the form of financial covenants. This result is echoed in the specimen environmental clauses (see Appendix 1) provided by Case (1999). As the specimen environmental clauses show, none of the environmental covenants listed are in the form of financial covenants. They take the form of 'to do' requirements and 'not to do' restrictions for corporate customers, such as environmental covenants requiring corporate customers to comply with all environmental laws, and restricting them from creating or permitting to subsist any statutory charge under environmental laws on any of the properties (Case 1999). Similar evidence is also provided by the Asian Development Bank (1993) which defines an environmental covenant as a requirement for borrowers to take environmental-related activities or a restriction from taking certain environmental-related activities. In addition, the results reveal that a typical environmental covenant is the requirement for corporate customers to comply with applied environmental legislation or to maintain their certificates to operate, or to provide banks with periodic environmental reports. This is consistent with previous literature. These studies suggest that environmental covenants typically require corporate customers to comply with their environmental obligations, and to provide banks with periodic environmental reports to inform banks of borrowers' current and on-going environmental practices during the life of loans (Asian Development Bank 1993; Bekhechi 1999; Case 1999).

The results further reveal several possible explanations for the form and contents of environmental covenants as they manifest in banks' corporate loan agreements. First

and foremost, most environmental risks facing banks in corporate lending are governed by an environmental legislation compliance framework. As such, what banks do to control and monitor environmental risks is to ensure corporate customers are adhering to the compliance framework. This is implied in previous literature arguing that the primary driver for banks to incorporate environmental risks into their lending businesses is a growing body of increasingly restrictive environmental legislation (Ernst & Young 2003; PricewaterhouseCoopers 2000, 2001). Environmental legislation has continued to adopt a more thorough and sophisticated approach that takes a broad range of environmental impacts of businesses into consideration (Case 1999).

Second, as environmental risks involve reputational consequences which have considerable long-term influence and are unlikely to be quantified and verified, the consequences of emerging environmental risk events tend to be catastrophic. Similarly, Ernst & Young (2003) conclude that reputation is increasingly becoming a considerable part of the tangible value of Australian businesses. In this regard, environmental risks are likely to impose overwhelming losses on banks since they have the potential to negatively impact the reputation of banks. Therefore, the potential environmental risk exposure of banks is likely to go beyond the range banks are able to control by financial ratio dynamics.

Last but not least, the results indicate that quantifying environmental risks is one of the biggest problems banks are faced with due to the lack of measurement instruments and standardised environmental information. Additionally, banks are not able to accurately predict financial losses resulting from environmental risks until environmental risk events actually occur; this implies that banks' reactions to

environmental risks are generally responsive, or at least are not sufficiently proactive. There is some Australian evidence supporting this explanation. Environmental information required by Australian banks to make lending decsions is scarce and even the available information is mostly subjective (Ernst & Young 2003; PricewaterhouseCoopers 2000, 2001). In addition, different from traditional risks in banks' corporate lending, there are insufficient measurement instruments such as widely-accepted and well-developed economic modelling and market impact analysis to support the integration of environmental risks into Australian banks' corporate credit processes (Ernst & Young 2003). To the knowledge of the researcher, there is no other literature providing relevent explanations in the Australian context apart from Ernst & Young (2003) and PricewaterhouseCoopers (2000, 2001).

Whether environmental covenants have the same functions as financial covenants is worthy of investigation. As stated in section 2.5.2 of Chapter 2, traditional covenants are able to protect banks using both ex post and ex ante mechnisms (Bazzana 2010; Carey et al. 1993; El-Gazzar & Pastena 1991; Paglia 2007; Smith & Warner 1979). In alignment with these previous studies, the results of this study indicate that covenants can serve as early warning signals by including buffers in the levels (tightness) of covenants. As such, covenants can provide an implied requirement for corporate customers' management and trigger dialogue or negotiations between banks and corporate customers when covenants are breached. This, in turn, provides an opportunity for banks to make a more comprehensive judgement on the quality of corporate customers' environmental management. Covenants can also empower banks with the authority to react to minimise banks' losses resulting from insolvent corporate customers. Furthermore, the results show that covenants can provide

incentives or disincentives for corporate customers to undertake certain activities. This is to restrict corporate customers' ability to engage in activities that are detrimental to banks from an ex ante perspective.

With regard to environmental covenants, previous literature merely introduces environmental covenants as a mechanism to control and monitor environmental risks; while little knowledge exists about how environmental covenants are taken into effect in managing environmental risks. The results of this study reveal that given the dramatic emergence of environmental risk events and the non-quantifiable nature of these risks, environmental covenants are unlikely to work as early warning signals. However, environmental covenants can provide an incentive or disincentive for corporate cusomers' environmental-related activities, and provide banks with the authority to react when there is a covenant breach or default.

This study also provides overwhelming consensus that environmental covenants are established against banks' comprehensive environmental evaluations on corporate customers and negotiations between banks and corporate customers. This is discussed below in relation to the following proposition.

P1b: Environmental covenants are customised in terms of environmental risks facing banks.

The results are in alignment with P1b, which indicate that both the contents and tightness of environmental covenants are customised according to environmental risks facing banks in corporate lending. As discussed in Chapter 2, environmental risk facing banks is determined by the potential consequences of a borrowing firm's environmental issues, the quality of the borrowing firm's environmental management

and its financial capability to deal with the environmental issues. Therefore, evaluations of banks' environmental risk exposure and the particular circumstances of their borrowing firms involve the same process.

The results further indicate that whether environmental covenants in corporate loan agreements go beyond the typical requirements of environmental disclosure and environmental obligation compliance is determined by the particular circumstances of corporate customers. Consistent evidence of this can be found in previous literature reviewed in Chapter 2. Case (1999) indicates that environmental covenants need to be established based on the specifics of each case. By conducting a global survey of financial institutions about the way they deal with environmental risks, Environment and Finance Research Enterprise (1995) also reveals that 55% of the respondents include specific environmental covenants in terms of borrowers' environmental issues in loan agreements. Asian Development Bank (1993) and Bekhechi (1999) suggest that specific environmental covenants that are defined in detail and to the point should be included in loan agreements to motivate more effective and efficient remedial actions. In spite of these studies, little knowledge regarding whether and how environmental covenants are customised in terms of banks' environmental risk exposure has been evident in previous literature.

To this end, the results of this study fill this gap from three dimensions which are the establishment process, contents and tightness of environmental covenants. The results show that environmental covenants are established based on a comprehensive analysis of environmental issues at industry/sector level, corporate customer level, and transaction level respectively. On the basis of the comprehensive analysis, environmental covenants are formulated in negotiations between banks and their

corporate customers. Therefore, similar to the traditional covenants in loan agreements, specific environmental covenants (additional to the typical environmental covenants mentioned above) are likely to be included in loan agreements depending on environmental risks facing banks. There are examples provided by bankers to exemplify the results. If banks are providing loans for mining companies, environmental covenants are likely to be a requirement for the companies to retain sufficient cash to meet their rehabilitation liabilities at the end of the period. When financing a power station, there are likely to be environmental covenants stating that banks will refinance the customer only on the basis that the customer invests in renewable energy technology.

With regard to the tightness of environmental covenants, this study finds that there are differences between corporate customers depending on the extent to which they expose banks to environmental risks. For corporate customers involved in environmentally sensitive activities such as mining operations, banks are likely to require environmental disclosure in more detail and depth and to review corporate customers' activities in managing environmental issues more frequently. The results further extend previous literature on environmental covenants by embracing bargaining power as the explanation for the tightness of environmental covenants. The results suggest that corporate customers with strong bargaining power are able to negotiate softer environmental covenants given the underlying assumption that they usually follow best practice in managing environmental issues. The explanation for the underlying assumption is demonstrated in the results. A corporate customer with strong bargaining power is generally characterised as having less volatile cash flows, higher competitiveness compared to its peers, better capability of management and a good reputation. Considering the impairments environmental issues can have on a

company's cash flow volatility, profitability, competitiveness and reputation and therefore on its bargaining power, corporate customers tend to be proactive in their environmental management. This explanation is in line with the opinion expressed in previous literature in Chapter 2, which claims that environmental issues can influence borrowers' cash flows, liquidity, profitability and reputation (Coulson & Dixon 1995; Thompson 1998b; Weber, Scholz & Michalik 2010).

In sum, research question 1 seeks to address how environmental risks in banks' corporate lending are associated with loan covenants. Based on the literature pertaining to research question 1, this study proposes three levels of impacts. These are the form (financial covenants and non-financial covenants), the contents and the tightness of environmental covenants. The conclusion for research question 1 is that there are environmental covenants in loan agreements to manage environmental risks, and that these are not in the form of financial covenants. In addition, the contents and tightness of environmental covenants are tailored in terms of the particular circumstances of each corporate customer and thus are compatible with banks' environmental risk exposure. However, the results further indicate that environmental risks cannot be sufficiently managed by just environmental covenants. A well-developed system that combines environmental covenants and financial covenants in managing environmental risks is a potential solution. The practice that banks undertake to compensate for the insufficiency of environmental covenants in managing environmental risks is regular reviews. A bank's regular review is useful in keeping an eye on corporate customers' on-going performance and changes in their circumstances.

The literature reviewed in Chapter 2 indicates that theoretically the cost of bank loans can also be used to manage environmental risks in corporate lending. The following section discusses the results regarding the association between environmental risks and the cost of bank loans and further articulates the contributions of this research.

6.2.3 RQ2: How are environmental risks in corporate lending associated with the cost of bank loans?

To address this research question, Proposition 2 is considered.

P2: Environmental risks facing banks are factored into the cost of bank loans.

The results show that Proposition 2 is supported when environmental risks facing banks impact on the credit ratings of corporate customers. To the knowledge of this researcher, there is very little literature about the consideration of environmental risks in the cost of corporate bank loans. The study undertaken by Case (1999) is the most thorough in the existing literature. Case (1999) claims that the environmental foci of banks in corporate lending involve the evaluations of environmental risks and their impact on credit quality of corporate customers. In addition, Case (1999) indicates that there is a potential for adjusting the cost of bank loans to take account of environmental risks when these risks impact on the credit ratings of corporate customers. However, due to the scarcity of quantifiable information regarding environmental risks, and banks' concern with price competitiveness in the market, there are few cases of adjusting the cost of bank loans for these risks (Case 1999). The findings presented by Case are based on UK banks' corporate lending. This study extends the research by Case in two aspects.

First, this study investigates the impact of environmental risks on the cost of bank loans in the Australian context and yields different results. The results indicate that environmental risks facing major Australian banks will be factored into the cost of bank loans when environmental risks impact on credit ratings of corporate customers. That is, corporate customers who are environmentally irresponsible do not necessarily receive a higher cost of bank loans, while corporate customers who are environmentally oriented are not necessarily rewarded with a lower cost of bank loans. It is the changes to their credit ratings resulting from their environmental-related activities that lead to changes in the cost of bank loans. Major Australian banks each have an internal credit rating model for corporate customers, and amendment of the credit ratings on the basis of expert judgements is allowed where appropriate. Environmental risks, one of the considerations in non-financial evaluations of corporate customers, are included in these subjective judgements rather than being a specific input of the credit rating models of major Australian banks. Second, the regulatory, economic and institutional circumstances facing banks are developing rapidly and thus banks' lending experiences and practices are evolving over time. As such, this study extends the existing literature in terms of time period as it is conducted during the years 2010 and 2011.

Furthermore, the results indicate that to have environmental risks factored into Australian banks' credit rating models for corporate customers, environmental legislation and consumers' buying behaviour play a critical role[95]. To this end, this study fills a gap in previous research by demonstrating a potential way that makes

[95] Buying behaviour is manifested as whether consumers are willing to pay more for environmentally friendly products and services.

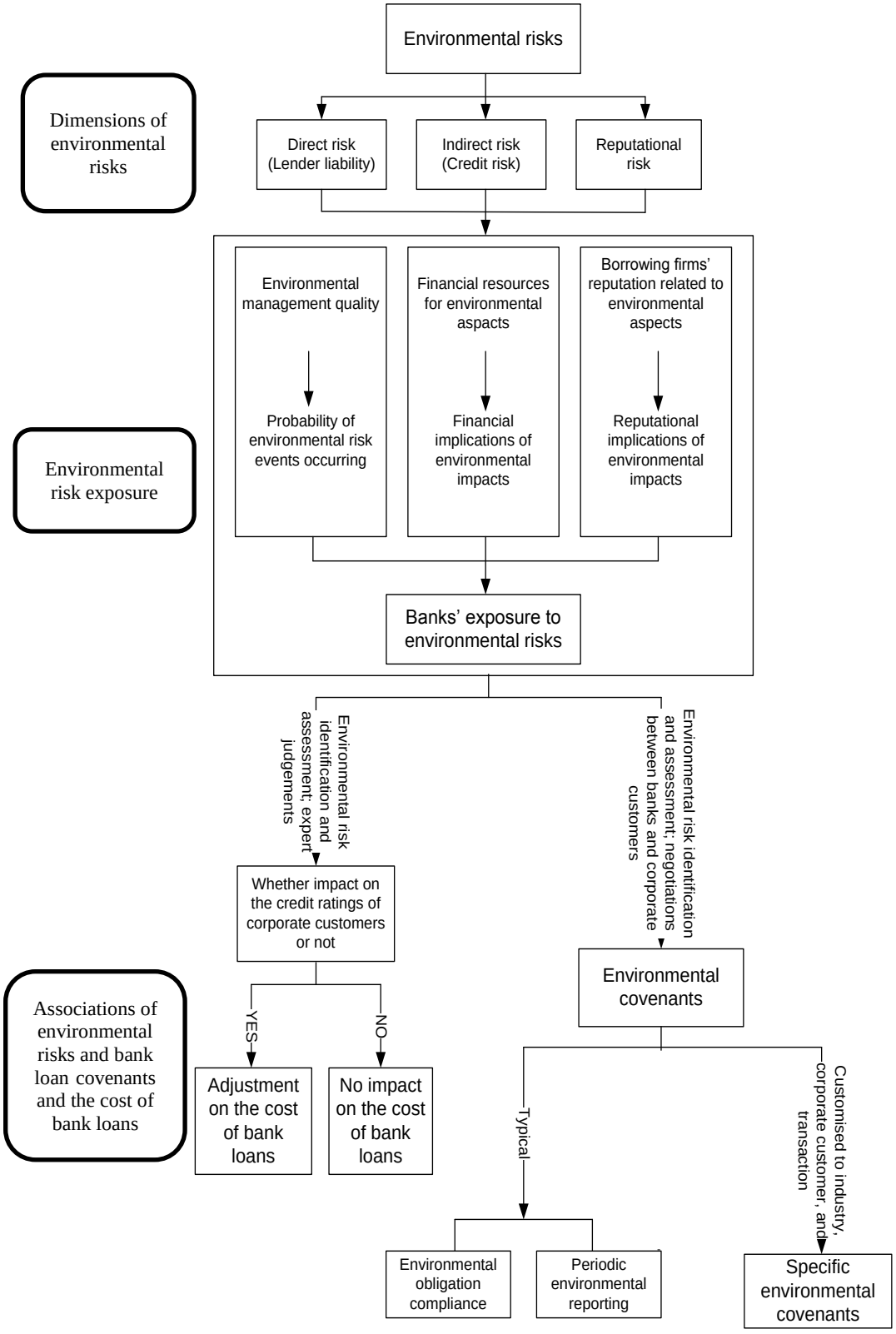
banks' credit rating models incorporate the impact of environmental risks facing them on credit ratings of corporate customers.

In summary, research question 2 asks how environmental risks are associated with the cost of bank loans in banks' corporate lending. The results show that environmental risks will not be factored into the cost of bank loans unless they impact on credit ratings of corporate customers. Given that there are certain circumstances for environmental risks to be reflected in the cost of bank loans, there is not a linear association between the cost of bank loans and environmental risks. There is also an indication that the cost of bank loans is not considered as a tool to manage environmental risks given that loan pricing is not only a risk-oriented process but also a process involving commercial and market considerations. The following section brings together the conclusions about the two preceding research questions to address the research problem.

6.2.4 Conceptual framework based on the results

Addressing the research questions is the initial stage in elucidating the conclusions on the research problem. This section provides synthesised conclusions by demonstrating a conceptual framework that is based on the results of interviews with selected executives in major Australian banks. This conceptual framework is confined to corporate lending in the Australian context (see Figure 6.2). This framework is a comparison of the conceptual framework presented in Figure 2.4, Chapter 2, and demonstrates to what extent the theoretical framework shown in Figure 3.2, Chapter 3 is supported by the results. The conceptual framework presented in Figure 2.4 derives from previous literature that is based on banks'

overall lending businesses across several countries rather than just major Australian banks' corporate lending. The theoretical framework shown in Figure 3.2 derives from agency theory and previous literature related to the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans.



Source: Developed for this study

Figure 6.2 Conceptual Framework Based on the Results of Interviews with Major Australian banks

The results support previous literature by indicating that environmental risks manifest in three dimensions in major Australian banks' corporate lending: direct risk (lender liability), indirect risk (credit risk) and reputational risk. The results also confirm that banks' environmental risk exposure is determined by the significance of the potential financial and reputational consequences of environmental risk events, the probability of the environmental risk events occurring and the financial capability of corporate customers to deal with their potential environmental consequences. It is clearly indicated by this study that high quality environmental management by corporate customers lowers the likelihood of environmental risk events occurring, ceteris paribus. What makes it rational is the statement that corporate customers managing environmental issues well usually have less volatile cash flows, more profitability and greater competitiveness. The financial resources that corporate customers have available can compensate for the financial consequences of emerging environmental risk events to a certain degree.

Particularly, the results confirm that environmental covenants are used by major Australian banks to manage environmental risks facing them in corporate lending. This point of view is consistent with the prediction of the theoretical framework shown in Figure 3.2 that environmental covenants will be present in bank loan agreements. The results indicate that the establishment of environmental covenants is based on a process of identifying and assessing environmental risks. That is, the contents and tightness of environmental covenants are tailored in terms of banks' environmental risk exposure. For corporate customers who expose banks to low environmental risks, environmental covenants are generally the typical environmental obligation compliance and periodic environmental reporting requirements. For environmental risks that are significant to banks, the contents of

environmental covenants are likely to go beyond the typical environmental covenants, and environmental covenants are tighter. To assure the applicability and the effectiveness of environmental covenants, there are negotiations between banks and corporate customers that eventually shape the contents and tightness of environmental covenants included in loan agreements. In this regard, the prediction that environmental covenants are customised in terms of banks' environmental risk exposure in theoretical framework (Figure 3.2) is supported.

By comparison, the conceptual framework shown in Figure 2.4 does not provide information about the establishment process of environmental covenants. In addition, it is indicated in this conceptual framework that environmental covenants do not usually go beyond the requirements of environmental obligation compliance, periodic environmental reporting and/or to undertaking certain environmental management activities. Further, there is no discussion about the tightness of environmental covenants in previous literature.

According to the conceptual framework in Chapter 2, environmental risks are theoretically expected to be factored into the cost of bank loans in banks' lending businesses, while they generally have no impact on the cost of bank loans in practice. To this end, the conceptual framework based on the results (Figure 6.2) indicates that the cost of bank loans is not considered as a mechanism to manage environmental risks in major Australian banks' corporate lending as expected. The cost of bank loans will not reflect environmental risks unless environmental risks lead to changes in credit ratings of corporate customers. Whether there are changes and the significance of the changes are based on the environmental risk identification and assessment, and expert judgements from credit analysts and/or Credit Officers. The

theoretical framework (Figure 3.2) predicts that environmental risks are factored into the cost of bank loans in banks' lending businesses. Based on the above discussion, this prediction is supported only when environmental risks impact on credit ratings of borrowing firms.

Consequently, there are both alignments and divergences between the two conceptual frameworks shown in Figure 2.4 and Figure 6.2 respectively. Two propositions in theoretical framework (Figure 3.2) are supported by the results, while the third one is supported conditionally.

Major Australian banks' environmental sustainability transformation in corporate lending is analysed as an emerging theme and the results indicate that these banks are oriented to environmental sustainability in their corporate lending. To the knowledge of this researcher, there is no literature articulating Australian banks' environmental sustainability transformation in terms of their environmental practices in corporate lending. To this end, this study, to a certain degree, fills a gap in the extant literature. In sum, the results and their contributions to the literature and theory are discussed in this section. The next section presents the implications for practice.

6.3 Implications for Practice

The results are helpful for the establishment of a more systematic and proactive approach to environmental practices in Australian banks' corporate lending. Several implications of the results for practice are discussed as follows.

First, this study illustrates the way major Australian banks' ERM fits into each stage of the corporate credit process and articulates the activities involved at each stage. As

a result, the research is able to inform major Australian banks of their progress on the journey towards environmental sustainability in corporate lending. In addition, as the aggregated results in relation to environmental practices of participating banks are provided, each participating bank is able to obtain insights into improvement opportunities regarding its current environmental policies and practices. Consequently, this information can inform major Australian banks about what should be on the agenda to achieve environmental sustainability in their corporate lending.

Second, this study presents the attributes of environmental risks and indicates that environmental covenants are insufficient to manage environmental risks on their own given the attributes of environmental risks. This implies that environmental covenants and financial covenants can be integrated into one systematic mechanism to manage environmental risks. As such, this study can provide major Australian banks with an insight into their future effort in managing environmental risks. This study also suggests the application of a Material Adverse Change Clause in managing environmental risks. This Clause entitles a bank to the authority in reviewing its loan where necessary during the life of the loan.

Furthermore, this study reveals that environmental risks are not generally factored into the cost of bank loans unless they impact on corporate customers' credit ratings; expert judgements that are based on environmental analysis determine whether there is an impact and if so, the significance of the impact. In light of this, this study provides insights for major Australian banks regarding enhancing their internal credit rating criteria by including environmental factors. By indicating that ERM should be considered as an integral part of banks' corporate credit processes and as *'business as usual',* this study implies that personnel who are experts in both the corporate credit

process and ERM are needed for the development of banks' environmental sustainability. This has implications for banks' staff training activities.

Third, this study provides insights for corporate customers about their environmental management policies and practices by indicating which environmental factors major Australian banks focus on in corporate lending. This study indicates that corporate customers' environmental management quality and their reputation related to environmental issues are what major Australian banks are most concerned about from an environmental point of view. Additionally, corporate customers' bargaining power in their relationship with banks and corporate customers' long-term viability are also influenced by these factors. In this regard, corporate customers can benefit from cultivating an environmental sustainability culture from executive level throughout their organisations. Furthermore, the results rationalize the connection between environmental management quality of corporate customers and their access to bank loans. With high quality environmental management, corporate customers are likely to expose banks to lower environmental risks than they otherwise would. Therefore, environmental risks are less likely to impact on the credit ratings of corporate customers and banks' reputation, which leads to easier access to bank loans.

Last but not least, the results indicate that major Australian banks follow their due diligence processes in making corporate lending decisions. Although the due diligence process is not sufficiently sophisticated, it is part of the evolution by banks towards environmental sustainability. In light of this, this study provides a platform for NGOs to understand major Australian banks' corporate lending decision-making.

6.4 Limitations

Despite the significant contributions of this study, there are a number of limitations. First, this study is based on the Australian context which is likely to limit the generalizability of the results to other countries. Countries vary in terms of their financial markets, environmental legislation and implementation approaches (Ernst & Young 2003; Jenkins et al. 2002). In addition, this study focuses on major Australian banks' corporate lending, which involves major listed and non-listed companies on banks' corporate lending books. As such, the results may not be applicable for lending to small or medium sized customers. Further, given that there are different premises for corporate lending and project financing, it is likely that the results cannot be applied to project financing. However, this is of little concern as the Equator Principles provide guidance for banks' ERM in project financing.

Second, the sample size of this study is small, since it involves only three major Australian banks and eight senior executive bankers who are responsible either for corporate lending or for ERM. Given that there are four major Australian banks in total, the responding rate from the sample banks is 75%. Most of the bankers who are familiar with both their banks' environmental policies and practices in each participating bank are included in the interviews, despite their small numbers. In the following section, it is suggested that future research should include other Australian banks and independent external experts conducting environmental impact assessments for banks in corporate lending.

Third, the data triangulation through a variety of data sources helps to improve the reliability of the data by testing consistency among data from different sources, and

enhances the data validity by providing cross-data validity checks (Creswell 2009; Neuman 2006; Patton 2002). This study relies merely on interview data and no other document such as a sample loan agreement from each participating bank is available for triangulation, which is likely to cause concern regarding the reliability of the results. A review of the published environmental policies, corporate responsibility reports and banks' website information when developing interview checklists help improve the reliability of the collected data. However, due to confidentiality and market competitiveness concern, the limitation outlined above is unable to be eliminated in this study.

Fourth, there is an implication in agency theory that the inclusion of covenants in debt agreements impacts on the cost of debt (Jensen & Meckling 1976). The results do not reveal a consistent association between environmental covenants and the cost of bank loans. Therefore, while this study contributes to validate the relevance of agency theory for environmental risks in the bank-corporate customer relationship, the results do not sufficiently serve to extend the contribution to all implications of agency theory. Due to the limited resources and scope of this study, this limitation is not able to be addressed.

Fifth, this study relies on perceptions and experiences of bankers and the interpretations by the researcher to provide insights into environmental policies and practices for both banks and their corporate customers. Biases are likely to arise due to the subjective conceptualizations which, to a large degree, are influenced by the opinions, experiences and knowledge of both the researcher and the bankers (Creswell 2009). The researcher has put every effort into overcoming the possible biases, and this was further discussed in Chapter 4. Furthermore, despite a bank's

credit process usually starting with the bank's lending policy, this study focuses merely on major Australian banks' environmental practices in corporate lending. It is suggested in the next section that this study be extended to include investigations of banks' policies regarding environmental risks.

Last but not least, this study does not address how to benchmark environmental risks into high, medium and low or how to price them. However, due to a lack of standardised environmental information and appropriate instruments for measuring the magnitude of environmental risks, this limitation is far beyond the capability of this study. Additionally, this study does not address how banks can technically price environmental risks given that technical evaluation of environmental risks and their resultant costing and pricing are usually undertaken by independent external environmental experts. This falls outside of the research scope. Furthermore, there is an increasing awareness among banks that environmental issues of corporate customers result in both risks and opportunities for banks (Jeucken & Bouma 2001). However, this study only focuses on risks facing banks resulting from environmental issues rather than the opportunities.

While these potential limitations are identified and acknowledged, they do not detract from the significance of the results. The limitations provide opportunities for future research, some of which are discussed in the following section.

6.5 Directions for Future Research

Based on the results and limitations of this study, a number of suggestions for future research are identified and presented in this section. First, replicating this study in other contexts with similar financial markets and environmental legislative situations

would help to further generalise the results. Similar studies could also be conducted to include other Australian domestic banks. Furthermore, as loans to small and medium sized companies are also a key area in banks' lending businesses, it would be interesting to investigate whether and how environmental risks are integrated in this lending process.

Second, instead of purposive sampling, a variation of this study could be conducted based on a random sampling of personnel working in corporate lending and ERM for lending businesses. This type of research could be expected to provide a more *'grass roots'* description of banks' environmental practices and the stages banks are up to in implementing their environmental sustainability transformation.

Third, further investigation of a systematic and comprehensive ERM mechanism combining environmental covenants and financial covenants is worthwhile. The results indicate that environmental covenants on their own are insufficient to manage environmental risks in banks' corporate lending.

Finally, further investigation regarding costing and pricing of environmental risks through interviews with environmental experts has the potential to play an important role in promoting banks' environmental sustainability. This study provides senior executive bankers' perceptions about integrating environmental risks into banks' corporate credit processes. However, they do not reveal details about quantifying and pricing environmental risks due to technical requirements. Interviews with environmental experts could shed some light on the quantification and pricing of environmental risks.

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8 APPENDICIES

Appendix 1 Specimen Environmental Undertakings and Covenants in Term Loan Facility Letters (Case 1999)

The specimen clausing highlights in bold type the most important and commonly used clausing. The following undertakings and covenants shall be deemed to be incorporated into the Loan Agreement and any provisions relating to undertakings and/or covenants in the Loan Agreement shall apply thereto:

(a) **to indemnify the Bank and its employees and agents fully at all times on demand (without prejudice to the bank's other rights) for any expense, loss, damage or liability incurred by them directly or indirectly as a result of any actual or alleged failure by the borrower to comply with any undertaking or covenant in this facility letter, or any of its obligations under environmental law, environmental permits or any other applicable law relating to the Borrower and/or its business and/or the property;**

(b) **to comply with all environmental laws and to obtain, maintain and comply with all necessary environmental permits;**

(c) **to provide to the Bank: a copy of any environmental report at least once every [];** and full details (are not less than two monthly intervals) of the steps taken by the Borrower to comply with recommendations contained in any environmental report;

(d) **to give notice to the Bank of any prosecution, action (including any enforcement or prohibition action), civil claim, non-compliance with environmental laws, contamination of the property, statutory notice served or issued by a regulatory authority in respect of, or relating to, environmental laws and/or environmental permits or the existence of any environmental condition whatsoever which could have a material adverse effect on the value of any such land as security to the Bank;**

(e) not to create or permit to subsist any statutory charge under environmental laws on any of the properties;

(f) within two months after such notification given under paragraph (d) above, to inform the Bank of the steps taken by the Borrower to deal with the matters described thererin and thereafter to keep the Bank informed (at not less than two monthly intervals) about the circumstances and the steps being taken;

(g) to give notice to the Bank of any new or additional requirements imposed or intended to be imposed on the Borrower or any of the property under environmental laws and/or environmental permits including notice of any indication given to the Borrower that any of the property is or may be listed or described in any register maintained pursuant to Part IIA of the Environmental Protection Act 1990 or that any charge is or may be imposed under environmental laws;

(h) on notice having been served by the Bank on the Borrower, to provide the Bank with the respective notices, information, details and documents described in paragraphs (c)-(f) inclusive above whether or not the prosecution, action, civil claim, non-compliance, contamination, statutory notice, requirement or circumstance could have, or the environmental report could provide evidence relating to, an adverse effect on the value of any of the property or on the ability of the Borrower to conduct any of its business or to fulfil its obligations under the Loan Agreement save where the provision of documentation would result in loss of legal privilege;

(i) to provide the Bank with full information and/or details of any action, lobbying, campaign, boycott or other measures taken by or on behalf of any residents, pressure, action or environmental group or organisation or committee in respect of the Borrower and/or its business and/or the property and/or any measures or lack of measures taken by the Borrower in respect of, or relating to, the environment;

(j) to commission (at the Borrower's cost) an environmental report satisfactory to the Bank on the Borrower and the Property every [] years;

(k) to maintain (at the expense of the Borrower) an insurance policy or policies covering such liability of the Borrower under environmental laws as the Bank may require with such endorsements (which may include undertakings by the insurer to the Bank) as the Bank may require with the insurance policy or policies having been approved by the Bank in its absolute discretion; and at yearly intervals and whenever requested by the Bank to provide the Bank with a copy, certified a true copy on behalf of the Borrower, of the insurance policy or policies with premium receipts or other evidence of the payment thereof and acceptance by the insurer; and where (subject always to paragraph (h) above) in the case of paragraphs (d) and (g) such prosecution, action, civil claim, non-compliance, contamination, statutory notice, requirement or circumstance could have [or in the case of paragraph (c) such environmental report provides evidence relating to] an adverse effect on the value of any of the property or on the ability of the Borrower to conduct any of its business or to fulfil its obligations under the Loan Agreement.

Appendix 2 The Value of Environmental Covenants in Bank Loan Agreements[96]

A bank was asked to advance $10million to a company operating in the chemicals sector. Due to the high environmental risk inherent in the sector, the bank required that environmental conditions were incorporated into the loan agreement, including the requirement for the borrower to make representations as to the absence of any existing environmental claims or liabilities. As a result of these conditions the chemicals company was obliged to reveal that one of its production plants had caused contamination of underlying groundwater and a nearby river. The company faced a clean-up cost of $3million. Taking into account the assets taken as security this was considered to be a material issue to the deal. The bank therefore successfully secured a guarantee from the chemical company's parent to underwrite all clean-up costs.

[96] The real example is based on EBRD's own experiences and discussions with staff from financial institutions. However, they have not been verified and EBRD cannot guarantee that every detail is accurate.

Appendix 3 Consent Form

Consent Form to Participate in Research

Project Title: Environmental Risks, Bank Loan Covenants and the Cost of Bank Loans: An Australian Study

Researcher: Yinshuo Xu

Doctoral Student at the University of Southern Queensland

Purpose of the Research:

The purpose of this research is to explore whether and how environmental risks facing banks in their corporate lending are associated with bank loan covenants and the cost of bank loans in the context of Australia. In the first instance, this study is going to investigate whether and how Australian banks integrate environmental risks into their corporate credit processes. Second, based on the broader framework, this study will focus particularly on whether and how environmental risks facing banks are associated with loan covenants and the cost of bank loans.

The aim of this research is to help understand Australian banks' considerations of environmental risks in their corporate credit processes in general, rather than assess or rate the banks according to their environmental policies or practices. We expect to establish whether or not Australian banks place importance on environmental risks and how much weight it is given by bank loan covenants and the cost of bank loans. The information will be collected from senior executive bankers being responsible either for corporate lending decision-making or dealing with environmental risks in corporate lending in major Australian banks.

The conversationally based interview will require approximately 60 minutes of the participant's time.

Once this study is completed, the analysed report will be provided for you. It is expected to assist banks in developing environmental policies, improving environmental practices and provide banks with the insights into the use of covenants and the cost of bank loans to manage environmental risks in corporate lending.

I _____, have been invited to participate in the above research and consent to take part in it.

My agreement is based on the understanding of the research's purpose. I am informed that I can refuse to answer any questions or withdraw from the research at any time without explanation. I consent to the publishing of the analysed results with my identity not being revealed.

Signature (Participant): _____/____/____

Signature (Researcher): _____/_____/_____

Note: Should you have any concern about the conduct of this research project, please contact the USQ Ethics Officer, Office of Research & Higher Degrees, University of Southern Queensland, West Street, Toowoomba QLD 4350, Telephone (07) 4631 2690, email: ethics@usq.edu.au.

Appendix 4 Cover Letter

Cover Letter

Dear ____

Subject: Environmental Risks, Bank Loan Covenants and the Cost of Bank Loans: An Australian Study

I am currently engaged in this research at University of Southern Queensland. I am pursuing my PhD degree under China Scholarship Council which is a non-profit institution with legal person status affiliated with the Ministry of Education, China.

The purpose of this research is to explore whether and how environmental risks are related to bank loan covenants and the cost of bank loans in Australian banks' corporate lending. In the first instance, this study is going to investigate whether and how Australian banks integrate environmental risks when they process corporate loan applications. Second, based on the broader framework, this study will focus particularly on whether and how environmental risks are associated with loan covenants and the cost of bank loans.

The attached interview checklist is to obtain the information regarding environmental risks facing banks in their corporate credit processes. The questions of whether and how environmental risks are associated with bank loan covenants and the cost of bank loans in Australian banks' corporate lending are expected to be addressed.

Your participation in this research will result in the following benefits to your bank:

- The analysed results of this research will be provided;
- The implication for banks' environmental policies and practices in corporate lending will be available.

The ethical committee of University of Southern Queensland has approved the research. There are no anticipated physical, psychological or economic risks to you. I

also would like to ensure that your participation is completely voluntary. You have the right to refuse answering any questions or withdraw from the study at any time.

Your responses will be recorded under your permission and the names of you and the bank will not be identified in the analysed results.

If you have any inquiries or suggestions, please do not hesitate to contact me at Xu.Yinshuo@usq.edu.au or 61 401542470.

Thank you
Yours sincerely,

Yinshuo Xu
PhD student
School of Accounting, Economics & Finance
Faculty of Business and Law
Australian Centre for Sustainable Business and Development
University of Southern Queensland
Xu.Yinshuo@usq.edu.au

Appendix 5 Interview Checklist 1

Environmental Risks, Bank Loan Covenants and the Cost of Bank Loans: An Australian Study

Guiding Question 1: What are the main areas of focus for your bank's lending businesses and how much weight is given to each area? (e.g., project finance, term loans, revolving loans, facilities)

Guiding Question 2: How does your bank process corporate loan applications? (The indicators for the corporate loan application approval decision)

Key issues:

- the weight of each indicator;
- Does this vary between the different types of loans (e.g., corporate loan, business loan)?

Guiding Question 3: What is the process to negotiate loan contracts between your bank and borrowers?

Key issues:

- the initial provider of loan covenants;
- What are the determinants of loan covenants?
- What are the functions of loan covenants for your bank, risk protection, early warning, extra comfort or others?
- loan covenants comes first in bank loan contracts or the cost of loans;
- the determinants of the initial cost of loans in loan contracts;
- Do renegotiations of loan covenants and the cost of loans often happen?
- Do the different bargaining powers of different firms matter in determining loan covenants and the cost of bank loans?

Guiding Question 4: How does your bank assess risks in its corporate lending?

Key issues:

- the main risks your bank are considering in corporate lending;
- Are environmental risks considered? If so, how do they impact on your bank?
- definitions of corporate environmental performance (borrowers' environmental performance) and environmental risks;
- the evaluation of corporate environmental performance and the assessment of environmental risks;
- the weights your bank put on corporate environmental performance and environmental risks in corporate loan application assessment;
- the association between corporate environmental performance and the cost of bank loans;
- the association between environmental risks and the cost of bank loans;
- Does your bank make distinctions between different types of loans when assessing risks in lending businesses?

Guiding Question 5: Are there environmental covenants in the loan contracts between your bank and the borrowers?

Key issues:

- the nature of environmental covenants (In what forms the environmental covenants exist, affirmative covenants putting requirements or negative covenants imposing restrictions, financial covenants based on accounting numbers or non-financial covenants?); whether your bank can provide some samples about environmental covenants.
- How does your bank customise environmental covenants (number, restrictiveness and type) to account for the various environmental risks?
- How are corporate environmental performance and environmental risks related to environmental covenants?
- How are environmental covenants related to the cost of bank loans;
- the application of the Equator Principles;

- If there is no environmental covenants, what other mechanisms (if any) are used to manage environmental risks in loan contracts?

Do you have any suggestions in refining my research topic which is 'How are environmental risks associated with bank loan covenants and the cost of bank loan in Australian banks' corporate lending? Any suggestion is welcomed.

Thank you very much for your time!

Appendix 6 Interview Checklist 2

Environmental Risks, Bank Loan Covenants and the Cost of Bank Loans: An Australian Study

Guiding Question 1: What are the categorisations of your bank's lending businesses and how much weight is given to each categorisation?

Key issues:

- What is the basis to categorise the bank's lending businesses?
- How much weight is assigned to corporate lending (if your bank has this categorisation or the similar categorisation)?
- What are the dominant products in corporate loans?(e.g., term loans, overdrafts)
- Are corporate loans usually secured?

Guiding Question 2: How does your bank process corporate loan applications? (The stages in this process to approve corporate loan applications)

Key issues:

- the activities in each stage;
- If there are due diligence and annual review, where do they fit in?
- How are each stage and its activities related to bank loan covenants?
- How are each stage and its activities related to the cost of bank loans?
- Whether and how bargaining power of corporate clients in processing loan applications matters.
- Whether the corporate loan approval process and the answers to above points vary among different categorisations of the bank's lending businesses.

Guiding Question 3: What is the process to establish corporate loan documentations?

Key issues:

- the initial provider and the determinants of loan covenants;
- What are the functions of loan covenants for your bank?
- the determinants of the initial cost of loans in loan contracts;
- How are the process to establish loan covenants and the process to determine the cost of bank loans related to each other?
- How do loan covenants and the cost of bank loans relate to each other?
- When do renegotiations of loan covenants and the cost of loans happen?
- How do different bargaining powers of corporate clients matter in establishing loan covenants and the cost of bank loans?

Guiding Question 4: How does your bank assess and manage risks in corporate lending?

Key issues:

- the main risks your bank are considering in corporate lending;
- How to manage the identified risks in corporate lending?
- definition of environmental risks in the bank's corporate lending;
- the principles of assessing environmental risks in the bank's corporate lending;
- How do environmental risks in corporate lending impact on the bank?
- the weights your bank put on environmental risks in the corporate loan approval process;
- the association between environmental risks and the cost of bank loans;
- the association between environmental risks and bank loan covenants;
- What are the mechanisms/systems used to manage environmental risks in corporate loans?
- Does your bank make distinctions between different categorisations of lending businesses when assessing and managing risks?

- For a corporate client with superior environmental performance, whether and how bank loan covenants and the cost of bank loans reflect the superior environmental performance.

Guiding Question 5: Are there environmental covenants in the loan documentations between your bank and corporate clients?

Key issues:

- the nature of environmental covenants (In what forms the environmental covenants exist, affirmative covenants putting requirements or negative covenants imposing restrictions; financial covenants based on accounting numbers or non-financial covenants?); whether your bank can provide some samples about the environmental covenants in corporate lending.
- How does your bank customise environmental covenants (form, content, number and tightness) to account for the varying environmental risks?
- How are environmental covenants related to the cost of bank loans;
- the implications for corporate lending by adopting the Equator Principles in project finance.

Do you have any suggestions in refining my research topic which is 'How are environmental risks associated with bank loan covenants and the cost of bank loan in Australian banks' corporate lending? Any suggestion is welcomed.

Thank you very much for your time!

Appendix 7 Ethics Clearance

University of Southern Queensland

CRICOS: QLD 00244B NSW 02225M

TOOWOOMBA QUEENSLAND 4350

AUSTRALIA

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OFFICE OF RESEARCH AND HIGHER DEGREES

Ashley Steele

Ethics Officer

PHONE (07) 4631 2690 | FAX (07) 4631 1995

EMAIL steele@usq.edu.au

Friday, 26 February 2010

Yinshuo Xu
1/17 Anita Drive
Kearneys Spring
Toowoomba QLD 4350

Dear Yinshuo,

Thankyou for submitting your project below for human ethics clearance. The USQ Fast Track Human Research Ethics Committee (FTHREC) assessed your application and agreed that your proposal meets the requirements of the *National Statement on Ethical Conduct in Human Research*. Your project has been endorsed and full ethics approval granted.

Project Title	Corporate Environmental Performance and the Cost of Bank Loans and Bank Loan Covenants: A Study of Australian Firms
Approval no	H10REA024
Period of Approval	26/02/2010 – 31/12/2011
FTHREC Decision	**Approved**

The standard conditions of this approval are:

(a) conduct the project strictly in accordance with the proposal submitted and granted ethics approval, including any amendments made to the proposal required by the HREC;
(b) advise the HREC (email: ethics@usq.edu.au) immediately if any complaints or expressions of concern are raised, or any other issue in relation to the project which may warrant review of ethics approval of the project;
(c) make submission to the HREC for approval of any amendments, or modifications to the approved project before implementing such changes;
(d) in the event you require an extension of ethics approval for this project, please make written application in advance of the end-date of this approval;
(e) provide the HREC with a written "Annual Progress Report" for every year of approval. The first progress report is due 12 months after the start date of this approval (by **26/02/2011**);
(f) provide the HREC with a written "Final Report" when the project is complete;
(g) if the project is discontinued, advise the HREC in writing of the discontinuation.

For (c) to (f) proformas are available on the USQ ethics website: http://www.usq.edu.au/research/ethicsbio/human

Please note that failure to comply with the conditions of approval and the *National Statement on Ethical Conduct in Human Research* may result in withdrawal of approval for the project.

You may now commence your project. I wish you all the best for the conduct of the project

Yours sincerely

Ashley Steele
Ethics Officer
Office of Research and Higher Degrees