

# The Impacts of Environmental Risks on Bank Loan Covenants and the Cost of Bank Loans: an Australian Case Study and the Implications for China

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## ABSTRACT

Covenants in loan agreements and the cost of bank loans are expected to be mechanisms in banks' environmental risk management. This paper provides an in-depth examination of the associations between environmental risks and 1) bank loan covenants, and 2) the cost of bank loans in the Australian context. The examination is conducted through semi-structured interviews with senior executive bankers in major Australian banks. The results indicate that customized environmental covenants are included in bank loan agreements to manage environmental risks. The cost of bank loans will not reflect environmental risks unless these risks impact 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 judgment on the credit ratings. The implications for China in banks' environmental risk management are also discussed.

## CCS Concepts

• Applied computing → Law, social and behavioral sciences  
→ Economics

## Keywords

Environmental risks; environmental risk management; environmental covenants; the cost of bank loans

## 1. INTRODUCTION

Banks work as a financial intermediary in the economy and are considered to be an environmentally friendly sector. By extending loans to firms whose activities impact on the environment, banks are likely to be exposed to environmental risks. Environmental risks have three dimensions: lender liability, credit risk and reputational risk [1-4]. 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 [5]. In addition, banks' environmental

risk exposure can lead to incremental credit risk for banks [1-2, 6]. On one hand, with the growing body of restrictive environmental legislation, firms have increased exposure to environmental costs which impair their ability to repay loans according to agreements [1-3, 7]. On the other hand, if real properties held as collateral by banks are environmentally contaminated, banks will suffer lower security from the impaired value and saleability of the collateral [1,5]. Reputation is a composition of perceptions from the banks' key stakeholders who play a significant role in their long-term viability [8].

To maintain sustainable development, banks need to ensure that the decisions about whether and under what conditions they extend loans accord with their overall risk exposure, including environmental risks [9-11].

Theoretically, environmental covenants and the cost of bank loans are mechanisms that can be used to manage environmental risks in lending [1, 12]. However, how Australian banks manage environmental risk in their corporate lending practices requires further investigation. To this end, this paper provides a rich understanding of the relationship between environmental risks, covenants and the cost of debt by using qualitative research methods to gain an in-depth understanding of the research problem: How do Australian banks assess and respond to the environmental risks of their corporate borrowers? The source of data is face-to-face semi-structured interviews with senior executive bankers in three major Australian banks. These executives are responsible either for corporate lending decision-making or environmental risk management in corporate lending.

## 2. PRIOR LITERATURE

Environmental covenants in loan agreements is one of the mechanisms that has the potential to control and monitor environmental risks [1-4, 13]. There is a consistent view that an environmental covenant is the expression of a borrowing firm's promise to take or to avoid certain environmental-related actions [1, 11, 14-15]. According to previous literature [1, 14-15], typical environmental covenants centre around requirements for:

- compliance with applied environmental obligations (environmental legislation, license to operate, and/or undertakings in bank loan agreements apart from covenants);
- periodic environmental reporting to inform banks of borrowers' environmental practices as part of the on-

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going loan monitoring process; and certain environmental management practices by borrowers.

Accordingly, environmental covenants typically relate to non-financial aspects of a firm's operations. However, there is little research explaining the form of these environmental covenants or investigating the process of establishing them and whether environmental covenants are related to environmental risk profiles of borrowers.

Apart from environmental covenants in bank loan agreements, the cost of bank loans can also be used for managing environmental risks. This can be facilitated by incorporating an environmental risk premium or providing preferential rates and thus differentiating businesses based on banks' level of exposure to environmental risks [13, 16-18]. Environmental risks facing banks will be incorporated into the cost of bank loans when one or more of the following conditions occurs [1]:

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

### 3. THEORETICAL FRAMEWORK AND RESEARCH PROPORTIONS

Environmental risks facing banks in lending contribute to the agency cost of debt and provide an incentive for banks to manage these risks [19-20]. According to agency theory, one way to reduce the agency cost of debt is to include covenants in loan agreements limiting managerial behaviors that benefit shareholders of borrowing firms over banks [21]. To this end, environmental covenants aiming to align the conflict of interest related to environmental issues are expected to be included in agreements. The above discussion leads to Proposition 1a:

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

Covenants are directly negotiated between banks and firms and they are renegotiation-flexible [22-24]. As such, there is an optimal structure of loan covenants that effectively manages the conflict of interest between banks and clients [23-24]. The optimal structure of covenants is tailored in terms of banks' risk exposure, and it is demanded by banks and agreed to by borrowing firms [21].

**Proposition 1b: Environmental covenants are customized to suit the environmental risk profile of each corporate borrower.**

The inclusion of an environmental covenant in a 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 [21, 25]. Accordingly, environmental covenants are unlikely to completely protect banks from environmental risks, leaving residual agency cost of debt. As implied by agency theory, the residual agency cost of debt is expected to be priced into the cost of bank loans.

We develop three scenarios. Assuming that there are two firms, and other things being equal, firm A exposes banks to lower environmental risks, while firm B leads to higher environmental risks.

**Scenario One - Environmental covenants included but not tailored**

Supposing there are environmental covenants, but are not customized to banks' environmental risk exposure. As such, there is less residual agency cost of debt for firm A than that for firm B. 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 Two - Environmental covenants included and tailored**

Supposing there are environmental covenants and they are tailored to suit the risk profiles of borrowers. As such, environmental covenants place different constraint on firm A and 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.

**Scenario Three - No environmental covenants**

With no environmental covenant mitigating the agency cost of debt, the agency cost of debt 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, and thus a lower cost of bank loans.

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

### 4. RESEARCH METHODOLOGY

A qualitative approach, which emphasizes 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.

Data was collected through semi-structured interviews with eight senior executive bankers from three major Australian banks. The three banks are the Australia and New Zealand Banking Group Limited (ANZ), the National Australia Bank Limited (NAB) and Westpac Banking Corporation (Westpac). The interviews were conducted face-to-face. Each interview took approximately 75 minutes on average.

### 5. RESULTS, DISCUSSION AND IMPLICATIONS

#### 5.1 Environmental Risks

The results reveal that environmental risks facing banks derive from the uncertainties around the financial and reputational impacts that environmental issues can have. Environmental risks are different from traditional risks as environmental risk events usually emerge more dramatically and can have significant impacts for banks. Therefore, it is difficult to quantify environmental risks, and thus they cannot be accurately accounted for in corporate customers' financial forecasts. Major Australian banks are most concerned with credit risk and reputational risk, as the likelihood of environmental liability being borne by banks is rare in Australia.

As for China, the Green Credit Guidelines issued in 2012 by China Banking Regulatory Commission (CBRC) provides a definition for environmental risks facing banks, which is consistent with that by major Australian banks. However, reputational risk has not

attracted such attention in China. It can be explained by the fact that the environmental awareness and responsiveness amongst investors, companies and consumers in China fall far behind the developed countries [26]. It is recommended that China authorities make concerted effort in increasing consumer awareness and preference towards environmental protection and cultivate mature NGOs, and thus mitigating the externalities of environmental issues.

## 5.2 Environmental Risk Management

The results show that Australian banks consider environmental risk management as an integral part of the corporate credit process and this is required for an adequate risk management of corporate lending. The Green Credit Guidelines is a leading regulatory framework for green lending in China, which requires banks to effectively identify, assess, monitor, control or mitigate environmental risks in lending, develop environmental risk management systems. However, a lack of more systematic, specific and operational guidance impedes banks from carrying out comprehensive environmental risk management [27]. It is recommended that Chinese banks consider environmental risks as a highly influential indicator and embed it in corporate credit process.

## 5.3 Environmental Covenants

The results confirm that customized environmental covenants are used by Australian banks to manage environmental risks. The results indicate that environmental covenants are non-financial, and reflect the most commonly used environmental covenants outlined by Case. 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. In particular, an important role of environmental covenants is to provide banks with the authority to take action if environmental risks facing them increase relative to those forecast at loan origination (asset substitution). Further, covenants are seen as necessary for banks to monitor borrowers' environmental practices and performance on an ongoing basis, including investment in environmental risk management (underinvestment).

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, the consequences of emerging environmental risk events tend to be catastrophic and thus the potential environmental risk exposure of banks is likely to go beyond the range banks are able to control by financial ratio dynamics. Second, most environmental risks 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.

The results further show that environmental covenants are established based on a comprehensive analysis of environmental issues at industry/sector, corporate customer, and transaction levels respectively. On the basis of the comprehensive analysis, environmental covenants are formulated in negotiations between banks and their corporate customers. Therefore, specific environmental covenants (additional to the typical environmental covenants mentioned above) are likely to be included in loan agreements. With regard to the tightness of environmental covenants, this study finds that for customers that are environmental unfriendly, banks are likely to require

environmental disclosure in more detail and depth and to review corporate customers' activities in managing environmental issues more frequently.

With regard to the functions of environmental covenants, this study reveals 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. To this end, 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. However, environmental covenants can provide an incentive or disincentive for corporate customers' environmental-related activities, and provide banks with the authority to react when there is a covenant breach or default.

Environmental covenants are also included in the Key Evaluation Indicators for Green Credit Implementation of China as a qualitative indicator. The Key Evaluation Indicators for Green Credit Implementation was issued in 2014 for banking institutions to self-evaluate their green credit performance. However, there is no clear definition for environmental covenants and no clarification on how to establish environmental covenants in loan agreements. Given the characteristics and functions of environmental covenants, Chinese banks are recommended to take initiatives in defining environmental covenants and exploring the options of their forms, contents and tightness. Particularly, the environmental stress testing might be useful in establishing the appropriate environmental covenants.

## 5.4 Environmental Risks and the Cost of Bank Loans

The results show that environmental risks will not impact on the cost of bank loans unless they impact on the credit ratings of corporate customers. First, 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, there is not a linear association between the cost of bank loans and environmental risks. In addition, 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 are included in these subjective judgements rather than being a specific input of the credit rating models of banks. Second, the regulatory, economic and institutional circumstances facing banks are developing rapidly and thus banks' lending experiences and practices are evolving over time.

Consistent with the experiences of major Australian banks, there is also an emerging trend in China for incorporating environmental risks in credit ratings, based on which the credit departments of banks will determine the cost of bank loans<sup>[26]</sup>. That is, borrowers or projects with higher credit ratings will be rewarded favorable costs of bank loans, while an environmental risk premium will be imposed on borrowers or project with inferior environmental performance. At individual bank level, the Industrial and Commercial Bank of China (ICBC) has been making effort towards this trend by conducting environmental stress testing, which can be further expanded in the future to investigate the weights of various environmental issues and the degree of their impacts on credit ratings of clients [28]. At the same time, the launch of pilot programs of green rating is recommended [26].

In conclusion, this research indicates that environmental covenants are included in corporate loan agreements by major Australian banks to manage conflicts of interest and exposure to reputational costs related to environmental risks. They are customised in terms of banks' environmental risk exposure. However, environmental covenants are insufficient to manage environmental risks on their own given their non-financial form and the dramatic emergence of environmental risk events. This implies that environmental covenants and financial covenants can be integrated into one systematic mechanism to manage environmental risks. Furthermore, 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 the significance of the impact.

China has been taking concerted efforts in promoting green finance, and environmental risk management is an integral part of green finance system. However, existing environmental policies focus more on restrictive measures, which aims to direct loans away from high pollution, energy intensive companies or projects. It is imperative for china authorities to develop incentive measures to leverage capital and resources into energy-saving technologies, environmental protection, clean energy and green infrastructure. In this way, Chinese commercial banks can be encouraged to take initiative in exploring opportunities in green credit and embedding environmental risk management into their daily business.

## 6. LIMITATIONS

First, the sample size of this study is small. However, given that there are four major Australian banks in total, the responding rate from the sample banks is 75%. Senior 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. Future studies could conduct interviews with some other Australian banks.

Second, 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 [29]. The researcher has put every effort into overcoming the possible biases. There is a potential that future studies collect quantitative information regarding this issues and justify the quantitative relationships between environmental risks and the cost of bank loans.

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