Risk Allocation and Mitigation Methods for Financing Cross Border Projects

Amir Rezvanian

Student Number: 11356911

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Abstract

Compared to other areas of Finance, the field of Project Finance is a relatively unexplored area for both empirical and theoretical research. And in particular, most of the research to date has focused more narrowly on risk management through financial instruments. From another point of view and by looking at different types of projects, Cross Border projects are usually considered 'high risk', mostly due to a lack of adequate overseas environmental information and overseas project experience. Given this setting, this research aims to explore risks attributed to Cross Border Project Financed projects and understand why South African companies should or should not use Project Finance for their Cross Border projects.

There were two phases to the research. The first phase consisted of an analysis of literature on Project Finance, the Cross Border project context and Risk Management processes and, the further analysis of fourteen case studies where Cross Border projects have used Project Finance. This was with the aim of extracting risks and relevant allocation and mitigation methods. The second phase consisted of ten interviews with South African Project Finance experts, based on findings from phase one. This phase's aim was to explore the practical risk allocation and mitigation methods and compare them to what was said in theory, making recommendations for further research into Project Finance in South Africa.

The first phase resulted in a broad description of the theory of risks associated with Cross Border Project Financed projects and those specific risks and allocation or mitigation methods addressed in Cross Border projects that have used Project Finance as their financing vehicle. The second phase produced a comparative scheme between what is being addressed in theory as risk allocation and mitigation methods and what is being exercised in South African Project Financed projects. This comparison showed that Project Finance is a recommended financing vehicle for Cross Border projects provided that required due diligence and homework are done upfront. It was concluded that there is a gap between theory and practice in terms of risk allocation and mitigation methods developed for Cross Border Project Financed projects. This research provided a framework to introduce similarities and differences between theory and practice and ended up with a set of recommendations for further research into Project Finance.

Keywords: Project Finance, Cross Border, Risk, Political Risk, Risk Identification, Risk Allocation, Risk Mitigation

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before any degree or examination in any other University. I further declare that I have obtained the necessary authorization and consent to carry out this research.

Amir Rezvanian

Student Number: 11356911

Signed: ……

Date: 7 November 2012

Anyone who has never made a mistake has never tried anything new.

Albert Einstein (BrainyQuote, 2012)

Dedication

To my wife, ***Shima***, a real love forever

Without her support, I could not walk this journey

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1. Chapter 1 – Introduction to the Research Problem

1.1. Introduction

This chapter sets out the background for the main research problem: that Cross Border projects provide a risky environment for those who practice in the field of Project Finance. The context for Project Finance and associated risks are explored upfront. A brief overview of Project Finance is then given, followed by a look at the need for research on risk management in financing Cross Border projects. Differentiating between risk allocation and risk mitigation tools and techniques is then defined showing how they relate to each other and why there is a need for research on Project Finance in Cross Border environments, considering the risk factor. These help clarify the research problem, its objectives and motivation and finally draws the scope of research.

1.2. Project Finance and Associated Risks

The field of Project Finance is relatively unexplored territory for both empirical and theoretical research (Esty, 2004). Given the scale of the projects that takes place globally, much of the financing will need to be done on an off balance sheet and possibly, project basis. This typically refers to transportation, telecoms, power, water and sewage, and natural gas projects. The majority of large projects would benefit greatly from properly recorded project financing; by separately identifying and securing assets and cash flows, it becomes possible, through project financing, to allocate the large sums of resources required for different projects or individual companies (Whyatt, 1992). This is particularly the case when there are a number of participants involved in a large project, none of which is on its own able to provide the necessary finance. The growth in the average size of projects means that an increasing number of projects must be financed in this way or they would not be able to progress (Whyatt, 1992).

At the same time, as stated by Esty and Sesia (2007, p.4), research on project finance yields new insights for other related fields, such as risk management, corporate governance, development economics and organisational economics. Considering the Cross Border environment, project sponsors will be challenged to design and implement sustainable long-

term contracts and agreements with governments or face the risk of the government shutting the project down, expropriating the assets, or assessing or increasing new taxes and fees to gain a larger portion of project revenues. Projects with large, up-front capital costs and low, ongoing marginal costs are particularly exposed to these types of risks because they generate large cash flows over many years (Esty & Sesia, 2007, p 16).

1.3. The Need for Research on Risk Management in Cross Border Project Finance

In his article *Why Study Large Projects, an Introduction to Project Finance*, Esty (2004, p 218) goes on to say: “A second area for research is the idea that organisational form can be used as a risk management tool. Most of the research to date has focused more narrowly on risk management through financial instruments.” This is being supported by Shen-fa and Xiao-ping (2009, p.1763) as they believe that in any kind of project finance method, whether for the lender or the borrower, there are certain elements that analysts must review and certify. Those elements may include: hydrocarbon reserves, the timing and volume of production, and the technology cost and timing of development. And, most importantly, the element of risk plays a key role in the financing of any project. Another support for the need to continue research on project finance is through Lockwood and Renda-Tanali’s (2010, p 28) assertion that “(the) Energy Engineering and Project Finance theory are relatively new topics in the field of quantitative research, and very little scholarly material has been published in either subject over the past 10 years or so”.

More specifically, Cross Border projects are usually considered a 'high risk business', mostly because of a lack of adequate overseas environmental information, international authorities and overseas project experience. Similar projects may have totally different risk characteristics in different regions. It is difficult for a newcomer to identify new risks in a new environment. It is more difficult to assess these risks and the subtle impact of relationships among them. On the one hand, ignoring these risks is irresponsible, and unrealistic decisions will result. On the other hand, identifying and assessing all the new risks and their relationships is a very complicated, time-consuming and expensive process. This process is almost impossible for the majority of projects, especially when there are inadequate amounts of information and time. When such a

complex scenario is faced, identifying and controlling these vital risk factors in Cross Border projects become extremely important (Zhi, 1995, p 231).

1.4. Research Problem

The importance of ensuring that the research problem is well understood is illustrated by Professor Esty of Harvard Business School: “with regard to theoretical research on large projects, the research questions have not been clear and the institutional details needed to build models have not been readily apparent” (2004, p 222). In the context of large international projects where more risks are involved, it is always a question for companies as to why they should or should not use Project Finance for their Cross Border projects and what the benefits of project finance are for Cross Border projects.

Considering the need for studying risks with these kind of projects, it is also important to understand how risk allocation and mitigation methods can help companies manage their Project Finance deals in their international projects.

1.5. Research Objectives

The main reasons for studying Project Finance is because it vividly illustrates why financial structure matters, why it has the potential to extend and even develop new financial theories, and why it is an increasingly important financing vehicle used in practice (Esty, 2004, p 222).

Given the need for infrastructural projects in the multinational arena and considering the risks involved for different project stakeholders (which means that risk management research on Cross Border Project Finance deals is required), the research topic is set to focus on Risk Allocation and Mitigation Methods for Project Finance of Cross Border Projects. In addition to this, the following research objectives are set for this research:

- **Objective 1:** To develop a broad theory base for risks attributed to those Cross Border projects that use Project Finance as their financing vehicle. This will be done

by reviewing the academic literature to date and by extracting theories and lessons from Cross Border projects.

- **Objective 2:** To understand why companies (in this research, South African companies) should or should not use Project Finance for their international Cross Border projects.

- **Objective 3:** To identify how risk allocation and mitigation methods can assist companies (in this research, South African companies) manage their Project Finance deals in their international Cross Border project context.

1.6. Research Motivations

Dealing with complex investments requires complex tools. As illustrated by Esty (1999), unfortunately most of the tools in practice today were not designed to handle the complexities of today's investment decisions. Considering the associated risks with these complex investments and in particular when we consider the international environment, there is a gap for a comprehensive study around risks of Project Finance in the Cross Border domain. In part, the problems lie in using the wrong risk mitigation methods and in part, the problems lie in using the existing methods incorrectly. The objective of this research has been to refine the Project Finance professional's risk management toolkit and to highlight some new tools, techniques and insights. This motivates the present research topic and its objectives.

1.7. Scope of the Research

The characteristics of the risk highly depend on the type of strategy adopted for financing the project. Cross Border projects are recognised as one of the most risky project schemes. There are instances of project failure where a Cross Border scheme is decided. Ineffective risk management is one of the major causes of such failure. Today’s projects are increasingly being managed using various risk management tools and techniques. However, application of those tools depends on the nature of the project, the organisation’s policy, project management strategy, the risk attitude of the project team members, and availability of the resources.

Understanding of the contents and contexts of Cross Border projects, together with a thorough understanding of risk management tools and techniques, helps select processes of risk management for effective project implementation in a Cross Border scheme (Dey & Ogunlana, 2004).

While the topic of Project Finance is broad and covers many areas within the broader areas of finance, this research studies the application of risk management tools and techniques in Cross Border Project Finance deals by reviewing relevant literature, reviewing 14 written case studies and ten in-depth interviews with South African experts in the field of Project Finance for Cross Border projects. The results conclude with the development of a model for selecting a risk management process for financing Cross Border projects. The application to Cross Border projects is considered from the viewpoints of the major project respondents. Discussion is also made with regard to political risks. This study would contribute to the establishment of a framework for systematic risk management in Cross Border Project Finance deals.

2. Chapter 2 – Literature Review

2.1. Project Finance

2.1.1. Definition of Project Finance

Esty (2007, p 213) defines Project Finance as "the creation of a legally independent project company financed with equity from one or more sponsoring firms and non-recourse debt for the purpose of investing in a capital asset." Thus the distinguishing features of Project Finance are, first, that funding is obtained strictly for the project itself without an expectation that the corporate or government sponsor will co-insure the project's debt, at least not fully, and, second, that creditors share much of the venture's business risk (Megginson, 2010, p 47). Megginson then discusses the idea that Project Finance has proven to be an especially efficient method of obtaining long-term, relatively low-cost financing for capital intensive projects in relatively risky countries. These are inherently complex projects with large risks and massive informational asymmetries, yet which are funded with small amounts of private equity contributions and much larger amounts of nonrecourse or limited resource syndicated loans, which are the principal external, capital market financing.

Hoffman (2007) defines *project finance* as, "the long-term financing of infrastructure and industrial projects based upon the projected cash flows of the project rather than the balance sheets of the project sponsors." Usually a project financing structure involves sponsors, institutional investors, public principal, private contractors and lenders. Lenders include banks, national institutions and institutional investors.

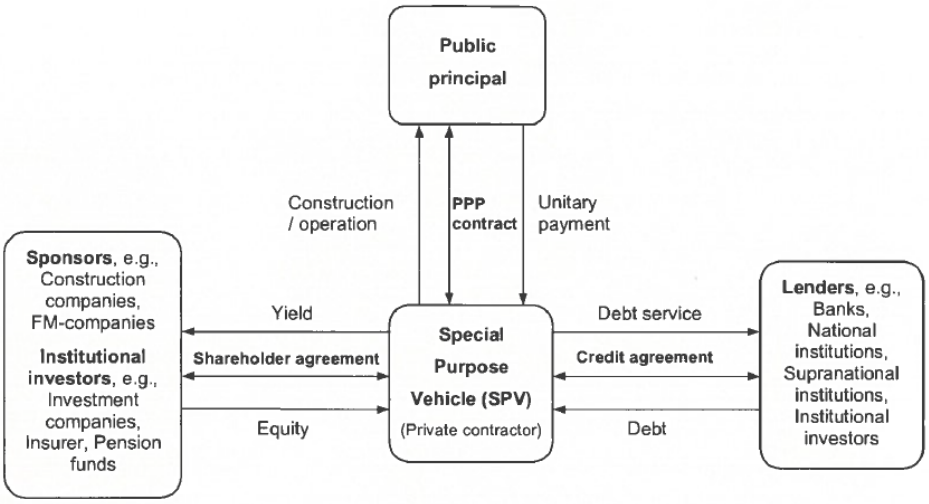
To summarise what is being said in the literature, in its broadest sense, project financing is used for four activities: project development, acquisition financing, refinancing and renovation and repositioning. It is now important to understand the complexity of Project Finance structure.

2.1.2. Structure of Project Finance

Daube, Vollrath and Alfen (2008) describe the basic characteristics of project finance in one of the following methods: cash flow related lending, the risk sharing principle, off balance sheet

financing, non or limited recourse financing, the different types of capital and the structure of project finance, as shown in Figure 1.

Figure 1 - The structure of Project Finance – Reference: Daube, Vollrath and Alfen (2008), p.380



One the one hand, the emphasis addressed in the literature is the importance of project finance as a competitive strategy for winning international and local jobs (Tiong and Yeo, 1993, p 79); on the other, Churchill (1995, p 22), believes that project finance is a very limited tool, not a universal solution; governments and developers can make the process less costly by focusing on ways to reduce major risks, and on developing local capital markets.

Some studies have been conducted on the relationships between sponsors and lenders; The Corielli, Gatti and Steffanoni (2010, p 1295) study showed capital structure negotiation and cost of debt financing between sponsors and lenders using a sample of more than 1,000 project finance loans; they find that lenders: (i) rely on the network of non financial contracts as a mechanism to control agency costs and project risks, (ii) are reluctant to price credit more cheaply if sponsors are involved as project counterparties in the relevant contracts, and finally (iii) do not appreciate sponsor involvement as a contractual counterparty of the special purpose vehicle when determining the level of leverage.

Considering above, it is evident that Project Finance requires that a particular asset be capable of functioning profitably as an independent economic unit (Lockwood & Renda-Tanali, 2010). With this nature of Project Finance being a particular area of expertise, what are the motivations

for companies to use Project Finance? This and other motivations toward associated risks of Project Finance will be discussed in the following section.

2.1.3. Motivations to Use Project Finance

For many companies the decision whether to use project financing instead of internal financing is a key decision. An and Cheung (2010, p 72) propose a model that examines this critical management decision; their model places the perspective on the managers' incentives and highlights the conditions under which a particular way of financing is best suited for conducting a capital investment. In the model proposed by An and Cheung (2010, p76) they highlight a set of conditions under which corporations prefer ‘off balance sheet’ project financing to the traditional ‘on balance sheet’ debt financing. Their choice is driven by the required amount of investment and the extent of uncertainty. The tendency within companies is for management to choose *project financing* when their managers' efforts have a significant impact on the magnitude and likelihood of a favourable outcome to the project. They also reveal that the larger the capital amount involved the greater the likelihood that management will decide to use outside project financing.

We now understand why or why not companies use Project Finance. For those who use Project Finance as their financing vehicle, there are advantages and disadvantages and in many cases the results come with both benefits and losses. This will be discussed in the next section.

2.1.4. Advantages and Disadvantages of Using Project Finance

To facilitate the decision making process mentioned above, management will also have to know the context of the project and its geography. Kleimeier and Versteeg (2010) argue that project finance can substitute for a lack of institutional and financial development – especially within the less than favourable environments presented in the least developed countries on the globe. Their results show that project finance promotes growth in low income countries in particular; those countries can gain an increase of up to 0.67 of a percentage point in annual economic growth when increasing their level of project finance from the 25th percentile of the sample to the 75th percentile. For the less developed countries, the parameters for investment are different; Borgonovo, Gatti, and Peccati (2010) group six investment parameters into the

categories of: revenue assumptions, construction cost assumptions, financial assumptions, fiscal assumptions, operating expenses and macroeconomic assumptions (inflation).

Rabinowitz (2008) conducted a research dissertation around fundamental theories of project finance and its practice in South Africa. In his thesis he draws heavily on the works of Professor Esty and describes the status of project finance between 2006 and 2008, before going to predict the future outlook and trends of project finance. He believes that the academic research into project finance lags far behind its practice; the application of project finance with limited or non resource debt as its defining characteristic has been growing at a tremendous rate since 2001; a trend which is set to continue (Esty & Sesia, 2007).

2.1.5. Project Finance in Energy Projects

Within the oil, gas, and petrochemical industry, Project Finance has become a commonly applied method of financing large scale and capital intensive projects in which, traditionally, only the cash flows generated by the project served as the source of loan repayments and only the project assets served as collateral for a nonrecourse loan (Farrell, 2003, p 547). Therefore, Project Finance has always been a strategic option in projects related to oil and oil derivative products. Pollio (1998) explores the preference for and the features unique to project finance; he describes the interconnections that exist within a project financing model that feature a single purpose project company in the centre. This company is surrounded by sponsor, operator, construction contractor, purchaser of project output, leading bank and the host government.

Given the complexity of oil, gas, and petrochemical project organisations as well as the economical events that have occurred post the 2008 global financial crisis, the importance of project finance for oil-related projects has attracted much interest by many institutions. From the research background it has become evident that the following factors have always played a key role in the selection of a project finance method: crude pricing, growth petrochemicals, contracting capacity and price implications, debt availability, multiple sourcing of debt finance, and export credit agencies (Inglis, 2006). Therefore, it is critical that managers have access to knowledge of each of the above-mentioned factors when considering the financing of a project.

Saidu (2006) explains that oil, gas, and petrochemical project financing involves the financing of: downstream processing plants, transportation systems, and/or marketing facilities. He further breaks this down into descriptions of: onshore drilling rigs, pipelines, processing plants, tankers, and offshore drilling rigs. According to Saidu (2006), there are various methods of financing the development stage of oil projects: production payments and forward purchases. Whichever method is adopted, since the ability and the rate of payment of the project debt will depend on the completion and performance of the project, lenders will require assurance that the project will be completed; they will then perform according to the predetermined specifications. Saidu (2006) then considers the financing of the project against the following risks:

- Resource risk
- Market risk
- Legal risks (that can surface as an aspect of completion risk where there are crucial condition precedents within the project structure relating to documentation, approvals, and permits.)
- Political risks
- Environmental risks

Saidu (2006) concludes a critical position on project finance for oil, gas, and petrochemical projects when he states that the identity of the players, their experience, and the course of dealings among the parties greatly influence the concessions lenders are prepared to grant in respect of the completion and other risks associated with the project – hence, the ability of the sponsor to mitigate the completion risk. Thus, the structuring of the progress of the project such that both the sponsor and the lenders benefit mutually, is a most important decision for the managers to consider. As a majority of energy projects are executed by different role players from different countries, knowing the nature and complexity of Cross Border projects is critical. This will be covered in the next section.

2.2. Cross Border Projects

2.2.1. Introduction to the Cross Border Projects

The recent financial crisis has stressed the need to understand financial systems as networks of interdependent countries, where Cross Border financial linkages play the fundamental role. How should a company finance a project located in a country in which political risk is high and in which investor protection is weak? Such a project will only be realised if the risk can be reduced to a bearable level. This, plus other complexities of Project Finance require a deeper understanding of different scenarios for Project Financing in the Cross Border environment.

2.2.2. Different Scenarios for Project Finance in Cross Border Environments

Scenarios for Project Finance consideration in Cross Border environments can be seen as either Joint Ventures (JVs) or Public-Private Partnership (PPP). Joint ventures are often used when more than one company is interested in contributing to and reaping benefits from a research project. Project finance would be especially beneficial for joint ventures when there is a large disparity in the credit worthiness of the participants. Public-Private Partnerships are especially amenable to project finance because government sponsors want to minimise public outlays for political reasons (Bis, 2009, p 20).

2.2.3. Cross Border Exposures and Financial Contagion

Integrated financial markets provide opportunities for expansion and improved risk sharing, but also pose threats of contagion risk through cross-border exposures; Degryse, Elahi, and Penas (2010, p 239) argue that cross-border contagion needs further consideration as it may pose serious threats to financial stability.

Churchill (1995, p 28) states that no two developers are likely to look at the same project in a country in exactly the same way; the perception of either country risk or project risk is, at best, an art form. Even if the perception of risk is the same, each party is likely to have a different risk preference or risk profile. Understanding these differences and exploiting them in order to

establish a competitive advantage can be an important factor in deciding when and where to use the financial strengths of the company.

Wang and Wang (2012, p 42) investigate the determinants of Cross Border Venture Capital (VC) performance using a sample of 10,205 Cross Border VC investments by 1906 foreign VCs in 6535 portfolio companies covering 35 countries. They found that a country's economic freedom is positively related to the likelihood of a successful exit and negatively related to the expected investment duration. This finding is robust to country fixed effects, sub samples, decomposed economic freedom, and alternative measures of performance, economic freedom and control variables.

Chowdhury and Chowdhury (2001, p 319) introduced the joint venture life cycle and state that it relies on synergy, organisational learning and moral hazard; they demonstrate that depending on parameter values the outcome may involve any one of the following: stable joint venture formation, joint venture formation followed by breakdown, or Cournot competition (where two firms compete against each other in the market) in all the periods. Risk management is another factor.

An international joint venture is an important form of foreign direct investment that has generated a vast literature base. Banerjee and Mukherjee (2010) analyse the net effects of entry on the joint venture share distribution and the incentive for opening a wholly-owned subsidiary by the foreign joint venture partner; they are of the opinion that this will then depend on the strength of the opposing effects, along with the effects of cost asymmetry, which may occur due to the differences in the costs of input production, as the researcher mentioned in his analysis. However, Banerjee and Mukherjee suggest that a complete analysis of this issue deserves attention for future research.

There is another aspect of joint venture projects and that is *information exchange*. Mantecon and Chatfield (2007, p 2591) support the contention that the establishment of a joint venture creates an opportunity for a relationship based exchange of information that can serve as a mechanism to transfer assets in the presence of a high degree of asymmetric information. This is important in particular when a company in an emerging market establishes a joint venture with a partner from a developed or developing country. In this case knowing other factors,

before making deals as a joint venture, is also important. Factors such as cultural distance and the choice between wholly-owned subsidiaries and joint ventures, and partner selection for joint venture agreements must be first considered. Chen, Ho, Lee, and Yeo (2000) document that firms with promising investment opportunities have significantly positive responses to announcements of international joint venture investments, whereas firms with poor investment opportunities have unfavourable responses to the same announcements. In contrast, they find that free cash flow does not explain the cross-sectional differences in abnormal returns associated with the announcements of international joint ventures; thus, their results show support for the investment opportunities hypothesis but no support for the free cash flow hypothesis.

Dailami and Leipziger (1998, p 1283) highlight the importance of macroeconomic and project-specific attributes of project risk. The key finding of their research is that the market seems to impose a high risk premium on loans to countries with high inflation and to projects in the road sector. Georgieva, Jandik, and Lee (2012, p 774) believe that both formal (legal) and informal (culture, language, religion) institutions determine the intensity of Cross Border joint ventures between one United States (US) and one foreign partner. They suggest that foreign countries receiving large US foreign direct investments and/or relying less on export and import are associated with higher intensity of Cross Border joint ventures. The volume of Cross Border joint ventures with a US partner is higher for firms from less competitive and/or more politically stable countries. On a firm level, US firms are more likely to form Cross Border joint ventures in cases of technology transfers between the joint venture partners, in deals involving partners.

2.2.4. The Impact of Law, Regulations, and Culture on Cross Border Projects

Another important aspect of Cross Border projects is the consideration of corruption in the host country; it is being argued that the foreign investor's decision to undertake Foreign Direct Investment (FDI) and the choice of the entry mode are affected by the extent of corruption in a host country. To this effect, corruption makes local bureaucracy less transparent and hence adds to the cost of doing business. Moreover, corruption affects the decision to take on a local joint venture partner. On the one hand, corruption increases the value of a local partner to a foreign investor. On the other hand, foreign investors with sophisticated technology may worry

about leakage of technological know-how or its misuse by joint venture partners and, are thus less inclined to form a joint venture (Javorcik & Wei, 2009, p 622).

Moskalev (2010, P 69) indicates that, as governments (especially those of less wealthy, faster growing economies), relax their laws, foreign bidders increase the number of Cross Border projects. The likelihood that foreign bidders establish Cross Border projects in which they obtain a controlling stake in the target is greater in host countries with less restrictive laws. In such countries, foreign bidders are also more likely to use Cross Border projects than Joint Ventures as the means for entering the market. As a host country's laws improve, foreign bidders are increasingly more likely to seek the types of entry modes that provide them with greater control over their investments.

2.3. Project Risks

2.3.1. Definition

A risk is defined herein as "an uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives" (PMI, 2008, p. 373). It must be emphasised that a risk is characterised by having both a consequence and a probability.

Risk is an embedded element in project finance. Backhaus and Werthschulte (2006, p 81) researched this topic; the result of their study indicates that the uncertainty concerning the duration of the construction phase and the interest rate throughout are of little importance, while capital expenditures and sale prices in contrast are of great importance for the overall risk of project finance transactions. Backhaus and Werthschulte (2006, p 71) describe each project by characteristics that are considered to be relevant for different risk situations: Duration of the construction phase, the maturity of debt, level and time structure of the cash inflows from operations, level and time structure of the variable as well as the fixed cash outflows from operations, level of depreciation amortisation, income tax rate, debt-to-equity ratio and profile of the debt. They then advise that an effective reduction of the overall project risk, by applying adequate risk management measures, should be considered inevitable. This qualifies a need for proper risk allocation and mitigation methods in project finance. Today, risk is considered to be

a major factor influencing project success, and Project Risk Management is an important activity in any capital project.

2.3.2. Specific Types of Project Risks

Farrell (2003, p 549) lists five specific types of risk: start-up cost risk, operating risk, technology risk, market risk, and political risk. He then analyses each and argues that no two project financing packages are alike and that each must be financially engineered to produce the appropriate sequencing of cash flows necessary to meet specific project needs. He explains that this factor, when considered together with the rapid changes in capital markets and the increasing level of technological sophistication, implies that each project finance package must be custom built, and managed either by an in-house project finance department or by an outside consultant. Farrell's paper addresses the need to customise the risk allocation method of each project which is dependent on the structure selected for project finance.

Jin (2010) classifies the risks associated with Public-Private Partnership (PPP) Projects as shown in Table 1.

Table 1 – Classification of Project Risks – Reference: Jin (2010), p.148

Super Category	Category	Risk
Development phase	Planning and design risks	Changes in output specifications
		Defects in design
	Construction risks	Failure/delay in land acquisition
		Unforseen site condition
		Failure/delay in materials delivery
		Defects in construction
	Commissioning risks	Failure/delay in commissioning test
Operation (and transfer) phase	Operating risks	Failure/delay in operation
		Excessive maintenance and refurbishment
		Adverse impact of core services delivery
	Market risks	Demand below anticipation
		Revenue below anticipation
		Unanticipated economic downtown
		Increased competition

		Technical obsolescence
		Adverse demographic change
		Unanticipated inflation
		Withdrawal of government support network
	Asset ownership risks	Less residual value
Lifetime	Political, legislative and regulative risks	Adverse changes in law, policy or regulations
		Failure/delay in obtaining permit/approval
	Financial risks	Unavailability of financing
		Refinancing gain
		Financial failure/delay of private consortium
		Adverse change in interest rates
		Adverse change in tax
	Social, industrial and inter-organisational relations risks	Lack of cooperation of the government
		Public resistance
		Destructive industrial action
		Partners' disputes
		Different interpretation of contract
	Environmental risks	Site contamination
	Force majeure risks	Force majeure

In another attempt, 28 critical risks associated with Cross Border construction projects in developing countries are identified and categorised into three hierarchy levels: country, market and project (Wang, Dulaimi, & Aguria, 2004, p 251). The authors proposed a model, named Alien Eyes' Risk Model, which shows the three risk hierarchy levels and the influence relationship among risks. This model will enable better categorising of risks and represent the influence relationship among risks at different hierarchy levels as well as revealing the mitigating sequence/priority of risks.

2.3.3. Project Political Risks

- **Definition**

Political risks that stem from government action have an impact on the returns and debt-service capacity of the project finance (Sachs, Rosa, & Tiong, 2008). Sachs and his colleagues argue that the impact, however, does not cause project default on debt service obligations but causes a drop in equity, dividend, and project returns. They proposed an aggregated political risks model in a generic approach which the political risks are broken down into six categories: the four insurable risk categories; currency inconvertibility and transfer restriction, breach of contract, political violence, and expropriation; then legal and regulatory risks, and finally, other risks that are not within the span of control (Sachs, et al, 2008, p 83).

Bond and Carter (1995, p 975) believe that country risk is still a major obstacle to large-scale funds mobilisation in many countries; some governments remain committed to state ownership of infrastructure and in others, vested interests are blocking competitive and transparent private entry. Institutional constraints are also a problem. The pace of reform will depend on how serious inadequacies in traditional infrastructure provision arrangements are perceived to be, and how the political process of transition is handled once private entry' is allowed.

Khattab, Anchor and Davies (2007, p 742) suggest that the political risk associated with Cross Border projects poses a threat to the majority of respondents and that the vulnerability to political risk is related to a firm’s degree of internationalisation. International projects are more concerned about host-society and interstate related risks than host-government related risks. They classify political risks according to its source (Table 2). They then conclude that as firms become international they are exposed to new risks, of which political risk is the most obvious. Although political risk can be categorised precisely, the division of political risk into three main categories does not imply that this typology is exhaustive nor are the components of each category. Political risk, however, varies across firms, varies across countries and changes over time. It is, thus, practically hard to achieve a general understanding of political risk and its impacts on firms. Therefore, the view that political risk should be considered within a firm’s specific characteristics framework is reinforced.

Table 2 - Classification of political risk according to its source (Khattab, et al, 2007, p.735)

Source of threat	Threats (source of harm)
Host-government	Expropriation and/or confiscation
	Contract repudiation
	Currency inconvertibility
	Ownership and/or personnel restrictions
	Taxation restrictions
	Import and/or export restrictions
Host-society	Terrorism
	Demonstrations, riots and insurrection
	Revolutions and civil wars
Interstate	Wars
	Economic sanctions

- **Global Financial Status Post 2008**

Another element in the picture of risk and project finance is the *global financial status*. Prior to 2008 the global financial crisis, the banks bore the burnt of Project Finance risks, especially market risk. Post 2008, that changed and further political risks have also been introduced into this picture.

Globally, firms financed 240 billion US dollar in capital expenditures using project finance in 2009, down from 409 billion US dollar in 2008, as the financial crisis hit the Western markets. The use of project finance has grown at a compound rate of 0% over the last five years, 4% over the past 10 years, and 12% over the past 15 years (Esty & Sesia, 2010).

Hainz and Kleimeier (2012, p 309) believe that in politically risky countries, project finance loans are more likely to be used and development banks are more likely to participate in loan syndicates. They cite the example of Sasol Company in South Africa and show that in Sasol's project finance model in Mozambique there are two important features of the loan contract for managing political risk: Firstly, the degree of recourse that the lender has, helps manage political risk. In this respect, they discriminate between full-recourse loans and non-recourse project finance loans. Secondly, the participation of development banks in the loan syndicate also helps manage political risk. Development banks provide a so-called ''political umbrella'' because these banks can use their leverage to influence governmental decisions and deter adverse events that would negatively affect the outcome of a project. Consequently, Hainz and

Kleimeier (2012, p 288) analyse the determinants of those two features of the loan contract, i.e., its recourse structure and the participation of a development bank in the loan syndicate. In their work on Sasol's case, it is proven that political risk is critically important to the design of the loan contract, particularly in risky countries. Therefore, their contribution to the literature is investigating how political risk influences the choice between project finance and full-recourse loans and the syndicate structure of these loan contracts.

2.4. Project Risk Allocation

2.4.1. Introduction

Reviewing the literature to date shows that ongoing efforts have been made to seek an optimal risk allocation by investigating which categories of risk Project Finance stakeholders should generally accept or transfer and, critically, ask why. The PFI guidelines in the UK recognise that the minimisation of risk and the cost of accepting it is generally achieved by allocating risk to those best placed to accept it (Saunders, 1998). All risk analysis tools and techniques are listed by Dey and Ogunlana, (2004, p 338) as follows: Influence diagram, Monte Carlo simulation, PERT, Sensitivity analysis, MCDM, AHP, Fuzzy set approach, Neural network approach, Decision tree, Fault tree analysis, Risk checklist, Risk mapping, Cause/effect diagram, Delphi technique and Combined AHP and decision tree.

Dey and Ogunlana believe that risk allocation requires two things. One is understanding and defining a problem properly. This includes clear definition of decision criteria. In other words, unless objectives are clear enough, one cannot expect good risk analysis. The other is to understand risk analysis methods sufficiently. Risk analysis methods can be selected only after a problem is structured and well understood.

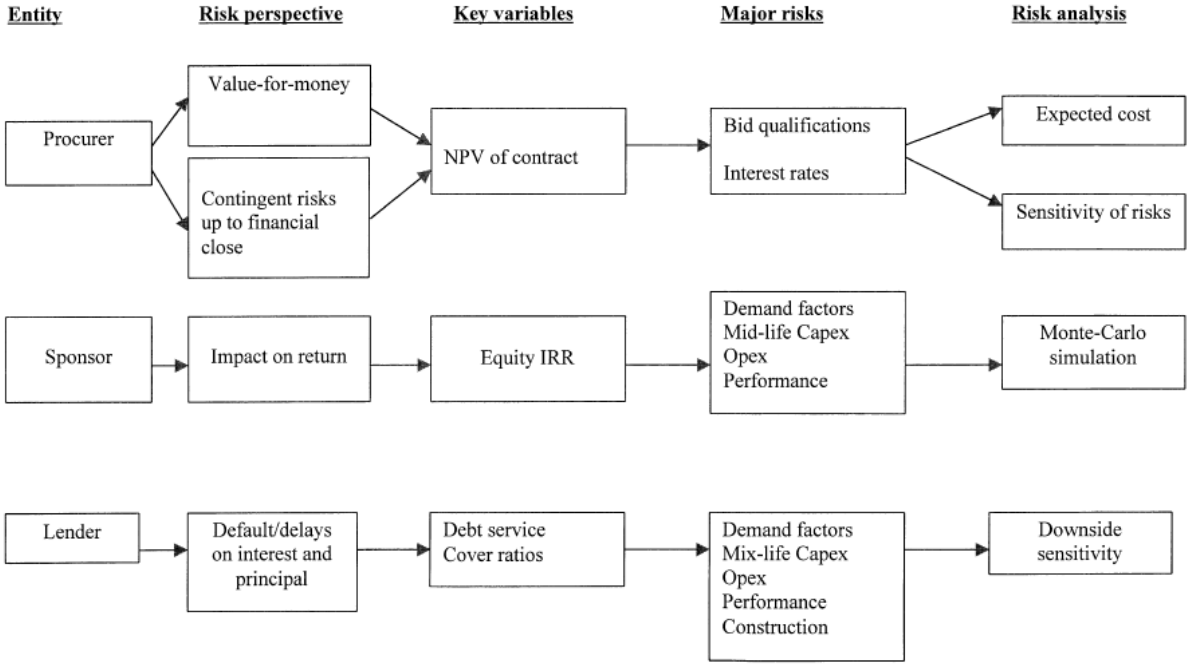
Drawing on the transaction cost economics and resource-based view of organisational capability, Jin (2010, p 138) has identified five main features of the transactions associated with risk allocation in project finance. He includes (1) partners' risk management routine, (2) partners' risk management mechanism, (3) partners' cooperation history, (4) risk management environmental uncertainty, and (5) partners' risk management commitment.

Daube et. Al (2008, p 377) believe that in project finance, certain project risks have to be transferred to the private contractor to achieve value for money; they argue that it is crucial for an optimal risk allocation that a risk is borne by the party that is best able to manage and control it; to this effect, they propose that transferring the financing to the private contractor reveals project risks and enables their more effective management. Moreover, the private contractor then strives for a lasting risk management.

More recently, and from another angle, Xu, Chan, and Yeung (2010, p 902) developed a fuzzy risk allocation model for public private partnership (PPP) projects. Their model assists the PPP project practitioners to transform the risk allocation principles in linguistic terms into a more usable and systematic quantitative-based analysis using fuzzy set; twenty-three principles and influencing factors for risk allocation were identified through a comprehensive literature review.

Project Finance arrangements are founded on the transfer of risk from the public to the private sector under circumstances where the private sector is best placed to manage the risk. The principal aim for the public sector is to achieve value-for-money in the services provided while ensuring that the private sector entities meet their contractual obligations properly and efficiently. Value-for-money and risk transfer principles accepted, fundamentally Project Finance deals are viable only if a robust, long-term revenue stream, over the period of the concession, can be established. Grimsey and Lewis (2002, p 117) have outlined a framework for investigating and carrying out an analysis of the risks that systematically views project risk from the perspectives of the procuring entity, the project sponsors and the senior lenders (shown in Figure 2). For a project to be successful, the differing (and conflicting) needs of these parties must be satisfied in the risk allocation process.

Figure 2 – Flow Chart of Analytical Approach to Risk Allocation – Reference: Grimsey & Lewis (2002), p. 114



Jin & Doloi (2008, p 718) proposed a theoretical framework for understanding the underlying mechanism of risk allocation decision making in Project Finance from the transaction cost economics (TCE) perspective. By further integrating the resource based view of organisational capabilities, this framework enables a logical and holistic interpretation of the mechanism underlying the decision-making process in the current risk allocation practice. Major components include partners' risk management routine, mechanism, cooperation history, commitment and environment uncertainty.

Another aspect of risk allocation is transferring risks between public and private sectors involved in Project Finance deal. Henderson & McGloin (2004, p 394) summarise four issues which must be considered when adopting Project Finance as a mechanism for delivering infrastructure. The first is the legal and regulatory framework and the importance of getting the right balance between risk and incentives. The second is the recognition that the movement of staff from public to private sector creates challenges in terms of ensuring equitable working terms and conditions and maintaining motivation at levels conducive to high service quality. Third, is an appreciation that both private and public sector partners share a common goal of reducing their respective risk and increasing certainty. Subsequent negotiations will involve trade-offs and

compromises. While there is much debate regarding this process, ultimately the public sector must “foot the bill” if the project fails. Finally balancing power relations and accommodating partners’ different philosophical views is a delicate process which can ultimately lead to a concession of public sector ethos.

2.4.2. Basic Elements of Risk Allocation Method in Project Finance

Shen-fa and Xiao-ping (2009, p 1759) believe that participants should assume a larger share of risk for those elements that are not risk-averse; however, during the risk allocation of actual project finance each participants’ degree of risk aversion is abstract and is measured with difficulty. They argue that participant risk tolerance is not only related to their capacity of resources, understanding level of risk, assuming capacity of risk results, organisational risk behaviour and willingness to control risk but also to the controlled extent of risk as well as incentives of risk. According to Shen-fa and Xiao-ping, all these elements constitute the basic elements of risk allocation method in project finance as per:

- The main risk controller – who can control the occurrence of risk?
- The main risk bearer – can related participates bear the risk of the outcome?
- Willingness to control – who wants to have the risk related environment under control?
- Control cost – who can manage risk at the lowest cost?
- Capacity of resources – can related participants manage risk based on their related resources to benefit their capacity of risk management?
- Incentives of risk – can participants be inspired to manage risk in the most efficient and effective manner?
- Risk relativity – is there any existence of internal links among the related risks and between such risks and others involved in other projects?

Shen-fa and Xiao-ping conclude that risk allocation is a key aspect of project finance while wrong-risk sharing is a dominant cause of disputes. Effective risk allocation can improve project performances, such as reducing cost, shortening construction duration, improving the quality of

completed projects and promoting more active participation in the related working relationship. They believe that: (1) In theory, risk should be allocated to the party whose risk's tolerance is higher; and (2) In practice, it is difficult to optimise risk allocation since any participant is as far away as possible from what they would like to risk and sometimes negotiations would be blocked. Thus, a workable compromise solution is often adopted in risk allocation.

As described by Caddell (2008, p 3), most risk identification exercises and resulting risk registers typically focus on the threats to a project and often discount potential opportunities that might improve the project. One might argue that in the risk allocation process, we should not ignore the relations between risks and the impact or impacts that each risk might have on another type of risk. To answer this, the Strategic Risk Register System (SRRS) is proposed by Allan and Yin (2011, p 75) as a practical methodology to enable the connectivity of risks to be elicited and evaluated so that the most potent risks in a project can be identified. The SRRS methodology builds on the impact multipliers by introducing a connectivity matrix to modify traditional risk registers and uses graph theories to depict the relations between risks. Several techniques are employed to visualise and interpret the significance of the results. Allan and Yin (2011, p 79) propose that connectivity is the third dimension of risk and introduces the concept of a risk system.

2.5. Project Risk Mitigation

2.5.1. Introduction

Williams (1995, p 18) believes that success for project participation depends on who bears the risks, and the vital role of risk analysis in informing the contractual allocation of risk is explored. Bonetti, Caselli, & Gatti (2010, p71) study one specific, yet extremely important aspect of Project Finance contracting, which is the offtaking agreement, or the commitment by a purchaser to buy all the output of a project once completed. These agreements are key risk transfer mechanisms in project finance, but they can also be thought of as a trade-off between lower market and higher counterparty risks. Two conclusions can be drawn from their study: (1) The Special Purpose Vehicle's (SPV) cost of funding can be reduced by structuring contracts efficiently, allocating most of the inherent risk factors to external parties. Therefore, the pricing of project loans is dictated by the sole residual component of risk, i.e. counterparty risk,

represented by the risk of offtaker default. (2) Contract engineering carried out in the initial phases of a given project is highly critical for determining the economic convenience of the project itself and its sources of financing.

Another aspect of risk mitigation in Project Finance is about the relationship with lenders. Mills and Taylor (1994, p 708) state that "when the approach has to be made to the lender to request finance, the entity should be prepared, analyse the risks as a banker will, and try to mitigate or lay off those risks which will clearly be unacceptable to the bank". Once again, the entity should be conservative and should not ask the bank to assume risks which are not bankable. By offering the lender upfront a well thought-out and balanced package of risks and a reasonable risk-reward ratio, the probability of achieving successful financing will be greatly improved.

2.5.2. Mitigation Methods Introduced in the Literature

- **Monte Carlo Simulation**

Knowing the background presented above and understanding the need for the attachment of risk allocation methods to project finance, it is interesting to note how this problem is addressed in the recent literature on the topic. Gatti, Rigamonti, Saita, and Senati (2007, p 156) argue that despite the remarkable importance of project finance in international financial markets, no quantitative models to measure and quantify the risk associated with a deal for the financers of the projects, had been developed. Therefore, they propose how Monte Carlo simulations may be used to derive a Value-at-Risk estimate (VaR) for project finance deals and discuss the critical issues that must be considered when developing such a model (Gatti, Rigamonti, Saita, & Senati, 2007). The approach suggested in their paper may be useful for both sponsors and lenders to better evaluate the risk of the project and to support a careful risk allocation.

- **Quantitative model to analyse default risks and loan losses**

In project finance, raising sufficient funds through the debt channel is another key task for all project companies and sponsors to consider. Kong and his colleagues state that, before furnishing a loan, lenders typically need to ascertain the ability of the project company to service principal payments plus interest (Kong, Tiong, Cheah, Permana, & Ehrlich, 2008, p 876). In their

research, they establish a quantitative model to analyse default risks and loan losses in infrastructure projects. Acting as an assessment system, their model will help lenders to evaluate their exposure to default risk by monitoring the changes in the credit quality of the project company and, a conditional credit rating transition matrix is incorporated to predict the probability of default and the net present value technique to estimate the maximum default loss. Kong et al (2008, p 883) also represent a strategic component of the set of quantitative tools that can be used as a monitoring tool for screening obligors, for performing risk/return analysis of credit portfolios, or for capital allocation and loan pricing; they have designed another credit risk model to act as an assessment system to evaluate the lenders' exposure to the default of the project company by monitoring its changes in credit quality. For each project, the model reports the maximum default loss at a certain confidence level, the so-called default riskiness of the debt, using credit ratings and financial information as input. The model accounts for the particular features of a project through adjustments to input data based on the specific project variables.

The model will also assist project sponsors in evaluating those critical measures that they need to control in order to secure favourable loan terms, minimising the risk of default and improving the bankability of a project. Comparing the two models above-mentioned, it is evident that while project risk identification and assessment is essential to the success of a project, the proper allocation of risk is still a complex issue. Therefore, it is critical to understand the allocation methods in more detail.

- **SCP-EM approach for Completion Risk Mitigation**

In integrated project delivery methods such as build-operate-transfer (BOT), a thorough financial risk analysis model should incorporate completion risk analysis into operation risk analysis, as the timing of financial events such as refinancing and debt servicing, depend on the construction completion date. During construction, project managers always have opportunities to react to negative events and to take corrective actions whenever possible to recover late-running schedules. These opportunities to react are 'real options' embedded in the construction process. However, current models of completion risk analysis ignore this feature of project managers. A reliable construction completion risk model for project feasibility studies should capture a manager's option to react to unforeseen, negative events. A novel approach for modelling

construction completion risk analysis is developed by Kokkaew & Chiara (2010, p 1239), who combine the stochastic critical path method with the envelope method (SCP-EM). The SCP-EM approach can model the option-like feature of management feedback reactions in a straightforward fashion. The proposed approach enhances the project finance risk model by helping analysts properly evaluate financial risk arising from a completion delay.

- **Force Majeure in Project Finance**

Mizrachi (2006, p 92) addresses a different aspect of project finance transactions. He states that project finance transactions combine an endless spectrum of business and legal challenges and concerns; hence, it is not surprising that the World Bank and similar multilateral agencies are willing to guarantee and insure against risks of such transactions. However, the success of such projects depends greatly upon the way the parties to the transaction allocate and manage the enormous risks related to the transaction. Mizrachi (2006, p 92), suggests that careful thought should be given to the law that governs the agreement and the doctrines stemming from that law in the risk allocation process; he assesses one risk related to a project finance transaction, which is the risk of force majeure and fundamental change in the circumstance from a comparative and practical point of view. While the risk of force majeure, by its very nature, cannot be fully allocated, it is important for the project finance practitioner to be familiar with the various doctrines applicable to such risk and the ways to minimise it upon negotiating and drafting the project agreement.

- **Failure Mode and Effects Analysis (FMEA)**

Nikolic, Jednak, Benkovic, and Poznanic (2011, p 6168) investigate project finance risk evaluation using an analytical technique: Failure Mode and Effects Analysis (FMEA). Risk analysis performed by Nikolic and his colleagues is based on conditions for two potential scenarios that predict different types of changes in the analysed period; the results of the analysis show that the potential strategic partner should pay special attention to: price risks, estimation, investments, project activity neglect, quasi-risks and debt collection. They considered three sets of criteria including occurrence rating criteria, detection rating criteria, and severity rating evaluation criteria and consequently concluded the following set of risks shown in

Table 3, which is more comprehensive than those introduced by Farrell (2003) and Gatti et al (2007):

Table 3 – Risks of making a financial investment decision – Reference: Nikolic, et al (2011), p.6175

No	Risk Description
1.	Commercial risks
1.1.	Consideration of project viability
1.1.1.	Non-existent market risk
1.1.2.	Market competition risk
1.1.3.	Price Risks
1.1.4.	Debt collection/liquidity risk
1.1.5.	Supplier price risk
1.2.	Operating risks
1.2.1	Operating revenue and expenses risk
1.2.2.	Estimation risk
1.2.3.	Project (activity neglect) risk
1.2.4.	Technological risk
1.2.5.	Completion risk
1.3.	Environment protection risk
1.4.	Raw material supply risk
1.5.	Revenue risk
1.6.	Force majeure risk
1.7.	Other commercial risks
2.	Financial risks
2.1.	Inflation risk
2.2.	Interest rate risk
2.3.	Exchange rate risk
3.	Political risks
3.1.	Investment risks
3.2.	Legal system change risk
3.3.	Quasi-political risks

2.6. Mitigating risks in Cross Border Projects

Mantecon and Chatfield (2007, p 2605) argue that mergers involve projects of similar risk, whereas alliances involve higher risk projects; when compared to mergers, they find that JVs are more likely between partners with greater risk spreads. The results suggest that JVs can be used to reduce uncertainty.

Another mitigating tool discussed by McCarthy and Tiong (1991, p 226) is around contracting models and strategies. They discuss that governments see Build-Operate-Transfer (BOT) schemes as a method of financing the construction of projects without the need for a direct sovereign guarantee of the loans. This poses problems for the sponsors, as lenders often insist that host government support must be available. To ensure the success of the project financing, BOT sponsors must negotiate indirect government undertakings, such as the establishment of offshore escrow accounts, foreign-exchange guarantees, and concessions to operate existing facilities. Each country has its own method of forming concessions, and BOT projects are more likely to be sponsored when the necessary legal framework already exists. Concession holders commonly use turnkey, fixed-price construction contracts to pass the construction risks on to the constructors. This is seen as an effective risk mitigating tool.

2.7. Project Finance as a Risk Management Tool

Project Finance can be seen as a risk management tool. Bis (2009, p 20) proposes that although Project Finance has not previously been used as a method to finance a company devoted to creating and exploiting intellectual property, the time is now ripe for such an undertaking. Recent developments in US law and IP markets have made patents more liquid, and many firms that might play supporting roles to an invention company have arisen. Invention companies financed through other means exist and appear to be successful. Project Finance should provide new capital for this business model and increase its profitability. In addition, the risks associated with an invention company can be reasonably mitigated. Finally, joint ventures formed from existing corporate research divisions and public-private partnerships created to solve environmental problems might be the most likely scenarios to first inspire the formation of an invention company using Project Finance.

2.8. Conclusion of Literature Review

Below is the summary of what literature has proposed for project risks associated with project finance deals and the mitigating methods if applicable or relevant.

Table 4 – Summary of Project Finance risks and proposed methods of risk mitigation in literature

Reference	Risks Identified and Discussed	Proposed Methods for Risk Mitigation
(Williams, 1995)	Technical, Economical, Political and Social environment	Management structures and procedures
(Daube et. al, 2008)	Financial	Transferring to the private contractor to achieve value for money
Kong et al. model (2008)	Default risks and loan losses	Different quantitative models for performing risk/return analysis of credit portfolios
Sachs et al (2008)	Political	A model called QQIR for quantifying qualitative information on risks
McCarthy and Tiong (1991)	Completion	Build-Operate-Transfer (BOT) contracting models
Mizrachi (2006)	Force Majeure	Contract law consideration
Gatti, et al (2007)	Credit risk	Quantitative measurement using Monte Carlo Simulation
Kokkaew & Chiara (2010)	Completion	Stochastic critical path method with the envelope method (SCP-EM)
Bonetti, et al (2010)	Political, Foreign Exchange, Interest Rate and Inflation, Construction, Operational and Market	Offtaking agreements
Farrell (2003)	Start-up cost, Operating, Technology, Market and Political	Project agency risk identification
Wang et al (2004)	Construction	Alien Eyes' Risk Model

3. Chapter 3 – Research Questions

3.1. Introduction to the Research Questions

A suitable research question is one that reflects the fact that a researcher has thought about what fits the specifications and meets the standards set by the examining institute; provides a clear link to the relevant literature and promises fresh insights into the chosen topic (Saunders & Lewis, 2012, p 28). Therefore, the following research questions intends to connect promises made in Chapter 1 and the relevant literature surveyed in Chapter 2 to achieve research objectives and address research problem outlined earlier.

3.2. The Research Questions

The research therefore intends to address the following questions:

- **Research Question 1:** What the benefits of Project Finance are for Cross Border projects? Why should companies use Project Finance for their international Cross Border projects?

- **Research Question 2:** How can risk allocation and mitigation methods introduced in the literature review help companies manage their Project Finance deals in their international Cross Border projects? In view of the risk allocation and mitigation methods, what principles and lessons can companies learn from the specific Cross Border projects that used Project Financing and, in particular specific projects that are covered in the case studies?

- **Research Question 3:** What is the current state of Risk Management of Cross Border Project Financed projects in South Africa compared to (1) specific projects that are covered in the case studies and (2) models and methods introduced in the literature?

4. Chapter 4 – Research Methodology

4.1. Introduction to the Research Methodology

This chapter sets out the methodology used in the research. It follows on from the literature review on risk allocation and mitigation methods of financing Cross Border projects in Chapter 2 and clarification of three different research questions raised in Chapter 3. This has enabled an understanding of why this research is necessary. The research approach is being presented followed by an explanation of research design which was conducted in two phases. Finally a detailed description of the methodology that was used throughout the research is provided.

As stated by Esty (2004, p 222), studying projects requires significant up-front investment to understand the institutional details and moreover, obtaining data can be exceedingly difficult because most project companies are private; therefore as the topic is not well developed in the literature and access to actual data is limited, the research is qualitative and explanatory in nature.

4.2. Research Approach

A research philosophy helps the researcher to think about thinking. It relates to the development of knowledge and the nature of that knowledge in relation to the research (Saunders & Lewis, 2012, p 104). In undertaking qualitative, exploratory research there is a given assumption that the research is all about discovering general information about a topic that is not understood clearly by the researcher. As stated by Marchionini (2006, p 41), research tools critical for exploratory research success involve the creation of new interfaces that move the process beyond predictable fact retrieval. Therefore the approach taken in this research has been based on the creation of two interfaces: one was the interface between the literature and the practical experiences of South African project experts with regards to the topic and second was the interface between the written case studies and the practical experiences.

As such, a large part of the research included interviews with key individuals in the South African Project Finance industry as detailed in further sections below. Interviews, as performed

with questionnaires, allowed for open-ended questions and discussion which provided an in-depth and interactive analysis of the items covered in the literature and other new items explored during interviews. In this way, the researcher was the research instrument. The results of the research are therefore more likely to be compelling, as they are not facts and figures but lessons learnt from human experiences (Gillham, 2005).

4.3. Research Design

The researcher's aim with this study was to implement a mixed-research method design. Saunders and Lewis (2012) state that the mixing of research approaches and strategies in the pursuit of answers to the research questions and objectives will usually involve the application of a mixture of research methods. In this study, the plan was to utilise qualitative explanatory methods, where the data around Project Finance of South African international Cross Border projects would be collected and then their risk allocation methods evaluated in response to the research questions. In addition, due to the need for expert knowledge in the field of Project Finance, interviews were planned to be conducted with managers and experts; which, to an extent, diverts the research path more qualitatively, and leaves space to utilise quantitative research upon availability of data throughout the data collection phase. However, due to the confidentiality agreements and time limitation of this research, access to the quantitative data was not possible and therefore analysis of some published case studies on the topic was added instead.

Saunders and Lewis (2012) define the case study as a research strategy which involves the investigation of a particular contemporary topic within its real life context, using multiple sources of evidence. Depending on availability and suitability of one specific project, it was also the researcher's intention to conduct a case study on a specific project financing and associated risks for that particular Cross Border project; however as mentioned, access to the actual data was limited and this route was therefore not possible.

In this research, the general domain is Cross Border projects and the context is its international project environment which in particular, has been surveyed in the South African Cross Border projects' context. Data has been collected on Cross Border project financing and risks

associated with them. It has been analysed so as to answer the prescribed research questions in this study. Therefore, the research was designed to be conducted in two phases:

Phase 1: Secondary research consisting of analysing the literature on Project Finance, Cross Border project context, risk allocation and mitigation methods, and thematic analysis of South Africa's Cross Border international projects. Using 14 written case studies out of Harvard Business School, a comprehensive list of risks and mitigation methods attributed to Cross Border Project Financing was developed and comparative analysis was tested accordingly.

Phase 2: Semi-structured interviews, including open and closed questions with key people in South African companies were conducted to collect data and receive their views on method of financing international Cross Border projects, risks attributed, mitigation methods were used and lessons learnt for further research and practice in the field of Project Finance.

Besides reviewing the relevant literature and building the theoretical basis of the research in Phase 1 of the research design, the aim in Phase 2 was to determine what the views are of employers and experts with regard to the project financing activities and risks associated with Cross Border aspects. This phase was indeed helpful in developing propositions that are more specific in nature than the broad research questions.

4.4. Population and Unit of Analysis

The extent of this study was limited to South African's international Cross Border projects. It was intended that depending on the data availability gleaned from executed or in progress projects, some projects would be selected to source the data required to conduct a quantitative research. However, as mentioned above, this was not possible and therefore the primary unit of analysis was the individual expertise that the interviewees possessed and the secondary unit of analysis was the companies' involvement in particular industries where Project Finance is most relevant. Data on the Project Finance methods and risk allocation and mitigation models utilised was then gathered and analysed according to the research design.

Saunders and Lewis (2012) define the *population* as the complete set of group members. In this research the secondary population of relevance from within which the interviews took place was anyone that is still or has been involved in Project Finance. Considering the earlier intention to focus on one of the Cross Border Project Finance deals in Chemical industry, three of the interviewees were selected from one of the leading South African companies in the chemical industry. The other interviewees were identified from those who are in position of authority as a lead director or on a large-scale project, those who are responsible for the final delivery of the project or the finance of the project. This was carried out for a period of six weeks, from the end of August until early October 2012. In this time, ten interviews, each ranging from fifty to ninety minutes, were carried out. The population is also all Cross Border projects that use Project Finance.

4.5. Data Collection, Data Analysis and Data Management

4.5.1. Research Instrument / Measurement

Using secondary data in literature and analysing written case studies of Harvard Business School on the topic of Project Finance and associated risks, expert interviews and a questionnaire were all the instruments of this research. The foremost intention of the researcher was to conduct this study under the full supervision of his study supervisor at GIBS, to ensure as much objectivity in the process as possible. Furthermore, an expert in qualitative analysis was requested to review the relevant qualitative findings. As there was no mathematical or statistical analysis, the measurement and theme identification was left up to the judgement of the researcher. This phase was qualitative in nature too.

4.5.2. Developing The Research Instrument

Initially the intention was to conduct a full detailed interview with one of the Project Finance Expert teams in the South African Industry and perform a case study. This was not possible due to confidentiality constraints and data availability and it was decided to design a questionnaire and conduct in-depth interviews with more people involved in this industry.

Once the literature review and the case study analysis had been completed and reviewed, results of both directed the researcher to find the major headings of the questionnaire. The first outcome was the following sections in the questionnaire:

- **Section 1** – Project Finance, its limits in South Africa
- **Section 2** – Cross border projects, differences, issues and concerns, related to project finance
- **Section 3** – Risk management - allocation and mitigation – related to project finance, with details around different risk categories
- **Section 4** – Mitigation for risks
- **Section 5** - Lessons to be learnt and carried out

For this reason, the first draft was prepared and reviewed with the supervisor and it was detailed to cover the following risk categories in it:

- Commercial risks
    - Examination of project viability
    - Non-existent market risk
    - Market competition risk
    - Price Risks
    - Debt collection/liquidity risk
    - Supplier price risk
- Operating risks
    - Operating revenue and expenses risk
    - Estimation risk
    - Project (activity neglect) risk
    - Technological risk
    - Completion risk
    - Environment protection risk
- Raw material supply risk
- Revenue risk
- Force majeure risk
- Financial risks

  - Inflation risk
  - Interest rate risk
  - Exchange rate risk
- Political risks - country specific risks (destination for cross border project)
  - Investment risks
  - Legal system change risk
  - Quasi-political risks

Once the interviews had been conducted, the data analysis was performed. In the words of Gillham, “Content analysis is about organising the substantive content of the interview” (2000, p 59). Although content analysis was not used, following his approach, key substantive points from each question were identified from each interview and sorted into the necessary categories. This consisted of both frequency tables and concluding a thematic analysis to highlight the most common themes, and to identify the most important areas of Project Finance risks in Cross Border projects with the focus on South African projects (Rabinowitz, 2008, p 42).

While it is technically possible to separate the data collection and data analysis phases in a qualitative study, it is vital to remember that the collection and analysis phases need to take place iteratively in order to deepen the level of understanding gleaned with the progress of the process. Therefore the process of data management was continuous throughout the study process and the efficacy thereof largely determined the quality of results (Gillham, 2005; Leedy, 2001). The data collection, analysis and management process that was followed to achieve the required quality of results was as follows:

- The literature review was conducted with mind maps in order to capture notes
- The first interview session was conducted and notes were made
- The researcher’s notes were captured, attempts put in place to develop themes using the words of respondent
- Constant Comparative Analysis was done in order to gain a deeper understanding of the issues at hand and an iterative process was used

- New mind maps of any possible emerging themes and cross reference respondents were developed and repeated

- Whereby the respondents relate a story in the interview, Narrative Analysis was used to try obtaining a deeper understanding of the meaning behind the story. This was used during and directly after each interview (Clark, 2006).

4.6. Data Validity and Reliability

Besides the deployment of the risk analysis models introduced in the literature to test the final selected project data, the intent – where applicable – was to utilise all three analysis methods: thematic analysis, constant comparative analysis and narrative analysis (Gillham, 2005). The analysis was, therefore, done in consultation with the project supervisor to ensure as much objectivity as possible in such a process. Furthermore, in order to introduce rigour into this study, an expert in qualitative analysis was consulted.

4.7. Research Limitations

The main limitation of this research was the time available for conducting the study; the time horizon specified for MBA research projects and extent of real data of South African targeted companies were the main challenges that limit the purpose of this study.

Data availability and access to quantitative figures of Project Finance deals in South African companies diverted the intended quantitative research to more of a qualitative exploratory research and as a result, no definitive conclusion was reached and the findings cannot be extrapolated to other areas of finance or other countries (Zikmund, 2003).

5. Chapter 5 – Research Results

5.1. Phase 1 – Case Study Analysis

5.1.1. Introduction to Case Study Analysis

As described in previous chapters, the selected methodology includes a two stage analysis for the research. The first consisting of an analysis of the 14 written case studies found in Professor Benjamin Esty's book: *Modern Project Finance: A Case Book* (2006a). This section outlines the results of Phase 1. It will then be followed by the results of interviews conducted with individuals involved in Project Finance in South Africa (Phase 2).

The main purpose of this section is to find out the Project Finance risks addressed in each case study and the relevant allocation or mitigation methods outlined in each case. Therefore, a brief introduction of each case has been included to provide the reader with background and context. This brief summary has then been followed by the introduction of risks and their allocation or mitigation methods. As such, while this section will touch on the introduction of risks and relevant methods of allocation or mitigation in each case the main part of analysis will be discussed in the next chapter.

5.1.2. The Chad-Cameroon Petroleum Development and Pipeline Project

The Chad-Cameroon Petroleum Development and Pipeline was to develop the 3.7 billion US dollar project in two parts: a 1.5 billion US dollar Field System to extract oil from the Doba Basin in Chad, and a 2.2 billion US dollar Export System to transport oil to the coastal city of Kribi in Cameroon. Esty (2006) discusses the following risks, allocation and mitigation methods in this case study as shown in below table.

Table 5 – Risks, Allocation and Mitigation Methods – Chad-Cameroon Case Study (Esty, 2006)

Risk	Allocation and Mitigation Method
Political risk	Involvement of multilateral institutions including World Bank Added incentive for government's performance
Social risk - due to much of rebel opposition and fighting based in northern Chad	Chad's government support to secure the project environment
Environmental risk - due to possible groundwater contamination	World Bank created an unprecedented framework to transform oil wealth into direct benefits for the poor, the vulnerable, and the environment

5.1.3. Australia-Japan Cable: Structuring the Project Company

Australia-Japan Cable (AJC) project was a 520 million US dollar submarine telecommunication system development between Telstra (Australia's leading telecommunications and information services company) and Japan Telecom and Teleglobe. Esty and Ferman (2003) outline the risks, allocation and mitigation methods of this Cross Border project as shown in below table.

Table 6 – Risks, Allocation and Mitigation Methods – Australia-Japan Cable Case Study (Esty & Ferman, 2003)

Risk	Allocation and Mitigation Method
Financial risk – access to sufficient fund	Using Project Finance as a way to conserve scarce capital
Operational risk	Creation of a separate legal entity for the project company, wise selection of project sponsors

5.1.4. Calpine Corporation: The Evolution from Project to Corporate Finance

Calpine Corporation raised a 5-year target for generating capacity from 6,300 to 15,000 megawatts (MW) at a cost of roughly 500,000 dollar per MW. Therefore the Corporation would need to raise more than 6 billion US dollar to support the US electric power industry. A "contractual bundle" was selected and Project Finance was chosen as the instrument for

financing it (Esty & Kane, 2003). The name Calpine reflected its California location and its Swiss parentage. The following risks, allocation and mitigation methods have been outlined for this case as shown in below table.

Table 7 – Risks, Allocation and Mitigation Methods – Calpine Corporation Case Study (Esty & Kane, 2003)

Risk	Allocation and Mitigation Method
Refinancing risk - associated with the four-year maturity	Use operating cash flow from the first production to pay down the balance Issue debt or equity at Capine level Refinance the plants individually Cash Flow of a new subsidiary named Calpine Construction Finance Company can pay off the loan
Commercial risk - revolving credit facility	Financing merchant plants on an individual basis with convincing 20 or more banks

5.1.5. BP Amoco: Financing Development of the Caspian Oil Fields

The British Petroleum Company p.l.c. (BP) and Amoco Corporation (Amoco) agreed to a 48 billion US dollar merger in August 1998. Before the merger, BP and Amoco held the two largest interests in Azerbaijani International Oil Consortium (AIOC). Then, as a merged entity, they had to reassess their financial strategy for the AIOC development projects. Esty and Kane (2003) outline the risks, allocation and mitigation methods BP Amoco has faced in this case as shown in below table.

Table 8 – Risks, Allocation and Mitigation Methods – BP Amoco Case Study (Esty & Kane, 2003)

Risk	Allocation and Mitigation Method
Political risk	Attract full support from Azeri government to enforce AIOC's position and adjust to the new and untested legal infrastructure of the region
Financial risk	No method is presented in the case
Transportation risk	Bypass the oil pipeline around Chechnya or send oil to western market through Turkey
Industry risk – reserve and commodity price risk	Adjust project's cost structure and expected production levels

5.1.6. Airbus A3XX: Developing the World's Largest Commercial Jet

The A3XX was a proposed super jumbo jet that would seat from 550 to 990 passengers, authorized by Airbus Industrie's Supervisory Board on June 23, 2000. The A3XX would cost approximately 13 billion US dollar to launch. Esty (2003) discusses this case in its competition with Boeing and outlines the following risks, allocation and mitigation methods shown in below table.

Table 9 – Risks, Allocation and Mitigation Methods – Airbus A3XX Case Study (Esty, 2003)

Risk	Allocation and Mitigation Method
Technology risk - up-front investment	Secure more than 50 to 100 total orders before launch decision
Market risk - uncertainty of demand	No method is presented in the case

5.1.7. Nghe An Tate & Lyle Sugar Company (Vietnam)

The equity sponsors, Tate & Lyle, Mitr Phol Sugar Company, the Vietnam Fund, and the Nghe An Sugar Company, had financed a project with their own equity, short-term loans, and a 40 million US dollar bridge loan from Rabobank, which was acting as an advisor and potential investor. The sponsors then wanted to reinforce the loans with up to 45 million US dollar from the International Finance Corporation (IFC) and up to 20 million US dollar from other sources. Esty, Lysy, and Ferman (2003) outline the risks, allocation and mitigation methods for this case as shown in the below table.

Table 10 – Risks, Allocation and Mitigation Methods – Nghe An Tate & Lyle Case Study (Esty, Lysy & Ferman, 2003)

Risk	Allocation and Mitigation Method
Resource (agricultural) risk – uncertainty around obtaining sufficient amount of cane from local farmers	An outrage program to help local farmers convert to cane production
Infrastructure risk - building new roads and bridges in the region	Sponsor support for developing new transportation infrastructure
Market risk – world sugar prices felling	No method is presented in the case

5.1.8. Contractual Innovation in the U.K. Energy Markets

Enron and The Eastern Group agreed on December 4, 1996 that Enron would sell to Eastern a long-term option to convert natural gas into electricity. Enron planned to hedge its exposure by constructing an actual Combined Cycle Gas Turbine plant and by trading in the gas and electric markets. Esty and Tufano (2003) discuss the case and outline the following risks, allocation and mitigation methods as shown in the below table.

Table 11 – Risks, Allocation and Mitigation Methods – South Bridge Case Study (Esty & Tufano, 2003)

Risk	Allocation and Mitigation Method
Construction risk	Award EPC contract to an experienced builder
Market (electricity price) risk	Transfer risk to one of the major electric utilities through a long-term, fixed price contract

5.1.9. Bidding for Antamina

In late June 1996, the team charged with the business development at RTZ-CRA Limited made a recommendation to the senior executives of the London-based natural resources firm regarding a bid the firm might choose to make to acquire a rich copper mine in Peru. The Antamina project was being offered for sale by auction as part of the privatisation of Peru's state mining company, Centromin. The Business Development team had to determine what Antamina was worth, and to recommend how RTZ-CRA should bid in the upcoming auction. In response to this, Tufano and Moel (1997) discussed the requirements and outline the following risks, allocation and mitigation methods shown in below:

Table 12 – Risks, Allocation and Mitigation Methods – Antamina Case Study (Tufano & Moel, 1997)

Risk	Allocation and Mitigation Method
Technology risk – uncertainty about the size of the reserves	Geologic study of a large portion of the deposit by a reputable consulting firm
Operational risk – disability of bidders to run the Antamina properly	No method is presented in the case
Financial risk – currency fluctuations	Not engaging in any short-term currency hedging and Policy setting against hedging commodity price fluctuations

5.1.10. Petrolera Zuata, Petrozuata C.A.

In January 1997, experts from the Corporate Finance Development at Petroleos de Venezuela S.A. (PDVSA) and the Treasury Department at Conoco Inc, developed the financing strategy for Petrolera Zuata, Petrozuata C.A (Petrozuata), a proposed crude oil development project in Venezuela. In less than a week, Petrozuata's planning team would conduct a series of meetings regarding financing for the 2.4 billion US dollar project. Esty (2002) addresses this case and outlines the following risks, allocation and mitigation methods shown in the below table.

Table 13 – Risks, Allocation and Mitigation Methods – Petrolera Zuata Case Study (Esty, 2002)

Risk	Allocation and Mitigation Method
Political risk – Venezuela's sovereign risk including possible government action and Venezuelan business conditions	Develop a financial strategy in two folds: Advance the agency financing option, and Advance the capital market and bank financing option, simultaneously
Force Majeure risk	Special clause in off-take agreement saying that Conoco Inc. is not required to purchase the syndicate in the case of Force Majeure
Financial risk – currency market volatility	No method is presented in the case

5.1.11. Poland's A2 Motorway

Autostrada Wielkopolska, S.A. (AWSA), a consortium of Polish and Western European firms, had won an exclusive concession to build and operate a major segment of the proposed A2 Motorway, the first private toll road in Poland. New Vice President, Gebicki had been hired by AWSA in October 1999, to secure a 242 million Euro commercial bank loan as part of the project's 934 million Euro total cost. Esty (2003) analyse this case and outline the following risks, allocation and mitigation methods shown below.

Table 14 – Risks, Allocation and Mitigation Methods – Poland's A2 Motorway Case Study (Esty, 2003)

Risk	Allocation and Mitigation Method
Commercial risk - lack of experience in any of the principal parties in structuring projects of this size	Engagement with reputable international institutions and hiring qualified contractors
Construction risk	Signing a fixed-price design and construction contract
Political risk	Insurance policy setting
Environmental risk	Engaging two independent environmental consulting firms to assess and report

5.1.12. Restructuring Bulong's Project Debt

The Bulong nickel project grew out of a discovery in the 1970s of large deposits of high-grade nickel ore near Kalgoorlie in Western Australia. Preston Resources submitted its scheme of arrangement to the Supreme Court of Western Australia in April 21, 2002. The scheme contained a restructuring plan for the secured debt of the company's principal subsidiary, Bulong Operation Pty. Ltd. (BOP). BOP's indebtness consisted primarily of a 185 million US dollar in senior secured notes, plus working capital loans and hedging contracts owed to Barclays Bank. Esty and Kane (2003) analyse this case and outline the following risks, allocation and mitigation methods shown in the below table.

Table 15 – Risks, Allocation and Mitigation Methods – Bulong's Project Debt Case Study (Esty & Kane, 2003)

Risk	Allocation and Mitigation Method
Operational risk Evidence: failure of valves and seals causing six weeks lost production	Management intervention to improve plant performance and set higher quality standards
Financial risk Occurrence of liquidation	Secured creditors approved the schemes of arrangement and did not follow the path for receivership Restructuring the project's debt obligations

5.1.13. Financing the Mozal Project

International Finance Corporation (IFC) reported a 120 million US dollar investment in the Mozal project, a 1.4 billion US dollar aluminium smelter in Mozambique. It would be the IFC's largest investment ever, and by far its largest investment in Africa. At 1.4 billion US dollar, it would also be large relative to Mozambique's gross domestic product (GDP) of 1.7 billion US dollar. Esty (2003) analyses this case and addresses the following risks, allocation and mitigation methods shown in below table.

Table 16 – Risks, Allocation and Mitigation Methods – Mozal Case Study (Esty, 2003)

Risk	Allocation and Mitigation Method
Construction risk	Lump Sum turnkey contracts
Market risk – Aluminium price fluctuations	Sponsors agreed to set the price for aluminium as a function of the LME aluminium prices, thereby creating a natural hedge for the project
Political risk – Mozambican government instability and possible interventions	Convincing the IFC to participate and play an advising role where the integration of diverse legal systems is required

5.1.14. Chase's Strategy for Syndicating the Hong Kong Disneyland Loan

In August 2000, Hong Kong International Theme Parks Limited (HKTP) an entity jointly owned by The Walt Disney Company and the Hong Kong government, awarded Chase Manhattan Bank the mandate to lead a 3.3 billion H.K. dollar bank financing for the construction of the 14 billion H.K. dollar Hong Kong Disneyland theme park and resort complex. Given this commitment, Chase was responsible for raising the funds regardless of how the bank market reacted to the deal. Esty (2003) addresses different aspects of this case and outlines the following risks, allocation and mitigation methods shown below.

Table 17 – Risks, Allocation and Mitigation Methods – Hong Kong Disneyland Case Study (Esty, 2003)

Risk	Allocation and Mitigation Method
Political risk	Engagement of a local bank for participation which brings greater political support for the deal and sends stronger signals to banks about deal's quality
Commercial risk – oversubscription of the deal and scale bark of the lender tiers due to the lender's fee structure	Lender designed a combination fees and commitment tiers that would not only garner enough commitments, but also leave adequate compensation for Chase's work.

5.1.15. Basel II: Assessing the Default and Loss Characteristics of Project Finance

On August 23, 2002, the global heads of the Project Finance business units at ABN AMRO, Citigroup, Deutsche Bank, and Societe Generale sent a letter to the Basel Committee's Models Task Force in response to the committee's assertion that Project Finance loans were significantly riskier than corporate loans and, therefore warranted higher capital requirements. The Bank of International Settlements (BIS), headquartered in Basel, Switzerland, served as a bank for central banks and helped set international monetary policy. Esty and Sesia (2003) assess the default and loss characteristics of Project Finance loans and conclude that Project Finance loans are not riskier than comparably rated corporate loans. The reason for this is because of better security and contractual mitigations that exist in Project Finance which provides better information and facilitates greater transparency.

5.1.16. Conclusion on the Case Studies

Phase 1 of the Chapter 5 summarised each of the 14 case studies in Professor Benjamin Esty's book, *Modern Project Finance, A Case Book* (2006) in view of risks associated with selected Cross Border Project Finance deals. In each case, those allocation and mitigation methods utilised in the case or suggested by the case writer have been captured in separate tables (tables 6 to 18). Furthermore these summaries can provide the reader with direction as to how practical case studies written for Cross Border Project Finance projects address the issue of risk. Chapter 6 presents a high level analysis and comparison between the case studies, literature review theories and the results of interview sessions, which follows in the second phase of chapter 5.

5.2. Phase 2 – Interview Results

5.2.1. Introduction to Interview Results

The previous chapters presented the theory behind the risk allocation and mitigation methods in Project Finance on international Cross Border projects. This part of the research report focuses on expert knowledge and goes beyond the theory. As described in the research methodology chapter, ten in-depth interviews were conducted with industry experts who are involved in different parts of Project Finance deals in South Africa. All of them are however involved in Cross Border international Project Finance deals. This part of the research sets out the results of these interviews which will then be analysed and discussed in the following chapter. The questionnaire that was used was the same for each interview, including 22 questions in five different theoretical sections described in previous chapters.

With regards to the interview results, the following considerations have to be mentioned:

1. The questionnaire was given to each expert at least three days prior to the scheduled interview session. All interviews were conducted in person and in the offices of respondents.
2. The tables (and figures showing frequencies) here represent opinion and not necessarily the facts. The aim of this part of the research is not to validate the information shared by each expert.
3. All questions were dealt with in every interview. However, due to the speciality of each respondent, in some cases, certain areas of the questionnaire were highlighted and deepened.
4. The researcher tried to have a proportionate number of interviews in different sectors of the industry: from energy to banking and from public owned companies to privately owned organisations.
5. All interviews were conducted independently and the researcher asked the respondents to answer from their own perspective.
6. The list of interview respondents is included in Appendix 1.
7. The questionnaire used for interview sessions is included in Appendix 2.

5.2.2. Section 1 – Project Finance, Applications and Limitations in South Africa

(1) What are the main reasons why you or your clients use Project Finance?

None of the respondents referred to a standard literature to back up his or her response. However, all of the respondents provided their reasoning and discussed their experiences why they use Project Finance. The table below illustrates the reasons identified and the number of respondents per each reason, in order of the frequency with which they were mentioned.

Table 18: Reasons for using Project Finance

Description	Frequency
Status of internal balance-sheet and ability to leverage equity to enable for those projects that are beyond balance-sheet ability	6
Presence of shareholders and their preference and ability to fund the project (either small-sized or mega projects)	5
As a corporate strategy to access more debt and expand to new territories	5
To share risks with other partners when they have healthy balance-sheet	1
Possibility of more discrete revenue stream	1
Terms of finance correspond with terms of specific project	1
To speed up the financing process and reduce the cost of capital	1
To get a better rate of return	1
As an enabler to execute the portfolio of interlinked projects	1

(2) What do you see as the advantages and disadvantages of using Project Finance?

The table below illustrates the responses to the above question.

Table 19: Advantages and Disadvantages of using Project Finance

Advantages	Disadvantages
Validation process of Project Finance with presence of an extensive due diligence	It brings a complex process to follow, complex debt structure and many governance requirements involved
Opportunity to understand legality and regularity involved for the project	Expensive, due to different agreements involved and necessary mitigation actions required
Access to additional fund and permission for Project Finance Company to manage cash	In Project Finance, the company is subject to market forces and interest rates
Enabler for growth and development strategies and execution of mega projects	It takes a longer time to get Project Finance deals to the financial closure
Enabler for small companies to access significant debt using the Project Finance vehicle	It limits sponsors' ability to price project's product as they wish in future
It provides a correct pricing of the capital for the project	In many cases, if the company repays the bank earlier, it may incur penalties as the lenders are unhappy to receive the principal earlier and skip the interests.
It protects each party involved from failure of the project	It limits sponsor to only one core business and reduces flexibility to move
It allows proper planning up front in the project	Project Finance is a resource intensive process

5.2.3. Section 2 – Cross Border Projects

(3) Do you agree that Cross Border projects are more risky than within-country projects? Why or why not?

The response to this question was somehow mixed as illustrated in the table below.

Table 20: Riskiness of Cross Border projects

Description	Frequency
Yes	6
It depends on the company or country where the Cross Border is based	4
No	-

There were three main comments made in the interviews regarding this question:

- It all depends on the project type, sponsor status, relevant industry and more importantly on the political status of the host country where the Cross Border takes place; in comparison between a Cross Project Finance deal with a sustainable company and another Project Finance deal inside the country, but in an environment with a problematic political situation, the former one will be less risky.
- Cross Border deals usually engage two different governments and as a result the risk of force majeure increases and some new socio-political risks may emerge too.
- Cross Border deals are more risky due to currency fluctuations, language differences, tax regimes, understanding of local law and sovereign risks as in many cases, different parties have to adapt themselves to the fact of whether the rule of law in the host country is applicable to them or not.

(4) What are the main characteristics of Cross Border projects that use Project Finance? Please comment on the differences between local finance projects and the unique issues and challenges that are raised by cross border projects?

The table below lists the main characteristics of Cross Border projects that were identified in the interviews, in order of the frequency with which they were mentioned.

Table 21: Characteristics of Cross Border projects

Description	Frequency
Significant high capital is required in different currencies	3
Discrete revenue generation stream and equity structure	3
Involvement of different parties including lenders, sponsor, insurer, international institutions	3
Complexity and nature of Cross Border projects (mainly infrastructural)	2
More dynamics due to government involvements which causes the risks	2
Unique project structure for resource contracts and material purchases	1
Need to access to more of the governments' supports	1
Monopolistic situation of many mega projects and high barrier to entry	1
Local procedures, laws and regulations in host country	1
Need to keep as much risk as possible away from internal balance sheet	1

(5) In specific cases of Cross Border projects, what are the benefits and losses of Project Finance are?

While many of the benefits of using Project Finance were captured in previous questions, the table below lists the losses of using Project Finance in Cross Border projects that were identified in the interviews.

Table 22: Losses of using Project Finance in Cross Border projects

Description	Frequency
Political instability or change	5
More premium payment upfront and more costs involved which might price you out of the competition and cause failure in bidding processes	2
Time consuming process due the involvement of different parties prior to financial closure which can be seen as opportunity cost to the project	2
Currency convertibility and transferability	2
Doing Cross Border Project Finance in countries with soft currency or in places with low predictability of local currency	1
Access to less gearing compare to Within Country deals	1
Less access to public infrastructure (transportation and utilities) compare to Within Country deals	1

(6) What are the impacts of severe valuation uncertainties and country investment risks on Cross Border Project Financed projects?

While five of the respondents said that valuation uncertainties are not unique to Cross Border deals and can be adjusted with pricing of the deal upfront, they were all agreed that country investment risks have got a significant impact on any Cross Border Project Financed projects. This is illustrated in the table below:

Table 23: Impacts of severe valuation uncertainties and country investment risks on Cross Border Project Finance

Description	Frequency
Banking industry is very specific about country investment risk profile and do not involve in those deals that mitigation actions are not in place; they only get involved just prior to financial closure and bankability	4
Political risks and credit risks of the host country which enforce using insurance covers (examples are civil war or decision for nationalisation)	3
Uncertainty valuation is a requirement in case of any fluctuation in commodity prices and currency stability	3
If the enterprise valuation of debt to equity is low, it will then be risky to gear the Cross Border Project Finance deal at a reasonable rate	1
The nervousness around the fellow government makes Cross Border Project Financed projects very unique and different	1

5.2.4. Section 3 – Risks Identification and Allocation

(7) What are the most common risks you have faced in Cross Border Project Financed projects?

While all of the respondents stated that political risks are the most common risks in Cross Border Project Financed projects, they agreed that there are other risks attributed to these projects which are illustrated in the table below.

Table 24: Common risks in Cross Border Project Financed projects

Risk Category	Description	Frequency
Legal risk	Inability to stabilise key host country laws	6
Construction risk	Completion risk	5
Commercial risk	Supply chain risk	5
Resource risk	Lack of experienced resources in host country	4
Operational risk	Technical and technological risks	3
Environmental risk	Limitations due to carbon emission legalities	3
Political risk	Force Majeure	2
Operational risk	Lack of infrastructure	2
Financial risk	Currency risk	2
Resource risk	Wrong mixture between local and expatriate resources in host country	1
Social risk	Cultural differences	1
Market risk	Drop in commodity prices	2
Social risk	Local resistance not allowing company go Cross Border and invest in another country	1
Political risk	Corruption in either home or host country	1
Social risk	Security risk	1
Financial risk	High level of capital expenditure	1
Legal risk	Copyright and patent protection	1
Legal risk	Lack of willingness to enforce the law or easily changeable laws in favour of people	1

(8) How do you categorise project risks for Cross Border Project Financed projects?

The table below lists the risk categorisation methods that were identified in the interviews for Cross Border Project Financed projects in order of the frequency with which they were mentioned.

Table 25: Risk categorisation in Cross Border Project Financed projects

Description	Frequency
Categorisation of risks based on different parties involved in the project; risks for the sponsor, the lender and the project company	3
Categorisation of risks based on their impacts on project scope, time or cost	1
Categorisation of risks based on their factors into the financial models	1
Categorisation of risks based on sponsor's capability to mitigate, cash flow viability to protect and project team's ability to complete	1
Categorisation of risks based on the control domains of promoter and financier	1

There was a comment made in one of the interviews that risk categorisation makes silo mentality and causes working in islands isolated from the project realities; that respondent suggested using experience instead of risk category clichés.

(9) In light of the above question, do you agree with the following risk classification for Project Finance risks? Could you identify any additional risk category or specific risk(s)?

Resource Risks, Market Risks, Legal Risks, Political Risks, Social Risks, Commercial Risks, Construction Risks, Operational Risks, Financial Risks and Environmental Risks

The response to the above question was somehow mixed as illustrated in below table.

Table 26: Agreement or disagreement with identified risk classification for Project Finance

Description	Frequency
Agree	9
Disagree	1

There were five comments that were made in the interviews regarding this question:

- Each project might face some of the above-mentioned risks with different degrees of probability and impact. In Cross Border projects, the project location determines the level of probability and impact for any given risk.
- As project continues, the approach should be transited from project risk management to more of the business risk management as the risk profile tends to change throughout the project life cycle.
- Understanding off-take agreements is a key in identification of risks and that depends on negotiation skills and investment opportunities the company has.
- Project Finance is all about transferring risks from equity holder to the developer and operator and therefore those need to have detailed risk management processes.
- A very key aspect of any successful Cross Border Project Financed project in view of lenders is to work with the sponsor who is experienced and has got a good track record and strong financial background.

(10) What are the main tools that you use to anticipate the risks?

The table below outlines the main tools that are used to anticipate project risks in Cross Border Project Financed projects that were identified in the interviews and the frequency with which they were cited across.

Table 27: Main tools used to anticipate Project Finance risks

Description	Frequency
Risk management process for different stakeholders using risk workshops and desktop reviews (in-house experience or outsourced consultants)	8
Standard risk matrix (register) from lowest to the highest risk levels	4
Specific workshops to coordinate between financial and legal team	1

(11) Looking at the list of risks in 10, including any you may have added above, whom is best suited to manage each risk in terms of mitigating the risk at the lowest cost?

The table below illustrates the responses to the above question and the frequency with which they were cited across the interviews.

Table 28: Best suited entities to manage Project Finance risks

Description	Frequency
Risk owner dependent on each party's role and speciality in the project	6
It differs depending on each risk	2
The entity who has the biggest ability to mitigate the risk	1
Financier	1

(12) In the risk allocation process, what are the impacts of the law that will govern the agreement?

Not all of the respondents had experience or background on laws and its implications to Project Finance; therefore, this question was only shared with those who had exposure to the law and its implications. The table below lists the impact of law in risk allocation process of Cross Border Project Financed project.

Table 29: Impact of law in risk allocation process of Cross Border Project Financed project

Description	Frequency
Need to differentiate between laws applicable to each party in its own home country and laws applicable to the project company in host country	2
Need to international firms to support in case of arbitration clauses required on top of usual laws applicable to Cross Border deals	1
Need to upfront agreement with host country government for implications upon law change in tax, utility costs, permits and licenses and other regularities	1
Cause delay in project completion	1
Need confirmation that legal title is passed through the project company	1

(13) What is the impact of sustainable long-term contracts and agreements with foreign governments knowing that governments' interference might be a source of risk for Cross Border projects?

The table below lists the impact of a sustainable agreement with host country government in Cross Border projects that were identified in the interviews.

Table 30: Impact of agreement with host country government in Cross Border Project Finance deals

Description	Frequency
Need to ascertain that there is no inconsistency in case of political power transition or change in government	2
Need to receive services from Export Agencies to resolve disputes in case and manage risks for and on behalf of project company	2
Need to receive services and supports from international institutions like World Bank or IFC	2
Agreement with host country government can be seen as investment agreements which is necessary to govern the project	1
Regime change or economic situation changes can initiate new risks and consequently renegotiation of agreements is needed	1
Need to know different landscape of laws and regulation in host country regarding properties and ownership	1

(14) Please comment on the following quote: "Capital expenditures and sale prices are of great importance for the overall risk of Project Finance transactions" (Backhaus & Werthschulte, 2006). Do you know of any example that differs from this statement?

The answers to the above question were somehow mixed as illustrated in the table below.

Table 31: Impact of Capital Expenditure and Sales Price

Description	Frequency
Agree	6
Disagree	4

There were two comments from those who disagreed with above quote:

- Political stability and operating costs are also another great importance factors for Project Finance.
- Sales price is as important as the sales volume to determine the revenue generation stream. Revenue stream also depends on quality of off-take agreements and upfront forward sales agreements whether the project company has taken the risks out of the pricing structure or not.

(15) Which of the following Project Finance models is more risky; Project Finance deals with state-run companies or Project Finance deals with private companies?

While only two of the respondents stated that Project Finance model with state-run companies is more risky, the other eight interviewees shared different opinions which is illustrated in the table below.

Table 32: Riskiness of different Project Finance deals

Description	Frequency
It depends on other conditions (where country or company is located)	5
Private companies	3
State-run companies	2

(16) Could you provide examples of specific countries and implications on their specific political risks?

As the table below illustrates all respondents that were asked this question requested to keep confidentiality of specific project names and therefore the answers limit to the general examples of political risks attributed to Cross Border Project Financed projects.

Table 33: Specific (political) risks in Cross Border Project Financed projects

Description	Country or Continent
Government has changed many of negative perceptions on the country and attracted investments through Project Finance deals for energy projects	Qatar
Socio-political risks as a result of negative environmental and climate impacts of Project Financed projects	Emerging Markets; India and China
Technology, patent and Intellectual Property risks	China
Government support has changed the political perception of the country and absorbed many new Project Finance deals for natural gas and infrastructural projects	Mozambique
Cabinet extraordinary power in some ministries	South Africa
Currency convertibility and transferability, financial liquidity and political power changes	Africa
Infrastructural risks	DRC
Ability to execute to the way the sponsor wants to do and ability to operate	All countries

5.2.5. Section 4 – Risk Mitigation

(17) What are the risk mitigations methods utilized by your company facing Cross Border Project Finance risks?

The table below lists the risk mitigation methods that were identified in the interviews in response to each specific risk related to Cross Border Project Financed projects.

Table 34: Risk mitigation methods

Description	Mitigation Method
All risks	Building contingency in upfront planning (time, cost, scope, insurance, laws, environment and provision)
All risks	Using Project Finance as financing vehicle
Political risk	Political insurance cover – law breaks
Political risk	Approach to receive government support
Commercial risk	Insurance for contract break
Commercial risk	Involving Export Credit Agencies (ECA) and multinational insurance companies
Completion risk	Using contractual facilities and reservations to transfer
Completion risk	Partnership with those companies who have executed similar projects before
Resource risk	Attain the relevant experienced people to be part of the project team consistently
Resource risk	Consideration of long-term agreements; Off-take agreements and Hedging on sales price
Legal risk	Possibility of law change
Legal risk	Utilisation of law agencies and consultants
Market risk	Attract worldwide international institutions to participate
Market risk	Using off-take agreements to enable the project company gear the business - Market trend analysis
Financial risk	Funding in secondary currency in the host currency
Financial risk	Continuos due diligence process
Financial risk	Keep a bank account in a secure country with no exchange control (offshore currency structure)

(18) What are the ways to minimise the risk of force majeure upon negotiating and drafting the Project Finance agreement in any Cross Border project?

The table below illustrates the responses to the above question.

Table 35: Ways to minimise the risk of Force Majeure in Project Finance

Description	Frequency
Insurance contract or political coverage agreements	3
Understanding the risks and consequences	1
Understanding the mechanisms of Project Finance	1
Using bridging to allow the project continue or managing project based on equity funding	1
Off-take agreements	1
Transfer risks to the sponsor (in case of lender)	1
Putting clear withdrawal position in agreement in case of Political Force Majeure	1

(19) How could "contracting strategies and models" minimize the risks of Cross Border Project Financed projects? What does your company do to manage project completion?

The table below illustrates the responses to the above question.

Table 36: Benefits of contracting strategies and models in risk mitigation

Description	Frequency
Ensure mutual agreements among all parties involved in Project Finance deal on a continuous and flexible basis	3
Limit the number of contracts and choose the right contracting model for the right location	2
Award construction and operation to reputable qualified contractors	2
Sign fixed-price turnkey contracts to mitigate completion risks	1
Ensure adherence to the contracting laws of the host country (one example would be adherence to the local content requirements)	1
Enforceability should be seen carefully in Project Finance deal's contracting models as it might contradict with government rules and regulations.	1
All of the following are to be present when the company goes Cross Border: local equity participant, local operator, local contractor, local employee and local community engagement	1

(20) Does the "Structure" matter? Can the "Project Structure" impact on mitigation of Project Finance risks?

The table below illustrates the responses to the above question.

Table 37: Importance of structure in Cross Border Project Financed projects

Description	Frequency
Yes	9
No	0

There were three comments about the above question in interview responses:

- Depending on different project structure, different project risks might arise.
- More complex structures will cause more costs to the project. However, understaffing the sponsor project team is asking for more risks.
- Structure brings links to your mitigation actions and can accommodate strategic partnership.

5.2.6. Section 5 - Examples of Cross Border Project Financed projects

(21) Could you provide specific examples of Cross Border projects your Company have done or tried to do? What are the specific risks associated with those projects?

The table below illustrates the responses to the above question.

Table 38: Examples of Cross Border Project Financed projects

Description	Frequency
Mitigating technical risks upfront prevents facing construction risks at later stage. This can be prevented by choosing strategic alliance.	3
Validation process helps lenders receive a comfort level prior to financial closure and prevent certain commercial risks	2
Government realisation and commitment would allow foreign investments reduce political risks and price more reasonably	2
Lack of knowledge about Project Finance is a huge risk	2
Environmental risks can be make or break dealers of Cross Border Project Financed projects and should not be ignored	1
When entering to a project that its basics are already set, the company has minimal ability to influence decisions and cause certain risks	1
Not having handful of senior people at the beginning of presence in the host country can create some risks	1
Currency convertibility and transferability is of great impotence when both lender and off-taker are in one country and the project user is in another country	1

(22) What can companies within South Africa learn from the lessons of specific Cross Border projects that used Project Financing?

The table below illustrates the responses to the above question.

Table 39: Lessons learnt for South African companies in view of Cross Border Project Finance

Description	Frequency
Do your homework and due diligence at your own place prior to move to the host country	6
Respect other cultures and their own way of doing things when going Cross Border and understand how much influence you will have while there	4
Due to governance implications and due diligence checks, Project Finance is a risk mitigating tool that needs parties' patience. It has to be considered as such when deciding about financial vehicle selection	4
Establish an ongoing relationship with the government of host country and local partners	3
When your company have its own Intellectual Property and technology, choose Project Finance as financing vehicle and select the right Cross Border partner	2
Employ as much as local resources possible and avoid transferring many people from your country to the host country	2
Companies should not always insist on their own ways of doing things and avoid Project Finance; in fact Project Finance gives discipline to the projects and ensures deliverability	2
Ensure transferability and convertibility of currency to and from the host country	1
Know your Withdrawal or Walkaway position upfront in case of any Force Majeure risk	1
When the Cross Border project is complete, monitor the cost overrun and do not spend project revenue on overhead costs	1
Stagger purchase costs over few years and pay them over the years; this will offset some of the possible losses due to price fluctuations or currency rate changes over the years	1
Cash flow timing and management is critical in all steps of Cross Border Project Financed project life cycle	1

5.2.7. Conclusion on the Interview Results

Phase 2 of this chapter presents the results of the interviews for each question asked. The following chapter will analyse these results, outline their similarities and differences in the background of the theory presented in Chapter 2 and case study analysis discussed in phase 1 of this chapter.

6. Chapter 6 – Discussion of Results

6.1. Introduction to the Result Discussion

In the previous chapter, the results of case study analysis were presented followed by the results of ten in-depth interviews with Project Finance experts in South Africa. This chapter will discuss these results in view of the theory presented as part of the research literature review in Chapter 2. The discussion will be divided into the three sections. These three sections will be based on three research questions identified in Chapter 3 and in between, other observations and comparisons that the researcher has found during this research project will be included. In fact, in these three sections, where the research produced relevant results, the questions raised in Chapter 3 will be answered.

Having responded to the research questions raised in Chapter 3, the structure for this chapter follows the broad and sub headings used in the literature review in Chapter 2. The addressed case studies in Chapter 5 are referenced and discussed, where and when appropriate. It should be mentioned that the researcher has tried to use the fundamentals and methodologies aimed at in Chapter 4; however, it has yet to be completed, based on the individual researcher's individual interpretation of the results. That is why the interpretation of the interview results and specifically how they relate to further developments in the theory of risks in Cross Border Project Financed projects should be researched and analysed more.

To keep confidentiality, those materials that stemmed from interviews, have not been referenced to specific respondent's name or company. Where references have been made to the theory, the reader will notice that it is either to the theory covered in the literature review of Chapter 2 or to the case study results cited in phase 1 of the Chapter 5. As described by Marshall and Rossman in their book: *Designing Qualitative Research* (2006), the analysis will be sufficient when critical categories are defined, relationships between them are established, and they are integrated into a credible interpretation; for that, whether the researcher prefigures the analysis before collecting data, begins while collecting, or collects first and analyses later depends on the qualitative genre and assumptions of the research. Here, the researcher has

collected the data first and then started analysing. The researcher has used preliminary research questions and the related literature developed earlier as guidelines.

The following analysis does not try to cover the full perspective of Cross Border Project Financed projects. Rather the purpose of this chapter is to explore the various risks, allocation and mitigation methods within Cross Border Project Financed projects so that the reader or researcher may obtain a good understanding of the theory and practices, similarities and differences between the two and finally, enable future research into Project Finance.

6.2. Results Discussion

6.2.1. Section 1 – Risks in Cross Border Project Financed projects

Research Question number one addresses both the research motivation and objectives outlined earlier in Chapter 1. It states: "What the benefits of Project Finance are for Cross Border projects? Why should companies use Project Finance for their international Cross Border projects?"

6.2.1.1. Risk Categorisation

Risk is considered to be a major factor impacting project successes, and Project Risk Management is a significant area in any capital project. When it gets to the Cross Border environment, this gets more importance due to extra challenges and features of these projects. In the literature, different people have identified different project risks. Farrell (2003, p. 549) lists five specific types of risk: the start-up cost risk, operating risk, technology risk, market risk, and political risk. He then analyses each and argues that no two project financing packages are alike and that each must be financially engineered to produce the appropriate sequencing of cash flows necessary to meet specific project needs. This is one reason why there is not a consensus on a list of project risks in the literature and one should customise it based on each project's set of requirements.

The results of case studies mentioned in phase 1 of Chapter 5 is another support for this; no two of the case studies addressed in this research have faced the same set of project risks and risks attributed to each case is different to the other one. Looking into the interview results, the same situation can be seen. As listed above in 5.2.2.3, each interview respondent has identified a different set of project risks associated with different Cross Border Project Financed projects. Considering what is being addressed in the literature, there are two lists of risks identified for the Project Finance environment that are more comprehensive and widely referenced:

- Jin (2010, p 148) lists the project risks associated with similar cases to Cross Border Project Financed projects as follows: Planning and design risks, Construction risks, Commissioning risks, Operating risks, Market risks, Asset ownership risks, Political,

legislative and regulative risks, Financial risks, Social, industrial and inter-organisational relations risks, Environmental risks, Force majeure risks.

- Esty and Sesia's (2003) emphasis is more on identifying risks and finding mitigation strategies for them, rather than categorising the risks. They identify the following five major risks: Construction or completion risks, Sovereign or political risks, Financial risks, Operating risks including market and contract risk, price risk, quantities throughput risk and management risk and other risks including force majeure and environmental risks.

To achieve a comprehensive basis for all risk categories, the researcher gathered all risks identified in the literature in table 41 below. Then, looking at those case studies and interview results discussed above in Chapter 5, all other risks identified for Cross Border Project Financed projects were also added to table 41. In summary, this provides a quick comparison between what has been published as literature and what has been practiced in the Project Finance industry in view of risks.

Table 40 – Comparison Analysis for Risk Categorisation

Risk Category	Literature Review	Case Study Analysis	Interview Results
Planning and design risks (Management risks)	Jin (2010)		☑
Construction risks	Jin (2010)	South Bridge Poland's A2 Motorway Mozal	☑
Technical risks	Williams (1995)	Airbus A3XX Antamina	☑
Commissioning risks	Jin (2010)		☑
Default risks and loan losses	Kong et al (2008)		☑
Operating risks (Cost Overrun risks)	Jin (2010)	Australia-Japan Cable Antamina Bulong's Project Debt	☑
Market risks	Jin (2010)	Airbus A3XX Nghe An Tate & Lyle South Bridge Mozal	☑
Resource risks	Saidu (2006)	Nghe An Tate & Lyle	☑
Asset ownership risks	Jin (2010)		☑
Credit risks	Gatti et al (2007)		☑
Political risks	Jin (2010)	Chad-Cameroon BP Amoco	☑

		Petrolera Zuata Poland's A2 Motorway Mozal Hong Kong Disneyland	
Revenue risks	Nikolic (2011)		☑
Legislative and regulative risks	Jin (2010)		☑
Financial risks	Jin (2010)	Australia-Japan Cable BP Amoco Antamina Petrolera Zuata Bulong's Project Debt Basel II	☑
Commercial risks	Nikolic (2011)	Calpine Corporation Poland's A2 Motorway Hong Kong Disneyland	☑
Social, industrial and inter-organisational relations risks	Jin (2010)	Chad-Cameroon BP Amoco	☑
Raw material supply risks	Nikolic (2011)	BP Amoco	☑
Environmental risks	Jin (2010)	Chad-Cameroon Poland's A2 Motorway	☑
Force majeure risks	Jin (2010)	Petrolera Zuata	☑
Refinancing risks		Calpine Corporation	☑
Transportation risks		BP Amoco	☑
Infrastructure risks		Nghe An Tate & Lyle	☑

There are three risks that are identified in both case study analysis and interview results which are not addressed in the theory; those are: refinancing risks associated with the four-year maturity in the Calpine Corporation case study; transportation risks in the BP Amoco case study and Infrastructural risks in the case study for the Nghe An Tate & Lyle project. One of the interview respondents referred to The Sixteen Project Risks published by International Advisory and Finance (IAF), a global advisory firm that specialises in Project Finance. Except for two of the risks (Sponsor/Participant risks and Syndication risks), the other 14 risks are covered in the above table. The table above shows that there is not a significant gap between theory and practice in the identification of risks associated with Cross Border Project Financed projects.

6.2.1.2. Why Project Finance for Cross Border Projects

In answering the question posed in this section – why Project Finance for Cross Border projects?, Esty (2004, p 217) indicates that it is difficult and often undesirable or impossible for companies to replicate the structural attributes of project companies within a corporate setting;

therefore the idea that financing assets separately (project finance) can be more valuable than financing them jointly (corporate finance) challenges the idea that diversification is beneficial. Esty (2004, p 219) then analyses the requirements of large projects as to why they need to be financed through a Project Finance financing vehicle. Some of his reasons are as follows:

- Large projects require at least one and up to five years to structure
- Large projects have the incentive because significantly more money is at stake
- Substantial amounts of capital from other investors are on the line
- Critical constraint on managerial discretion for large projects motivates raising external funds
- Large projects can change a country for the better

Considering the above and knowing that many of the large projects involve more than one country or company, the question here is how companies should finance a project located in another country? This will be more complicated knowing that the host country is perceived as a high political destination with low investor protection. Such a project will only be realised if the risk can be reduced to a tolerable level. Responding to this, Megginson (2010, p.47) says that Project Finance has proven to be an especially efficient method of obtaining long-term, relatively low-cost financing for capital intensive projects in relatively risky countries.

Therefore, the theory of Project Finance indicates its benefits and fitness for large Cross Border investments. Looking at the cases studied in Chapter 5, it can be concluded that heavy investments that engage two or more companies from different countries pose an environment in which every party requires risks analysis and proper upfront planning in place. This can only be provided in Project Finance environment as it involves “three key elements: an investment decision in an industrial asset; an organisational decision to create a new, legally-independent entity; and a financing decision involving non-resource debt” (Esty, 2003, p 4). This fits to the definition of Bis (2009, p 20) where he believes that these type of large projects are especially amenable to Project Finance because government sponsors want to minimise public outlays for political reasons.

In practice (interview responses captured in Chapter 5), nine different reasons have been identified as to why companies should use Project Finance for their Cross Border projects.

Considering the decision triangle of Professor Esty for Project Finance, these nine reasons can be fitted into each decision as shown in the table below.

Table 41 – Reasons for Project Finance and decisions involved

Reasons why Project Finance for Cross Border Projects	Elements of Project Finance (Esty, 2003, p 4)
Status of internal balance-sheet and ability to leverage equity to enable for those projects that are beyond balance-sheet ability	investment decision
Presence of shareholders and their preference and ability to fund the project (either small-sized or mega projects)	organisational decision
As a corporate strategy to access more debt and expand to new territories	organisational decision
To share risks with other partners when they have a healthy balance-sheet	investment decision
Possibility of a more discrete revenue stream	financing decision
Terms of finance correspond with terms of specific project	financing decision
To speed up the financing process and reduce the cost of capital	financing decision
To get a better rate of return	investment decision
As an enabler to execute the portfolio of interlinked projects	organisational decision

The above table shows that there is a match between the theory and practice in identification of reasons why Project Finance fits in purpose for investing in large Cross Border projects. To answer research question number one, it is also required to understand the specific benefits and losses of Project Finance for Cross Border projects, which will be discussed in the following section.

6.2.1.3. Benefits of Project Finance for Cross Border Projects

Kleimeier and Versteeg (2010) argue that Project Finance can substitute for a lack of institutional and financial development – especially within the less than favourable environments presented in the least developed countries on the globe. This is exactly why the International Finance Corporation (IFC) reported a 120 million US dollar investment in the Mozal project, a

1.4 billion US dollar aluminium smelter in Mozambique; to change a country for the better and initiate its largest investment ever, and by far its largest investment in Africa. Or in a similar case, The Chad-Cameroon Petroleum Development and Pipeline investment to develop a 3.7 billion US dollar project was designed to benefit both Chad and Cameroon's economy and future.

In this context and for the less developed countries, the parameters for investment are different; Borgonovo, Gatti, and Peccati (2010) group six investment parameters into the following categories: revenue assumptions, construction cost assumptions, financial assumptions, fiscal assumptions, operating expenses and macroeconomic assumptions (inflation). Considering each of these six parameters and the interview results captured in Chapter 5, the following can be concluded as to what the benefits of Project Finance are for the Cross Border projects:

- Revenue:

The validation process of Project Finance with extensive due diligence helps companies to forecast an accurate revenue stream in future. Also, it is an enabler for small companies to access significant debt using the Project Finance vehicle.

- Construction cost:

Project Finance is an enabler for growth and development strategies and the execution of megaprojects; The Project Finance disciplinary environment including structure, contracting models and enforcing mitigating actions for each risk poses a strong discipline to the construction environment, which naturally leads to cost efficient execution.

- Financial:

Project Finance provides the correct pricing of capital for the project and facilitates access to additional funds and permission for the company to manage its cash.

- Fiscal:

Project Finance allows proper planning up front in the project which provides better fiscal policies throughout the financial year.

- Operating expenses:

Project Finance protects each party involved from failure of the project as it motivates the organisation involved to optimise the operating expenses and manage debt repayment effectively.

- Macroeconomic:

Project Finance provides an opportunity to understand legality and regularity involved for the project; in the Cross Border environment, these elements must be taken care of.

6.2.1.4. Section Summary

Risk is considered to be a major factor impacting project successes, and Project Risk Management is a significant area in any capital project. In this section, different risks to the Cross Border Project Financed projects were identified and discussed and it was concluded that there is not a significant gap between theory and practice in the identification of risks associated with Cross Border Project Financed projects and more importantly, there is a match between the theory and practice in identification of reasons why Project Finance fits in purpose for investing in large Cross Border projects. Benefits of using Project Finance were illustrated in the context of the research's scope identified in Chapter 1. Knowing the benefits of Project Finance for Cross Border projects, it should be mentioned that the monopolistic reality of many mega Cross Border projects creates high barriers to entry leading companies to use Project Finance; therefore it is important to understand how Project Finance helps these companies allocate and mitigate project risks, which will be discussed in the following section.

6.2.2. Section 2 – How does Project Finance help allocate or mitigate risks?

Research Question number two goes beyond the definitions and seeks how Project Finance can help allocate or mitigate project risks: "How can risk allocation and mitigation methods introduced in the literature review help companies manage their Project Finance deals in their international Cross Border projects? In view of the risk allocation and mitigation methods, what principles and lessons can companies learn from the specific Cross Border projects that used Project Financing and, in particular specific projects that are covered in the case studies?"

6.2.2.1. Cross Border projects, more or less risky?

To understand which of the 'Cross Border' or 'Within Country' Project Finance environments are more risky, it is first required to understand the characteristics of Cross Border projects that motivate companies to use Project Finance as their financing vehicle. It was evident from the interviews that the need to significant amount of capital in different currencies, implications of discrete revenue generation stream and equity structure and involvement of different parties from different countries are the main characteristics of Cross Border projects. The results of the interviews also illustrate that practitioners consider the following characteristics when they decide using Project Finance for their Cross Border projects:

- Complexity (in particular in infrastructural projects)
- Dynamism due to government involvements
- Unique project structure for resource contracts and material purchases
- Need to elicit more governmental support
- The monopolistic situation of Cross Border projects and high barrier to entry for many companies
- Local procedures, laws and regulations in the host country
- Need to keep as much risk as possible away from the internal balance sheet

The majority of interview respondents stated that Cross Border projects are more risky than those classified as within-country. However, in further discussion with other respondents, it was revealed that this depends on the project type, sponsor status, relevant industry and more importantly political status of the host country where the Cross Border project takes place. Interview respondents provided some real examples showing that it is less risky to have a Cross

Project Finance deal in a stable company, than a within-country Project Finance deal in a politically challenging environment.

This is in line with all 14 case studies discussed in Chapter 5; in six cases, political risks incurred due to the Cross Border nature of the project are determined as the single most critical risk to the project (Chad-Cameroon, BP Amoco, Petrolera Zuata, Poland's A2 Motorway, Mozal and Hong Kong Disneyland). Risks due to financial implications of currency convertibility and transferability is also indicated in another six cases (Australia-Japan Cable, BP Amoco, Antamina, Petrolera Zuata, Bulong's Project Debt and Basel II), showing that entering Cross Border environments needs more risk appetite for the companies. Besides the case study results, this is in line with the literature, where Degryse, Elahi, and Penas (2010, p 239) argued that Cross Border projects pose threats of contagion risk through cross-border exposures and need further consideration, as it may pose serious threats to financial stability.

Considering the above consensus between theory and practice, this question now arises how Project Finance could benefit Cross Border projects manage the risks. This can be answered if it is investigated what the losses of Project Finance is for Cross Border projects and then to see how Project Finance introduces specific allocation and mitigation methods for risk management. These will be discussed in the next two sections.

6.2.2.2. Implications of using Project Finance for Cross Border projects

Many of the interview respondents said that Project Finance losses in Cross Border deals are minimal as there are tight levels of control on monetary aspects and processes are usually very rigorous. In fact, Project Finance provides an environment where parties can put due diligence in place and ensure validity of financial factors upfront. However, Project Finance results in some losses for Cross Border projects in any case. Some of these losses are due to Project Finance methodologies and some are because of the specific nature of Cross Border projects. During interviews, it was revealed that in many cases of Cross Border projects, political instability or changes in political regimes has put serious failure risks in Project Financed projects. This is in line with those case studies that suffered from political risks discussed in Chapter 5 (Chad-Cameroon, BP Amoco, Petrolera Zuata, Poland's A2 Motorway, Mozal and Hong Kong Disneyland).

On the other hand, as Project Finance involves different parties prior to financial closure and requires more time - which can be seen as opportunity cost to the project – this can cause longer duration for Cross Border projects. This is in line with the literature, as Esty (2004, p 219) states that these projects require at least one (and even up to five years to structure) and this is the ability of these projects due to value-enhancing capabilities. In a similar argument, as Project Finance requires more premium payments upfront (which adds costs to the overall project), this prices the company out of the market and causes failure in the bidding processes for those companies willing to use Project Finance. This feature has not been found in any literature meant for the research.

The results of the interviews illustrates that doing Cross Border Project Finance in countries with soft currency or in places with low predictability of local currency is another source of risk which addresses the risk of currency convertibility and transferability. If the lender invests in one currency and the sponsor expends in another currency, at the time of conversion, the exchange rate might be against the sponsor; and if the sponsor does not convert and bring its money out, that is another source of risk. This is in support of those case studies discussed in Chapter 5 in which currency risk was determined as one of the key risks to the project. In the case of Petrolera Zuata, the rating agencies considered currency market volatility as one of the principal risks; an appreciation of the host country currency would increase the project's operating expenses and tax liability relative to its dollar-dominated revenues (Esty, 2002, p 10). As another support, in the case of Antamina (Tufano & Moel, 1997), it was decided not to engage in any short-term currency hedging and the project sponsor set this policy against hedging commodity price fluctuations, only due to currency risks.

In another similar case, valuation of uncertainties is seen as a key step prior to financial closure of Cross Border deals; as an example, when it comes back to repayment of the deal, if the company does not have hard currency, it has to take more from sales value to repay the debts; therefore those projects must have higher rate of returns for all parties. On the other hand, if the company is doing an export-oriented Cross Border project, it has to ensure that the market exists for its product in future; one example is commodity projects or mining concession deals.

One of the main points that emerged from the interviews, regarding differences between Cross Border and Within Country Project Finance applications, was that in Cross Border cases, companies would have less access to gearing compared to the time they operate inside the boundaries of their country. Also, access to the public infrastructure (transportation modes, utilities and other public facilities) are more limited when they operate in the Cross Border environment. This is however not being addressed in any of the case studies in Chapter 5 or the literature reviewed in Chapter 2.

6.2.2.3. Risk Categorisation Methods

Prior to discussion about risk allocation and mitigation methods, it is important to consider risk categorisation which is a predecessor for risk allocation. There was a comment made in one of the interviews stating that risk categorisation makes silo mentality and cause working in islands isolated from project risks' realities; that specific respondents suggested using experience instead of risk category clichés. However, in further discussions with other respondents, it was revealed that in practice, the following bases are used to categorise project risks for Cross Border Project Financed projects:

- Different parties involved in the project: sponsor, lender, project company
- Impacts on project scope, time or cost
- Factors impacting financial models
- Sponsor's capability to mitigate, cash flow viability to protect and project team's ability to complete
- Control domains of promoter and financier (Rabinowitz, 2008)

However, what the literature suggests, in contrast to this practice, is to categorise the risks based on the timing of risk that occur: risks of development phase, risks of operation or transfer phase and risks associated with the lifetime of the project. This shows that the practice is more developed regarding the categorisation techniques and practitioners consider more criteria to identify risks. However, it should be mentioned that this is not an academic debate but rather different methods of ensuring that the various risks inherent in large scale projects are identified (Rabinowitz, 2008).

6.2.2.4. Risk Allocation Methods

During interviews, it was noticed that tick-box or check-list risk management techniques do not work properly in Project Finance as it requires people's experience to use their intuition and knowledge on a case-by-case basis. Also, it was emphasised that one risk in a given project can be no risk on another project and these sorts of insights can only be captured using experienced people to conduct risk allocation processes. To this effect, respondents believe that Project Finance practitioners should consider legality, enforceability and practicality when allocating each risk to the specific party.

The majority of interview respondents stated that dependent on each party's role and speciality in the project, the risk owner is best suited to manage each relevant risk. This means that in practice, it is preferred to allocate the risk according to the speciality and ownership. Some of the other respondents also believed that risk allocation methods differ depending on project conditions; sometimes the entity who has the biggest ability to mitigate the risk is the best suited party to get allocated regardless of organisational hierarchies. In interview with experts from the banking industry, they firmly believed that lenders are willing to receive as the least possible risks allocated to their organisations. This is in line with the case study of Hong Kong Disneyland (Esty, 2003) where the lender designed a combination of fees and commitment tiers that would not only garner enough commitments, but also leave adequate compensation for financier's work and the lead arranger.

However, in the course of risk allocation methods, what literature suggests, is somehow different and more comprehensive compare to what practitioners follow. Shen-fa & Xiao-ping (2009) list those elements impacting risk allocation methods. They believe that ability of risk controller, risk bearer's appetite, willingness to control, control costs, capacity of resources, incentives of risks and risk relativity are the main elements which should be considered for risk allocation. Having looked at the literature developed for risk allocation techniques in Project Finance environment, overwhelming majority of risk analysis tools and techniques were listed by Dey and Ogunlana, (2004, p 338) as follow: Influence diagram, Monte Carlo simulation, PERT, Sensitivity analysis, MCDM, AHP, Fuzzy set approach, Neural network approach, Decision tree, Fault tree analysis, Risk checklist, Risk mapping, Cause/effect diagram, Delphi technique and Combined AHP and decision tree. Beyond the research done by Dey and Ogunlana in 2004,

there are some developments further for risk allocation tools and techniques. This includes: QQIR Model (Sachs et al, 2008), Theoretical Framework (Jin & Doloi, 2008), Stochastic Critical Path method with the Envelop Method or SCP-EM (Kokkaew & Chiara, 2010), Off-taking Agreements (Bonetti, et al, 2010) and Strategic Risk Register System or SRRS (Allan & Yin, 2011).

Considering the extensive theoretical work done to develop different techniques for risk allocation in the Project Finance environment, it can be concluded that practitioners are not getting benefits of these techniques as none of the interview respondents mentioned these tools and techniques for their risk management processes.

6.2.2.5. How does Project Finance help Risk Management Processes?

During interviews, it was revealed that Project Finance disciplinary introduces some features that can help risk management processes. The interview respondents believed that Project Finance can help projects become more sustainable due to many due diligence steps involved. Also, as Project Finance imposes this limitation that project priorities and strategies should not be easily changed by project decisions during the project life cycle, this provides a disciplinary which mitigate majority of risks involved. The results of the interviews illustrate that Project Finance provides a level of comfort for project parties in view of host country risk as a result of extensive due diligence involved. Also as the project company has to gain an understanding of what the legal frameworks of the host country are, it helps the project parties plan and mitigate many of the risks even prior to the financial closure.

Interview respondents also stated that Project Finance can maximise the benefit of debt funding and help companies achieve proper risk mitigation techniques by transferring the financial risks to other parties involved and are are suited better to manage risks. In this case, it can be concluded that Project Finance is in fact a mitigation tool as it motivates (and in many cases forces) the sponsor to move funds out of the host country immediately and repay the debts. This will be in favour of those developing countries which plan to use benefits of Cross Border Project Financed projects back into their home country. The example of Mozal project is an evidence to support this argument (Esty, 2003); In that case study, the sponsors agreed to set

the price for aluminium as a function of the aluminium prices, thereby creating a natural hedge for the project.

6.2.2.6. Principles and Lessons to be learnt in view of Cross Border projects

It was stated in many interviews conducted for this research that when a company goes beyond its territory to exercise a Cross Border deal, at first they have got to know what they are doing; this is the foremost question to be answered by any company wishing to go beyond its borders. This is in line with facts addressed in case studies surveyed in Chapter 5. In the Chad-Cameroon case study (Esty, 2006), knowing the context of Africa, the aim was set to make benefits for the local communities; that is why the World Bank created an unprecedented framework to transform oil wealth into direct benefits for the poor, the vulnerable, and the environment. In another example to support this argument, it can be seen in the case of Antamina (Tufano & Moel, 1997) that was decided to conduct a geologic study of a large portion of the deposit by a reputable consulting firm prior to entering the deal.

6.2.2.7. Section Summary

It was concluded that there is a consensus between theory and practice that Cross Border projects are more risky than Within Country ones. However, it was revealed in some of the interviews that this depends on the project type, sponsor status, relevant industry and more importantly political status of the host country where the Cross Border takes place. Using Project Finance results some losses for Cross Border projects; some of these losses are due to Project Finance methodologies (cost and time intensive) and some are because of the specific nature of Cross Border projects (political risks involved and currency implications). Knowing these losses directed the researcher to study risk categorisation and allocation methods; it was concluded that the practice is more developed regarding the categorisation techniques and practitioners consider more criteria to identify risks in comparison to what has been developed in the theory. However, in contrast to this, extensive work has been done in theory to develop different techniques for risk allocation in the Project Finance environment, but the practitioners are not getting benefits of these techniques. It was also concluded that Project Finance disciplinary introduces some features that can help risk management processes. Finally, and as a lesson to be learnt, it was discussed that if a company goes beyond its territory to exercise a

Cross Border deal, at first they have got to know what they are doing and get knowledge about the host country well in advance. This will be elaborated further in the following section.

6.2.3. Section 3 – Current Status of Risk Management in Cross Border Project Financed projects

Research Question number three looks for the current status of risk management in Cross Border Project Financed projects. It asks: "What is the current state of Risk Management of Cross Border Project Financed projects in South Africa compared to (1) specific projects that are covered in the case studies and (2) models and methods introduced in the literature?"

6.2.3.1. Disadvantages of using Project Finance for Cross Border projects

Prior to attending the current state of Risk Management of Cross Border Project Financed projects, it is critical to understand what disadvantages Project Finance cause in Cross Border environment. This will help the reader to get a holistic view of the subject besides all benefits and advantages discussed in previous sections. In fact, this has helped the researcher to better illustrate risk mitigation tools and techniques around Cross Border Project Financed projects. It was evident from the interview results that Project Finance has some disadvantages compare to the other financing vehicles. This is in line with the case studies discussed in Chapter 5 as majority of these disadvantages are matched with identified risks in case studies as shown in the table below.

Table 42 – Disadvantages of Project Finance and comparison with Case Studies

Disadvantages listed during interviews	Case Study	Risk Identified in the Case Study
It brings a complex process to follow, complex debt structure and many governance requirements involved Expensive, due to different agreements involved and necessary mitigation actions required	Calpine Corporation	Commercial risk - revolving credit facility
In Project Finance, the company is subject to market forces and interest rate	Airbus A3XX Case Study	Market risk - uncertainty of demand

It takes a longer time to get Project Finance deals to the financial closure	Petrolera Zuata Case Study	Political risk – Venezuela's sovereign risk
It limits sponsors' ability to price project's product as they wish in future	BP Amoco Case Study	Industry risk – reserve and commodity price risk
In many cases, if the company repays the bank earlier, it may incur penalties as the lenders are unhappy to receive the principal earlier and skip the interests.		
It limits sponsor to only one core business and reduces flexibility to move	Hong Kong Disneyland Case Study	Commercial risk
Project Finance is a resource intensive process	Nghe An Tate & Lyle Case Study	Resource (agricultural) risk

In support of the above finding, it was stated in some of the interview respondents that Project Finance lenders are always cautious about new territories and Cross Border deals and these projects are usually not attractive at first place for banks due to many risks involved. This indicates that lenders tend to be more conservative and want to see more evidences upfront; and consequently cause the Cross Border Project Finance deals become more time consuming. One of the interview respondents brought an example and said that in some cases, the companies start the Cross Border deal with a country, but end up with another government and in a different country at the time of authorisation.

6.2.3.2. Implication of laws and regularities

It was evident from all interview results that laws and regularities are of great importance in Cross Border Project Financed projects. In fact, not knowing the host country laws is the main source of risk in this regard. It was stated in majority of interviews that in Cross Border deals, there is a need to differentiate between laws applicable to each party in its own home country and laws applicable to the project company in the host country; also there is a requirement for international firms to support the project in case of arbitration clauses which makes Cross Border cases a unique one. This is in line with the literature as Moskalev (2010, P. 69) indicates that the likelihood that foreign bidders establish Cross Border projects in which they obtain a controlling stake in the target, is greater in host countries with less restrictive laws.

During interviews, it was advised that dealing with law implications has to be tasked to one specific entity in the project company and not all parties get involved with laws. It was also advised that political risks should be factored in pricing if the company is uncertain about law stability in the host country; for this, an upfront agreement with the host country government is needed for implications upon law change in tax, utility costs, permits and licenses and other regularities. To protect the sponsor against these kinds of law implications, an analysis of case studies suggests that there is a vital need to receive services and supports from international institutions like World Bank or IFC (Mozal, Basel II, Nghe An Tate & Lyle and Chad-Cameroon) as discussed in Chapter 5.

6.2.3.3. Comparative Study of Risk Mitigation Methods

To understand the current state of Risk Management for Cross Border Project Financed projects in South Africa, a comparative study has been done by the researcher. Those specific projects that are covered in the case studies (Chapter 5) and models and methods introduced in the literature (Chapter 2) are compared with those mitigation tools and techniques discussed during interviews with South African experts in the field of Project Finance.

In the case of political risks, interview respondents suggested using political insurance covers and law breaks and the company's approach to receive government support; this is in support of what is being analysed in Chad-Cameroon's case as involvement of multilateral institutions including World Bank and added incentive for government's performance were used to mitigate political risks (Esty, 2006). However, the approaches taken by Sachs et al (2008) to mitigate the political risks is somehow different; they suggest using a model called QQIR for qualifying qualitative information on political risks; this has not been addressed in other case studies in where political risk has been an identified risk. In mitigating political risks, one of the interview respondents pointed out that in case of international institution's interference, if their participation fails, the failure would call into question of their capability to assess project risk and structure deals in Cross Border Project Finance deals; that is why when the organisations like IFC participates, they ensure success of Cross Border projects using their best of resources.

To mitigate commercial risks, there is no identified mitigation tool in the literature; however in the case of Calpine Corporation (Esty & Kane, 2003) it is advised to take financing merchant plants on an individual basis with convincing twenty or more banks and mitigate the commercial risks. This is in line with the practice, as the interview respondents identified the following to mitigate commercial risks: insurance for contract break and involving Export Credit Agencies (ECA) and multinational insurance companies.

In the case of completion risks, there is a consensus between theory and practice. Interview respondents indicated the following techniques to mitigate these risks (in particular in the construction phase): using contractual facilities and reservations to transfer and partnership with those companies who have executed similar projects before. In line with this, Esty and Tufano (2003) suggest to award EPC contract to an experienced builder to mitigate completion risks of South Bridge Project; or signing a fixed-price design and construction contract for both Poland's A2 Motorway and Mozal cases (Esty, 2003). In this regard, Kokkaew and Chiara (2010) have developed a stochastic critical path method with the envelope method (SCP-EM) that addresses completion risks in construction projects; using qualified contractors is one of the pre-requisites of their model which supports what was said in practice and case studies.

As far as other risks associated with Cross Border projects, the following comparative table has been developed by the researcher to compare the methods introduced by the literature, case studies and interviews r for different types of project risks.

Table 43 – Comparison between risk mitigation methods

Risk	Interview Results	Literature
Management decision	- Building contingency in upfront planning (time, cost, scope, insurance, laws, environment and provision) - Using Project Finance as financing vehicle	- Management structures and procedures (Williams, 1995)
Resource risk	- Attain the relevant experienced people to be part of the project team consistently - Consideration of long-term agreements; Off-take agreements and Hedging on sales price	- No method is identified
Legal risk	- Possibility of law change - Utilisation of law agencies and consultants	- Contract law consideration (Mizrachi, 2006)

Market risk	- Attract worldwide international institutions to participate - Market trend analysis - Using off-take agreements to enable the project company gear the business	- Different qualitative models for performing risk/return analysis of credit portfolios (Kong et al, 2008)
Force Majeure risk	- Insurance contract or political coverage agreements	- Contract law consideration (Mizrachi, 2006)
Financial risk	- Funding in secondary currency in the host currency - Continuos due diligence process - Keep a bank account in a secure country with no exchange control (offshore currency structure)	- Transferring to private contractors to achieve value for money (Daube et al, 2008)

The above tables show that there is a wide gap between what has been advised by theory and what is being used by practitioners to mitigate different risks associated with Cross Border Project Financed projects. Looking at the different cases studied in Chapter 5 will support this observation as those cases used different sets of mitigating tools for similar risks. To explore the reasons for this wide difference, further analysis is required which will be discussed in the following section.

6.2.3.4. Further Implications of Risk Mitigation Methods

One of the reasons why there are differences between risk mitigation methods in theory and practice is the risk management tools that are deployed by practitioners compared to what has been suggested by theory. The result of interviews illiterates that risk management process for different stakeholders using risk workshops and desktop reviews (in-house experience or outsourced consultants) is the most recognised tool to mitigate the risks; this is in contrast with theory in where more mathematical and analytical tools and techniques are prescribed and developed (Dey & Ogunlana, 2004).

The overwhelming majority of interview respondents agreed that structure matters in Cross Border Project Financed projects and supported the fact that mutual agreements among all parties involved in Project Finance is necessary and have to be obtained on a continuous and flexible basis. This is however in support of the literature, particular where Esty (2004, p 222)

states that “the reason to study Project Finance is because it vividly illustrates why financial structure matters, has the potential to extend and even develop new financial theories, and is an increasingly important financing vehicle used in practice”.

Another element that makes a difference in view of risk mitigation is the matter of selection between private or state-run companies when Cross Border cases are concerned. It was evident from the interviews that private companies are generally focused on profitability and state-run companies are generally well-protected by governments from bankruptcy. However some respondents believe that if all other factors stay the same, the project still faces political risks from government interferences in any case, therefore Project Finance cases with private companies are more risky and they rather prefer to stay with state-run companies. This is however not the case if the private company has got an extraordinary credit rating which motivates the project team to persuade the Project Finance with private company and try manage political risks accordingly. In this comparison, it is important to consider credit reliability of companies; in this view, state-run companies are less dependable and liquidate. On the other hand, another group of respondents believe that there is always an element of government engagement in each Cross Border Project Finance deal and it is difficult to structure a Project Finance deal with the state-run entities.

One of the main points that emerged from the interviews was that there are different approaches towards risk mitigation; one of the respondents firmly believed that the less project companies ask from governments in terms of the support to mitigate the risks, the better. Another respondent advised that it is important to have culturally-aligned project teams so that once risk is identified and allocated, the risk owner considers the appropriate risk mitigation actions as part of his or her normal activities.

6.2.3.5. Section Summary

Project Finance has some disadvantages compared to the other financing vehicles; this motivated the researcher to understand risk mitigation methods developed to overcome these advantages. Both theory and practice agree that law and contracting implications are of great importance to consider for risk mitigation processes in Cross Border environments. However, it was found that there is a wide gap between what has been advised by theory and what is being

used by practitioners to mitigate different risks of Cross Border Project Financed projects and that is due to different tools utilised, different country laws and regularities involved, different companies (private or state-run) and different structures used to organise project teams.

6.2.4. Conclusion on the Result Analysis

This chapter has analysed fourteen case studies and interview results of those interviews conducted with Project Finance experts, in consideration of the theory presented in Chapter 2 above. This chapter was designed in such a way that all three research questions raised in Chapter 3 can be answered. The researcher's aim was to answer each question by explaining the current status of Project Finance in Cross Border environment and the lessons learnt or insights that were shared during interview sessions. The analysis of results cover a wide range of subjects that are relevant to the Cross Border Project Financed projects; however it was observed that the majority of tools and techniques that are used to mitigate project risks are not necessarily derived from theory; it also emerged that practical skills are limited to the handful of Project Financed projects. This puts motivation for further research in the field of Project Finance to be discussed in the following chapter.

7. Chapter 7 – Conclusion

7.1. Introduction

This chapter addresses the main problem of Cross Border Project Financed projects in view of Risk Management as outlined in Chapter 1; also the research objectives will be reviewed to ensure they have been achieved. Cross Border projects are usually considered a 'high risk business', mostly because of a lack of adequate overseas environmental information and overseas project experience. Similar projects may have totally different risk characteristics in different regions. It is difficult for a newcomer to identify new risks in a new environment. When such a complex scenario is faced, identifying and controlling these vital risk factors in Cross Border projects become extremely important (Zhi, 1995, p 231).

7.2. The Central Research Problem

In the context of Cross Border projects where more risks are always perceived, it is a question for companies as to why they should or should not use Project Finance. And what the benefits of project finance are for their Cross Border projects. In response to this, during the time that this research was carried out, it revealed that in Cross Border projects, there are more political dynamics due to governmental intervention which creates risks. Therefore, Cross Border deals are perceived that they are more risky; however it all depends on how the companies mitigate the risks. As an example, if the company makes a good presence and establishment in the host country, Cross Border deals will then become less risky.

Considering the need for studying risks inside these kinds of projects, it is also important to understand how risk allocation and mitigation methods can help companies manage their Project Finance deals in their Cross Border projects? In response to this, it was concluded in this research that it is also important to note that for any Cross Border Project Financed project, risk allocation and mitigation methods are different in view of different parties involved; this means that some of the mitigation methods are unique to the sponsors, some to the developer and few of them to the lenders and insurers. Therefore, it is the project structure that determines the applicability and usefulness of each risk allocation or mitigation technique.

7.3. The Research Objectives

Given the central research problem, that there is a need to study risk management processes associated with Cross Border Project Financed projects, the objectives of this research were threefold. The first objective was to develop a broad theory base for risks attributed to those Cross Border projects that use Project Finance as their financing vehicle. This was done by reviewing the academic literature to date (Chapter 2) and by analysing fourteen case studies of Cross Border projects and extracting the theories and lessons from them which are captured in Phase 1 of Chapter 5.

The second objective was to understand why companies (in this research; South African companies) should or should not use Project Finance for their international Cross Border projects. This was done through a comparative study which was carried out in Chapter 6 and the results of interviews with Project Finance experts were compared with theoretical basis gathered in Chapter 2 and cases analysed in Chapter 5. The results show that there is not a significant gap between theory and practice in identification of risks associated with Cross Border Project Financed projects and more importantly, there is a match between the theory and practice in identification of reasons why Project Finance is important when in large Cross Border projects.

The third objective of this research was to identify how risk allocation and mitigation methods can assist companies (in this research; South African companies) manage their Project Finance deals in their international Cross Border project context. This was done through a detailed comparison between different risk allocation and mitigation methods introduced in the literature, case studies and interview responses. It was concluded that the practice is more developed regarding the categorisation techniques and practitioners consider more criteria to identify risks in comparison to what has been developed in the theory. However, in contrast to this, extensive works has been done in theory to develop different techniques for risk allocation in Project Finance environment, whereas the practitioners are not getting benefits of these techniques.

As far as risk mitigation is concern, it was concluded that there is a wide gap between what has been advised by theory and what is being used by practitioners to mitigate different risks of Cross Border Project Financed projects and that is due to different tools utilised, different

country laws and regularities involved, different companies (private or state-run) and different structures used to organise project teams. To this end further lessons to be learnt for companies involved in the field of Project Finance have been captured in Chapter 6.

7.4. Recommendations to Stakeholders

Recommendations that can be derived from this research will be in twofold: a set of recommendations for the academia as areas for further research and another set of recommendations for practitioners who are involved in the field of Project Finance. Both are in line with the results discussed in previous chapter.

7.4.1. Future areas for research

During interviews, it was evident that all answers seemed to derive from the respondents' own experience. This motivates for more formal education in the field of Project Finance. As stated by Professor Esty (2004, p 221), "a course on Project Finance is an ideal capstone class for an MBA programme because it both sharpens the students' finance skills and broadens their perspective".

- Project Finance requires more premium payments upfront which results in higher costs to the overall project; this would price the company out of the market and cause failure in the bidding processes for those companies willing to use Project Finance. This feature has not been found in the surveyed literature and can be used for future research. It can also be done in the form of a case study, provided there is availability of relevant data.

- It was stated by majority of interview respondents that political or sovereign risks are of great importance in Cross Border Project Financed projects. One future research can focus on this and find out specific mitigation actions that South African companies should consider when they plan for Cross Border Project Financed projects.

- Another topic for future research in the area of Cross Border Project Financed projects would be to validate whether there is a correlation between capital expenditure and revenue generation stream or not? This will be subject to data availability.

7.4.2. Suggestions for Project Finance Practitioners

- When a company has its own Intellectual Property and technology and desires to go Cross Border, Project Finance is an ideal financing vehicle as majority of technological risks will be mitigated prior to the financial closure. The companies are suggested to select the right Cross Border partner and apply for Project Finance.

- Companies are required to establish an ongoing relationship with the government of host country and local partners when going Cross Border. To this end, respecting other cultures and their own way of doing things when going Cross Border is essential; companies should not always insist on their own ways of doing things. Practitioners are to understand how much influence they will have while living in other country and they should act accordingly. As an example, companies are encouraged to employ as much as local resources possible and avoid transferring many people from their own country to the host country, except for the elites.

- Due to governance implications and due diligence checks, Project Finance is a risk mitigating tool that needs parties' patience. It has to be considered as such when deciding about financial vehicle selection. In this view, companies are strongly recommended to do their homework and due diligence at their own place prior to move to the host country. At the time of agreement for Cross Border Project Financed projects, companies are recommended to know their Withdrawal or Walkaway positions upfront in case of any Force Majeure risk.

- Cash flow timing and management is critical in all steps of Cross Border Project Financed project life cycle; when a Cross Border project is complete, companies are to monitor the cost overrun and do not spend project revenue on overhead costs. It is recommended to stagger purchase costs over few years and pay them over the years; this will offset some of the possible losses due to price fluctuations or currency rate changes. Ensuring transferability and convertibility of currency to and from the host country is also important.

7.5. Concluding Statement

The final chapter of the research has addressed the main research problem and reviewed where the research stands in responding to the research objectives set in Chapter 1. By the time the project company gets to the financial closure for its Cross Border Project Financed case, they will have many of identified risks already mitigated. This is because of access to better regularity and more cohesive and politically-controlled environments, due to the presence of many external institutions, insurers and government institutions needed for Project Finance. In fact, prior to financial closure, there has to be three items clarified: (1) revenue stream going forward is measured, (2) operating costs are determined and (3) upfront capital cost is known. All these show that Project Finance is a recommended financing vehicle for Cross Border projects, provided that required due diligence and homework are done upfront. It was concluded that there is a gap between theory and practice in terms of risk allocation and mitigation methods developed for Cross Border Project Financed projects; this research provided a framework to introduce similarities and differences between theory and practice in this regard and ended up with a set of recommendations to both academia and practitioners in the field of Project Finance.

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Appendices

Appendix 1 – List of Interview Respondents

1.	Lizelle Kleynhans	Senior Manager Project Finance, SASOL
2.	Michel Nahon	Owner, Tnmining Project Finance
3.	Conrad Hefer	Managing Director, Cresco Project Finance
4.	David Jones	Leveraged Finance Expert, Rand Merchant Bank
5.	Grant Jordan	Senior International Business Analyst, SASOL
6.	Theuns Ehlers	Principal Project Finance, ABSA Capital
7.	Alastair Herbertson	Project Finance Expert, Investec
8.	Trevor Smith	International Project Director, SASOL
9.	Brigette Baillie	Partner, Webber Wentzel
10.	Greg Kinross	CEO, Tau Capital Corporation

Appendix 2 – Questionnaire

Risk **A**llocation and **M**itigation **M**ethods in **F**inancing **C**ross **B**order **P**rojects

Research Questionnaire

MBA Research Project

Amir Rezvanian

arezvanian@gmail.com

0798903813

Gordon Institute of Business Science (GIBS)

University of Pretoria, South Africa

Jan 2012 – Nov 2012

Informed Consent Form

I am conducting exploratory research on Project Finance and particularly focusing on risks associated with Cross Border Project Finance. I am analysing published case studies and concurrently trying to receive experts' views and insights towards this topic; I will then compare the theoretical background with expert views on the topic. I also aim to find out where more research needs to be done in the area of Project Finance.

Our interview is expected to last 60 to 90 minutes where I will ask a series of questions relating to your experience of Project Finance or Cross Border Projects within the context of South African Companies.

Your participation is voluntary and you can withdraw at anytime without penalty. All data will be kept confidential. If you have any concerns, please contact me or my supervisor.

Our details are provided below:

Student: Amir Rezvanian
arezvanian@gmail.com
079 890 3813

Supervisor: David Rabinowitz
david@42projects.net
082 973 8005

Signature of Participant: ----------

Date: ----------

Signature of Researcher: ----------

Date: ----------

Questionnaire

Section 1 – Project Finance; Applications and Limitations in South Africa

(1) What are the main reasons why you or your clients use Project Finance?

(2) What do you see as the advantages and disadvantages of using Project Finance?

Section 2 – Cross Border Projects

(3) Do you agree that Cross Border projects are more risky than within country projects? Why or why not?

(4) What are the main characteristics of Cross Border projects that use Project Finance? Please comment on the differences to local projects finance projects, unique issues and challenges that are raised by cross border projects?

(5) In specific case of Cross Border projects, what the benefits and losses of Project Finance are?

(6) What are the impacts of severe valuation uncertainties and country investment risks on Cross Border Project Financed projects?

Section 3 – Risks Identification and Allocation

(7) What are the most common risks you have faced in Cross Border Project Financed projects?

(8) How do you categorise project risks for Cross Border Project Financed projects?

(9) In light of the above question, do you agree with the following risk classification for Project Finance risks? Could you identify any additional risk category or specific risk(s)?

Resource Risks, Market Risks, Legal Risks, Political Risks, Social Risks, Commercial Risks, Construction Risks, Operational Risks, Financial Risks and Environmental Risks

(10) What are the main tools that you use to anticipate the risks?

(11) Looking at the list of risks in 10, including any you may have added above, whom is best suited to manage each risk in terms of mitigating the risk at the lowest cost?

(12) In the risk allocation process, what are the impacts of the law that will govern the agreement?

(13) What is the impact of sustainable long-term contracts and agreements with foreign governments knowing that governments' interferes might be a source of risk for Cross Border projects?

(14) Please comment on the following quote*: "Capital expenditures and sale prices are of great importance for the overall risk of Project Finance transactions." Do you know of any example that differs from this statement?

*: Quote is sourced from Backhaus, K., & Werthschulte, H. (2006). Identification of key risk factors in project finance - A "Project Type"-Based Simulation Approach. *The Journal of Structured Finance*, 71-83.

(15) Which of the following Project Finance models is more risky; Project Finance deals with state-run companies or Project Finance deals with private companies?

(16) Could you provide examples of specific countries and implications on their specific political risks?

Section 4 – Risk Mitigation

(17) What are the risk mitigations methods utilized by your company facing Cross Border Project Finance risks?

(18) What are the ways to minimise the risk of force majeure upon negotiating and drafting the Project Finance agreement in any Cross Border project?

(19) How could "contracting strategies and models" minimize the risks of Cross Border Project Financed projects? What does your company do to manage project completion?

(20) Does the "Structure" matter? Can the "Project Structure" impact on mitigation of Project Finance risks?

Section 5 - Examples of Cross Border Project Financed projects

(21) Could you provide specific examples of Cross Border projects your Company have done or tried to do? What are the specific risks associated with those projects?

(22) What can companies within South Africa learn from the lessons of specific Cross Border projects that used Project Financing?