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CREDIT ANALYSIS POLICIES IN CONSTRUCTION PROJECT FINANCE

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Abstract. *This paper aims to illustrate a revolutionary approach to bank financing of extensive investment projects developed by major corporations. The new approach pertains to corporate banking and is applied to corporate projects developed by special purpose vehicles. The theoretical framework highlights general aspects of project finance and of construction projects management in general, with special focus on residential constructions. The second part adds to the theoretical structure the example of a project finance policy implemented by a Romanian subsidiary of a foreign bank and places the emphasis on the credit analysis in case of residential construction projects. The final objective of the paper is to bridge the corporate banking field with project finance, regarded as a banking field of its own, in line with the vision of the bank subject to this article.*

Keywords: credit analysis, project finance, banking institutions.

1. Project finance overview

1.1. Determinants of project finance

Construction projects are complex human endeavours that entail extensive planning and tight control if they are to be successful. In any industry and in any country of the Globe, they have always posed difficult challenges to the project teams and project stakeholders, challenges such as: costs overrun, delays in project delivery, quality control and profitability. Overriding costs are especially risky since they can trigger a whole array of new problems, such as delays in project delivery, the impossibility of attracting supplementary financial support, quality concerns and finally, project failure. As a result, *project planning* and *monitoring* are the most important stages in the project development cycle, to be detailed further on.

Also, the general environment impacts project development in many different ways (politically, economically, socially, and technologically). Systems analysis (Cleland & King, 1975) and contingency theory (Lawrence & Lorsch, 1967) clearly demonstrate that organizations should be structured as a response to the environment in which they operate. In configuring their organizational structure and management strategies, construction project managers rarely take account of the environmental influences upon the project (Walker, 1984). Hughes (1989) has shown that *there is*

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much to be learned by applying principles that are well known in the literature on organizational theory to the management of work on construction projects.

Financing, the cornerstone of project budgeting, is also a key issue. There are many ways in which project developers can gather the necessary resources, such as joint ventures with capital injection, bond issue, bank lending or a combination of these. Depending on the way in which the project is structured and on the project type, financing will vary. The major categories of construction projects are: industrial, infrastructure, residential and commercial. Project finance is a common tool in the case of residential construction projects.

Nowadays, more and more major construction projects involve *project finance, which doesn't simply mean "financing of a project"*; rather, it is a mix of financial and business engineering. Basically, project financing involves non-recourse financing of the development and construction of a particular project in *which the lender looks principally to the revenues expected to be generated by the project for the repayment of its loan and to the assets of the project as collateral for its loan rather than to the general credit of the project sponsor. Very often, a complex construction project is carried out by a separate business entity called special purpose vehicle (SPV) established by a parent company (project sponsor) with the main aim of insulating the financial health of the sponsor from any possible project failure.* Thus, construction project development usually requires a specific business model, described in Appendix 1 Project Flow.

Project financing is a specialized form of financing that may offer some cost advantages when very large amounts of capital are involved, according to Finance professor Richard J. Herring, director of Wharton's Joseph H. Lauder Institute of Management and International Studies. He states that it can be tricky to structure, and is usually limited to projects where a good cash flow is anticipated. Often, a financing institution that's involved in project financing will build up expertise in certain industries. The lender will take on engineers and others who can analyze each project and determine its viability.

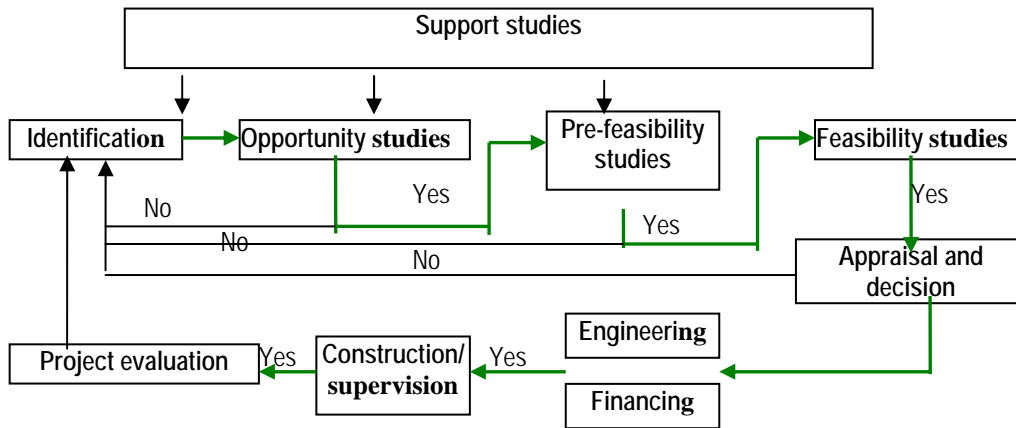
In other words, project finance is an incredibly flexible and comprehensive financing solution that demands a long-term lending approach not typical in today's marketplace. However, the pace of project financing has been rising at a significant rate, according to Reuters' Loan Pricing Corporation, which provides loan market news, data and analytics.

1.2. Project development cycle

Project development is cyclical and can be best portrayed by a logical flowchart as depicted below. Any investment project starts from an idea (*identification* of an opportunity), which has to be supported by some form of research to test its sustainability (*support studies*, such as the *opportunity study* and the *feasibility study*). Once it has been *decided* that the project is feasible (after *appraisal*), investors/originators seek *financing* (usually apply for credit), commission a detailed

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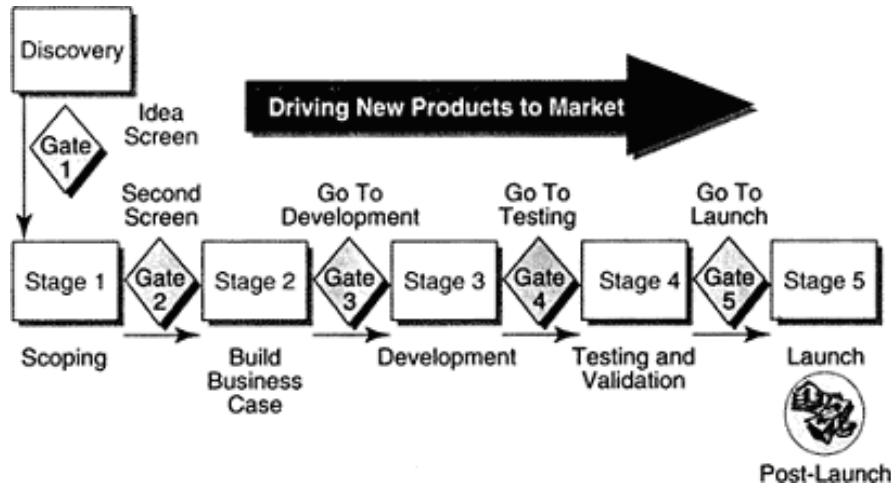
engineering plan and launch the *construction*. Construction works are supervised on a regular basis by consultancy companies specialized in such kind of project monitoring. The aim of the supervision is to ensure a reliable form of project control towards project stakeholders.



Source: UNIDO (2005). *Investment project preparation and appraisal*.

Figure 1. Project development cycle

It appears that Patel and Morris’s (1999) description of the project life cycle (span) is an accurate one, namely the sequence of phases through which the project will evolve and will significantly affect how the project is structured. There should be evaluation and approval points between phases often termed „gates”.



Source: Cooper, R. G., S. J. Edgbert, & E. K. Kleinschmidt (2001) *Portfolio Management for New Products*.

Figure 2. Cooper, Edgbert & Kleinschmidt's Stage-Gate™ process

Archibald (2003) suggested that these phases are so broad and the titles so generic that they are of little value in documenting the life cycle process so that it can be widely understood. Clearly, there is more work still to be done and no doubt the larger and more complex the project, the more gated phases that are desirable. Nevertheless, what does appear to be evident is that *four* phases, as listed for the generic model, are a *minimum* for any project to be *fully* successful. On the positive side, much improved recognition is now given to the importance of *project justification* (feasibility/opportunity studies) long before execution of actual product production work.

1. Characteristics of an opportunity study

The opportunity study represents a sketchy evaluation of a business opportunity and should serve as first-glance support to decision makers. It represents a refinement of project ideas, introduces a preliminary assessment of alternative approaches and a quick assessment of project strengths and weaknesses. If the opportunity study looks bright, managers will decide to invest time and resources into deeper project-related research.

2. Characteristics of a pre-feasibility and a feasibility study

A feasibility study is a preliminary study, more extensive than the opportunity study, undertaken to determine and document a project's viability. The pre-feasibility stands in the middle and represents just one more filter for decision making before committing more money into the project research. It is estimated that only one in fifty business ideas are actually commercially viable. Therefore a Business Feasibility Study is an effective way to safeguard against wastage of further investment or resources.

The term *feasibility study* is also used to refer to the resulting document, which is used to make a decision whether or not to proceed with the project. It encompasses the clear project concept, a comprehensive project design and reliable, documented information on markets and technology. It should also provide a quantified prediction of project performance, capital project selection criteria and define capital structure. In the end, the study analyses possible alternatives to a problem and recommends the best alternative.

As a rule, a feasibility study follows the pattern below:

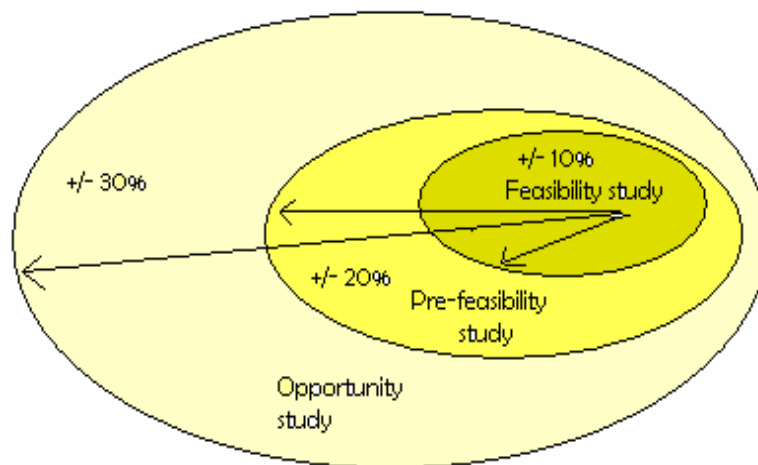
- *Executive summary*, describing in short the project under analysis and the scope of the study;
- *Market analysis* (including but not confining to the PEST analysis (Political, Economic, Social and Technological Factors Analysis), SWOT analysis (Strengths, Weaknesses, Opportunities and Threats), Product/Project Life Cycle, Value Chain);

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- *Technical analysis* (including technical feasibility of the project, technology endowment, raw materials input, project location and site, organization and manpower);
- *Financial analysis* (financial ratios, especially ROI (Return on Investment (Net Profit After Taxes/Total Assets), ROE (Return on Equity (Net Income/Shareholders' Equity), break-even analysis, payback period, NPV (Net Present Value), IRR(Internal Rate of Return), sensitive analysis, debt/equity, structure of project finance, risk analysis, capital budgeting);
- *Economic analysis* (related to the economic benefits of the project for the community as a whole).

In some cases, the feasibility study is replaced by a business plan, if more appropriate. However, in the case of residential construction projects, feasibility studies are more common especially if the project finance is preferred and the SPV was only created to ensure project development separately from the activities of the Sponsor.

The target precision of the pre-investment studies is summarized in the figure below:



Source: UNIDO (2005). *Investment project preparation and appraisal*.

Figure 3. Target precision of pre investment studies

3. Project appraisal

Project appraisal is crucial to decision making. It is performed based on all the pre-investment studies, with the aim of identifying the likely consequences of the investment, the key risks and the right investment decisions („go or drop”).

Appraisal should be carried out from different standpoints translated into assessment criteria expressed by different project stakeholders: investors, financiers,

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licensing authorities, guarantors etc. since each project stakeholder has their own criteria for accepting or rejecting a construction project. Also, appraisal criteria should be compared with projected performance indicators, which are derived from project design.

4. Project implementation

Once the investment decision is made, the project will be launched according to plan. It usually starts with administrative issues (organizing, staffing, licensing etc.) and continues or goes in parallel with application for the projected debt financing with external parties (especially banks). After the loan approval, the actual project construction will start and will be monitored on a regular basis by both internal and external consultants, commissioned by the financing institution to ensure that project plans are adhered to and that costs overruns are reduced to the minimum. For this purpose, consultants draw up subsequent reports of works which are further presented to the project stakeholders, especially investors and financiers. Based on these reports, they make further decisions depending on current results and differences from initial projections – thus, such reports serve as an effective project control tool.

Also, in the case of residential projects, implementation usually involves project promotion for sale, through real estate agents. From the construction phase, the projects can be sold through pre sale agreements – although the selling prices are lower in such circumstances, they ensure supplementary financing.

5. Project evaluation

There are a number of problems in the construction industry caused by bad management, and the situation seems to be getting worse. Projects are frequently late, over budget and suffer from poor workmanship and materials. All of these problems seem to arise mainly from a lack of control, poor planning and risk management, as well as from overly optimistic or unfunded sales estimations upon project completion. Consequences of improper planning abound: delayed commissioning, escalation in the price of resources, excess consumption of resources (delays tend to increase the consumption of resources, higher financial costs, reduced profitability, and damaged company reputation).

Such problems could be avoided in case of recurrent projects of the same Sponsor, if proper project assessment is performed and conclusions drawn. Evaluation implies not only the mere comparison of actual values to projected values but the causal identification of project weaknesses. An up-dated SWOT analysis can be performed, in the light of better information; clients, consultants and other project stakeholders should also have their contribution in project evaluation.

2. The project finance methodology applied by the Romanian banks

The information regarding the Project Finance policy implemented by the Banking institutions in Romania is of general interest and refers to the way in which the Bank approaches project finance proposals submitted by different potential customers (real estate developers, constructors, construction companies, private investors).

2.1. The role of corporate division in banking institutions

The Banking institutions on the Romanian banking market provide a complete range of products and services to private individuals, small and medium enterprises and large corporations via multiple distribution channels. The Bank has a divisional structure, according to business functions (e.g. Retail Division for retail customers, and standard services, Corporate Division for corporate, tailored services, Treasury and Portfolio Management Division for treasury management and dealing, Financial Analysis and Risk division for risk management and credit applications assessment etc.)

The Bank set up a Corporate Banking Division to develop business relationships with medium and large companies (whose turnover exceeds EUR 5m) operating in Romania. The structure of the Corporate Banking Division follows a pattern of market segmentation function of *turnover, activity profiles* and *industry* of targeted clients. In addition to this, the division includes a Sales area and an Administrative/support area. The Corporate Lending Policy, an internal document drawn up each year by the credit committee, establishes guidelines for future focus of the banking activities and *targeted credit portfolio* structure.

According to the risk and profitability policy of the Bank, the corporate market is split into targeted industries, local opportunities, restricted industries and excluded industries. If in 2005, the constructions were included in restricted industries, the positive market trend brought them into local opportunities in 2007.

Also, due to dramatic market developments, major Banks in Romania set up the Project Finance department in 2005 in order to facilitate an in-depth assessment of construction projects proposals, especially residential and office buildings.

2.2. The project Finance Policy implementation

2.2.1. Guiding principles

The Banking institution establishes a Project Finance Department of its own to deal with capital project financing in particular. However, not any investment project is automatically submitted to this department for credit analysis. The main types of projects targeted by the Project Finance department are listed below:

Table 1

Project Finance Department scope

Real Estate	Infrastructure & PPP
Financing and refinancing of: ✓ Residential projects: - buildings of flats ✓ Office buildings ✓ Shopping centers ✓ Warehouses and logistics ✓ Hotels	✓ Greenfield industrial projects ✓ Infrastructure (roads, energy transportation) ✓ Public-Private Partnerships (PPP) ✓ Energy& Environment - Green energy - Energy Efficiency Projects - Hydro - Cogeneration ✓ Refurbishment and modernization ✓ IT & Telecom
Complex Investments	SMEs Project Finance
✓ Merger and acquisitions ✓ Mezzanine finance	✓ Semi standard investment products for SME ✓ Customized investment products based on EU investment credit line received (related with „environment“, „energy efficiency“, „durable development“, „green energy“, „eco products“ etc.

Source: internal documents of Raiffeisen Bank.

Basically, there are three main differences between project finance and conventional investment loans, as follows:

1. *The source of repayment*

Conventional investment loans are repaid from cash flows generated by the Borrower through *all* of its operations, whereas project financing is primarily repaid through cash flows generated by the project itself and takes as collateral the assets involved in the project (e.g. land, future constructions).

2. *Collateral*

Investment loans typically imply any assets of the Borrower, such as accounts receivable, inventory, land and/or buildings. Collateral in case of project financing consists in the assets involved in the project exclusively (e.g. land and buildings to be built thereupon).

3. *The analysis of credit standing and rating procedures*

In case of investment loans, credit decision is made based on overall, in-depth analysis of the Borrower's operations and financial standing as revealed by the financial statements („balance sheet analysis“). Project financing decision is primarily based on capital project analysis (NPV, IRR, Payback period etc).

4. *Project sponsor (developer)*

Complex investment projects imply the set-up of *Special Purpose Vehicles* (commonly-known as SPV). These are incorporated business entities of their own,

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usually established by a bigger company with the purpose of carrying out the project separately from the regular operations of the parent company. They usually have a limited life-span; they cease to exist once the project is accomplished and fully functional. Since these entities are cost-centers rather than profit centers, credit analysis does not normally take into account their financial standing. The rationale for establishing an SPV responsible for project development is double-fold: in case the project fails, the Sponsor (parent company) will not be heavily affected; conversely, if the Sponsor encounters financial troubles at some point in time, the project can still continue.

Based on these criteria, the credit application for many investment proposals falls under the responsibility of other departments than Project Finance, such as the corporate sales departments. Examples of such exceptions are projects developed by already operating companies (e.g. expansion of existing capacities, new lines of business).

In Project Finance, the pool of risks is shared among all parties involved in the project (Sponsor, SPV, lenders etc). The Bank pursues a risk-averse credit policy and ensures that any potential risk is well mitigated. This assumes two steps: first, that all potential risks and their degree are identified in due time and second that measures to mitigate them are taken all along the project development cycle. The risk profile is different across the project development stages, as detailed further:

Table 2

Project risks and mitigation

Project development stage	Risks	Mitigating tools
Construction	Cost overruns	The General Constructor Agreement (preferably based on the International Federation of Construction Engineers (FIDIC) principles) that provides a fixed price and a fixed delivery term. In case of complex industrial projects (e.g. infrastructure, energy), a special form of contracts – called Engineering, Procurement and Construction (EPC) agreements - has to be concluded. Guarantees/performance bonds/insurance policies Experienced General Constructor Regular project monitoring by specialized consultants Limited recourse on Sponsors
	Delays	
	Finish failure	
Operation	Market risk: lower revenues than estimated	Experienced Sponsors Pre-sale/pre-lease agreements Pre-contracts concluded with suppliers Management/Administration/ Operation contracts Financial requisites
	Lack of raw material suppliers	
	Budgeted operational costs overrun	

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Project development stage	Risks	Mitigating tools
	Management failures	
Entire project duration	Technical risks: Non-performance	Experienced suppliers specialized in the field Tested technology
	Non-observance of environmental/safety rules	Equipment maintenance contracts Preceding condition: the receipt of all necessary permits from local authorities
Entire project lifespan	Legal risks: Changing legal environment Retrocession	Experienced legal body (lawyers etc.)

Source: authors' analysis.

A credit application set up by the Project Finance department primarily contains the information detailed below. However, this is not an exhaustive framework and requests for complementary information from the Client can be submitted by the Bank, according to the type of project under analysis:

1. The Project („What?") (E.g. the construction of a residential park, the construction of a power plant);
2. Project rationale („Why?") (E.g. increased market share, high investment yields etc.);
3. Investment description („How?")
 - The estimated budget;
 - Project location (especially relevant in the case of real estate investments);
 - Information about the project Sponsors (shareholder structure, experience in similar projects, recent financial statements);
 - Information about third parties involved in the project (law firms, real estate agencies, construction companies, raw material and equipment suppliers, insurers, project managers, franchisers, administrators consultants, customer base). This information is especially relevant in the case of complex investment projects where the financing decision depends to a great extent on the risks entailed and on the contractual relations whereby these risks can be mitigated. Usually, the Risk department is concerned with the expertise and experience in similar projects that the third parties have;
 - A feasibility study and/or a business plan, which should include the following: a market analysis, estimated revenues based on a sales/lease plan, a risk map with mitigating factors (as detailed above);
 - The project timeline, which should include deadlines for project milestones (e.g. Receipt of all legal permits, conclusion of the General Constructor Agreement, construction milestones, final delivery). Gantt charts can be used;

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- End-result of the project (E.g. estimated price/rent per sqm in case of residential/office buildings);
- Financing plan:
 - i. Own contribution of the Borrower;
 - ii. Contribution from project Sponsors (subordinated debt, equity injection);
 - iii. Resources attracted from third parties (e.g. Leasing);
 - iv. Resources required from the Bank;
- Collateral information (due diligence includes: property documents over the land and existing buildings, warranty and performance bonds issued by the Constructor, insurance policies etc.).

The financing decision will be based on a set of criteria, which translate into a customer and collateral rating, according to the matrix described in Appendix 1 Client/Collateral rating.

Main criteria of project selection include:

Objective criteria:

- Financial ratios (liquidity, asset management, profitability, financial efficiency, leverage) – EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization) and EBITDA margin are at the forefront of this analysis;
- Cash Flow forecasts (including NPV).

Subjective criteria:

- Experience of the project Sponsors;
- Project location;
- Quality of the business plan;
- Project type;
- Project budget and the financing structure (Bank loan/Own contribution ratio);
- Quality of the General Constructor;
- Quality of the project manager.

In case of real estate development projects, which usually fall in the scope of the *Project Finance department*, the Bank proposes a financing structure based on several guidelines, listed below.

The *Borrower* should be an SPV which does not undertake any other activity except the investment project itself. The Sponsors (or project developers) should have experience in similar investment projects and display a sound financial standing. Their contribution to the project should translate into the provision of initial capital and the issue of corporate guarantees acceptable to the Bank.

There is a *minimum amount financed* by the Bank under the Project Finance scheme. However, the Bank does not finance any project to 100% in an attempt to avoid moral hazard. The Sponsor has to ensure a *minimum contribution of 25%* to the

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project, which will be paid to the Borrower at the beginning of the project in the form of social capital or shareholders' debt (subordinated to the Bank loan until its maturity).

The *maturity* in case of residential projects should not exceed 6 months from the end of the construction works (or of a certain project phase, in the case of complex projects developed in phases). The construction period cannot exceed 2 years. The maturity in case of office buildings can go up to 20 years (including the construction period). However, since the Bank's financing policy is risk-averse, maturities up to 10 years are encouraged through a solution of compromise called "balloon" repayment. In case of balloon repayment, during the first 10 years the Borrower repays equal installments equivalent to a 20-year maturity and the remaining 50% of the loan will be paid in a lump sum at the 10-year maturity. Combinations of the conventional and balloon repayment methods can be negotiated, according to circumstances.

Repayment structures depend on the type of the project also. In case of residential projects, the repayment consists in a lump sum at maturity, with partial repayments from advances cashed in from clients who buy prior to flat delivery. In case of office/commercial buildings, repayment is made in unequal installments, tailored according to the cash flow projections. In order to secure repayment, special bank accounts can be established in which revenues from rent or pre-sale agreements are collected for repayment purposes only.

2.2.2. Definition and role of covenants

Covenants represent contractual restrictions placed on a borrower and are used for mitigating the risks the bank assumes when granting a credit facility to a customer. These contracting devices set minimum standards for a borrower's future conduct and performance and typically accelerate the maturity of the loan in the event of a violation. Loan covenants also can reduce the borrower's costs of debt, thereby being a good thing for both borrower and lender. The observance of covenants by the Borrower is monitored regularly (every six months usually) by the Loan Administration department and their non-observance incur penalties ranging from a temporary increase in the interest rate to the obligation to repay the loan at once.

There are many types of covenants and each is written to reduce some risk to the bank, transaction dependent. Covenants can be divided into two major categories, by two different criteria. There are *affirmative covenants (reporting conditions)* – which require a borrower to meet certain standards such as discharging contractual obligations and providing information at regular intervals and *negative covenants* – which restrain the borrower from such actions as spending more than a specified amount on capital expenditures or increasing dividend payments, or they stipulate that measurable financial variables must satisfy certain minimums. *Financial covenants* are designed to monitor the financial health of the company and to assess its debt service capacity, whereas *non-financial covenants (restrictive)* are used to prevent the

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company from taking action that might affect its debt-service capacity (e.g. limited disposal of assets).

The Bank classifies the loan covenants largely in accordance with the covenant classes identified by Gilson and Warner (1998), as follows:

Table 3

Covenants' description

Covenant type	Description
Financial certain level of:	Indebtedness ratio -Leverage ratios Coverage ratios - Interest coverage ratio - Debt service coverage ratio Profitability ratios -EBITDA margin -Net profit margin
Non-Financial	
Turnover condition	The Borrower shall route monthly/quarterly/yearly through the accounts opened with Bank a certain percentage of its banking operations.
Ownership clause	Changes in the Borrower's shareholders' structure will be notified to the Bank within a specific period of time/the Borrower shall ask for Bank's approval prior to any change in shareholders' structure
Limitation on asset sale	Prohibits certain types of asset sales
Negative pledge	The undertaking not to encumber any assets without Bank's prior approval
Restricted cash payout	Payment of dividends Redemption of debt subordinated to that of Raiffeisen Bank Payment of management fees to affiliated parties Investments
Jointly and severally liable	A third party, usually connected to the Borrower, will be jointly and severally liable with the Borrower with respect to the latter's obligations, which derive from the facility agreement concluded with the Bank
Cross-guarantee	If the Borrower benefits of two or more facilities from the Bank, the collateral securing a facility is also taken as security for the other facilities, during their common life
Cash substitution clause	Substitution is a method of moving a lien from one property (collateral) to another (i.e. cash deposit). This clause protects the Bank against the decline of market value of its holdings.
Overriding costs	Overrun costs associated with a certain project will be supported by the Borrower.
Subordination clause	The debt towards shareholders and/or third parties outstanding at the signing date of the facility agreement will be subordinated to the obligations generated by the facility granted by the Bank
Reporting and disclosure	The Borrower should present monthly/quarterly/semiannually, yearly or upon request, different types of documents, as specified in the credit agreement. These conditions allow the Bank to monitor the evolution of the company's activity or collateral situation during the tenor of the loan

Source: Gilson and Warner (1998).

3. Conclusions

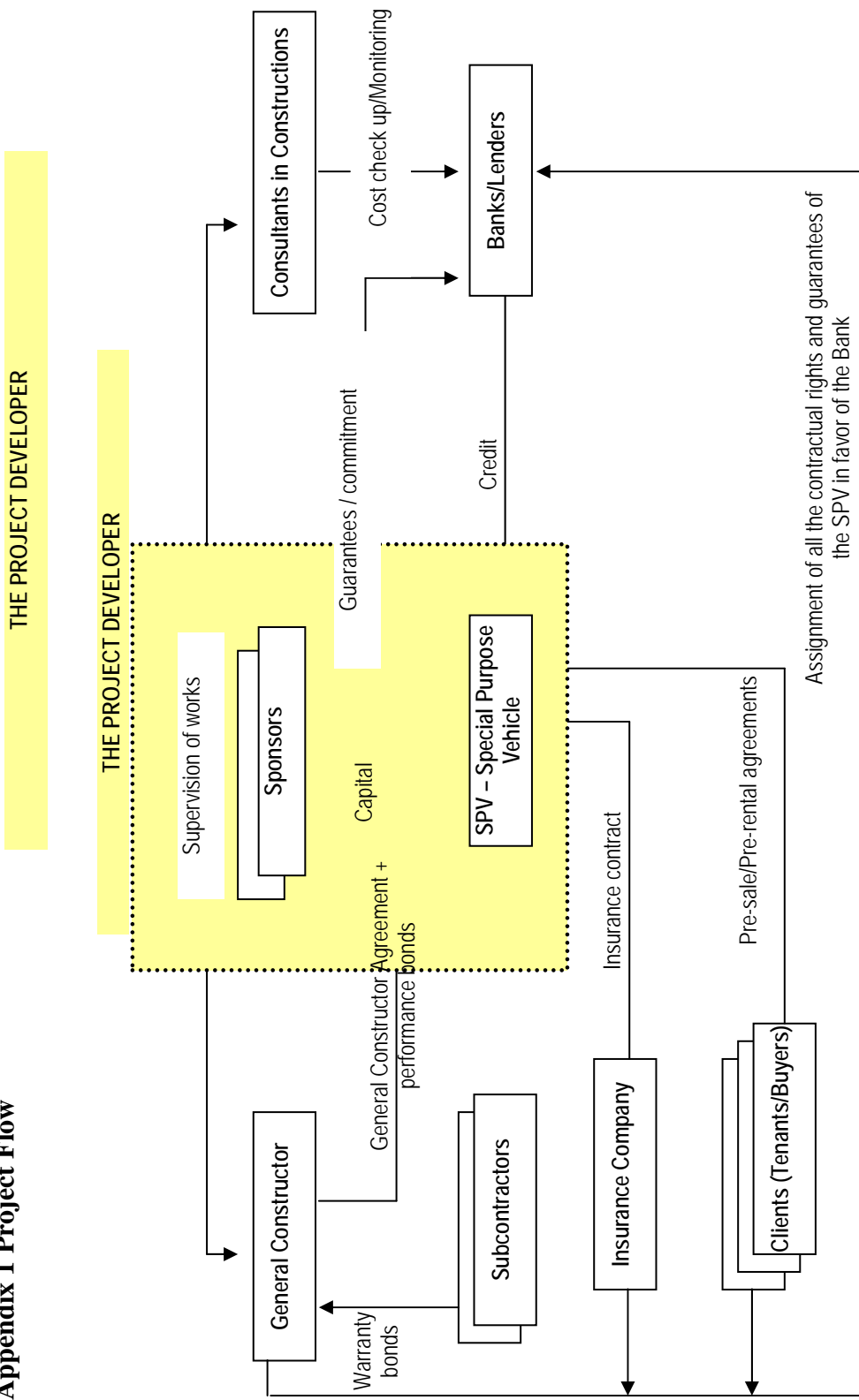
Traditionally, lenders have faced credit risk in the form of default by borrowers. To this date, credit risk remains a major concern for lenders worldwide. The more they know about the creditworthiness of a potential borrower, the greater the chance they can maximize profits, increase market share, minimize risk, and reduce the financial provision that must be set up as buffer against bad debt.

Credit risk is the major challenge for risk managers and market regulators. Banks, regulators and central banks do not agree on how to measure credit risk and, more particularly, on how to compute the optimal capital that is necessary for protecting the different partners that share this risk. Asking banks to keep too much capital in reserve to cover credit risk can be a source of market distortion in risk management behaviour (Duffie & Singleton, 2003).

Credit risk measurement has evolved dramatically over the last 20 years in response to a number of secular forces that have made its measurement more important than ever before. Among these forces one can count: (i) a worldwide structural increase in the number of bankruptcies, (ii) a trend towards disintermediation by the highest quality and largest borrowers, (iii) more competitive margins on loans, (iv) a declining value of real assets (and thus collateral) in many markets and (v) a dramatic growth of balance sheet instruments with inherent default risk exposure, including credit risk derivatives (Altman & Saunders, 1998).

The business reality worldwide increased its complexity along with its associated risks. As a natural reaction, banks changed the way in which they perceive businesses and assess the credit worthiness of their borrowers. Credit analysis evolved and segmentation tools were implemented in order to classify not only borrowers but also the object of the loans in different risk categories. In this process of evolution, the notion of project finance emerged and further tends to form a banking business of its own, similarly to mortgage-based lending or leasing. Effective credit risk measurement and mitigation stands at the heart of the newly emerged forms of financing and the latest financial crisis striking the world economies proves that modern financial intermediation is still far from the ideal standpoint in which risks can be detected, assessed and mitigated down to a comfortable level for financial intermediaries, business, governments and communities alike.

Appendix 1 Project Flow



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