

CDM Project Finance and Risk

**Todd Ngara
UNEP RISOE
todn@risoe.dk**

Outline

- Feasibility of CDM projects
- Components of cash flow
- Sources of financing
- Marketing to investors
- Marketing Models
- Financial assessment of CDM projects
- Risk Matrix
- Risk Assessment

Feasibility of CDM projects

- The feasibility study should contain detailed assessments of the project's potential and risks i.e information of financial returns, methodology, and assumptions used to estimate sequestration rates as well as a budget for all stages of implementation.
- Some Feasibility Study Specifics:
 - (i) project identification (ii) screening, facilitating and contracting
 - (iii) environmental impact assessment (iv) detailed project design
 - (v) technical assessment (vi) monitoring, verification and certification
 - and (vii) project approval by host country and Executive Board.

Components of cash flow (costs and revenues) in CDM projects

- 1. Capital costs* – all capital expenditures to establish the project. These include general investments and the purchase of equipment required to reduce GHG emissions. Future replacement and rehabilitation costs are also part of capital costs.
- 2. Operating Costs* – i.e. fixed and variable costs: Fixed or overhead costs are incurred irrespective of how many units are produced e.g. salaries, rentals etc. Variable costs are costs that vary with the project output e.g. cost of more fuel to produce more units of electricity.
- 3. Revenues* – depend on the nature of tariffs and other product and service prices. Income from the sale of CERs is also part of revenues.
- 4. Interest payments* – If the discount rate used reflects the cost of capital (debt servicing costs + returns to equity investors), then interest should be included in the discount rate.

Sources of financing

Range of possible investors:

- National governments of industrialised countries
- Regional multilateral development banks
- International financial institutions such as the World Bank
- Environmental non-governmental organisations
- Private companies from industrialised countries
- Philanthropic organisations and international foundations
- Local commercial banks

Marketing to investors

To win investors, project developers should know which parameters are critical for investors:

- ❑ Assess needs and time frame adequately
- ❑ Identify reasonable price parameters for the carbon credits
- ❑ Develop a selling strategy with an ideal transaction volume and selling price
- ❑ Consider appointing a consultant, lawyer, or market agent who can act in good faith on your behalf i.e develop plans and facilitate complex transactions
- ❑ Establish a methodology to calculate emission reductions and project baselines, i.e. a methodology that conforms to evolving rules of the CDM

Marketing to investors(Cont'd)

- ❑ Secure support and co-operation of the host country government through an endorsement letter
- ❑ Engage a third party organisation to validate the project design document, verify emission reductions and provide any needed assistance for monitoring
- ❑ Where possible propose more than one project to an investor or seek to bundle together a number of smaller projects

Financing Models

- Conventional Project Financing
- Corporate financing by project host
- Equipment lease financing
- Up-front payments
- Low interest loans or debt
- Micro-credit

Financing Models(1)

(1) Conventional Project Financing (e.g. banks):

Advantages - from point of view of project sponsor:

- (a) Ability to raise large amounts of capital
- (b) Limited or no recourse to the assets of the project sponsors

Disadvantages:

- (a) Cost and time to obtain project finance
- (b) Contracts must be with credit worthy counterparties
- (c) Delayed returns on equity

Financing Models (2+3)

(2) Corporate financing by project host (100% equity financing by developer)

Advantages:

- (a) Project retains all the CER revenue from project
- (b) Financing may be raised more rapidly

Disadvantage:

- (a) Lack of expertise – unlikely that the project host has all elements of specialised expertise required. This would require outsourcing some elements of the project e.g. installation of plant and equipment.

(3) Supplier Credit – financing provided by suppliers of goods and services

Advantages:

- (a) Widespread availability
- (b) Deferred payment for up-front capital expenditure

Disadvantage:

- (a) Relatively high cost of capital

Financing Models (4)

(4) Up-front payments

Advantages:

- (a) Repayment of up-front capital expenditure can be brought forward
- (b) Relatively rapid and low cost due to diligence by CER buyers

Disadvantages:

- (a) Risk allocation towards buyer
- (b) Lower net CER revenue for project host/developer
- (c) May not solve problem of obtaining finance for construction

Financing Models (5+6)

(5) Low interest loans or debt, e.g. development banks with lending programmes

Advantages:

- (a) Lender of last resort
- (b) Stable currency

Disadvantages:

- (a) Loans must fit the objectives of the lending programme
- (b) Stringent due diligence

(6) Micro-credit- aimed at providing small amounts of credit to lenders with limited ability to pay

Advantage:

- (a) Access to finance – often no collateral

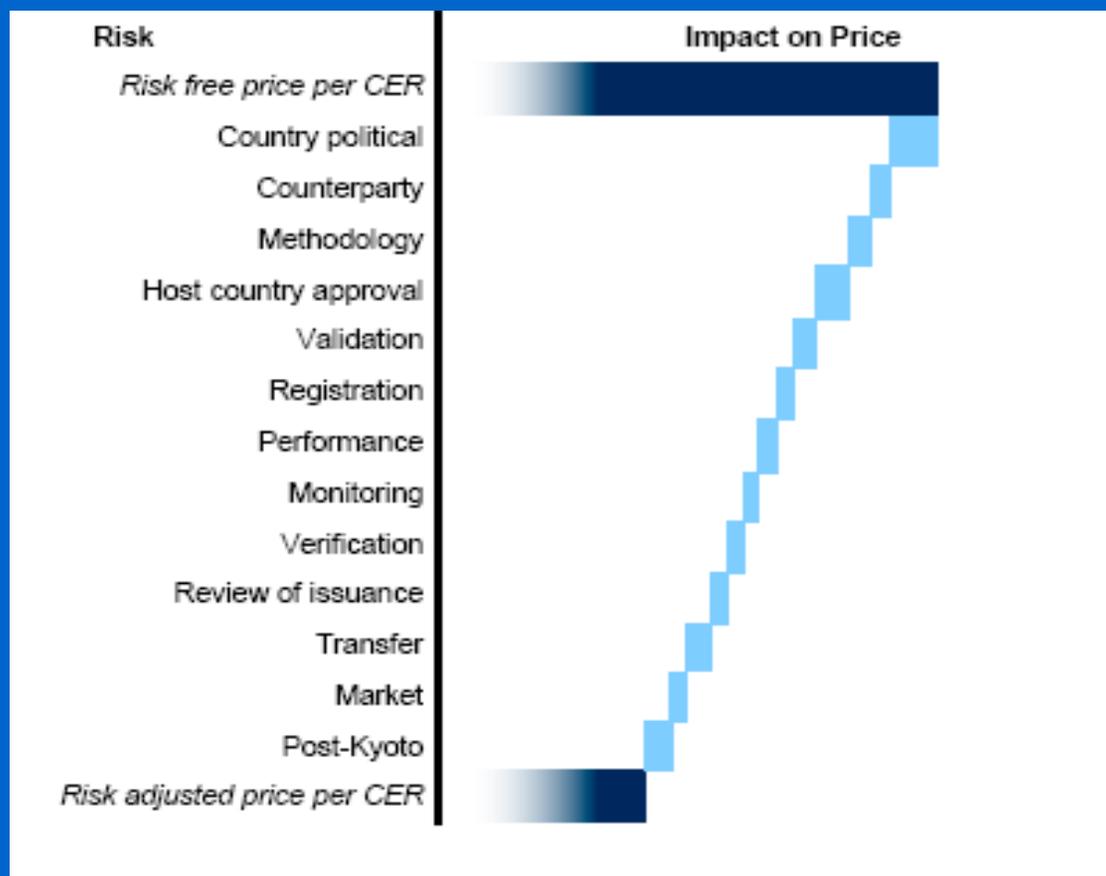
Disadvantages:

- (a) Limited scale
- (b) High interest rate

Financial assessment of a CDM project

- **Key factors in the financial viability of a CDM project:**
 - (i) Volume and cost of production of CERs
 - (ii) Price at which the CERs are sold
- **Factors affecting volume and cost of production of CERs**
 - (i) Scale of project – small-scale projects have high financing transaction costs per unit of finance and large projects generate more CERs and also benefit from economies of scale in the cost of production of CERs
 - (ii) Capital Investment – is usually the largest cost associated with a CDM project although the relative level of operating costs varies and may be significant for some projects.
 - (iii) Time required to implement a project is of critical importance due to the politically determined nature of the market for CERs.

CDM project risk profile and its impact on CER price



**Risk
Matrix**

Risk Type	Examples	Risk mitigation
Technical risk	Delay in implementation due to lack of availability of raw materials or spare parts	Performance of Bonds and completion guarantees by suppliers and contractors
Market risk	Global economic growth is slower than expected – thus reducing the market values of CER's	Hedging of future CER prices through finances incentives notwithstanding the fact that a fixed contracted price could be lower than future market values
Liability risk	(a) Host country non-compliance With UNFCCC/Kyoto Protocol regulations	Government to enact national legislation outlining liability of independent certifiers
Political/ country risk	1.Host country revokes CDM on flimsy grounds 2.Host country joins Annex I of the UNFCCC – rendering CDM projects invalid	1.MOU with host country government 2. International political assurance
Environmental, health and safety risk	Contamination discovered on project site prior to implementation	Good understanding of the legal framework and legislation governing environmental liability that pertains to the project
Force majeure	Natural disasters such as floods	Specialised insurance
Qualification risk	"Discounting" of CERs due to methodological uncertainties	Lobbying of policy-makers and environmental negotiators

Managing risk (three options)

1. Change the project: Once a risk has been identified especially in the early stages, it is prudent to change the project so as to minimise the risk.
2. Allocate the risk to the most appropriate party: i.e. entities most closely associated with the risk and which can bear it at minimum cost.
3. Transfer the risk to a third party: using financial instruments to transfer risks to third parties for example through hedging, third party guarantees or insurance.

Remark: Risk assessment can and should be updated during the course of the project as the risk profile of a project changes over time.