

---

# **Some aspects of Contingent Capital**

**ICA**

**17<sup>th</sup>-22<sup>nd</sup> March 2002**

**Tobias Povel, Swiss Re**

---

# Content

- Definition and general remarks
- Contingent Capital vs other risk financing instruments
- Contingent Capital in Project Finance: an example and some pricing aspects
- Conclusions

---

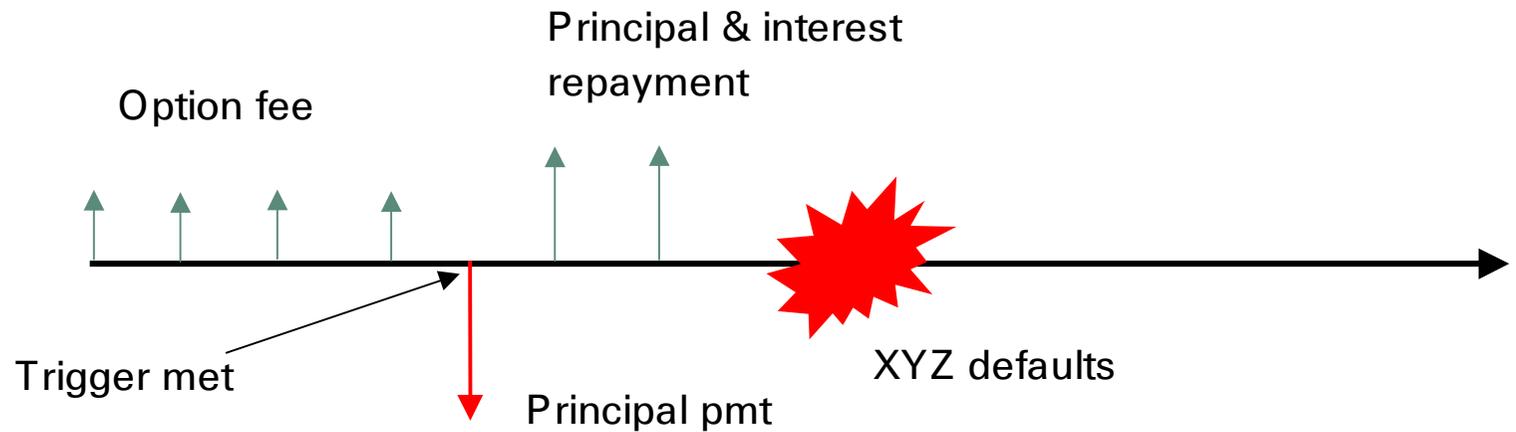
## Definition and general remarks 1

- **Contingent Capital** is an option which gives the holder the right to raise capital from the option provider at predefined terms upon the occurrence of a pre-agreed event
- The capital injected can be ( subordinated ) debt, preferred shares etc.
- Other than with a normal ( "knock in" ) option, the contingency is a different risk than that of the asset underlying the option. For example, triggers can be related to natural hazards, the financial market, the price level of certain commodities, the state of the economy etc.

---

## Definition and general remarks 2

- **Example:** Company XYZ buys an option which entitles them to raise debt (sell stock) at predefined terms during a certain time period (e.g. one year), but only if aggregated incurred property losses during that period are in xs of 100 mio.



---

## Definition and general remarks 3

- Immediate and (long) term availability of capital at predefined costs after “catastrophic” or unexpected events.
- CC prevents from having to retain large liquid sources of capital on the balance sheet (“off balance sheet reserve”)
  - The “**Michelin Transaction**” :
    - subordinated debt, triggered by a reduction of sales weighted GDP growth in the US and EU
    - off balance sheet financing in adverse situations
- Balance sheet protection against possibly difficult to insure risks

---

## Definition and general remarks 4

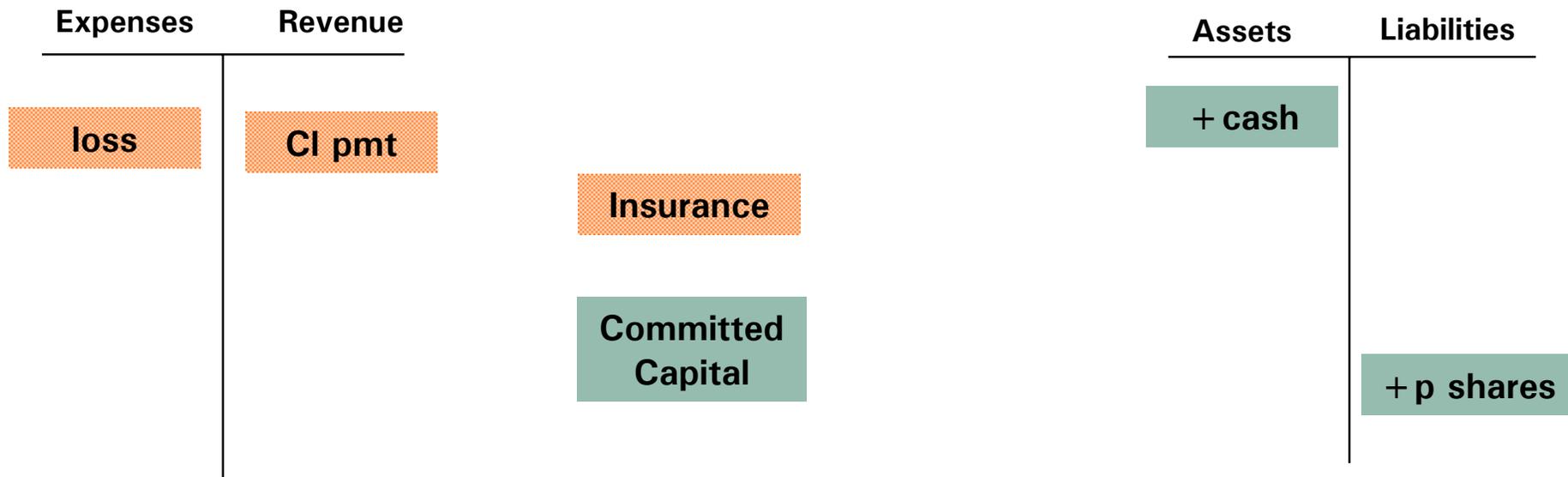
- Reduces on-balance sheet capital without increasing overall risk profile of company (helps e.g. solvency ratio, capital adequacy )
  - The **“Royal Bank of Canada Transaction”** :
    - CC provides capital infusion in the form of preferred shares (no dilution effect), if RBC’s general reserve level for loans falls below a certain threshold
    - structure leads to a more efficient “off balance sheet” reserve of “last loss amount”, improving performance ratios
    - structure is less expensive than general insurance



---

## Definition and general remarks 6

Balance sheet/P&L: post - event,  
assuming loss = Insurance recovery



---

# Contingent Capital vs other risk - financing instruments 1

- **CC vs insurance:**

- CC is off balance sheet capital ("reserves"), protecting the balance sheet. Opposed to insurance, it has no effect on the P&L.

- CC, if triggered, is expected to get repaid (default scenarios are included in pricing).

- **CC vs Debt:**

- CC, as long as not paid in, doesn't increase leverage

- CC can reduce contingency reserves (e.g. in project finance)

---

## Contingent Capital vs other risk - financing instruments 2

- **CC vs Debt:**

- CC as coverage of specific risks in xs of e.g. expected project costs should be more cost efficient than additional debt

- **CC vs Letter of Credit:**

- CC may be more cost efficient (e.g. price of a LOC solely based on the credit risk of the Applicant, no consideration of the likelihood of the LOC being “exercised”)

- CC is characterized by longer tenors

---

## Contingent Capital in Project Finance, an example 1

- **Description of the Project:** Company “*Start Up (SU)*” in the Emerging Market “*Great Expectations (GE)*” wants to become a major player in the market of producing “*air bubbles (Abs)*”. So far the existing infrastructure of producing “*Abs*” is still very much underdeveloped and market liberalization is in its early stage.

- **Financing of the Project:**



50 % from Senior Creditors  
( bond issue )

20 % from Vendor Financiers  
( subordinated debt )

30 % from Equity providers

---

## Contingent Capital in Project Finance, an example 2

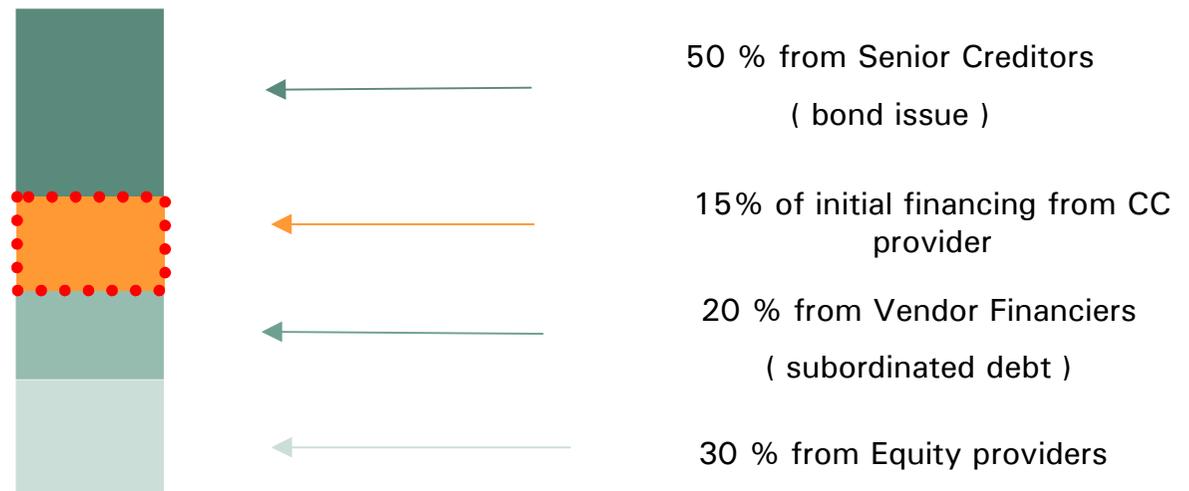
- **Equity investors:**
  - Sponsors of the Project (contractors, suppliers, users of the project's products facilities)
  - capital markets, investment banks (might also be placing the bond), investment funds
- **Vendor Financiers/Subordinated Debt:**
  - Project Sponsors, capital markets
- **Senior Creditors: (placed publicly or privately)**
  - financial institutions, pension/investment funds

---

## Contingent Capital in Project Finance, an example 3

- **The role of the Contingent Capital provider:**

- Injection of cash in a situation where the Project is in (mild) distress. Effectively enhancing the senior debt.



---

## Contingent Capital in Project Finance, an example 4

- Injection of cash is **contingent** upon the occurrence of e.g. two events:
  - Decrease of AB price index **and** decrease of the Projects ( weighted ) Debt Service Coverage Ratio below a predefined threshold respectively. CC can be triggered on a quarterly basis.
  - The DSC Ratio is defined as:  $(\text{Net Revenues} - \text{Operating costs} + \text{Changes in Advances from Customers} + \text{Change in Debt Reserve Acct}) / \text{Debt to service}$
- Commitment period starts upon completion of the project. CC ranks junior to the senior debt but at least parri passu to the vendor financiers.

---

## Contingent Capital in Project Finance, an example 5

- The **price** of the CC facility typically consists of a
  - **commitment fee**, expressed in bps on the principal, to be paid for the entire commitment period
  - **libor + spread**, applied to the outstanding principal
- The **pricing** hinges upon establishing a “stochastic business plan”. This particularly addresses the fact, that the DSCR is a function of the price levels. The main ingredient is thus the simulation of the price levels.
- The stochastic business plan leads to the distribution function of the PV Profit of the CC provider, upon which the pricing is based (Return on allocated risk capital etc)

---

## Contingent Capital in Project Finance, an example 6

- Having a stochastic business plan not only allows to keep track of the cash flow, but as well of various other quantities which are important for assessing the risk.
- This might lead to a reengineering of the e.g. senior debt repayment or further equity injections.

Quantities of interest are for example:

- probability of trigger ; probability of default, given trigger
- distribution of year of trigger/post trigger default (reengineering of financing)
- by how much is the post trigger default probability decreased ( modeling the CC injection )

---

## Contingent Capital in Project Finance, an example 7

- A stochastic business plan model also allows to compute the **implied spread** (the spread implied by the commitment fee )
- The **implied spread  $s_i$**  is defined as the solution to the equation

$$\begin{aligned} E( PV (B(s)), \text{ given CC is triggered} ) &= \text{expected PV profit of CC transaction} \\ &= E ( PV (\text{commitment fee}) + PV (B(s_c)) \end{aligned}$$

where  $PV(B(s/s_c))$  is the PV of cash flows of the loan with spread  $s/s_c$ , given to the company “start up” at the time of the trigger ( $s_c$  is the spread, agreed upon at inception of the CC facility, of the contingent loan).

---

## Contingent Capital in Project Finance, an example 8

- For **example**: - Principal = 100 mio, with a repayment period of 4 years
  - Commitment fee = 150bps on principal p.a., with a commitment period of 3 years
  - sc = 500 bps (contingent spread over libor on principal), and you find that
  - si = 700 bps
- In this example, the commitment fee compensates you for making a “marked to market” loss up to 200 bps.
- Ideally, one would like to build a model of the spread levels at the time of trigger to directly assess the “marked to market loss”.

---

## Conclusions 1

- CC is an “off balance sheet capital reserve” tool, particularly appealing during adverse economic periods
- CC allows companies to free up capital , thereby increasing their return on assets
- CC is a cost effective alternative to insurance.