

BFF3841

**CREDIT ANALYSIS &
LENDING
MANAGEMENT**

Weekly Notes & Exam Revision
Material

PART 1 - ORIGINATION

Fundamentals of Credit Risk

Types of credit risk & transactions that create credit risk

Credit risk is loosely defined as not just as 0,1 probability of default or no default, but it is the change in credit quality over time. Credit risk is the possibility of losing money due to the inability, unwillingness or non-timeliness of a counterparty to honour a financial obligation.

There are three main concepts associated with the inability to repay:

1. Insolvency: this should not be mistaken with bankruptcy. *It is the financial state of an obligor whose liabilities exceeds its assets.*
2. Default: usually an event where there is a failure to meet financial obligations due to nonpayment.
3. Bankruptcy: occurs when the court steps in to formally announce the inability to repay.

Transactions that create credit risk are: lending (loans), lease (renting), sale without the immediate payment of goods, prepayment of goods and services, deposits, contingent claims and derivatives (counterparty credit risk).

Credit losses can come in the form of: inability to repay (business not generating enough profits), unwillingness to repay (disputes over contractual payment obligations), and timely repayment (scheduled payment being dishonoured and therefore a time value of money is at stake).

Who is exposed to credit risk?

- **Financial institutions:** banks (loans, repos, lines of credit, derivatives market).
- **Corporates:** account receivables, derivatives.
- **Individuals:** contracts, loans, individual investment activities.

Fundamental questions to ask?

- **What is the amount of the credit risk? How much can be lost?**
- **What is the probability of default?**
- **How much can we recover in case of default?**

Governance

There are four main pillars to achieving successful governance once a loan has been generated: Guidelines. Skills. Limits and Oversight.

Guidelines

These are a set of documents that outline what needs to be covered and rules that need to be complied with before a transaction is concluded. These guidelines must have **PUCA** characteristics in order to be efficient:

Precise: short and understandable.

Understandable: clear and simple language.

Concise: to the point and not dragged out.

Accessible: they must be available to be accessed by all necessary stakeholders in the process, such as the company, individual and shareholders.

Skills

Management need to ensure that they higher the right management in order to draft, promulgate and oversee the guidelines of credit risk. This particular team can consist of chief risk officers or chief financial officers who can liaise with the Board of Directors to ensure that the guidelines are sufficient and well-known.

Limits

Each company will differ in the amount of risk they are willing to take in a particular transaction, and this is where limits need to be set up to ensure that they remain within a boundary that is acceptable to the company to ensure that it doesn't turn insolvent.

RISK PARAMETERS that need to be defined:

- **Amount of exposure:** *maximum amount of money that the company can lose.*
- **Credit quality:** *what level of creditworthiness is the company.*
- **Tenor:** *the length of the credit exposure and term of credit agreement.*

Oversight

Oversight must have independence, qualifications, and an OPEN MIND.

Checklist for Origination

The handling of new transactions is what origination is all about. It is important to identify that the best way to avoid losses is to enter into good transactions and not enter into bad agreements with bad customers. Recognizing that origination is important, there is a checklist to help identify origination of new transactions to properly deal with whether or not to go through with one:

Does the transaction fit into my STRATEGY?

The approval process should assist in identifying whether or not a credit transaction will fit into the business' overall strategy. Creating credit risk in an area that a business is unfamiliar with will be a bad choice.

❑ **Does the risk fit into my *EXISTING PORTFOLIO*?**

For a company with an existing credit exposure, does taking on this risk fit into that company's portfolio in terms of limits and concentration? It is important to consider what type of credit this is and if the company is already exposed to the exact same type of credit, which can create concentration risk.

❑ **Do I *UNDERSTAND* the credit risk?**

Transactions of a new nature must be dissected thoroughly. Credit quality changes over time which create a big risk *AND* products change over time which create a risk as well.

❑ **Does the seller keep an *INTEREST* in the deal?**

The seller is the one who creates credit exposure to the buyer, as the credit risks transfers over. It is important to note their intentions behind selling the credit product, as it could be to offload a type of credit that does not bear profit and sells it off to the buyer.

❑ **Are the proper *MITIGANTS* in place?**

Mitigants exist to ensure that the creditworthiness of the borrower is maintained and to also avoid big losses. Mitigants will kick in to protect creditors if a bad situation takes place.

❑ **Is the legal document *SATISFACTORY*?**

Credit risk managers must ensure that all legal documentation is satisfactory before the credit agreement is finalized. All recommendations and covenants should be clearly stipulated in the legal documentation.

❑ **Is the deal *PRICED* adequately?**

It is important to ensure that taking on this credit risk will also take into account a risk-adjusted pricing to ensure that the risk taken on by the credit exposure is adequate in the returns generated.

❑ **Do I have the skills to *MONITOR* the exposure?**

The main purpose of surveillance of activities is to detect transactions whose performance is deviating from expectations.

❑ **Is there an *EXIT STRATEGY*?**

An exit strategy refers to the ability to hedge or sell a credit risk exposure at any time. It is important to ask if the exposure is properly hedged against something, and if the company is able to dissolve itself from the exposure to mitigate its losses.

PART 2a - *CREDIT ASSESSMENT*

Measurement of Credit Risk

There are four dimensions that which, taken together, provide good barometers of risk. They are:

1. *The exposure to risk*
2. *The probability of default*
3. *The amount which can be recovered (recovery rate)*
4. *The tenor (how long the exposure is for)*

1. *Exposure*

Exposure is the single most important number as it represents the potential maximum amount that could be lost in case of default. Since each credit is unique, the method for calculating its exposure differs and therefore must be properly documented.

There are three different types of methods that can be used to set exposure numbers:

1. GE = Gross exposure *minus collateral gives....*
2. NE = Net exposure *minus unused facility gives....*
3. AE = Adjusted exposure.

Gross exposure - GE

This particular calculation represents the full amount of exposure that the bank has in terms of credit provided. For example, if the bank has a trade receivable of \$100, the gross exposure is \$100.

It must be noted that it does not factor in tenor and therefore should not be used on a stand-alone basis to represent the exposure.

Net exposure - NE

GE minus the amount of collateral pledged equals NE. Even though collateral is useful to limit exposure of credit risk, there are four fundamental checklists that need to be considered in terms of collateral:

Who owns the collateral?

In the event of bankruptcy, does your company have undisputed claim over the collateral? If not, it should be taken into consideration when minusing off the GE.

Can the collateral be valued?

Valuation can present challenges. Even properties are not properly valued sometimes and aren't provided a good enough "haircut" in terms of price volatility and price fluctuations. For example, paintings and sculptures. A proper "haircut" needs to be in place to provide a buffer that can account for price volatility.

Can the collateral be sold?

Collateral is useless if it cannot be sold, and sold quickly. If collateral takes a long time to be sold, it is illiquid and can represent an opportunity cost for funds that are held up.

❑ **Is the collateral correlated with underlying exposure?**

For example, a loan credit facility was given to a subsidiary company whereby collateral was provided in the form of parent company shares. The parent company then defaulted, leading to a default in the subsidiary and collateral of the parent company was worthless.

Adjusted exposure - AE

The best example of an adjusted exposure is a revolving line of credit. This means that the lender provides an amount, usually large, of credit to a borrower who can then draw on the amount at any time.

- A disadvantage of this is that the borrower's actions on drawing on the loan portion is unpredictable and therefore the probability of default is difficult to calculate/everchanging.
- Revolvers can have long tenors, even as long as up to 10 years.

2. Probability of Default (PD)

PD is a statistical indicator that represents the likelihood that a counterparty will default on their loan obligations during a period of time.

Some key characteristics of *PD*:

- It is never zero. Nothing is "too large to fail".
- Governments can have a probability to default.
- As tenor increases, so does PD. The financial strength of a borrower will deteriorate and the PD will be higher in the long term rather than the short term.

Default Probabilities are calculated by a two-step process - By analysis of counterparty AND analysis of historical data:

Step 1: Analyze a counterparty's financial strength and assign a rating that is representative of the perceived financial strength.

Step 2: Using historical data, observe the default frequencies of entities with similar ratings. *The observed relative frequency is the estimate of PD.*

STEP 1 - Rating of a counterparty

This can be conducted through:

- One's own internal credit assessment team
- Through a rating agency like Standard & Poor or Moody's (for larger companies) and Scoring systems through Dun & Bradstreet (for smaller companies).
- Through hierarchy and mapping

STEP 2 - Use historical data

When using a rating agency to find the PD, you can look at the rating of your borrower to that of a similar rate on the scale and, for example, if that rate has a PD of 0.5% for the next 5 years, then you can potentially deduce that your borrower has a PD of 0.5% for the next 5 years also.

3. The Recovery Rate

The recovery rate is the amount that can be recovered in the case of default, usually expressed as a percentage of GE.

Factors that influence the recovery rate:

- The total amount of assets available.
- The ranking of recovery in the event of default. The higher up the ranking you are, the greater the recovery amount.
- The security package (secured debt will always provide security to the secured creditors first before giving anyone else any security)
- $LGD = \text{Loss Given Default} = 1 - \text{Recovery Rate}$

4. The Tenor

Tenor matters, as financial strength of the borrower deteriorates and also PD increases the longer the tenor of credit given.

BONUS: *Expected Loss*

$$\text{Expected Loss} = \text{Exposure} \times \text{PD} \times (1 - \text{Recovery Rate})$$

Expected loss is a function of all the elements considered in the measurement of credit risk, and therefore provides a good statistical measure for the pricing of transactions and is important for use in portfolio management.

EXPOSURE EXAMPLE 1: Trade Receivables

EXPOSURE EXAMPLE 2: Bank Loans

- Important to note that exposure of loans that a bank gives out is that there can be a correlation between the exposure of loans.

EXPOSURE EXAMPLE 3: Investments

- Rating agencies will be rating the company's corporate bonds, not the actual company.

EXPOSURE EXAMPLE 4: Commodities

- LoC's or derivatives market for commodities creates an exposure to credit risk.

Dynamic Credit Exposure

Dynamic credit exposure exists in arrangements where the credit exposure is not a fixed number known at inception but rather one that changes over time. There are two main sources where dynamic credit exposure exists: **derivative transactions of all kinds** and **long-term supply or purchase agreements of commodities**.

The exposure is not fixed because it will fluctuate with the value of the underlying product on which it is based.

DCE's have typically have the following characteristics: