Learning Module 14: Credit Risk

LOS 14a: describe credit risk and its components, probability of default and loss given default.

Credit risk arises when there is a potential for a borrower to default on their obligations, specifically by failing to fulfill their interest and principal payment obligations on a bond or loan. This particular risk, which originates from a contractual relationship, presents a significant performance risk that investors in fixed-income securities must effectively manage. The size of its impact is influenced not just by borrower-specific circumstances but also by the wider economic context.

Traditional Credit Analysis - The "Cs"

In order to assess the creditworthiness of a borrower, analysts commonly utilize a set of metrics known as the "Cs". The five criteria below pertain to the detailed, individual-level factors relevant to a specific borrower, also known as bottom-up factors.

1. Capacity: Assesses the borrower's ability to make debt payments in a timely manner.
2. Capital: This metric indicates the extent of available resources that the borrower may rely on, hence lowering their reliance on debt.
3. Collateral: The assets that serve as a foundation for the borrower's indebtedness.
4. Covenants: Legally binding obligations that the borrower is obligated to adhere to.
5. Character: A qualitative metric used to evaluate the quality of management and their willingness to fulfill their financial obligations.

Broader Economic Influences on Credit Risk (Top-Down Factors)

In addition to the above borrower-specific measures, credit risk is influenced by three broad aspects.

1. Conditions: Encompasses the current economic and business environment.

2. Country: Considers geopolitical intricacies alongside the legal and political framework of the borrower's jurisdiction.
3. Currency: Examines the implications of fluctuations in exchange rates or liabilities denominated in foreign currency.

Sources of Repayment for Different Bonds

Corporations primarily rely on business operations, investment, and financing activities for repayment, while secondary sources include asset sales, divestitures, and additional debt issuances. The associated credit risks encompass economic contraction, strategic market shifts, heightened competition, and diminished pricing power. In contrast, sovereign or public entities derive their main repayment from corporate and personal taxes and from issuing new debt, with risks tied to shrinking operating margins and escalating losses.

A borrower might be illiquid, meaning they cannot access funds to make a payment, which differs from being insolvent, where the borrower's liabilities surpass their assets.

Components of Credit Risk

Probability of Default (POD)

This metric gauges the likelihood of a borrower not meeting payment obligations fully and on time. A combination of lower profitability, lower coverage (e.g., EBIT to interest expense), and increased leverage suggests a higher POD, indicating lower credit quality for corporate issuers.

Loss Given Default (LGD)

The concept of LGD pertains to the possible financial loss that an investor may experience in the event of a default. LGD is calculated by multiplying the Exposure at Default (EE) by the complement of the Recovery Rate (RR).

$$\text{LGD} = \text{EE} \times (1 - \text{RR})$$

Where:

- EE (Expected Exposure) is the expected claim at default, typically the loan or bond face value plus accrued interest minus the current collateral's market value.
- RR (Recovery Rate) represents the percentage of the debt claim recovered upon default.

Expected Loss (EL)

The expected loss (EL) is a function of both POD and LGD and is expressed as:

$$EL = POD \times LGD$$

Investors assess their compensation for credit risk by comparing the expected loss to the credit spread over a given period. The credit spread, which signifies the additional yield a risky bond offers over a risk-free rate, serves as a metric for the reward an investor anticipates for bearing credit risk. Investors are deemed fairly compensated if the credit spread aligns with the expected loss.

The relationship between credit spread and expected loss can be approximated as:

$$\text{Credit Spread} \approx POD \times LGD$$

The risk of expected loss for investment-grade debt is primarily due to a rise in POD. High-yield investors seek covenant restrictions and/or security to lower LGD.

Example: Credit Spread

An investor reviews ClearSky Enterprises' unsecured debt and finds a POD of 3% and an LGD of 75%. With an actual credit spread of 250 bps per year, the investor would expect to be more than fairly compensated for assuming ClearSky Enterprises' credit risk. This is determined as follows:

$$POD \times LGD = 0.03 \times 0.75 = 2.25\%$$

Credit Spread > POD × LGD. Thus, the investor would anticipate being more than adequately compensated for bearing ClearSky's credit risk.

Question

For a sovereign or public entity, which of the following is most likely a primary source of repayment?

A. Business operations
B. Corporate and personal taxes8
C. Asset sales

The correct answer is **B.**

Sovereign or public entities primarily derive their repayment from corporate and personal taxes.

A is incorrect. Business operations are a primary source of repayment for corporations, not sovereign entities.

C is incorrect. Asset sales are a secondary source of repayment for corporations, not a primary source for sovereign entities.

LOS 14b: describe the uses of ratings from credit rating agencies and their limitations.

Credit Rating Agencies Overview

Major credit rating agencies like Moody’s, Standard & Poor’s, and Fitch Ratings critically influence credit markets. They evaluate issuer credit risk using quantitative and qualitative methods, resulting in credit ratings for most corporate and sovereign bonds.

Credit Ratings Defined

Ratings by major agencies evaluate default risk and potential investor loss. Triple-A rated bonds (Aaa or AAA) signify high quality and low risk. Bonds rated Baa3/BBB– or higher are "investment grade", denoting stability. Conversely, bonds rated lower, like Ba1 or BB+, signify higher default risks, often labeled "junk bonds” or "high yield" bonds. D rating signifies default in S&P's and Fitch's scales.

Rating Process

Agencies, when assigning ratings, may access non-public information from issuers. Post-issuance, agencies monitor issuer performance, adjusting ratings based on perceived credit risk changes. They might also issue outlooks reflecting potential future creditworthiness shifts.

Importance of Credit Ratings

Investors often utilize these ratings for easy comparison of creditworthiness across bond issuers. These ratings can indicate shifts in market conditions and potentially activate contractual clauses. They also cater to regulatory, statutory, and contractual requirements.

Considerations for Investors

While ratings offer valuable insights, sole reliance can be risky. Market pricing of credit risk can outpace rating adjustments. Furthermore, certain risks might be overlooked in ratings. Additionally, unforeseen changes or miscalculations can sometimes skew a rating's accuracy.

Hence, investors should merge rating insights with their analysis, especially when considering high-risk bonds.

Limitations & Criticisms

Rating agencies have faced backlash for overlooking significant financial risks, notably during the 2008–2009 Global Financial Crisis. Consequently, regulations were enhanced to promote transparency and reduce conflicts of interest. While new rating agencies have emerged, the dominance of major agencies remains unchallenged.

Question

Bonds that are rated Baa3/BBB– or higher are best classified as:

A. Junk bonds.
B. Investment grade.
C. Non-investment grade.

The correct answer is **B.**

Bonds rated Baa3/BBB– or higher are referred to as "investment grade," indicating a level of stability and lower credit risk.

A is incorrect: Junk bonds are typically those with ratings lower than Baa3/BBB–, signaling higher default risks.

C is incorrect: While "non-investment grade" is another term for junk bonds, Baa3/BBB– or higher-rated bonds are considered investment grade.

LOS 14c: describe macroeconomic, market, and issuer-specific factors that influence the level and volatility of yield spreads.

Corporate bonds and other debt with higher credit risk typically have higher yields compared to default-free bonds like US Treasuries. These yield differences, measured in basis points, can widen due to factors such as declining creditworthiness (credit migration or downgrade risk) or market-related issues like increased risk aversion during financial distress. Credit spread risk refers to the potential for greater expected losses due to changes in credit conditions influenced by macroeconomic, market, and issuer-specific factors.

Macroeconomic Factors

Economic conditions and credit cycles are closely tied. When the economy thrives, credit spreads (the interest rate differences based on credit quality) shrink, indicating investors are okay with more risk. Conversely, in a downturn, spreads widen.

High-yield (HY) bonds, which are riskier, offer several benefits:

1. Portfolio Diversification: HY bonds have a lower correlation relative to investment-grade (IG) bonds and government bonds. So, adding them to a portfolio can provide more variety and potentially better returns for the risk taken.
2. Capital Appreciation: When the economy gets better or a company issuing the bond performs well, the price of HY bonds can rise more than IG bonds. This can be due to better financial performance, mergers, or positive changes in company management.
3. Stable Returns: Even though HY bond prices move similarly to stock prices, they usually provide steadier returns. This is because they have a bigger interest component. Some studies even suggest HY bonds can give better returns than stocks over a long period, especially for those who do not like the volatility of stocks.

Bonds with higher credit ratings exhibit lower yields for given maturities due to their perceived higher level of security. Conversely, bonds with longer durations typically offer higher yields as a result of increased default risks. The difference in yields between (IG) bonds is comparatively

narrower when compared to the difference between IG and HY bonds. During periods of economic volatility, HY bonds are prone to changes in spreads, particularly when investors place greater emphasis on safer assets, a phenomenon commonly referred to as "flight to quality." Moreover, HY bonds may encounter selling difficulties during periods of economic downturn.

Market Factors

Highly liquid bonds, e.g., sovereign debt from developed countries, have yields that combine real interest rates and an expected inflation premium. On the other hand, corporate bond yields add extra premiums for credit and liquidity risks, as well as potential tax consequences. Market liquidity risk pertains to the costs and uncertainties associated with trading bonds, especially concerning the differences between stated and actual transaction prices. Two key factors tied to issuers, namely the amount of their publicly traded debt and their creditworthiness, influence this liquidity risk. Bonds that trade frequently and in large volumes have reduced liquidity risks. During financial crises, market liquidity can decrease significantly, affecting bond prices and yield spreads across various debt types.

Issuer-Specific Factors

Issuer-specific factors are those unique to an individual bond issuer, impacting how their bonds are priced and how volatile those prices might be. Debt coverage and leverage are factors common to all issuers. Debt coverage indicates how easily a borrower can cover its debt obligations using its cash flows. A high debt coverage ratio suggests the issuer has a strong financial position, reducing the risk for bondholders. On the other hand, leverage represents how much debt a company has in relation to its equity or other financing sources. A high leverage can indicate higher risk, as the issuer is more dependent on debt financing.

Repayment and Investment Dynamics

Corporate issuers borrow money to invest in long-term assets that drive profits, like machinery or new facilities. They repay debt from the money they make in their operations. On the other

hand, sovereign entities borrow to finance public services and infrastructure. They repay from revenues mainly collected from taxes.

Investor Evaluation Techniques

When assessing the yield and yield spread of a specific issuer's bond, investors can use the following comparisons:

- Credit Rating: Bonds with the same rating have similar default risks.
- Sector: Companies in the same industry often face similar risks and opportunities.
- Business Model or Features: For example, tech companies might be compared together even if they offer different products.

Question

What is most likely to happen to credit spreads during economic downturns?

A. Credit spreads will remain constant.
B. Credit spreads will narrow.
C. Credit spreads will widen.

The correct answer is **C.**

During economic downturns, investors become more risk-averse, leading to widening credit spreads as the perceived risk of corporate bonds increases relative to default-free bonds.

A is incorrect: Economic downturns typically do impact credit spreads.

B is incorrect: Credit spreads are more likely to narrow during economic upturns, not downturns.