



Understanding the Fundamentals of Credit Research

CFA in collaboration with Acuity Knowledge Partners

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01

Introduction to Credit Research



01.1

Investment Asset Classes

Investor

Asset
Managers/Pension and
Insurance funds

Banks

Public Equity

Fixed Income Securities

Private Markets (PE)

Alternative Investments
(Commodities, Infrastructure,
Currencies, Distressed Debt)

Corporate Lending

Retail Lending

Investments (Fixed Income
securities and Equity)



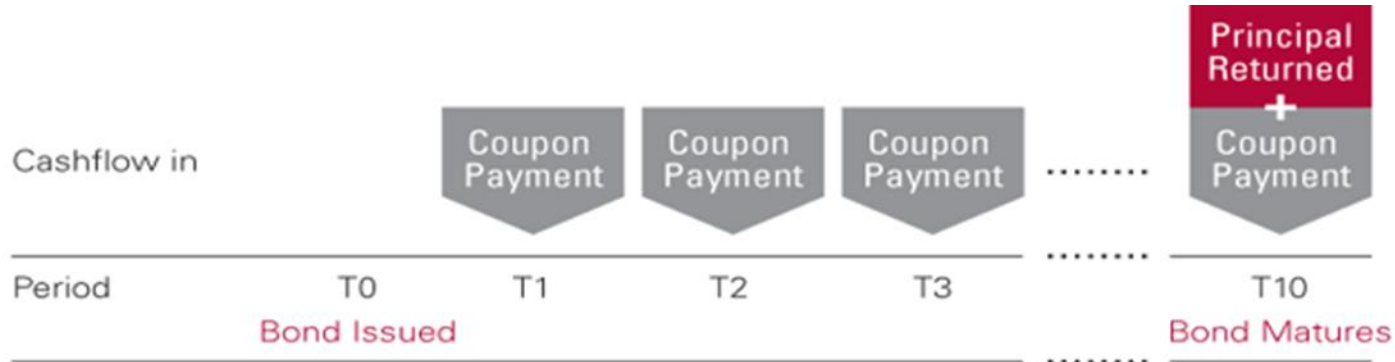
01.2

What is a fixed income investment?

What is a fixed income investment?

A financial instrument for which the issuer (borrower) agrees to pay certain amounts of money at specified dates in the future. Key attributes include

- Interest rate (or Coupon)
- Maturity (Short-term, Medium term, Long-term)





01.3

Credit ratings

Credit Ratings

➤ Credit rating

- Credit rating is an opinion on the **relative creditworthiness** (ability and willingness) of the issuer/borrower to repay interest and principal in full and on time.
- **Moody's, S&P** and **Fitch** are the major credit rating agencies recognized globally. There are also many locally recognized credit rating agencies in different countries.
- Credit rating agencies and other institutions that provide independent credit research conducts thorough research of the issuer using their own **credit scoring methodology**

Rating Factors		
Tyson Foods, Inc.		
Protein and Agriculture Industry Grid [1][2]	Current LTM 3/28/2015	
Factor 1 : SCALE & DIVERSIFICATION (20%)	Measure	Score
a) Total Sales (USD Billion)	\$40.6	Aa
b) Geographic Diversification	B	B
c) Segment Diversification	Baa	Baa
Factor 2 : BUSINESS POSITION (25%)		
a) Market Share	Baa	Baa
b) Product Portfolio Profile	Baa	Baa
c) Earnings Stability	Ba	Ba
Factor 3 : FINANCIAL POLICY (15%)		
a) Financial Policy	Baa	Baa
Factor 4 : LEVERAGE & COVERAGE (40%)		
a) CFO / Net Debt	22.8%	Ba
b) Debt / EBITDA	3.4x	Ba
c) EBITA / Interest Expense	6.6x	Baa
d) Debt / Book Capitalization	41.4%	Baa
Rating:		
a) Indicated Rating from Grid		Baa3
b) Actual Rating Assigned		

Credit Ratings Scale

S&P	Fitch	Moody's	Description
Investment Grade (IG)			
AAA	AAA	Aaa	Prime
AA	AA	Aa	Very high credit quality
A	A	A	High credit quality
BBB	BBB	Baa	Good credit quality
Non Investment Grade (HY)			
BB	BB	Ba	Speculative
B	B	B	Highly Speculative
Distressed			
CCC	CCC	Caa	High default risk
CC	CC	Ca	
C	C	C	
D	D		Defaulted

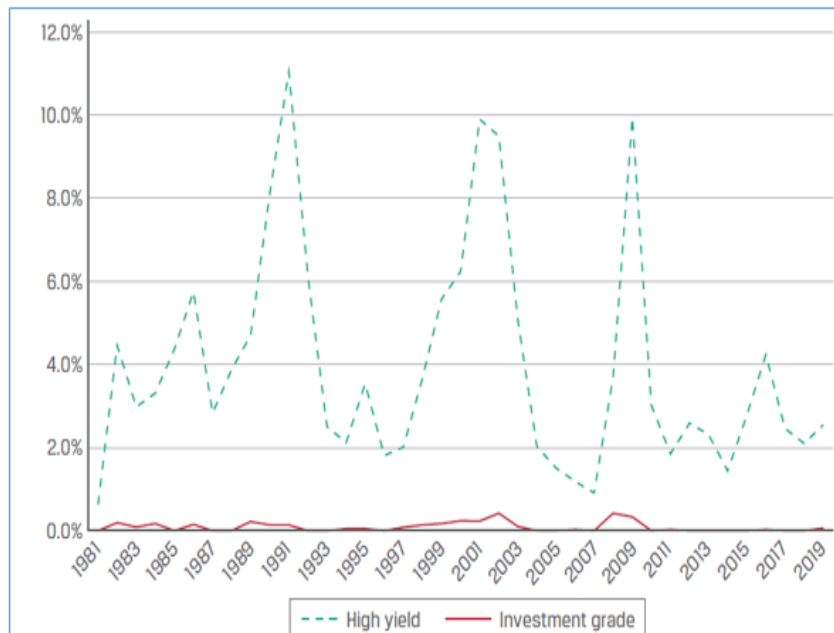
Historical default study – credit ratings

➤ Credit rating default study

- Investment grade bond (relatively stronger than high yield or non-investment grade bonds) demonstrate a lower default rate historically.
- Higher the default rate, the riskier it is for an investor.

S&P Annual Global Corporate Bond Default Study IG Vs HY

Annual Global Corporate Bond Default Rates (%)



Source: S&P Global Ratings

S&P Average Global Corporate Bond Default Study, Rating Classes

Two-Year Average Global Corporate Default, 1981–2019

Statistic/Rating	AAA	AA	A	BBB	BB	B	CCC
Default Probability (%)	0.03	0.06	0.14	0.45	1.96	7.83	36.49

Credit ratings – Benefits and Limitations

Benefits

- Improving market efficiency by reducing information asymmetry between borrowers and lenders
 - Detailed report on the company covering the business and key credit strengths and weaknesses
- Third party opinion on the relative credit strength
- Enables Peer comparison with access to a large universe of rated companies

Limitations

- Ratings are slow to react to market information
 - E.g. **SVB bank** downgraded to default from investment grade rating overnight
- Rating agencies typically do not adjust their rating with economic cycles.
 - Therefore, credit quality could be better during times with strong economic growth and vice versa
- Conflict of interest issues. Rating agencies are paid by the issuer
- As with any research, the opinions of the rating agencies could also be wrong and lack adequate depth covering important risks
 - E.g. Failures during the financial crisis

All rating agencies have very lengthy disclaimers to protect themselves and it clearly mentions that their opinions are not recommendations for investing

Investors should do their own due diligence before Investing



01.4

Introduction to corporate credit analysis

What is Credit Research?

The Cambridge Dictionary defines credit research as “the detailed study of the financial situation of companies and governments, done to provide information about their ability to pay back borrowed money”.

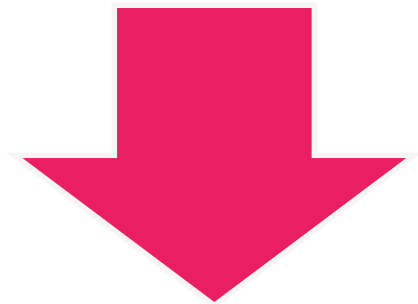
Credit research is the evaluation of credit risk i.e. the risk of loss arising from the inability of the issuer of debt (borrower) to make timely repayments (principal and/or interest).

How does credit research differ from equity research?



Equity Research

- Focuses on upside potential
- Prioritizes reported earnings



Credit Research

- Focuses on downside risk
- Prioritizes cash flows

Who Performs Credit Research?

Commercial Banks

Non-Banking Financial Institutions

Investment Banks

Asset Managers

Corporates

Rating Agencies

Carrying out Credit Research: The 4Cs

When evaluating credit risk, a commonly used method is to focus on the **4Cs**.

Capacity

- The ability of the borrower to make timely repayments. This involves a study of the borrower's cash flow – personal income for an individual borrower.

Collateral

- The quality and overall desirability of the assets used as security. For example: property, vehicles, machinery, shares etc.

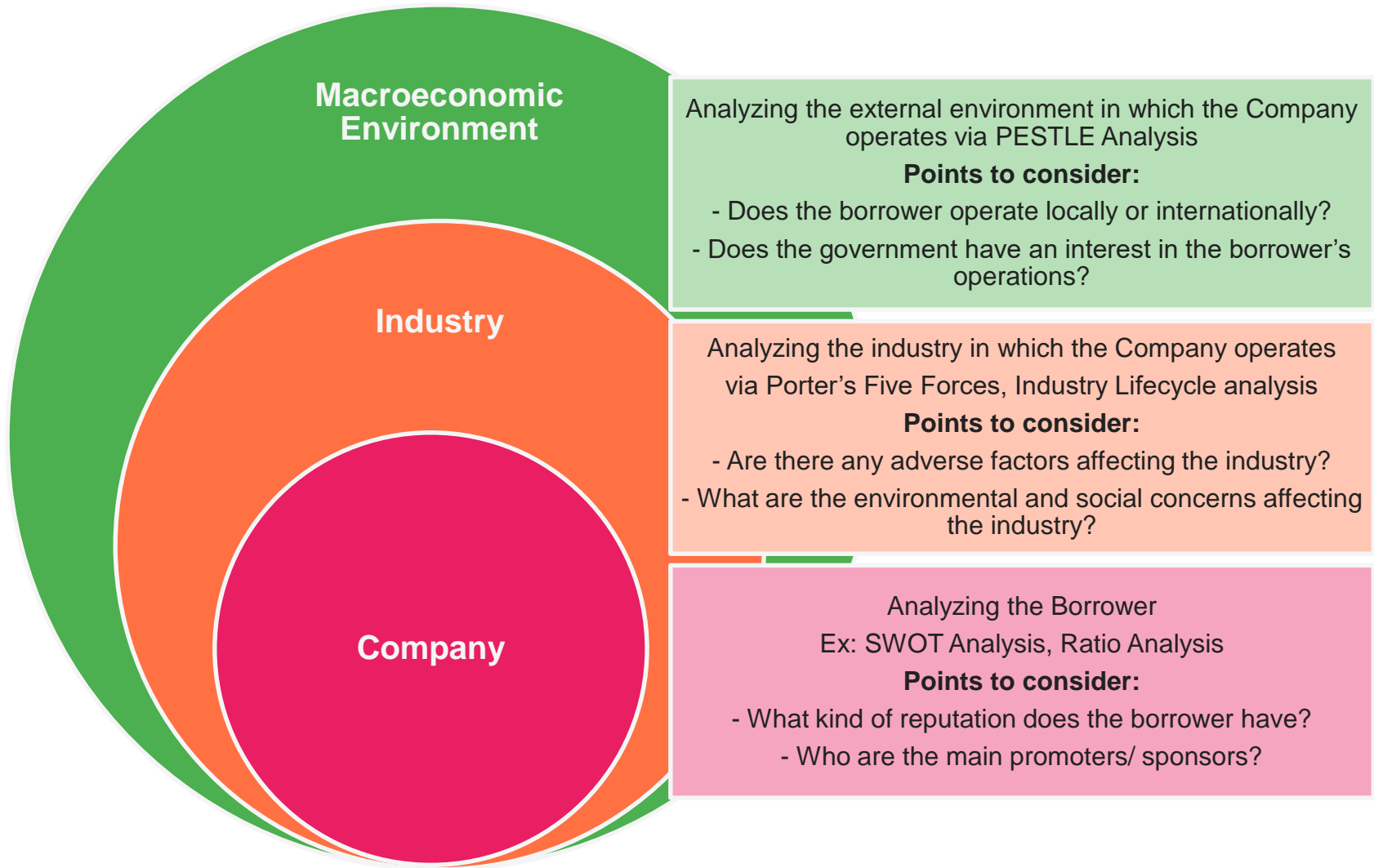
Conditions

- Alternately – covenants. The terms and conditions of the debt issue. Of importance is the purpose of debt issue i.e. what the funds will be used for.

Character

- The willingness of the borrower to meet their obligations. For individuals this includes their credit history, while for companies this refers to the quality of management.

Corporate Credit Analysis

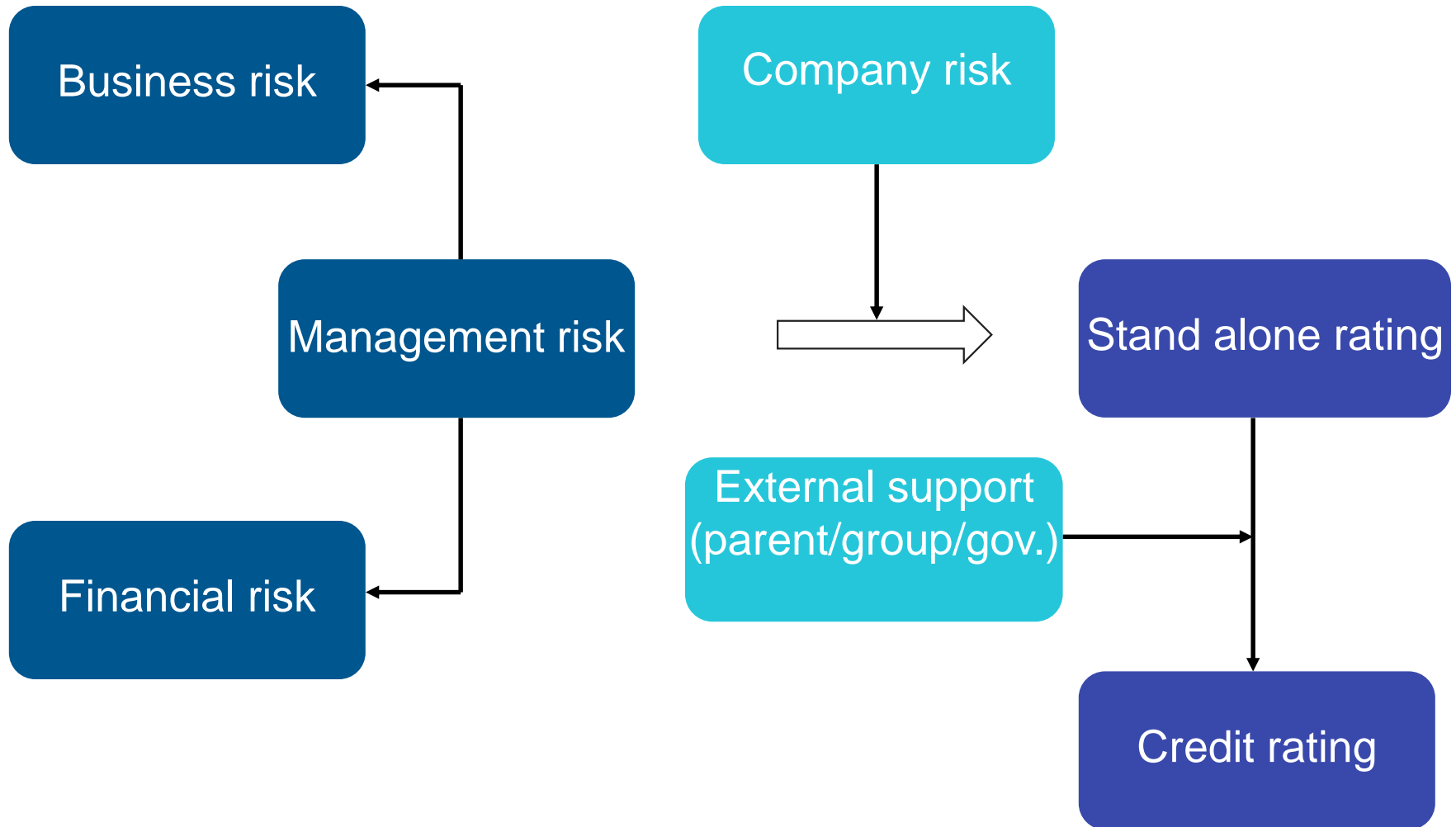




02

Understanding Credit Risk

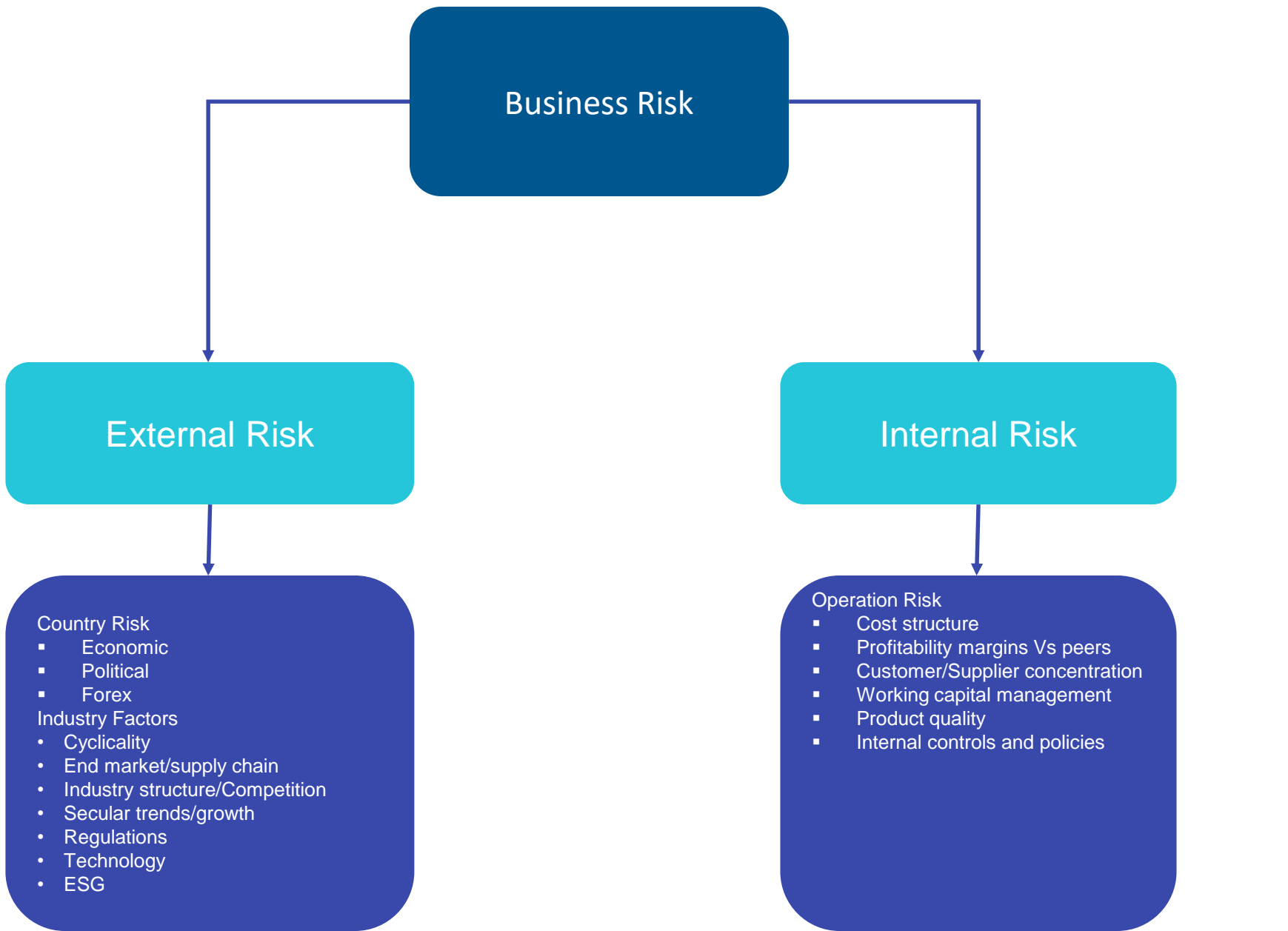
Assessment framework





02.1

Business Risk



Country Risk

Political

- Political stability
- Ruling party's / Government's policies
- Policies related to business and investment
- Foreign relations

Economic

- Economic policies
- Economic condition – GDP growth, interest rates, inflation, fiscal performance, banking system stability etc.

Foreign exchange

- Foreign exchange policies, Forex reserves, currency fluctuations to major currencies, restrictions on access to foreign exchange needed for debt service, and forced conversion of foreign currency denominated obligations into local currency

Industry Factors

Industry trends

- Is the industry in the initial stage/growth/mature stage
- Is the sector consolidating (market share / economies of scale / global reach)

Industry structure

- Type of market – Monopoly / oligopoly?
- Is the market concentrated or fragmented?
- Industry position in the entire value-chain
- Global operations or regional / national?

Growth potential

- Is the growth more cyclical in nature or long-term?
- What is the impact of economic cycles?

Bases of competition

- Is the government supporting the industry by restricting new entrants?
- Are there any inherent barriers to entry resulting in higher profitability?

Industry Factors

Changing technology

- Rapid innovations
- Product obsolescence

Operating risk

- High fixed cost structure
- Profitability margins Vs peers
- Customer/Supplier concentration
- Working capital management
- Product quality
- Internal controls and policies
- Varying demand
- Volatile sales price
- Rising input cost

Regulatory environment

- Are there any substantial regulatory risks?
- Is the sector vulnerable to universal/ regional regulatory norms?

Business Risk Analysis - Frameworks

Country Risk Analysis

- **PEST** (Political, Economic, Social and Technological factors) analysis

Industry Risk

- **Porter's Five Forces**
 1. Competitive rivalry
 2. Threat of new entrants
 3. Supplier bargaining power
 4. Customer bargaining power
 5. Threat of Substitutes

Operational Risk

- **SWOT** (strengths, weaknesses, opportunities, and threats) analysis



02.2

Financial Risk

Important points to note before any calculations

- Numbers follow strategy: a company only goes down the path its management lead it
- Financial analysis is not a narrative
- Link the financial analysis to the business analysis and management strategy
- Use spreadsheets to do financial modeling – follow a structured approach
- Cash generation is key for credit – Cash pays interest and principal, not earnings
- Predictability and adequacy of cash generation by the business

Cash Flow Adequacy

Comparison of sources and uses of funds:

Assess the adequacy of cash flows to meet future planned funding requirements

Uses of funds

- Debt repayment obligations
- Expected working capital increase
- Planned capital expenditure and investments
- Mergers & acquisitions
- Dividend payments/Share repurchases

Sources of funds

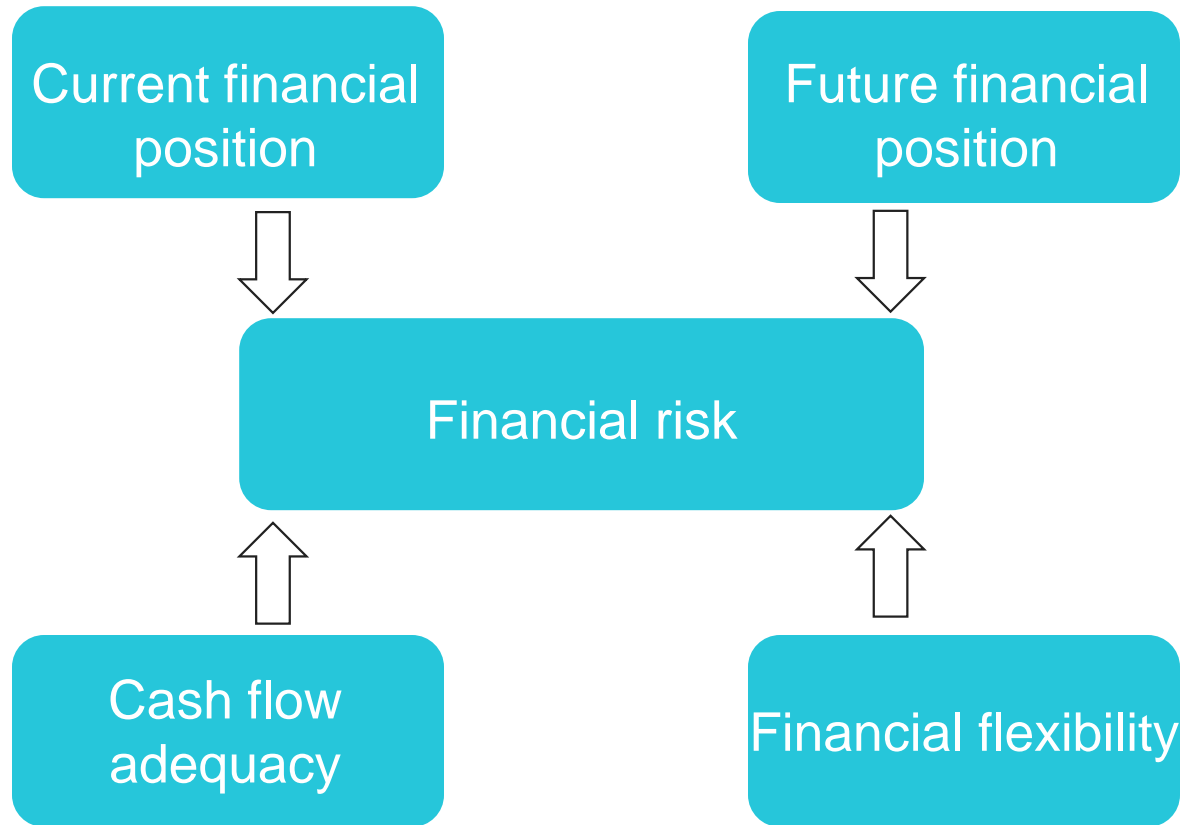
- Cash generated from the business (Operating Cash Flow or **EBITDA**): EBITDA is generally used as proxy for cash generated from the business.
- Bank borrowings or issuance of bonds
- IPO or Rights issues (equity)
- Others (sale of investments, assets)

Financial Risk Assessment – Key considerations

- Revenue growth
- Cost structure
- EBITDA margin & growth
- Working capital cycle
- Capital expenditure
- Free Cash Flow (FCF)
- **Debt /EBITDA – Leverage**
- Net debt/EBITDA – Net leverage
- EBITDA /Interest – Interest cover
- Cash and liquidity
- Shareholder distributions (dividend + share repurchases)
- Debt maturities
- Summary cash flow statement

The financial model should at a minimum cover the above key points

The Financial Risk Analysis Framework



Business Risk vs Financial Risk

There has to be a balance maintained between financial and business risk.

Companies with low business risk can afford higher levels of financial risk, than those with high business risk.

	Financial risk profile				
Business risk profile	Minimal	Modest	Intermediate	Aggressive	Highly leveraged
Excellent	AAA	AA	A	BBB	BB
Strong	AA	A	A-	BBB-	BB
Satisfactory	A	BBB+	BBB	BB+	B+
Weak	BBB	BBB-	BB+	BB-	B
Vulnerable	BB	B+	B+	B	B-

Case Study

Income Statement	Company A	Company B	Company C	Company D
Revenues	6,800	5,900	5,648	5,278
EBITDA	2,040	1,770	565	422
D&A	(612)	(531)	(508)	(475)
EBIT	1,428	1,239	56	(53)
Interest Expenses	(200)	(200)	(200)	(200)
Profit Before Taxes	1,228	1,039	(144)	(253)
Taxes	(430)	(364)	0	88
Net Income	798	675	(144)	(164)
Cashflow				
EBITDA	2,040	1,770	565	422
Cash Taxes	(430)	(1,200)	(508)	88
Working Capital Movements	(130)	40	850	(2,817)
Capital Expenditure (Maintenance)	(680)	(590)	(565)	(528)
Cash Interest Expenses	(200)	(200)	(200)	(200)
Free Cash Flow	600	(180)	142	(3,034)
Debt Repayments	(40)	(40)	(40)	(40)

As a lender, to which companies would you give preference for lending? Rank them from most preferred to least preferred

Sample Summary KPIs

	2019	2020	2021	2022	2023E	2024E	2025E
Growth							
EBITDA growth (%)	4.0%	-1.4%	16.5%	9.5%	5.8%	8.4%	7.4%
EBIT growth (%)	2.6%	-5.7%	14.5%	14.5%	6.9%	9.3%	9.5%
Net income growth (%)	3.9%	-9.0%	19.5%	13.5%	3.8%	10.2%	11.0%
Margins							
Operating margin (%)	38.6%	38.6%	38.0%	37.6%	37.9%	38.5%	38.7%
EBITDA margin (%)	28.4%	28.4%	28.1%	28.0%	28.5%	29.2%	29.5%
Net margin (%)	12.2%	11.3%	11.4%	11.8%	11.8%	12.3%	12.8%
Liquidity							
Working capital / Revenue (%)	6.4%	7.2%	5.8%	4.4%	5.3%	5.4%	5.7%
Receivable days	46	49	45	44	45	44	44
Inventory days	4	4	4	4	5	5	5
Payable days	40	43	41	47	48	45	44
Working capital days	9	10	8	2	1	3	4
Coverage							
EBIT/Interest	6.8 x	6.2 x	8.3 x	9.2 x	6.6 x	6.3 x	6.7 x
EBITDA/Interest	10.7x	10.2x	13.8x	14.6x	10.4x	9.8x	10.3x
EBITDA less Capex/Interest	6.2x	6.3x	8.6x	7.7x	5.4x	5.2x	5.8x
Leverage							
Total Debt/EBITDA	3.1x	3.2x	2.7x	2.7x	2.7x	2.6x	2.5x
Net Debt/EBITDA	2.3x	3.1x	2.6x	2.7x	2.7x	2.6x	2.4x
OCF/Total Debt	28.7%	24.6%	32.4%	30.3%	28.8%	30.5%	32.3%
RCF/Total Debt	20.8%	19.5%	23.4%	22.7%	22.3%	23.7%	25.7%
FCF/Total Debt	15.2%	12.8%	18.2%	13.0%	11.4%	12.5%	14.5%
FFO/Total Debt	27.3%	26.2%	30.6%	29.8%	29.4%	30.9%	33.1%

Sample Summary Cash Flow Statement

Summary Cashflow	2019	2020	2021	2022	2023	2024
	FY19A	FY20A	FY21A	FY22E	FY23E	FY24E
Fiscal period ending	Dec-19	Dec-20	Dec-21	Dec-22	Dec-23	Dec-24
Cash Flow Statement						
Adjusted EBITDA	812.7	818.8	878.3	894.1	923.7	956.4
Movement in working capital	207.1	26.3	66.5	(5.8)	3.6	0.6
Interest expense	(350.4)	(383.7)	(394.5)	(356.1)	(360.8)	(372.0)
Tax expense	(4.7)	15.2	4.9	-	-	-
Others, net	(47.8)	(319.5)	(56.0)	(15.0)	(15.0)	(15.0)
Operating cash flow	617.0	157.2	499.2	517.2	551.5	570.0
Capital expenditures	(350.5)	(317.1)	(385.9)	(395.0)	(395.0)	(395.0)
Business acquisitions	(10.3)	-	-	-	-	-
Business divestures	-	-	-	-	-	-
Others, net	(184.0)	318.5	64.6	-	-	-
Investing cash flow	(544.8)	1.4	(321.2)	(395.0)	(395.0)	(395.0)
Debt issuances	484.0	2,420.0	2,690.0	200.0	100.0	695.0
Debt repayments	(225.1)	(2,679.7)	(2,480.0)	-	-	(545.0)
Issuance of Shares	21.6	244.6	-	-	-	-
Share repurchases	-	-	-	-	-	-
Dividend payments	(138.7)	(135.7)	(141.4)	(206.0)	(218.4)	(227.8)
Others, net	(109.2)	(73.0)	(265.2)	(79.8)	(79.8)	(79.8)
Financing cash flow	32.6	(223.9)	(196.6)	(85.8)	(198.2)	(157.6)
FX adjustments	(0.0)	-	-	-	-	-
Change in cash and cash equivalents	104.8	(65.3)	(18.6)	36.4	(41.6)	17.4
Free cash flow	266.5	(159.9)	113.3	122.2	156.5	175.0



02.3

Management and Shareholder Risk

“A business ultimately goes down the path its management leads it”

Understanding Integrity

Capability and Credibility

- Is the management having relevant and sufficient experience?
- Is past and current performance in-line with the industry?
- Track record of meeting commitments to shareholders and creditors

Attitude towards rules and law

- Minimum compliance?
- Is the company facing a large number of significant litigations?
- Has the company got penalized by regulators in the past?

Corporate governance and Transparency

- Related party transactions
- High pay-offs to senior management
- Is senior management remuneration linked with the company's performance
- Transparency in accounting
- Composition of executive and non-executive directors on the board

Stability of management and policies

- Are there frequent changes in management and senior executives?

What is the media saying?

- Is the company in the news for the wrong reasons?
- What are the financial blogs / media saying about the senior management

Understanding Competence & Risk Appetite

Corporate strategy

- What has been the historical record of strategic success?
- How realistic are the corporate strategies?
- Is the strategy in line with the company's capabilities?
- How sound is the competitive strategy?

Track record of performance under stress

- Did the company or industry go through a bad patch?
- Was it due to management actions?
- What were the remedial measures adopted by the management?
- How did the company fare in comparison to peers?

Debt profile

- Is there a stated policy of borrowing from the market?
- Are there any frequent changes in the bankers? If yes, why?

Attitude towards inorganic growth

- Frequency/Size of acquisitions
- Funding of acquisitions

Control over market risk

- Does the company hedge its exposures to market variables? Interest rate, forex, commodity etc.



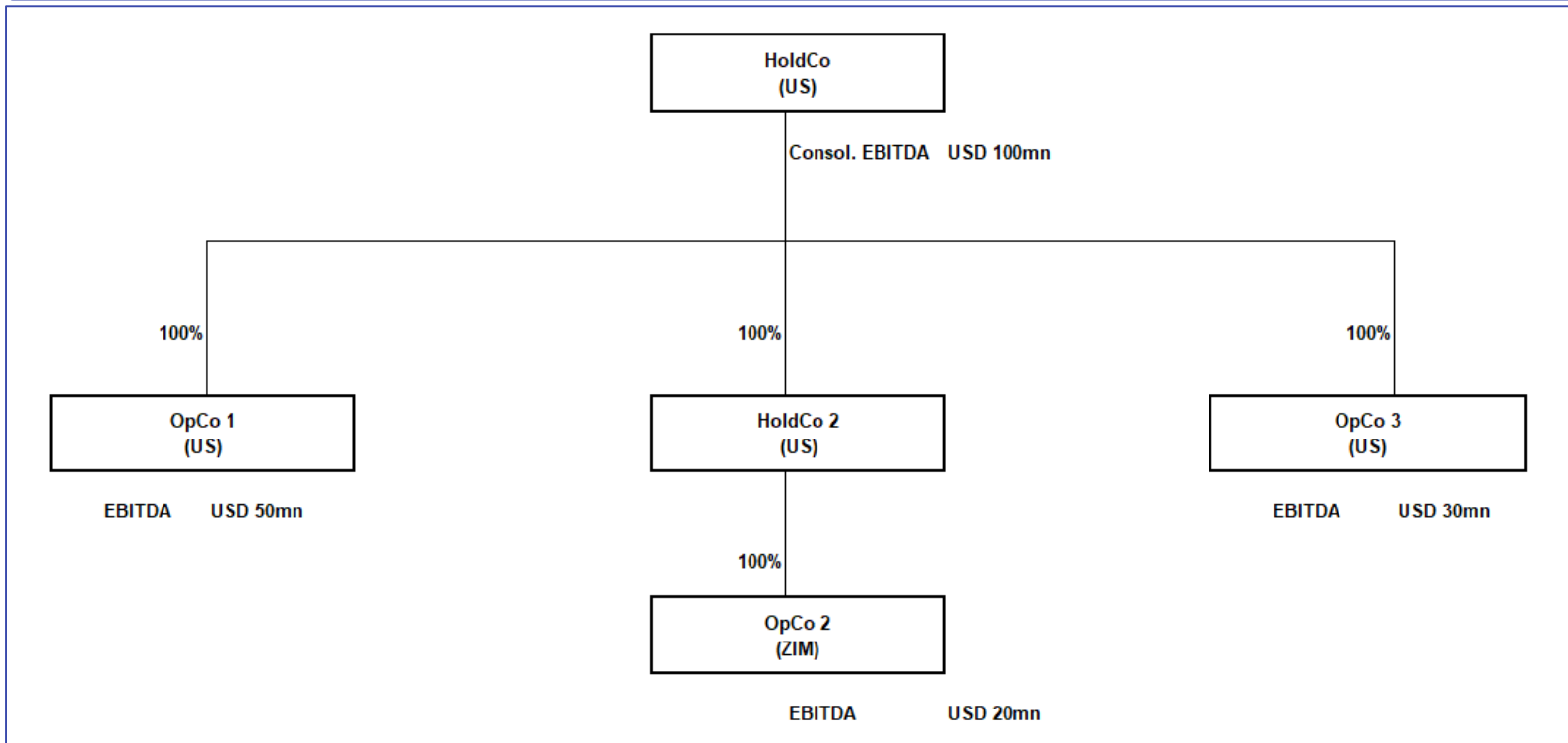
02.4

Structure

Group Structure Risks

- Investment/Lending facility is with a **legal entity and not with a group**
- Structural Risk is the risk that the investor or lender will be prevented from having access to **cash flows and assets** because of the group structure or other deal specific structural issues (Structural subordination)

Sample Organization Structure to Identify Legal Entities and Structural Subordination



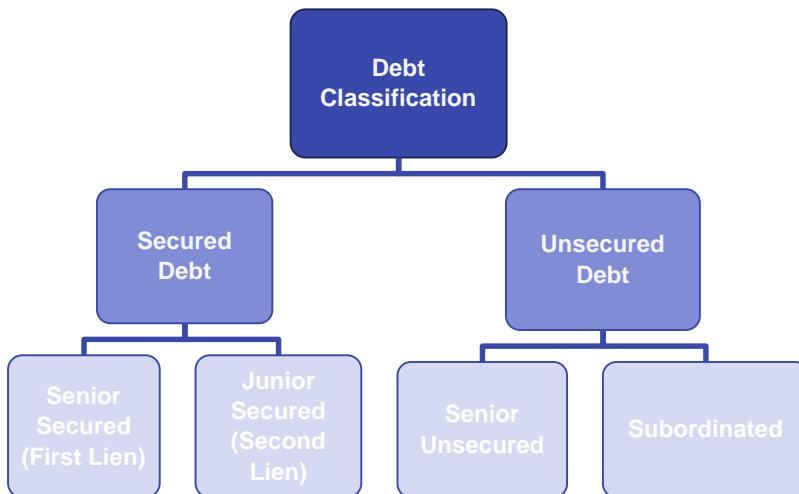
Debt Structure Risk

Debt structure is primarily classified into:

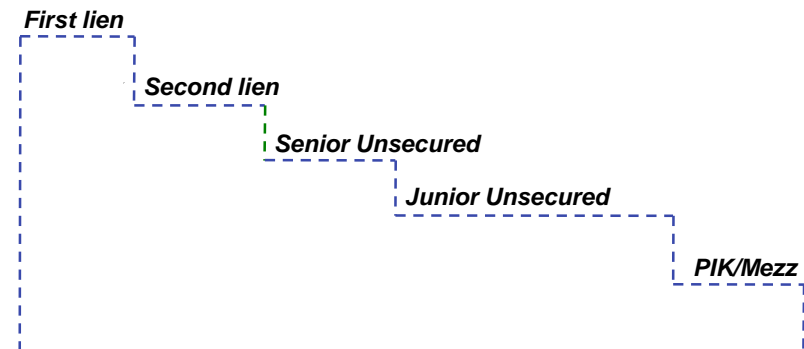
- Secured Debt
- Unsecured Debt

Debt can be further broken-down into senior and subordinated debt under secured as well as unsecured classification

- Senior secured debt
- Senior unsecured debt
- Junior secured debt
- Junior or subordinated unsecured debt



Debt Waterfall

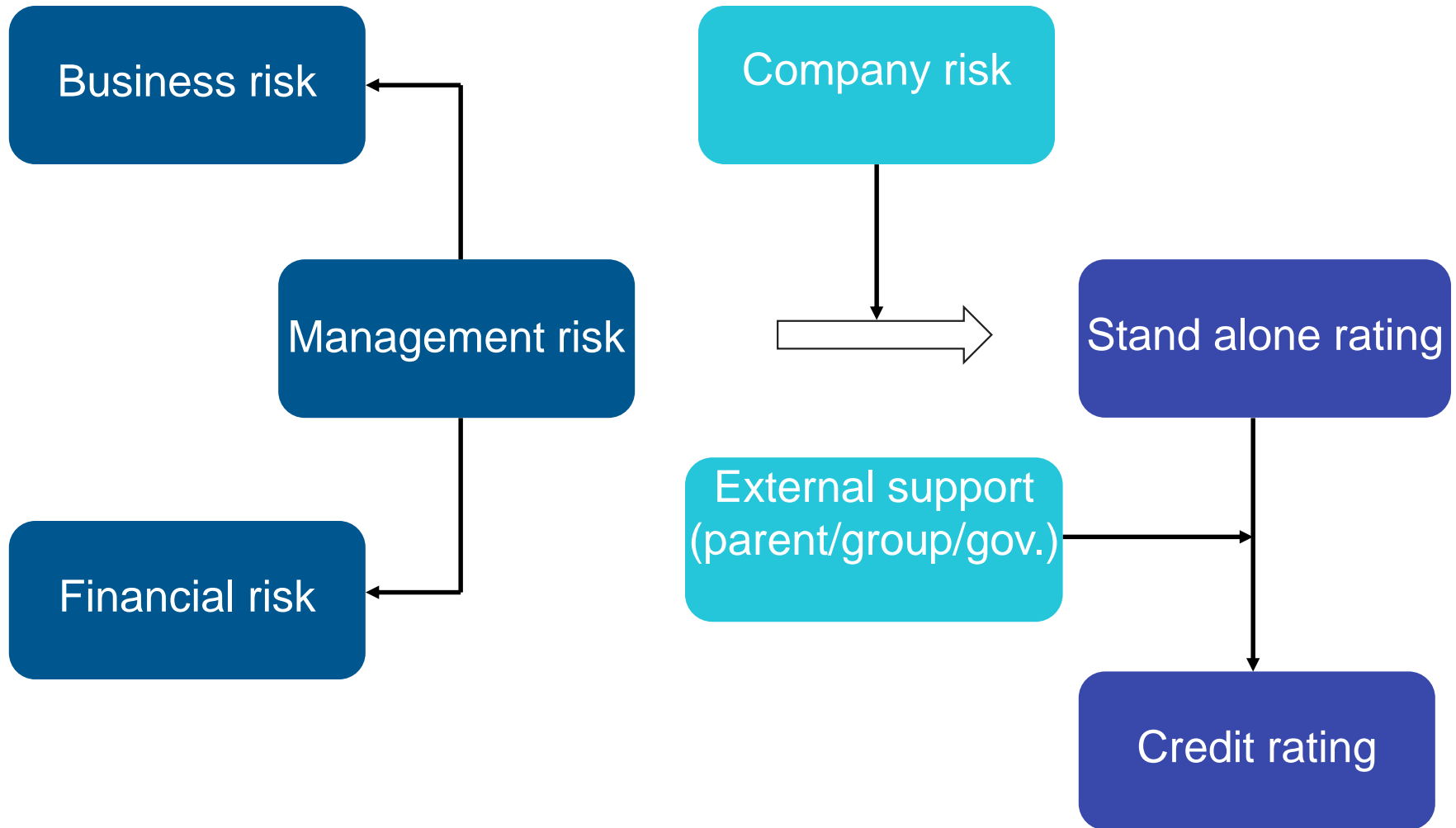




03

Evaluating Creditworthiness

Assessment framework



What is a Credit Score Card?

- A credit score card is a method of mapping specific characteristics of a borrower into points which results in the generation of a credit score.
- The credit score is designed in a manner that allows the lender to predict the probability of default.

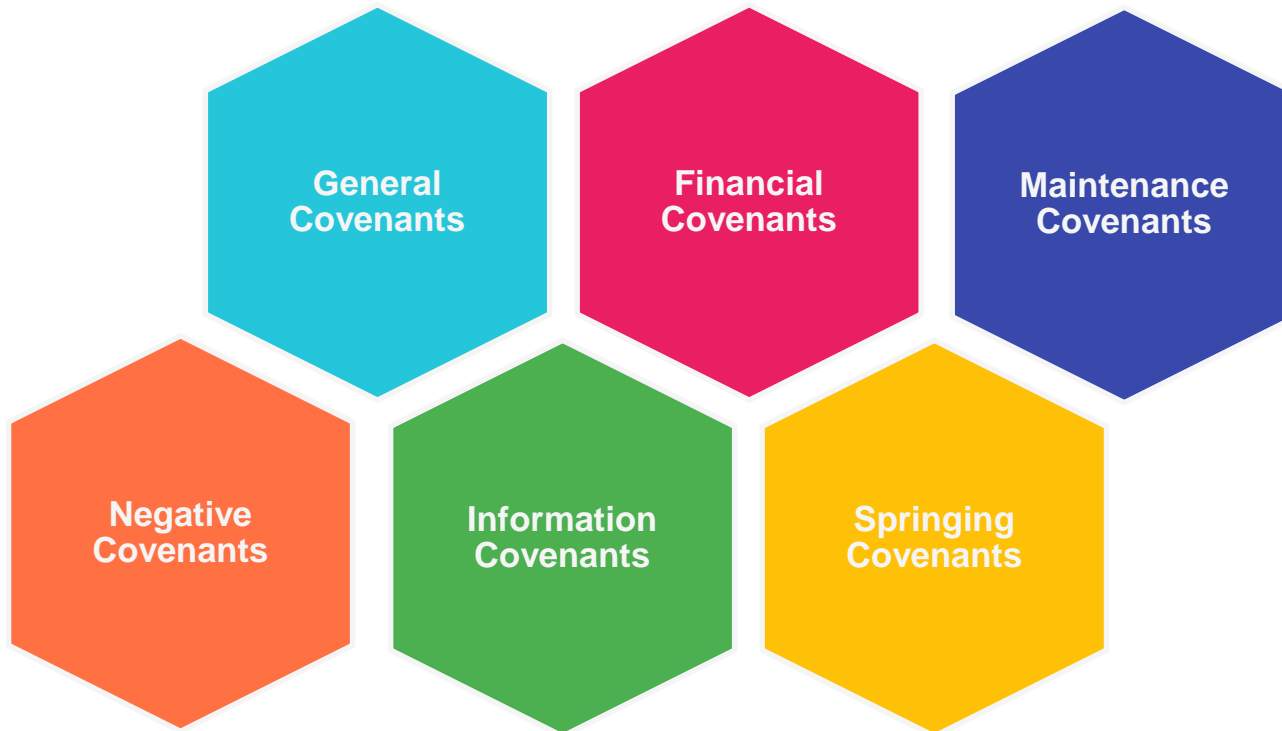
Sector	Telecommunications Service Providers	Score
Scale		
Revenue (\$bn)	200.00	10.00
Business Profile		
Competitive Position	Provider of a full suite of telecommunications services; has an extremely broad customer base and extremely high geographic diversity; is exposed to effectively no competition; operates in an extremely supportive and predictable regulatory environment; all of its infrastructure and technology are industry-leading	15.00
Market Share	The principal player in its local market and in most of the regions where it operates; or has monopoly-type presence in its local region.	10.00
Profitability and Efficiency		
Revenue and Margin Sustainability	Very strong, sustainable revenue growth; Extremely strong EBITDA margins.	10.00
Leverage and Coverage		
Debt/EBITDA	<=0.5x	15.00
RCF/Net Debt	3%	1.88
(EBITDA-Capex)/Interest Expense	<0.5x	1.25
Financial Policy		
Financial Policy	Expected to have financial policies (including risk and liquidity management) that create elevated risk of debt restructuring even in healthy economic environments.	1.88
Rating Score		65.00
Rating		A

Covenants

Covenants are limitations or requirements placed on borrower to protect the interests of the lender.

They require or restrict certain circumstances or behaviors on the part of the borrower.

The purpose of including covenants in the agreement is to reduce the possibility of default and thus protect the lender.





04

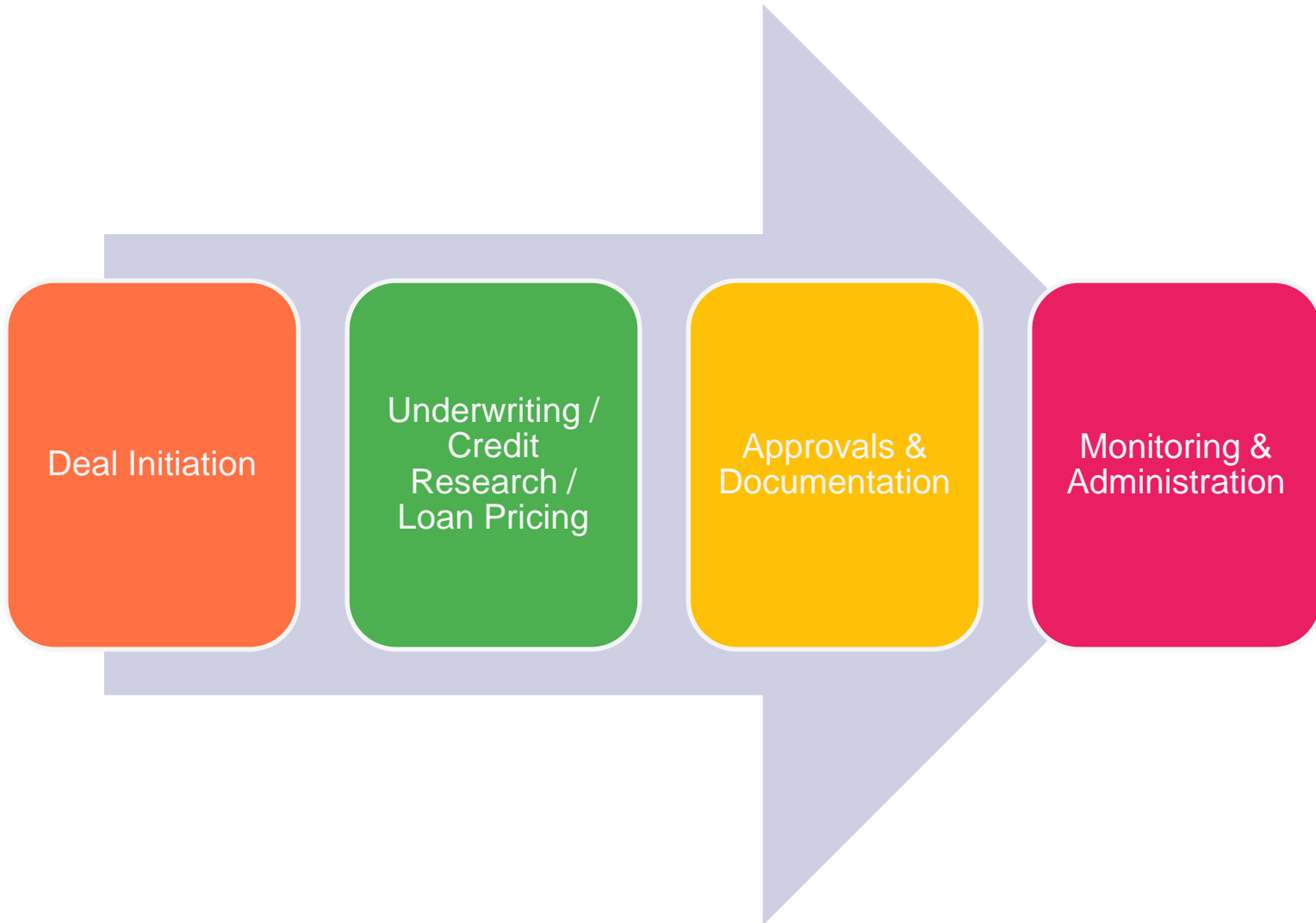
Credit Research in Practice



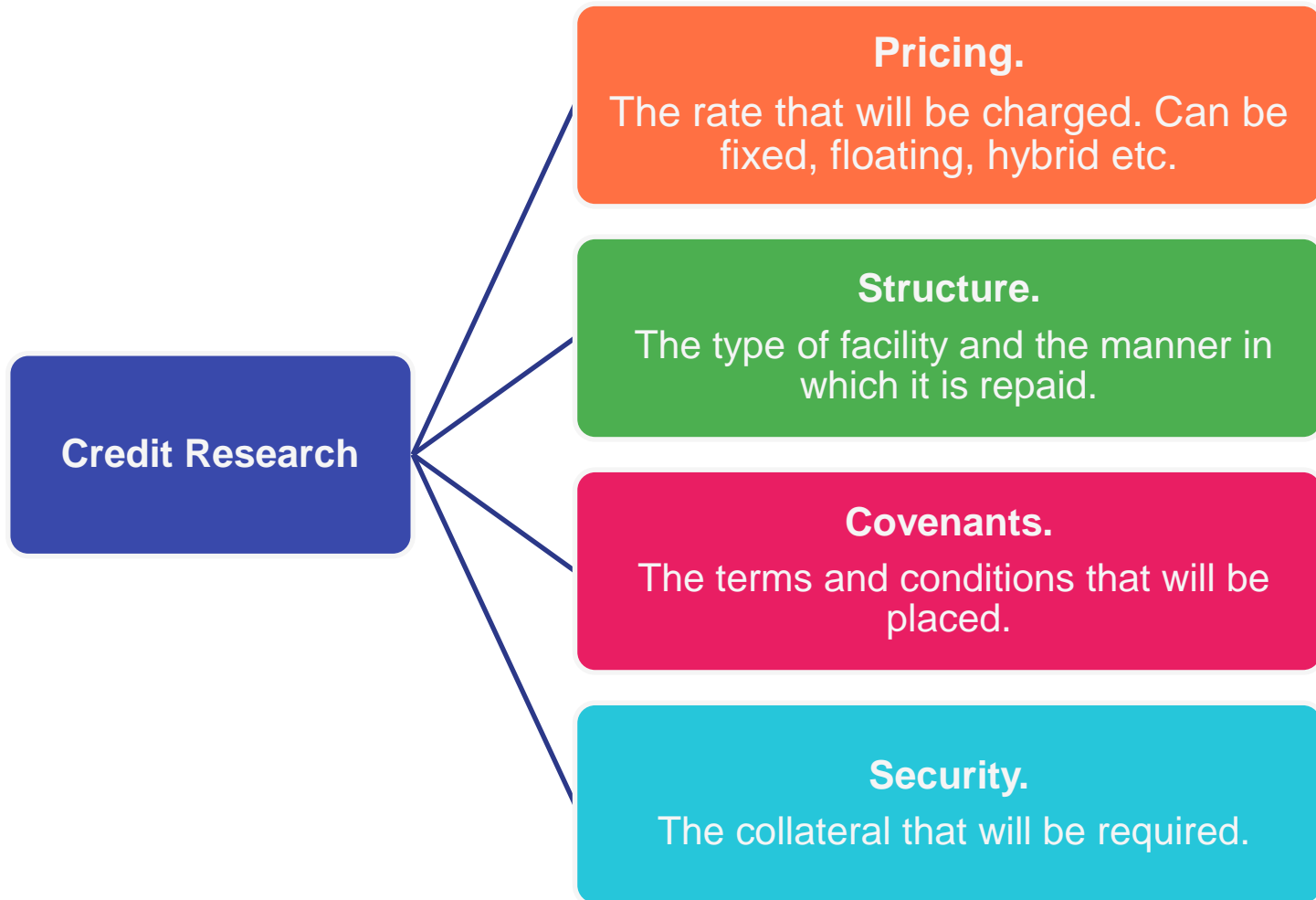
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Corporate Lending

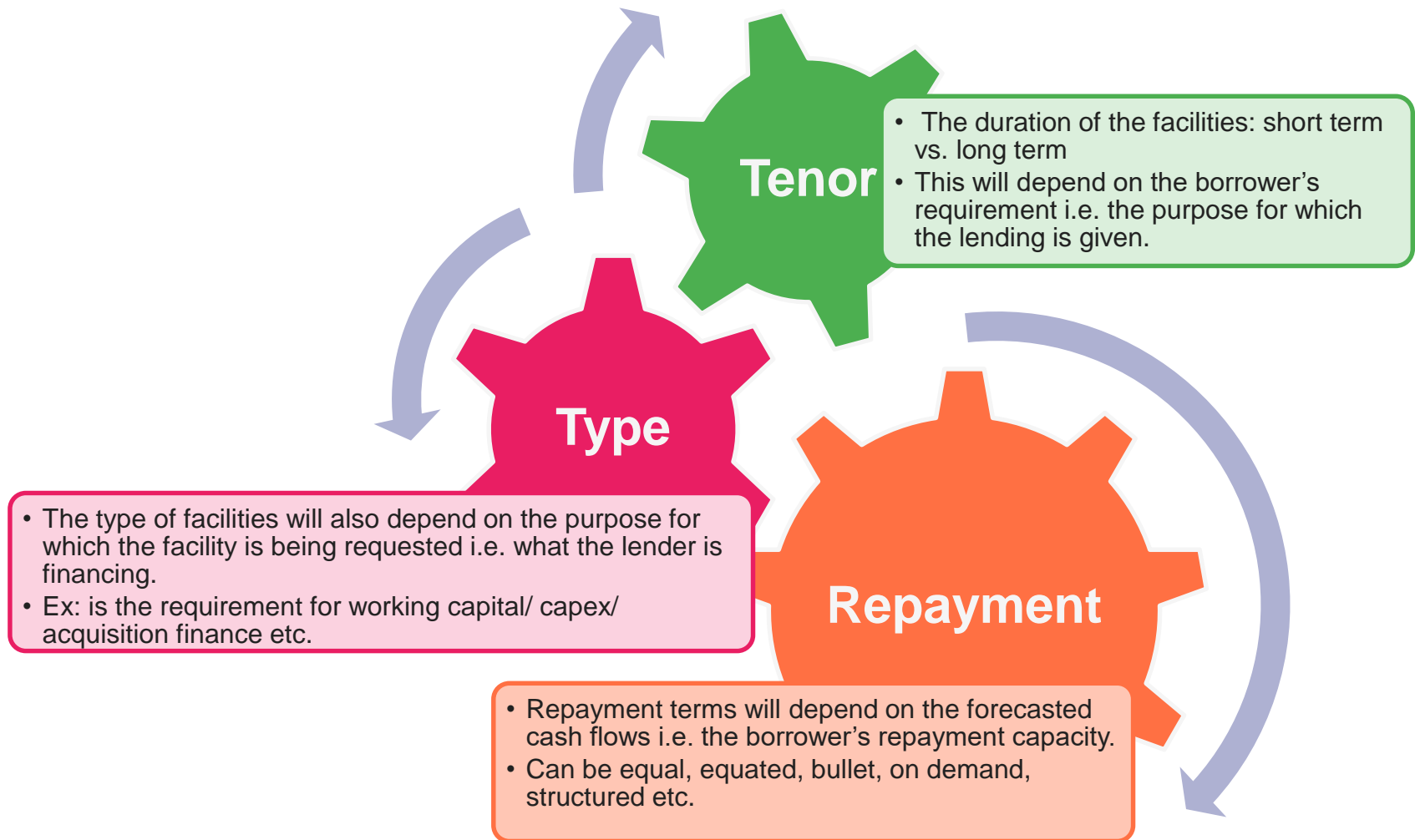
Credit Research in the Lending Process



The Outcome of a Lending Institution's Credit Research



Structuring Lending Facilities



Structuring Lending Facilities

- A manufacturing company is incorporating a special purpose vehicle to set up a new production line.
- The factory is to be constructed and the machinery to be imported.
- The total project cost is \$15.0bn which includes \$5.0bn for machinery, \$10.0bn for factory construction and \$1.0bn of interest.
- Shareholders will inject 33.3% of cost (primarily used for construction works).
- The company is expected to start generating a positive EBITDA in Year 3. (Year 3: \$150.0m; Year 4: \$350mn; and a 10% increase thereafter).
- What package of facilities should be offered to the company?
- How should these facilities be structured?
- What are the relevant considerations to be taken into account when structuring the facility?
- What securities would you recommend?
- What covenants would you put in place?

Structuring Lending Facilities

- The facilities to be offered to the company should include
 - Project loan of \$10.0bn with a grace period exceeding 2 years
 - Project loan should include a one-off letter of credit sublimit of \$5.0bn (usage terms to be included depending on the supplier, shipping guarantee sub limit as required)
 - Project loan for factory construction should be disbursed in stages based on construction progress taking into account equity contributions.
 - Repayment period depending on Bank's comfort as long as repayments can be met with DSCR greater than 1.2x.
 - Overdraft limit for working capital purposes.
- Recommended securities include
 - Project assets
 - If promoters are well known, corporate guarantees could suffice
- Covenants could include
 - Cash buildups and a guarantee to route project turnovers via lending bank.
 - Negative pledge over project assets
 - Permitted indebtedness clause
 - Financial covenants such as leverage and DSCR.



04.2

Fixed Income Securities

Benefits of fixed income securities

1

Diversification

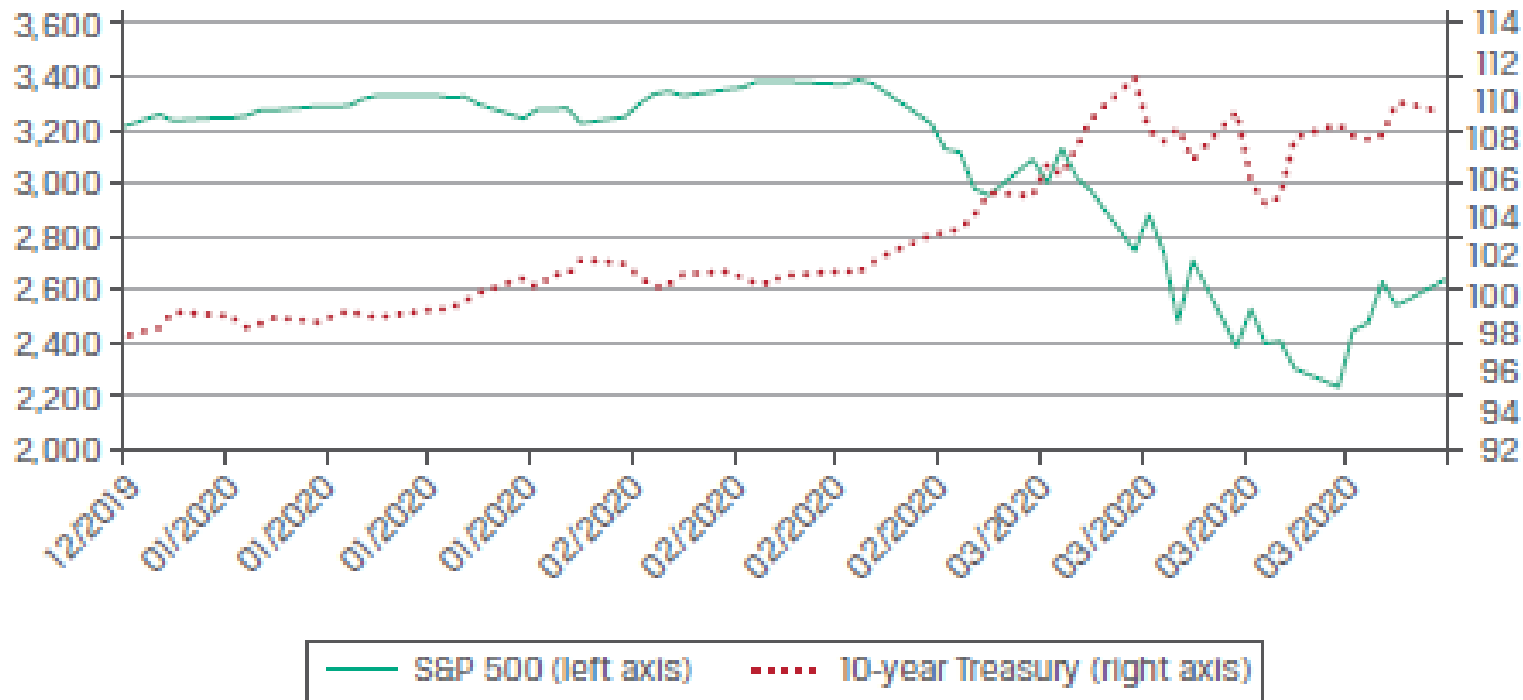
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Lower risk

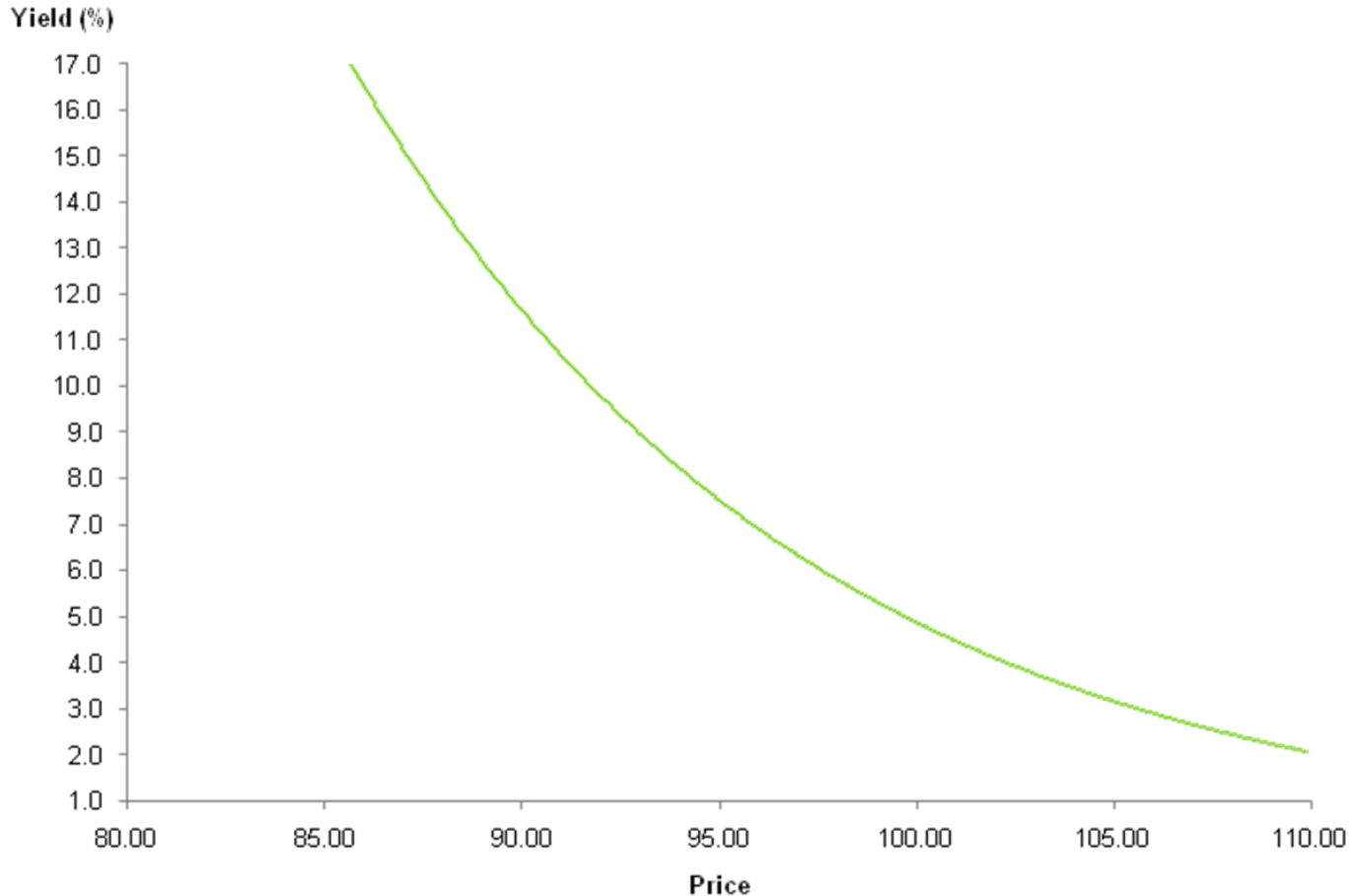
3

Fixed income stream

Diversification – Comparison of S&P 500 return Vs 10 year US treasury return



Inverse relationship between bond Price and Yield



Pricing credit risk

➤ Key decision - adequacy of return Vs credit risk taken

- Greater risk (or probability of default) should be compensated with higher returns
- Expected return = Risk free rate + credit spread
- Risk free rate = The yield of a government bond with similar maturity to the bond being priced. The yield can also be obtained by referring to the treasury yield curve.
- Credit spread = The excess return above the risk free rate to compensate for the credit risk taken. This should be determined by the analyst taking in to account the relative credit risk of the issuer. Key considerations in determining the credit risk include:
 - Benchmark credit spreads for rating classes
 - Credit migration risk or downgrade risk
 - Peer analysis, including net and gross leverage comparisons
 - Factors that could be important but the analyst feels is not adequately captured in the credit ratings
 - Recent news and events

Case Study

Choose the closest answer for the expected return or YTM of a bond being priced using the information provided in the table below

Information on the bond being priced

A 5 year USD bond issued by a South African based corporate with a coupon of 4%. The instrument is given a rating of BBB by Moody's

a) 3 year US treasury yield = 4.38%

b) 5 year government bond yield in South Africa = 8.76%

c) 5 year US treasury yield = 4.20%

d) Average BB rated corporate credit spread = 2.40%

e) Average BBB rated corporate credit spread = 1.39%

Answers

1. 10.15%
2. 5.77%
3. 6.60%
4. 5.59%
5. 11.16%

Summary

➤ **Understanding the Origins of Credit Risk**

- Business risk
- Financial risk
- Management/shareholder risk
- Deal structure

➤ **Evaluating Creditworthiness**

- Framework to form a credit opinion
- Shadow rating/Credit score card

➤ **Credit Research in Practice**

- Corporate Lending
- Fixed Income Securities



Q&A



Thank You

CONTACTS

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