ISMA CENTRE - THE BUSINESS SCHOOL
OF THE FINANCIAL MARKETS

UNIVERSITY OF READING
ENGLAND

IFID Certificate Programme

Credit Analysis and Products

High-yield Credit Research

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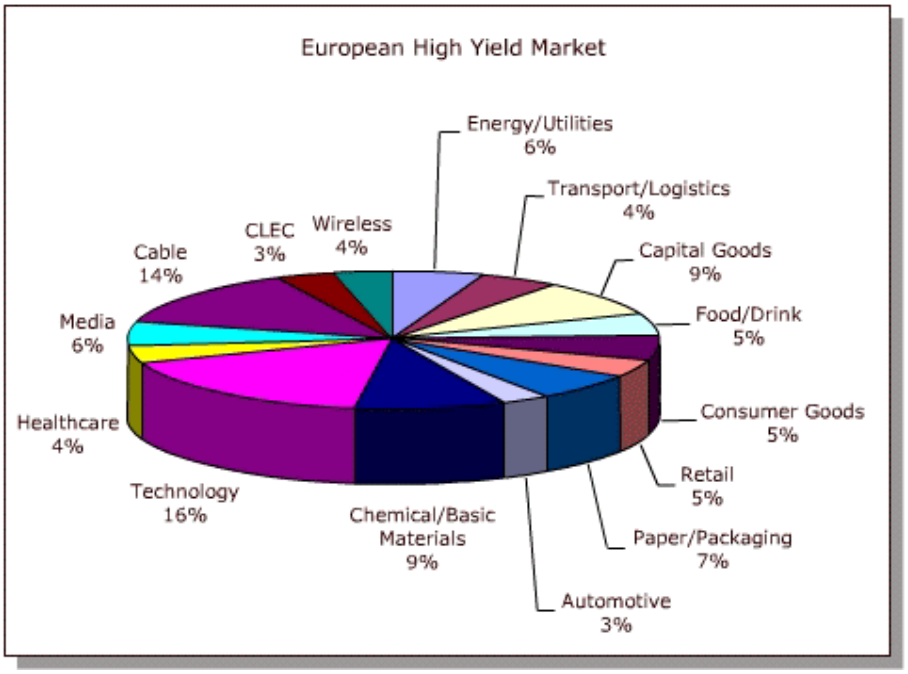
1. Introduction

High yield bond: a bond issued by a corporate with a sub-investment grade rating

The total market size of this market sector is in excess of US$650 billion, while the European market alone is over US$40 billion and growing. The chart below gives a breakdown of the high-yield bond market in Europe, by category of issuer.



High-yield debt is generally subordinated debt, with fixed rate coupons and maturities in the 7-12 year range.

Investor rationale

- These are debt instruments with equity-like properties: their credit spreads, which correlate with the issuer's equity price, are large enough to dominate the total risk on the bond
- The statistical performance of this market gives them a strong argument for using high-yielding bonds as equity substitutes in mixed (bonds & equities) investment portfolios (see special topic on this page)
- This is a credit story driven market: investors look for high current yields and future capital gains on the bonds as a result of expected credit improvements

Historic performance
How the performance of the high-yielding market compares with that of other asset classes.

From the investor's perspective, high yield can enhance portfolio performance significantly. The tables below compares the returns on USD high-yield bonds with those on other asset classes and also the correlations between them during the period 1985 – 2000.

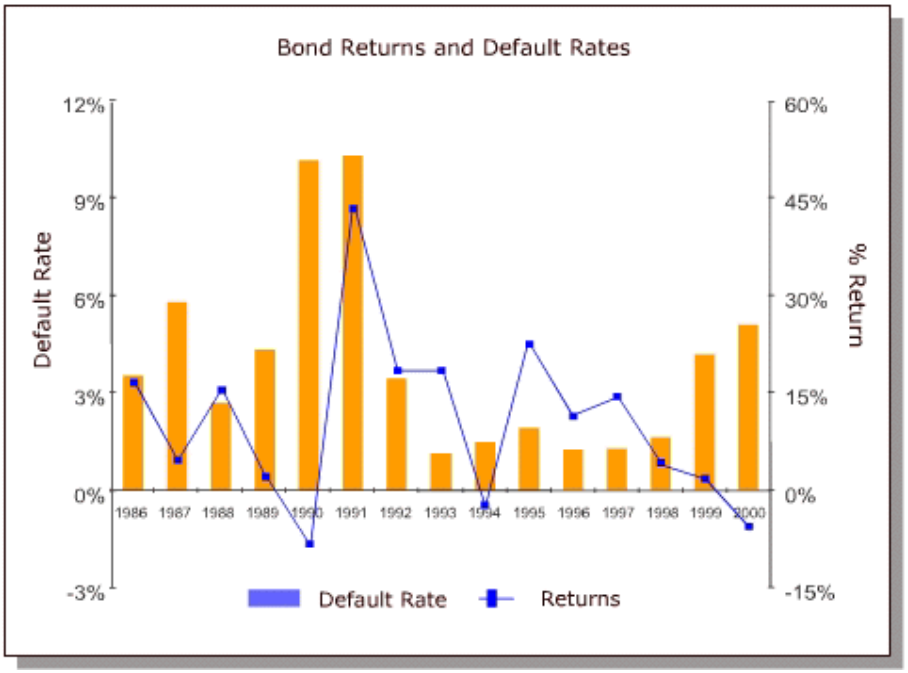
	BB	B	CCC	S&P500	T-bonds
Average monthly returns	0.78%	0.72%	0.46%	1.41%	0.77%
Standard deviation	1.17%	1.86%	3.02%	4.37%	2.17%
Sharpe ratio	0.27	0.14	0.00	0.21	0.13

Return correlations	High-yield bonds	T-bond	High-grade bonds	S&P500	Small cap. stocks
High yield-bonds	1.00				
10 year T-bond	0.34	1.00			
High-grade bonds	0.53	0.93	1.00		
S&P 500	0.51	0.29	0.37	1.00	
Small cap. stocks	0.57	0.10	0.22	0.77	1.00

Investment argument:

- The risk-adjusted return on BB rated bonds is higher than that on S&P 500 stocks
- The return on high-yield bonds correlates more highly with returns on S&P 500 and small capitalisation stocks than do either investment grade bonds or treasuries (as expected)
- Therefore a case can be made for using high-yield bonds as equity substitutes in mixed (bonds & equities) investment portfolios!

Interestingly, there also appears to be a very weak correlation (if any) between the total returns and the observed default rates on high-yielding bonds over the same period. This suggests a strong possibility of being able at times to make returns on this asset class that are far in excess of the credit risk taken.



2. Issuer Rationale

High-yield bonds are a form of long-term borrowing for sub-investment grade companies, for whom issuance of equity is either too expensive or unrealistic in the current market. It is frequently used as:

- Long term capital in leveraged buyouts (LBOs, see below)
- A funding bridge for a private company before going public via an IPO to avoid **equity dilution** (i.e. selling the shares too cheaply!) before the business plan is completed
- Project finance, especially in the telecomms sector, where the interest and principal repayment on the loan may only be collateralised by the uncertain future cash flows of a very large asset (e.g. a power station)

2.1. Leveraged Buy-outs

Leveraged buy-out (LBO): when a target company is purchased using debt rather than equity for funding.

The idea behind an LBO is to leverage the potential return on private equity, by inviting bondholders to share some of the initial business risk of the company in return for a high yield.

Example

Assets	**Liabilities**	
1,000	Bank debt (senior)	550
	Bond debt (subordinated)	250
	Private equity	200

Notice in the sample balance sheet above the following features that are typical of an LBO:

- The debt/book capital ratio tends to be high (in this case 80%)
- Typically the bank debt amortises while the bond repays all at maturity
- Banks consider the high yield bonds as 'equity' too

Below is a short description of the typical LBO strategy and how, all going well, it rewards investors in its high-yielding bonds.

The business plan
First of all, the LBO needs a well-articulated business plan because:

- Adherence to the plan should substantially increase the value of the business, especially for the equity holders

  Return on private equity = Market value of business - Repayment of debt at par

- The higher the market value of the business, the lower is the default risk and the yield spread on the bonds – hence the market price of the bonds
- Therefore the interests of bond and equity holders are aligned

The LBO in operation

- If the business plan is successful, the company may choose to IPO before the scheduled date and is typically allowed contractually to **claw back** up to 35% of its bonds at par plus any accrued interest
- As the company accomplishes its business plan, its credit rating should improve and the company can therefore refinance itself more cheaply

- The bonds are typically callable after a period of 5 years at a falling premium
- They are quoted on a yield to worst basis (or yield spread to worst) and are traded on a price basis

Bondholders' exit routes
The ultimate goal for a successful LBO will most likely be an IPO. In the best-case scenario:

- Accomplishment of the business plan plus the new equity should improve the company's credit rating and the yield spread on the bonds should therefore tighten significantly
- There could be a trade sale of the business. Triggers in the form of a put on the bond price typically protect the bond investors in the event of change of control.
- In the worst-case scenario, if the LBO is not successful, the typical result will be one or more of the following:
  - A rescheduling of the company's debt
  - A business recovery through a financial work out
  - The liquidation of the company's assets

3. Credit Research Methodology

The analysis of high-yielding bonds is similar to any other corporate bond – only the emphasis of the analysis is a little different.

The analyst needs to focus on much the same issues at stake as in the investment-grade market.

Non-financial Analysis

What's the story?

- For what purpose are the funds being used – LBO? Restructuring?
- Have management had any experience of running a leveraged enterprise?
- Do they have the ability to realize their vision?
- Does the equity sponsor have financial strength and a track history?
- What is the uncertainty or volatility in the industry in which the company operates? (…even the best-laid plans can fail)

Study the documentation

The high-yield credit analyst should pay particular attention to the **restrictive covenants** specified in the loan's documentation. These are typically more numerous and onerous than the ones included in a typical investment grade bond issue.

As investors, we should be concerned about the risks of a company metamorphosing into a substantially different organization from the one we are investing in. Covenants will limit the company's ability to change the nature of its business, but at the same time a certain degree of flexibility is essential. Typical covenants include:

- Limitations on additional indebtedness
- Limitations on liens that the company is able to grant on its assets to other third parties
- Limitation on dividend payments to the holding company
- Change-of-control triggers that give bondholders the right to put their bonds back to the issuer at a premium to par, in the event of the company's change of control
- Controls on the application of proceeds from the disposal of assets or subsidiaries
- Bondholders must give consent to allow any covenant to be broken

Any covenants are also listed in the **Preliminary Offering Circular** (also known as **the red**) and is essential reading material for the analyst and investor. It outlines:

- All the terms and conditions of the offering
- The risk factors, which include many of the issues identified under non-financial analysis
- Debt subordination and any restricted groups
- Full financial disclosure including pro-forma credit statistics

Financial Analysis

Default is the main risk in high yield bonds and running out of cash is typically the main reason for default. Therefore cash flow ratios are key in this market sector.

The financial analysis of high yielding debt issuers should focus in particular on:

Liquidity

- How much cash and unused bank facilities does the company have?
- Are the bank facilities committed or revocable?
- Is this enough to pay interest and other fixed charges in a down-cycle?

For the credit analyst, good liquidity (i.e. good cash balances and committed long-term bank facilities) often mitigates any negative impact of weak debt protection ratios such as the ones that we saw in module *Corporate Credit Analysis*.

Restricted groups

There may be legal restrictions on a subsidiary or group of subsidiaries paying dividends to a holding company that is the bond issuer. In other words, cash flow into the holding company may be **restricted** and it may be necessary to adjust the issuer's EBITDA and operating cash flows for such restricted cash flow.

Unrestricted cash flow = Consolidated cash flow – Restricted cash flow

3.1. Business Modelling

Business models are the norm in high-yield bond analysis and an absolute requirement for LBOs.

The modelling process typically involves the following steps:

STEP 1: Forecast revenues and costs

	2000	**2001**	**2002**
Sales	1,000	1,100	1,210
Sales growth		*10%*	*10%*
Cost of goods sold (COGS)	(500)	(555)	(605)
COGS/Sales	*50%*	*50%*	*50%*
Distribution and administration	(300)	(300)	(300)
EBITDA	**200**	**255**	**305**

STEP 2: Input debt amortization and servicing

	2000	2001	2002
Bank amortization	0	100	100
Bank debt balance	500	400	300
High yield bonds	300	300	300
Total debt	800	700	600
Bank interest @ 7%	35	28	21
High yield interest @ 10%	30	30	30
Interest	65	58	51
Debt amortization	0	100	100
Debt service	**65**	**158**	**151**

STEP 3: Calculate key ratios

	2000	2001	2002
EBITDA/Interest	3.1X	4.4X	6.0X
EBITDA/Debt service	3.1X	1.6X	3.1X
Debt/EBITDA	4.0X	2.8X	2.0X
Exit @ 3 x EBITDA multiple	600	765	915
Exit/Debt	0.75X	1.1X	1.5X

STEP 4: Perform sensitivity analysis

The model should be built on conservative base scenarios and the analyst must get an idea of the sensitivity of the projected cash flows under alternative market scenarios and the ability of the issuer to sustain debt payments under each scenario:

- Different interest rates and GDP assumptions
- Different sales growths, gross margins and fixed costs

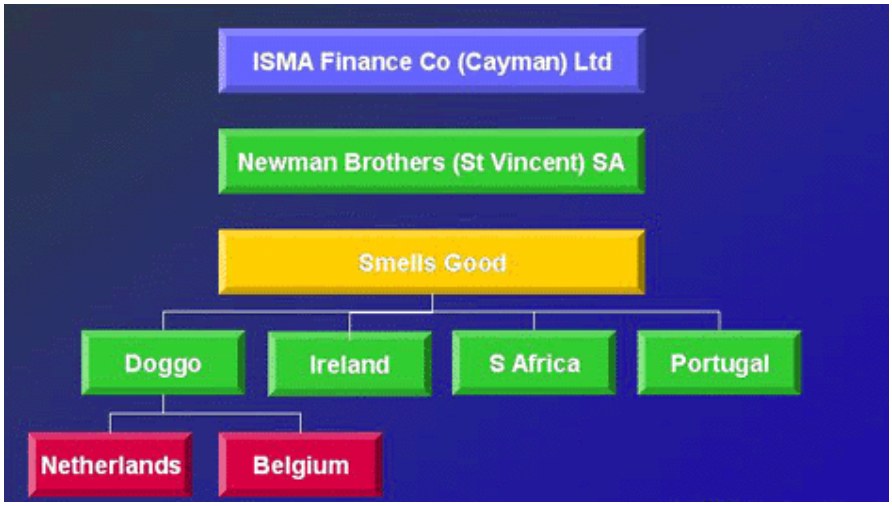
4. Case Study

Bond: SmellsGood 11-1/8% senior subordinated maturing 2010
Settlement date: 12 February 2002

Company background and structure

SmellsGood is a leading provider of aerosol-based air fresheners. Its ice-cream and flowers brands are well known. SmellsGood has operations in Belgium and the Netherlands (through Doggo), South Africa, Ireland and Portugal.

SmellsGood Group Structure



The total size of the European air fresheners market is USD 815 million. Within this market, SmellsGood has almost 70% of all sales, ranging from 54% in the Netherlands to 93% in Ireland.

However, its penetration of the domestic homes market, ranging from 10% - 15%, is low compared to 40% in the US. SmellsGood aims to increase its marketing effort in order to increase this potential revenue streams. Expected capex is planned at US$45 million over the next 3 years.

The quality of the cash-flow from this market sector is volatile, with many householders believing that domestic air freshening is a discretionary cost.

Risks include the volatile cost of chemical aromatics, new air-freshening technology and concerns over the effects of aerosol cans on the ozone layer.

Debt structure

The bond issue in question is senior subordinated, ranking behind USD 335m of secured debt issued by Doggo, maturing in 2007. There is also bank debt at SmellsGood secured on its operating subsidiaries in Ireland, Portugal and South Africa.

No dividends from Doggo can be up-streamed to SmellsGood until all Doggo debt has been repaid.

Financials

The following data has been provided by the SmellsGood management:

	2001	**2002**
Net sales	430	550
EBITDA	110	220
Interest expense	53	80
Debt (long- and short-term)	655	990
Debt/EBITDA	6.0X	4.5X
EBITDA/ Interest	2.1X	2.8X
(EBITDA – Capex)/ Interest	1.8X	2.7X

The following data has been modelled by your bank credit analyst on a downside scenario:

	2001	**2002**	**2003**	**2004**
Sales	430	470	470	423
Sales Growth	*10%*	*10%*	*0%*	*10%*
EBITDA	110	94	72	63
EBITDA margin	*26%*	*20%*	*15%*	*15%*
Interest	(53)	(53)	(53)	(54)
Tax	(17)	(11)	(5)	(2)
Capex	(15)	(30)	(30)	(30)
Amount for debt repayment	25	0	(16)	(23)
Debt outstanding	655	655	671	694
Debt/EBITDA	6.0X	7.0X	9.3X	11.0X
EBITDA/Interest	2.1X	1.8X	1.4X	1.2X
(EBITDA – Capex)/Interest	1.8X	1.2X	0.8X	0.6X

The table below shows the median values of some of the key ratios discussed in this module that have been compiled by S&P on companies with different credit ratings.

	AAA	**AA**	**A**	**BBB**	**BB**	**B**	**CCC**
Debt/EBITDA	0.0	1.4	2.0	2.5	3.2	3.8	5.0
EBITDA/Interest	8.7	7.4	5.2	3.6	2.2	1.3	0.5

Your task

Review the company's financial ratios and giving each ratio an equal weighting assign an indicative credit rating to the SmellsGood 11-1/8% of 2010, bearing in mind also the non-financial information given in the case.

Conclusions

- On a simple average, financial analysis suggests B rating
- Market position upgrades to B+
- Subordination downgrades to B-
- Analyst's model suggests a negative outlook

Arguably, the yield on this bond must be higher than on a comparative B- issue due to the additional possible business risks.

5. Distressed Analysis

Distressed debt is the debt of a company embroiled in an immediate liquidity crisis, where it has lost access to the capital markets and/or to credit facilities.

This is an important subject, because investors in high yield bonds are more likely to find themselves holding such paper. Having reviewed the process by which high yield debt is analysed, let's go one stage further and look at how distressed debt may be analysed. But first it is important to distinguish between **stressed debt** and **distressed debt**.

Stressed debt: debt whose ratings are downgraded to reflect the stretching of the issuer's debt protection ratios.

The future direction of the rating of stressed debt will depend on management ability to manage liquidity and cash flow in a weak operating environment. Failure to do so, or management error, could lead to the name becoming distressed. Conversely, good management or a cyclical upturn could lead to an upgrade (or return) to investment grade.

How does a company's debt become distressed?

Typically, the problem arises because of one or both of the following:

- Financial leverage: the company has become over-stretched on its borrowings without the ability to grow into a more balanced capital structure
- Operating distress: either a long term cyclical downturn or a change in the competitive environment, which does not allow the achievement of projected performance

At this point, credit ratings are typically ignored by analysts, who instead concentrate on true cash flow, including potential asset disposals rather than earnings.

5.1. Recovery Rate Analysis

The approach used to estimating a bond's recovery rate depends critically on whether the issuer is considered fundamentally a good business (albeit with too much debt) or fundamentally a bad business.

If it is considered a good business, then analysts typically use one of the following formulas:

$$\text{Going concern} = \frac{(\text{EBITDA} \times \text{MarketMultiple} - \text{Senior debt})}{\text{Bond principal}}$$

$$\text{Sustainable debt} = \frac{\left[\frac{\text{Sustainable EBITDA} \times \text{IndustryAverageDebt}}{\text{EBITDA multiple}} - \text{Senior debt}\right]}{\text{Bond principal}}$$

$$\text{DCF} = \frac{\text{Discounted operating cash flow} - \text{Senior debt}}{\text{Bond principal}}$$

In all 3 cases, the attempt is to estimate the present value of the issuer's future cash flows, net of the total amount of debt that is senior to the bond whose recovery value is being assessed, as a percentage of the nominal value of the bond issued.

If on the other hand the company is considered to be fundamentally a bad business, then the analyst typically uses a break-up valuation:

$$\text{Break-up} = \frac{(\ 80\% \times \text{Accounts receivable} + 50\% \times \text{Inventory} + 33\% \times \text{Physical plant \& equipment} + \text{Cash in the bank} - \text{Trade creditors} - \text{Senior debt})}{\text{Bond principal}}$$

Case study 1: ShoeCo

ShoeCo has issued $80 million of 10% bonds maturing in 2008 via its holding company, which are now trading at 30% of their face value in the secondary market.

The company has:

- $20 million EBITDA, which is believed should be stable
- An enterprise value (EV) multiple of 4 x EBITDA according to industry experts
- Total debt/EBITDA ratio of 5.8X
- The operating company has senior bank debt of $36 million

The company is considered to be essentially a good business.

? Should one buy or sell ShowCo's debt at £30?

Recommendation - buy at $30:

- The business is a going concern
- Its EV is $80 (= 4 x $20)
- Total debt is $116 (= 5.8 x $20 = $80 + $36)
- EV – Senior bank debt = $44 million (= $80 - $36)
- Bond recovery value = 44/80 = 55% of face value!

Case study 2: Sustainable debt

The table below compares the valuation of a company's senior debt performed by the company's own management with that made by an interested bank (the bank will typically perform such a valuation under different scenarios). The wide range of estimates obtained confirms the subjective nature of recovery valuations in a stressed situation.

	Management Case	**Bank base case**	**Bank worst case**
Cash flow	1,250	1,000	800
Interest to be 3.5 x covered	357	286	229
Debt capacity (assuming 10% interest)	3,570	2,860	2,290
Senior bank debt + contingent commitments	600	600	600
Available for senior creditors + 10% of subordinated debt	2,847.5	2,137.5	1,567.5
Senior debt valuation	75 cents	57 cents	42 cents