

Leverage, debt capacity and credit risks

Lesson 3

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Credit risk and debt capacity

Credit risk

- Credit risk is the probability that the payment obligations of a loan or a bond are not respected
- Credit risk is a function of 3 parameters: leverage, priority and time
- Credit risk analysis is similar to distress debt analysis and helps understanding the likelihood of a firm becoming distress and the treatment of different debt types in a restructuring

Credit risk continuum

One dollar, **one day** loan to a AAA Company with **50 billion of cash on hand** and **no other debt**

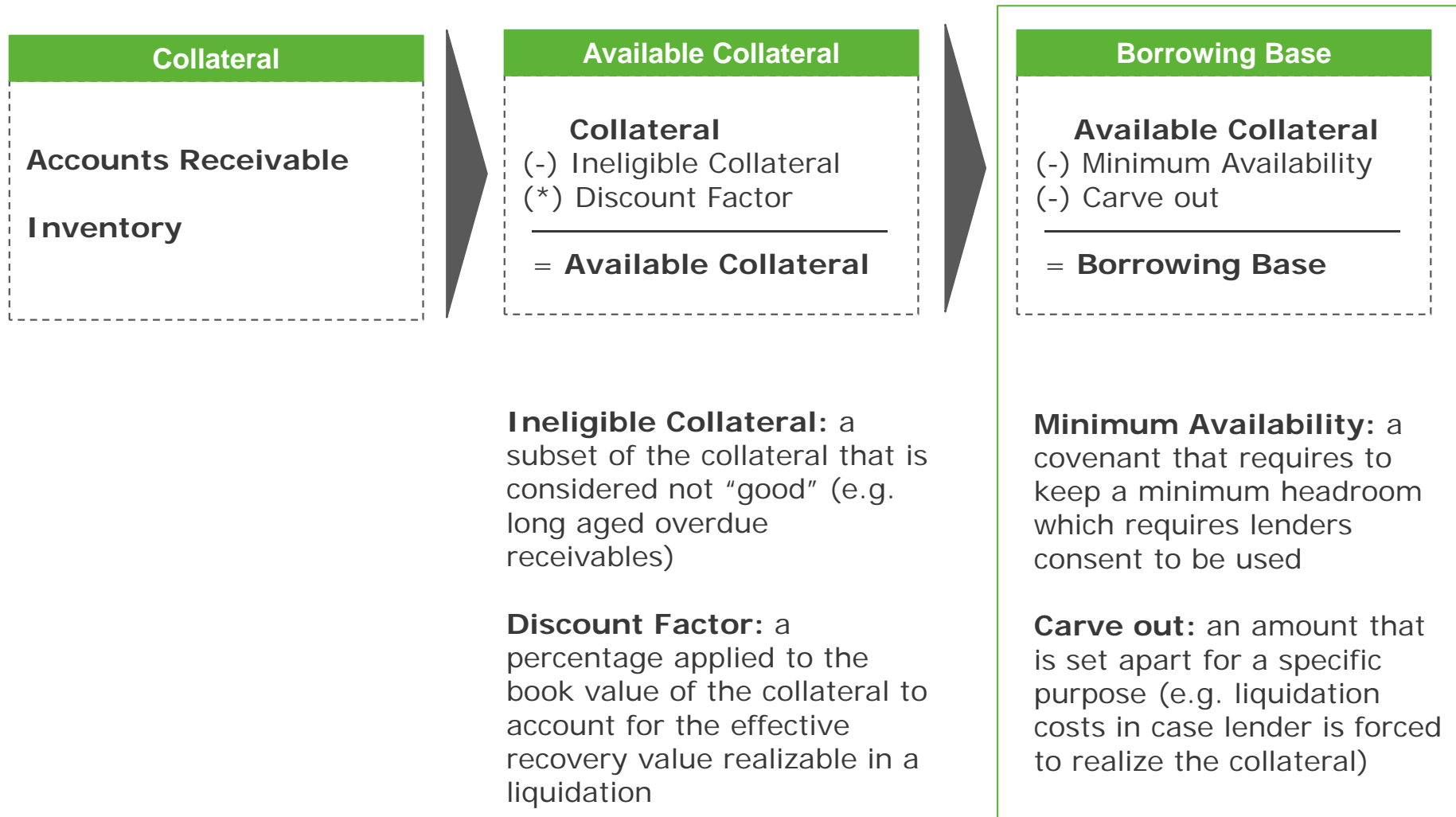


100 million, **50 years subordinated loan** to a penny stock company, **no cash on hand** and little assets **with 10 billion of secured bank debt** due next week

Credit support

- **Credit support** = the source of funds to repay a debt
- **The primary credit support is cash**: any debt is backed up by the cash flow of the firm
- Using EBITDA as a proxy of cash flow **the amount of support is often measured with the leverage**. Example 100M debt with 50M EBITDA implies a leverage of 2x
- When cash flow is not enough or there are many other creditors supported by it, **the lender may require to receive a pledge on some collateral** (e.g. a **mortgage** on real estate, **liens** on machinery)
- **Debt with collateral is secured** (they have security interest over certain assets)
- The collateral serves to give comfort to the creditors that if the cash flow is not enough to serve the debt (i.e. the firm enters in distress) **they can recover their money foreclosing and selling their collateral**
- Sometimes lenders can provide **working capital credit lines secured by account receivables and inventory**. Usually the amount of credit is determined by the so called **borrowing base** (e.g. 50% of inventory and 70% of eligible accounts receivables)

Asset based lending: borrowing base calculation



Example of borrowing base calculation

Accounts Receivable	\$	151.292	
Inventory		64.296	
Total Available Collateral		<u>215.588</u>	
Minimum Availability		(35.000)	
Less: LC's		(2.500)	
Less: Carveout		(5.000)	
Borrowing Base	\$	<u><u>173.088</u></u>	<i>Amount used for letters of credit</i>

AVAILABLE COLLATERAL CALCULATIONS

A/R Collateral

Accounts Receivable, net	\$	226.585	
Less: Ineligibles		(48.595)	
Eligible Accounts Receivable		<u>177.990</u>	@85% \$ <u>151.292</u>

Inventory Collateral

Raw Materials Inventory	\$	38.218	
Less: Ineligibles		(2.450)	
Eligible Raw Materials Inventory		<u>35.768</u>	@20% 7.154
FG & WIP Inventory		126.984	
Less: Ineligibles		-	
Eligible FG & WIP Inventory		<u>126.984</u>	@45% <u>57.143</u>
Total Eligible Inventory			\$ <u><u>64.296</u></u>

INELIGIBLE COLLATERAL

A/R Ineligibles (90+ Days Overdue)

ABC Auto Co.	5.294	
XYZ Processing	4.132	
C-11 Processing	10.330	
BK Auto	15.065	
TRBL Appliance Co.	<u>13.774</u>	\$ <u>48.595</u>

Inventory Ineligibles

Raw Materials (In Transit)	2.450	
Finished Goods and Work-in-Process	-	\$ <u>2.450</u>

- These calculation will be reported monthly in a so called "Borrowing Base Certificate" signed by the Company and sent to the Lenders

Credit Capacity

- **Credit capacity** = how much debt a firm can serve with its operating cash flow
- Even if for secured the debt capacity could mainly based on the appraised value of the collateral, the ability to serve it (i.e. pay interests and installments) depends on operating cash flow
- There is no general rule to calculate the “right capacity” since it is a function of future cash flows and how much risk lenders are willing to take on (for a highly cyclical business may be prudent 1,5x, for a electric utility it can be easily 3-4x)
- The main items to be checked to assess a firm’s debt capacity are:
 1. Ability to pay interests
 2. Ability to repay principal over a certain amortization period and/or refinance the balance
 3. Maintain asset value (enterprise value) higher than the amount of debt

Repayment ability

- The most stringent criteria is to measure capacity based on the repayment capacity of the cash flow (i.e. cash flow support)
- Banks, which are very risk averse, will look both for collateral and cash flow support
- For that, loans more than bonds usually require principal repayment through a periodic amortization
- Periodic repayments reduces the time factor of risk (the debt is reduced over time) and the refinancing risk (the amount left at the end has been reduced)
- For bonds usually the liquidity event (i.e. when is repaid) is linked to the ability of the firm to raise more capital

Repayment ability: example of debt capacity calculation

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
EBITDA	250	250	250	250	250
Interests	(35)	(29)	(22)	(15)	(7)
Capex	(125)	(125)	(125)	(125)	(125)
Cash Flow Available for Debt	90	96	103	110	118
Beginning Debt	500	410	314	211	100
Repayment	(90)	(96)	(103)	(110)	(100)
End Debt	410	314	211	100	-
<i>Debt/EBITDA</i>	<i>2,0x</i>	<i>1,6x</i>	<i>1,3x</i>	<i>0,8x</i>	<i>0,4x</i>
<i>EBITDA/Interests</i>	<i>7,1x</i>	<i>8,7x</i>	<i>11,4x</i>	<i>17,0x</i>	<i>35,6x</i>

Interests rate 7%; EBITDA growth rate 0%; No taxes for simplicity

Homework

- Build a case with leverage 3x and 5% EBITDA growth and see how much debt (%) it can repay in 5 years
- Assume interests rate 7%; no taxes for simplicity

Repayment ability: example with EBITDA volatility

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
EBITDA	250	258	206	185	204
Interests	(75)	(70)	(64)	(62)	(62)
Capex	(125)	(125)	(125)	(125)	(125)
Cash Flow Available for Debt	50	63	17	(2)	17
Beginning Debt	750	700	638	620	620
Repayment	(50)	(63)	(17)	-	(17)
End Debt	700	638	620	620	603
<i>Debt/EBITDA</i>	3,0x	2,7x	3,1x	3,3x	3,0x
<i>EBITDA/Interests</i>	3,3x	3,7x	3,2x	3,0x	3,3x
EBITDA growth		3%	-20%	-10%	10%

- Higher leverage and higher interests rate (10%) in a volatile scenario would cause a default situation with the firm unable to pay interests in year 4;

Other aspects impacting credit capacity: refinancing and interest coverage

- If the amount of **debt is such that cannot be repaid by the firm cash flow then it means that it is assumed that the firm will have the ability to refinance** the outstanding debt at maturity
- The ability of the firm to refinance is linked to the **debt coverage provided by the enterprise value (EV/Debt; Asset Value/Debt)**
- Other reason may impact the ability to refinance is a near-term liquidity event
- In any case **the firm shall have the ability to pay with enough comfort the interest** charges on the debt
- A parameter to measure capacity based on the ability to pay interests is the so called **interest coverage = EBITDA/Interests expenses**
- In industries which require significant capital expenditures may be safer to consider **(EBITDA-CAPEX)/Interests expense**

General principles on debt capacity

- To summarize five main principle to follow to asses debt capacity:
 1. **The safest loan are those that can be repaid by operating cash flow**
 2. **EV should be significantly higher than debt throughout the term of the loan**
 3. **There should be limited constraints to refinancing**
 4. **Liquidity should be enough to cover capex and working capital dynamics**
 5. **The firm should be able to pay interests expenses with comfort**

Hybrid debt instruments

Practitioners have come up with a wide variety of instruments to be able for a firm to raise debt financing even if it fails to meet some of the principles on debt capacity

- **Preferred stock:** equity that the issuer has the option to convert into debt. They usually have mandatory redemption (i.e. repayment) features. They are not considered real debt because the failure to redeem or pay dividend will not cause a default. Usually used to avoid the leverage test.
- **Convertible bonds:** bonds with the option for the holder to convert into a certain amount of common stocks (conversion ratio). The conversion ratio implies a share price higher than the current price when the bond is issued. They are issued with the expectations that the share price will increase and the bond will be converted, so if things are fine they are not considered debt but if things go badly they are real debt
- **Discount notes and payment in kind notes:** debt for which the interests payment can be deferred through different mechanism of capitalization (i.e. interests are paid with new debt)

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Managing credit risks

Capital structure

- We mentioned 3 sources of risks: leverage, priority and time
- Regardless of the name, a debt instrument has a risk related to priority which depends on the specific capital structure
- Since higher risk requires higher return, the relative position of a piece of debt in the capital structure should require difference in prices
- In complex capital structures under restructuring it is not easy not understand the relative risks and therefor often mispricing opportunities exists for the distress investors

Capital structure risk profile

EBITDA x

1x

2x

3x

4x

5x

6x

7x

8x

9x

10x



Secured/Recourse

Secured/Non Recourse

Secured 2nd lien

Senior Unsecured

Subordinated

Junior Subordinated

Mezzanine

Preferred Stock

Common Stock

Capital structure: the priority risk factor

- In simple terms **priority** means who gets paid first from the realization of a certain asset or group of assets
- The application of these priorities determines the application of the absolute priority rule in an insolvency procedure like Chapter 11 in the U.S.
- We said that the title of the debt is meaningless by itself to determine priority rights but it depends on the relative position in the capital structure
- What creates the obligation relative to other obligations in the capital structure are the specific terms in the **loan documents** or in the **intercreditor agreements**
- Differences in priority are determined in 4 different ways:
 1. Grants of collateral
 2. Contractual provisions
 3. Term structure
 4. Corporate structure

1. Grants of collateral

- Collateral rights are granted through a security agreement which will become part of the lending agreement
- The lender must “perfect” its security interests (also called “liens”) to make sure it will be effective. Such a perfection usually takes additional steps than just signing the security agreement
- If the lenders do not follow the steps required to perfect their interest precisely, their interests could be challenged by unsecured creditors during the restructuring process
- The secured lender is first in line (has priority) to collect the proceeds of the collateral regardless independently from the other creditors and until it is fully repaid
- Priority rules on the same collateral can be established: two tranches of debt can be *pari passu* and secured by the same collateral but the beneficiaries of the so called *second lien* tranche agree that in case of proceeds from the collateral the *first lien* tranche should be paid first (i.e. second lien is subordinated to first lien with regards to the proceeds of the collateral)

2. Contractual Provisions

- As we just saw, priority can be assigned via a contractual provision such as *subordination*
- Subordination is a legal provision contained in the indenture* or loan document. For example: “The Notes are subordinated in right of payment to all Senior Debt” **
- A lender can concede subordination but cannot assert its seniority (the opposite of subordination) over other claims. For example: “These Notes have priority over all other debt” is not an effective provision
- In essence the law assumed that all liabilities are the same unless the holder of some liability explicitly agree to reduce its priority
- A key issue in subordination is to understand if the debt is subordinated to trade claims for example. That is why the language in which the provision is written needs to be reviewed carefully!

*the document governing a bond

**In a document when a term is capitalized it means it is specifically defined in the document itself. For example: “Senior Debt means the Bank Loan and the 10% Senior Notes”

2. Contractual Provisions: the effect of subordination (subrogation)

LIQUIDATION CO

ASSETS		LIABILITIES	
Liquidation Value	75	Senior Debt	50
		Trade Claims	50
		Sub Debt	100
		Equity	

- Liquidation Co has 75M of assets vs 200M of debts
- The Sub Debt is subordinated to the Senior Debt but not to the trade claims

	Face Value	Pro rata recovery	Subrogation	Recovery	%
Senior	50	18,75	31,25	50	100%
Trade Claims	50	18,75		18,75	38%
Sub Debt	100	37,5	-31,25	6,25	6%
Total	200	75	0	75	

- Since sub notes are subordinated, any amount they are entitled to receive will go to the senior holders until the senior debt is fully repaid

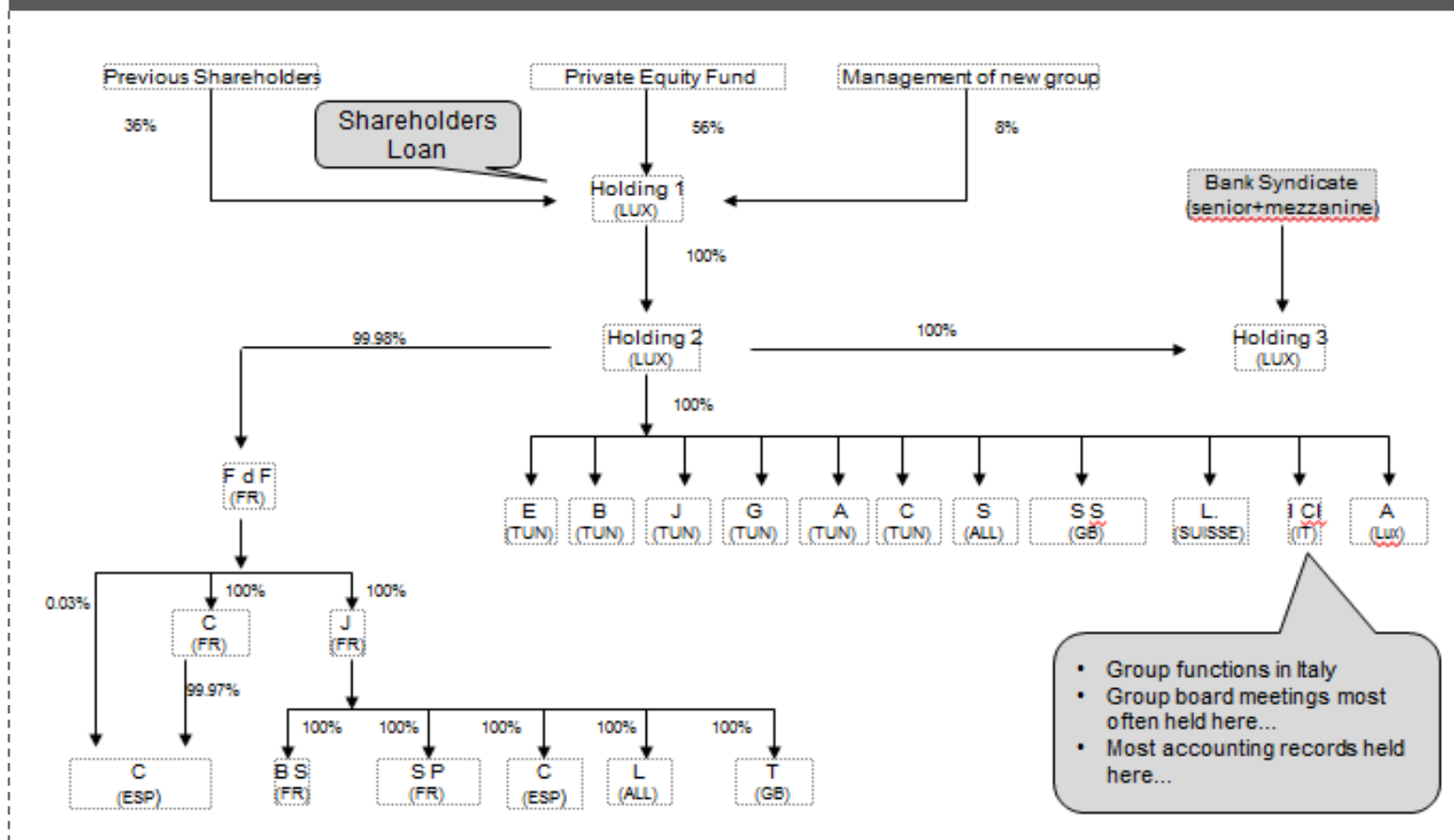
Homework: what would be the recovery of each debt holder if the sub notes are subordinated to the trade claims as well?

3. Term structure

- Term (i.e. maturity) structure is more important for a bond than for a bank loan because the former usually have fixed interest rate and bullet repayment and the time to maturity amplifies the price movement due to changes in interests rate
- When dealing with below investment grade bonds, credit risk consideration are even more relevant than interest rates risks
- In general senior lender will not want a junior loan to mature prior to the senior loan because that would erode credit support
- Differences in maturity create differences in priority among debts that are ranked *pari passu* contractually and such a difference it is usually not considered by rating agency who tend to disregard term structure
- Consider the following example: a company has 200M in cash and is expected to burns cash by 50M for two years. It has a 100M senior debt maturing in 5 years and 10M junior debt due next year. The junior debt will likely carry a lower rating but in reality it has the highest probability to be repaid.

4. Corporate Structure

EXAMPLE OF CORPORATE STRUCTURE RESULTING FROM AN LBO



- Often corporate have complex multi-tier structures for many reasons such as: limit liabilities, fiscal, operational and geographical needs etc. etc.
- Additionally corporate structure can be used to create priority differences in the capital structure

4. Corporate Structure

HOLD CO

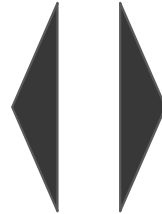
ASSETS		LIABILITIES	
Shares of Subhold Co		Senior Debt	100
		Equity	

SUBHOLD CO

ASSETS		LIABILITIES	
Shares of Op Co		Bank Loan	50
		Equity	

OP CO

ASSETS		LIABILITIES	
Assets	200	Equity	



CONSOLIDATED

ASSETS		LIABILITIES	
Assets Value	200	Bank Loan	50
		Senior Debt	100
		Equity	50

- If the Company had a one legal entity structure (such as in the consolidated view), for the bank loan to have priority, the Senior Debt should contain explicit language in the indenture
- Through the corporate structure the bank loan has structural priority over the senior based on how the liquidation process works following the principle of laws: Op Co assets are sold and Op Co debt are paid and what's left distributed to shareholders (i.e. Subhold Co.) which pays its debt (the bank loan) and what's left goes up to its shareholders (i.e. Hold Co)

4. Corporate Structure: guarantee

- In general investors and lenders prefer not to leave the outcome to the principle of laws but want to have all foreseeable scenarios ruled by contractual provisions which can reinforce or override the normally applicable rule* (for example subordination)
- A common way to override the principle of liquidation in a corporate structure is the **guarantee**: a contractual provision according to which a party become co-obligor
- In the previous examples banks are unlikely to lend to an empty box (Subhold Co) and will want to have a legal entity “closer” to the assets to be guarantor
- The opposite of a guarantee is a **nonrecourse** provision which basically says that in case of default the lender has no right to recover from a certain entity. It is used for example in mortgages on real estate: the lender can foreclose the property but has no right to ask the owner for any shortfall
- Nonrecourse is also relevant in asset based facilities, particularly in financing of account receivables for which a nonrecourse clause allow to take the loan off balance sheet

* Of course not all rules can be overridden and “common law” and “civil law” give different effectiveness to contractual provision

How to manage risks in the capital structures: covenants

- We have seen how it is possible to determine the difference in layers of debt
- In order to manage the risks position desired lenders need to control the power to make changes to the capital structure
- **Covenants** are restrictive contractual provision contained in the loan documents or in the bond indenture
- Lenders usually lend money based on an industrial and financial plan and wants the borrower to stick to what has been represented while the borrower wants to maintain the flexibility to adapt to changing circumstances
- Covenants address the three sources how risk: leverage, priority and time

Leverage covenants

- Covenants on leverage are used to protect lenders from:
 - the risk of the borrower taking on more debt increasing the risk of default
 - the risk of an erosion of the credit support available (i.e. EV)
- Typical covenant is to limit the debt to a specified level of EBITDA and /or to maintain the debt to equity ratio within a range
- As a way to limit the risk of default lenders may also ask to maintain a minimum interest coverage ratio
- The usual penalty for not respecting the covenant is the prohibition to take on more debt (plus waiver fees or covenant rest fees)
- If the breach of covenants is just a symptom of a more serious problem than the breach can kick off a round of restructuring

Priority covenants: restricted payments provisions

- Limit the firm from distributing its assets to third parties eroding credit support
- In practical terms, such provisions identify the parties to whom distribution may erode credit support and define which assets or activities are restricted
- A major issue are payments* to shareholders or junior creditors or lending to subsidiaries
- Usually lending documents requires subsidiaries to become joint and several obligors to avoid that value is moved out of the reach of creditors. In this case subsidiaries are said to be *restricted*. If for some reason some subsidiaries remain *unrestricted* than the lending document may contain language to prevent loans or other forms of financial support to them

* Here the term "payments" should include other techniques such as stock repurchases, loans to affiliated companies

Priority covenants: restricted payments provisions

- An interesting area is the one of payment to junior creditors
- Banks loan usually have performance covenants (which we will discuss soon) the breach of which usually indicates distress and gives the bank the right to prevent payments of interests to lower ranked debt (so called *blocking* rights)
- Pay attention that not paying interests is an event of default and gives the right to the debtholder to accelerate principal repayments obligations which in turn may force the company to file for insolvency protection which may not be a desired scenario for the bank itself
- Bonds usually contain provision to prohibit any principal repayment before maturity which would change the priority risk based on the existing term structure
- To allow the company the flexibility in favorable conditions which had enhanced credit support, often amounts can be made available for restricted payments based on a so called *basket* formula

Simplified example of basket formula

- 10 million of general carve out

ADD

- 50% of net income
- 100% of proceeds from stock issuance
- 100% of proceeds from junior stock issuance

SUBTRACT

- 100% net losses
- 100% of dividend distributed
- 100% of amounts loaned to unrestricted subsidiaries
- 100% of any other payment defined as restricted

Priority covenants: negative pledge clause

- Limit the firm from giving other creditors liens or security interests on certain assets
- Particularly relevant for unsecured lenders who provided credit on the assumption that unpledged assets are part of their credit support in addition to the firm's cash flow
- A negative pledge provision which states that if the borrower gives security interest in any of its assets to another lender it should include the existing lender among the beneficiaries of the pledge

Time covenants

- In general the passing of time poses the risk that that credit support deteriorates due to events not foreseen at the moment of lending
- **PERFORMANCE COVENANT**
 - A lender who has made a loan with cash flow as primary support based on a business plan may require affirmative performance milestones to be achieved (ex. EBITDA of 2018 should exceed 50M)
 - If a performance covenant is not met it is an event of default and usually lenders will have the right to revisit the deal for example raising interest rate to reflect increased risk)
- **PUT RIGHTS**
 - At certain interim milestones lenders can decide whether they remain in the deal
- **RATINGS DOWNGRADE**
 - In case of downgrade (often for investment grade bonds going below investment grade) the borrower must offer to repay the obligation