

# Five Cs Of Credit Analysis

## Definition

The **Five C's Of Credit Analysis** is an informal mnemonic of a set of Risk Factors (/wiki/Risk\_Factor) that are commonly thought to be influential in determining the Credit Quality (/wiki/Credit\_Quality) of a commercial borrower (SME Lending (/wiki/SME\_Lending) of Corporate Lending (/wiki/Corporate\_Lending)). The 5 C's can be considered as a more detailed decomposition of the Ability and Willingness to Pay (/wiki/Ability\_and\_Willingness\_to\_Pay) assessment.

## The Five C's

In alphabetical order, the five C's are commonly considered to be the following dimensions (with some variations in naming):

- Capacity
- Capital
- Character
- Collateral
- Conditions

## Capacity

*Capacity* (sometimes replaced by *Cashflow*) refers to a borrower's ability to repay their debt, on the basis of their projected income profile and their other expenditures (including other debt).

The key metrics used in evaluating credit capacity are ratios such as Debt to Income Ratio (/wiki/Debt\_to\_Income\_Ratio) (DTI) or the Debt Service Coverage Ratio (/wiki/Debt\_Service\_Coverage\_Ratio).

- For individual borrowers, current income and employment history are good indicators of ability to repay outstanding debt. Income amount, stability over time, and type of income are important attributes
- For corporate borrowers, sources of revenue and profitability over time (e.g as captured in net operating income)

In all cases there are two important approaches to evaluating capacity

- historical ability to service the debt: based e.g., on recent years cashflow metrics and compared to projected debt service
- projected ability to service debt: based on projected cashflows. Projected cashflows may be more faithful to evolving reality if they incorporate e.g. a new project, new employment status etc. but may also be subject to more uncertainty

For longer maturity debt simple ratios may not be accurate indicators of credit capacity if the Contractual Cash Flows (/wiki/Contractual\_Cash\_Flows) of the debt instrument are heavily skewed towards later periods.

It is typically assumed that all else being equal a higher repayment capacity implies less credit risk.

## Capital

*Capital* refers in general to the asset base (net worth) of the borrower and the degree to which it is committed to support a given amount of debt.

When the borrowing concerns a specific project, capital refers the equity (own means) that the borrower invests in the project. For example the down-payment on a mortgage for homeowners or the equity funds committed by a commercial borrower.

Capital influences credit risk in two ways:

- Provides a buffer in case income (cashflow) deteriorates
- Aligns the interests of the borrower with that of the lender (Skin in the Game ([/wiki/index.php?title=Skin\\_in\\_the\\_Game&action=edit&redlink=1](/wiki/index.php?title=Skin_in_the_Game&action=edit&redlink=1)))

A relative metric that captures the Capital dimension (typically used for corporate borrowers) is the Debt to Equity Ratio ([/wiki/Debt\\_to\\_Equity\\_Ratio](/wiki/Debt_to_Equity_Ratio))

It is typically assumed that all else being equal a higher capital base committed implies less risk.

## Character

*Character* refers to a borrower's overall behavioural profile towards repayment of debt. This assessment cannot be absolute in nature, but in relation to the dominant Credit Culture ([/wiki/Credit\\_Culture](/wiki/Credit_Culture)) in a given jurisdiction and economic region.

The assessment of credit character entails (in principle) both subjective and objective elements. Subjective elements require that the assessor (credit officer) has intimate knowledge of the borrower and may draw on qualitative arguments. Qualitative inputs may involve soliciting feedback from peers, community, clients, vendors etc. that have had economic relationships with the borrower in the past.

In contrast objective elements do not require special insights and are more quantitative in nature. Objective inputs to the assessment of character include a borrower's Credit History ([/wiki/Credit\\_History](/wiki/Credit_History)), which provides evidence of past economic activities and track record but also reflecting the quality of the borrower's management ability.

It is typically assumed that all else being equal a better character profile implies less credit risk.

## Collateral

*Collateral* refers to any assets the borrower pledges as security for their borrowed funds. Assets may be financial in nature (e.g. securities) or real assets (real estate). It is the only one of the 5 C's that is actually optional (as depending on the lending product, there might be no collateral pledged).

Collateral can be used in general Secured Lending ([/wiki/index.php?title=Secured\\_Lending&action=edit&redlink=1](/wiki/index.php?title=Secured_Lending&action=edit&redlink=1)) but it is especially common in the financing of specific assets such as houses or automobiles for individuals and commercial real estate, transport equipment (airplanes, ships etc.) for commercial borrowers.

A key metric capturing the impact of collateral is the Loan to Value Ratio ([/wiki/Loan\\_to\\_Value\\_Ratio](/wiki/Loan_to_Value_Ratio)).

It is typically assumed that - all else being equal - more collateral leads to lower realized losses in the case of a Default Event ([/wiki/Default\\_Event](/wiki/Default_Event)), therefore leading to a lower Loss Given Default ([/wiki/Loss\\_Given\\_Default](/wiki/Loss_Given_Default))

## Conditions

*Conditions* is maybe the least well defined of the 5 C's as it refers potentially on several distinct and unrelated aspects:

- the intended purpose of the loan (Use of Funds ([/wiki/Use\\_of\\_Funds](/wiki/Use_of_Funds))) (consumption, investment etc.)

- the size of the loan and the interest rate (expressing the lender's Risk Appetite (/wiki/Risk\_Appetite))
- the relevant business and economic conditions (borrower specific, sectoral outlook, local economy, broader economy etc).

In general using the funds for investment in a positive external environment would imply lower risk

## Usage

The five C's are typically used, explicitly or implicitly, in the construction of credit Scorecards (/wiki/Scorecards), with the significance of each "C" being assigned either subjectively (in Expert Based Models (/wiki/Expert\_Based\_Models)) or quantitatively in quantitative / statistical models (/wiki/Quantitative\_Model).

## Quantification / Automation Tools

Some aspects of establishing the 5 C's profile may be facilitated or even automated using programmatic procedures and algorithms

- Capacity information can be extracted from documentation (Financial Statements (/wiki/Financial\_Statements)) but may be insufficiently forward looking
- Capital information extracted from documentation (financial statements)
- Character information extracted from credit history (credit reports) and (more speculatively) from other behavioral evidence (social media)
- Collateral quality (volatility) may be assessed from market data but the assessment may suffer for illiquid assets
- Economic Conditions (volatility) assessed from market and economic data but may be insufficiently forward looking and lack idiosyncratic aspects

## Credit Scoring Models

For lending products / markets where there are sufficiently large numbers of borrowers (therefore establishing a historical track record of credit performance) the metrics used to establish the 5 C's can be used directly or with some modification to create risk factors (/wiki/Risk\_Factor) (also attributes, characteristics or features) that will serve as independent variables for Credit Scoring Models (/wiki/Credit\_Scoring\_Models)

## Correlations between the 5 C's of Credit

It is important to note that the 5 C's are not independent factors. Substantial correlations may exist between these attributes and these will typically manifest in a quantitative analysis during Model Development (/wiki/Model\_Development) or Model Validation (/wiki/Model\_Validation). The below table illustrates such conceptual links. From an information perspective what is relevant is the degree to which the five dimensions provide valid residual factors (e.g. the degree to which there is a component of Character after conditioning for Capacity and Capital)

<b>Capacity</b>	<b>Capital</b>	<b>Character</b>	<b>Collateral</b>	<b>Conditions</b>
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Capacity	#	Two key dimensions of the financial strenght of the borrower: Capacity focuses on income <i>cashflow</i> while Capital is the <i>capitalization</i> of those cashflows	Character is (mostly) established on track record and hence will typically correlate with historical Capacity	Uncertainty in future Capacity will be correlated with external Conditions
Capital	#		Character is (mostly) established on track record and hence will typically correlate with historical Capital	Availability of Capital will correlate with ability to use as Collateral External Conditions (e.g. market levels) may influence Capital (Wealth Effect ( <a href="/wiki/index.php?title=Wealth_Effect&amp;action=edit&amp;redlink=1">/wiki/index.php?title=Wealth_Effect&amp;action=edit&amp;redlink=1</a> ))
Character	#			Shifting external conditions (e.g. a recession) may induce significant behavioral changes, for example increase in Strategic Default ( <a href="/wiki/Strategic_Default">/wiki/Strategic_Default</a> )
Collateral	#			Collateral is correlated with Conditions primarily through Collateral Valuation ( <a href="/wiki/Collateral_Valuation">/wiki/Collateral_Valuation</a> ) which depends on the level of asset markets
Conditions	#			

## Issues and Challenges

- The five C's are not a formal published framework and the precise definitions vary significantly
- The relative importance of the various C's may vary depending on the type of borrower and lending
- The various C's are correlated to various degrees (see Correlation Matrix above)
- The five C's are not necessarily a complete enumeration of factors affecting credit risk. For example collateral is only one of the factors that can mitigate losses, a guarantee by a third party may have similar effect.
- Another missing C is the "Covenants" included in the lending agreement, namely the precise provisions specifying the rights and obligations of borrower and lender (might include under "Conditions")
- The impact of the factors may not be monotonic (a lower score not always leading to lower risk). For example more capital invested may be indicating a more risky project.

## See Also

- [Corporate Credit Risk Analysis \(/wiki/Corporate\\_Credit\\_Risk\\_Analysis\)](/wiki/Corporate_Credit_Risk_Analysis)
- 

Category (</wiki/Special:Categories>):

Credit Risk Analysis ([/wiki/Category:Credit\\_Risk\\_Analysis](/wiki/Category:Credit_Risk_Analysis))



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Open Risk Commons (<https://www.openriskcommons.org>)

Open Risk Models (<https://github.com/open-risk>)

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