中証鵬元國際
CSPI Ratings

# General Corporate Rating Criteria

## Contents

Summary.............................................1
Indicative Credit Score (ICS).................3
Business Profile Analysis ......................4
Financial Profile Analysis ....................13
Adjustment Factors .............................20
Stand-Alone Credit Profile (SACP)......23
External Support Assessment (ESA) ..23
Related Criteria and Research ............23
Appendix I Example of A Hypothethical Case....................................................24

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## Summary

(***Editor's Note:*** *This criteria report was originally published on 15 March 2018. We have republished it following our review on 16 March 2022.)*

These rating criteria describe CSPI Ratings' approach in assessing credit risks for industrial corporate entities and utilities on a global scale. Our assessment reflects a corporate entity's business profile, financial profile and other rating factors that may impact its standalone credit profile (SACP). These criteria will explain in detail the rating factors that form our opinion of a corporate issuer's business profile and financial profile, which will be combined to derive a company's indicative credit score (ICS). CSPI Ratings intends to use these criteria to provide market participants with our fundamental analysis of a corporate's credit risks and our ratings that reflect such risks. However, we recognize that these criteria cannot exhaustively include all factors, but it should enable readers to gain an understanding of what we consider the most important factors that may impact a corporate issuer's credit risks.

These criteria apply to the issuer credit ratings (ICR) of all corporates that we consider as nonfinancial issuers globally. However these criteria do not apply to the following companies that we believe to have very different risk characteristics and rating structures, which require different methodologies or substantial modifications of these criteria, including project finance entities, project developers, commodities traders, investment holding companies, equipment leasing firms, and companies that generate cashflow and profits by trading financial assets and by investment gains, as well as other types of companies we may deem inappropriate for this methodology.

CSPI Ratings adopts a general corporate rating framework to assess a corporate issuer's credit rating, which examines a set of predefined common rating factors that apply to all industries and companies. We believe this is the way to achieve maximum rating consistency and comparability across different markets and industries. However, we acknowledge that different industries and countries often have different and unique risk characteristics, hence we strike a balance between rating comparability and industry differences by complementing this general rating criteria framework with industry-specific criteria such as the Industry Credit Guidelines (ICG).

In this report, we first explain how we derive a corporate issuer's indicative credit score, which then will be combined with three additional adjustment factors to create an issuer's standalone credit profile. A corporate issuer's credit rating is the result of combining this company's SACP and possible external supports from either a parent company or government entity which this company is important to and has close ties. An issuer's ICS has two components: (1) the business profile that assesses a corporate issuer's macro-environment risk exposure, industry risk sensitivity and operational strength; (2) the financial profile that assesses a corporate issuer's profitability, financial leverage, debt structure, financial policy and financial volatility.

In addition to an issuer's indicative credit score, three clearly defined adjustment factors will be considered in modifying its ICS, namely corporate structure and governance, liquidity and supplementary analysis. These adjustment factors may raise or lower the ICS by one or several notches. The supplementary analysis is based on a holistic view of the company's credit characteristics.

These criteria will be effective immediately on the date of final publication and we intend to complete the review of all affected ratings, if any, within the next six months, but we expect no impact to our current rating portfolio.

**Deviation from Criteria**

These criteria may be used in conjunction with other corporate-related criteria and the analytical judgement of our analysts and rating committees, in order to form the analytical base for corporate issuers. The criteria and committee procedures are designed to ensure maximum transparency and consistency in the application of criteria, but deviation from criteria may occur when dealing with the credit risks of a specific transaction or entity. Such deviation from the criteria always requires an approval from the rating committee and will be disclosed in the respective rating action reports. The full disclosure will help market participants understand the rationale for such deviations and their impact on the ratings, and will strengthen our rating process during our communication with external parties on such deviations.

The non-financial corporates cover a broad range of entities, whose credit risk characteristics don't always share the same structure and pattern all the time. In some cases, the risk factors may vary greatly across different companies, industries and regions. We complement the general corporate criteria with additional criteria or research reports to help the rating committees achieve a sound assessment.

The application of these criteria may result in a SACP above or constrained by the relevant sovereign rating. CSPI Ratings will publish separate criteria related to sovereign issues; certain conditions must be met before the ICR can be rated above the relevant sovereign.

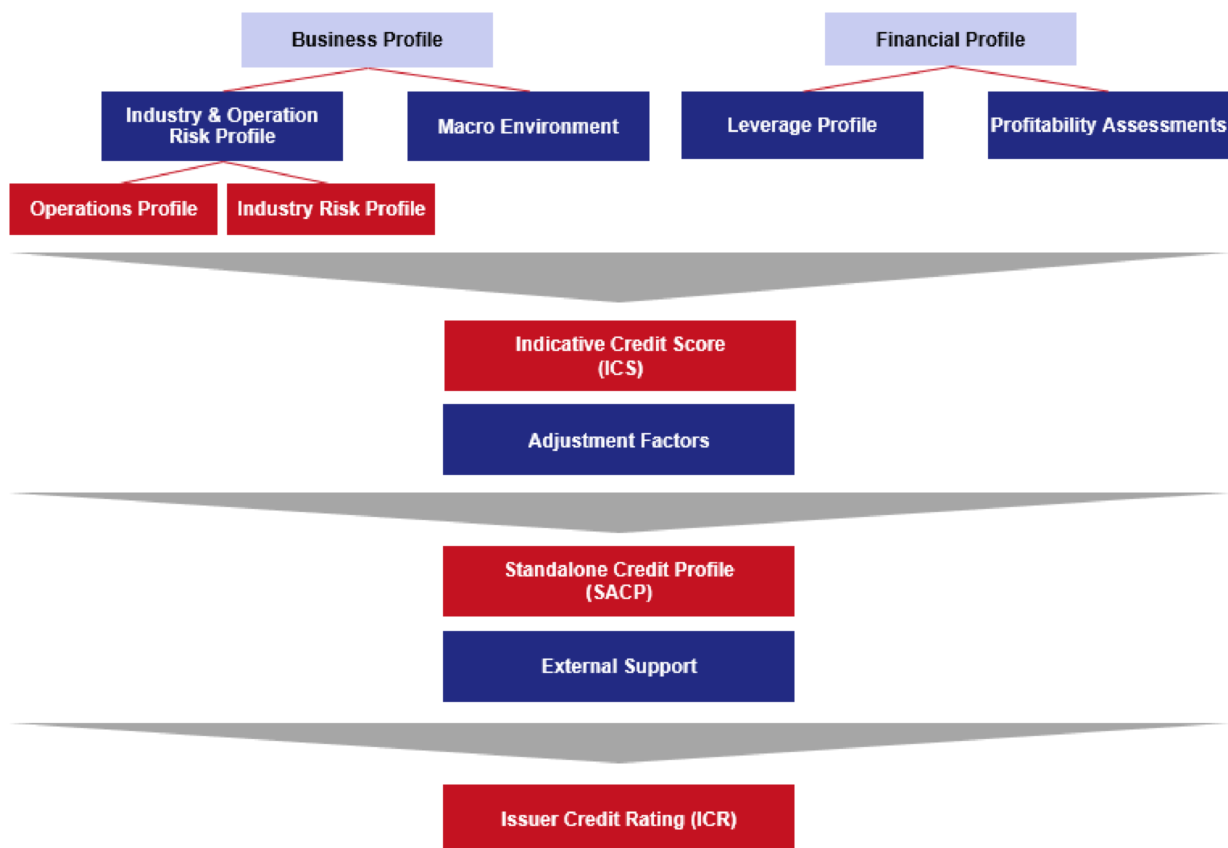
**Rating Criteria Structure**

The fundamental building blocks of the general corporate rating criteria include the business profile, financial profile, adjustment factors and external supports. Each of these building blocks consists of several rating factors which may be qualitative and quantitative in nature. We will illustrate some of the factors in detail in this article, whilst keeping the explanation simple for other rating factors in this report. We may issue more detailed criteria separately. Exhibit 1 demonstrates an overall framework of our general corporate criteria.

Our criteria combine a corporate issuer's business profile with its financial profile to derive a indicative credit score first, and then we consider three company-specific adjustment factors to achieve our assessment on an issuer's standalone credit profile. The three adjustment factors are corporate structure and governance, liquidity and supplementary analysis, that may be applied to certain issuers to reflect their unique credit risks that could not be captured in the above building blocks. After we form an opinion of an issuer's SACP, we will factor possible external supports into our analysis, and then reach a conclusion on the issuer's credit rating.

In our criteria, we usually adopt a grid or matrix to assess the qualitative factors and their impact throughout the rating process, and normally use a weighted average approach to assess the quantitative factors and their contributions to a rating result. For each rating factor, we may assess it on a scale which may be seven-point (7,6,5,4,3,2,1) or five-point (5,4,3,2,1), depending on the nature of that factor. The higher score usually means a better assessment; for example, a score of 7 means the highest score and lowest credit risk on that particular factor, while 1 represents the lowest score and highest credit risk. In addition, a three-point scale may be used to assess some rating sub-factors such as the trend and volatility of profitability. We also adopt an 18-point scale to assess debt profile and financial profile.

Exhibit 1: Overall Framework of General Corporate Criteria




## Indicative Credit Score (ICS)

These criteria use a matrix to combine the business profile and financial profile, and then derive an indicative credit score (ICS) for a corporate issuer. The ICS is meant to capture the common risk factors that may impact a corporate issuer's credit rating regardless of its region, industry and business types, and allows readers to compare all corporate issuers on these risks.

The business profile assessment is derived mostly through our analysis of a variety of qualitative factors, while the financial profile is mainly driven by quantitative analysis. It would be less meaningful to combine the two assessment outcomes through any mathematical approach as they are very different in nature, in our view. In addition, the influence of these factors on the credit rating is often nonlinear and non-quantitative, so we combine the business profile and financial profile through a matrix approach set out in Exhibit 2.

CSPI Ratings uses the financial profile assessment to compute the ICS because we believe a corporate issuer's default risks are first reflected and captured in its financial performance. For companies of similar operational strength and market position (or business profile), the higher-leveraged companies usually are less creditworthy than the less leveraged companies. On the other hand, for companies with similar financial leverage and profitability (or financial profile), a stronger business profile often means the companies have a better chance of withstanding financial stress and maintaining access to funding and cashflow. However, the interaction between the business profile and financial profile and their impact on ICS are not always linear and straightforward.

The mechanism to derive the ICS is as follows: we use a corporate issuer's financial profile as the starting point, and then adjust the financial profile score up or down, according to the relative strength of its business profile, to derive the ICS for this company. The impact of the business profile on the ICS is uneven along the score spectrum of the financial profile, particularly when the financial profile and business profile are at far end of their spectrum.

When a company's financial profile is at the high end of the score range such as bbb- or above, the business profile mostly has an increasingly downward pressure on the ICS as it weakens. On the other hand, when a company's financial profile is at lower end of the score range such as bb and below, the business profile usually has an upward lifting effect on the ICS as the business profile strengthens. For example, if a company has a financial profile of 'aaa', its business profile can drag down the ICS to 'bb-' if the business profile is assessed as 'vulnerable', which is 12 notches lower than its financial profile. As the company's financial profile weakens to 'b', the company's business profile can uplift its ICS to 'bbb-' if the business profile is assessed as 'excellent', which is 5 notches higher than its financial profile.

When combining the business profile and financial profile, we tend to consider a range of results instead of one specific value, and the criteria allow our analysts to choose the final ICS value from such a range of values. For example, if a company is assessed with 'moderate' business profile and 'bbb+' financial profile score, the initial ICS value is 'bbb-' according to the matrix. We will also consider the combination of a 'moderate' business profile and a 'bbb'/'a-' financial profile, which will yield ICS values of 'bb+' and 'bbb-', respectively. Therefore the final indicative credit score can be chosen between 'bb+' and 'bbb-'. On deciding whether to choose a higher or lower ICS value, we use the relative strength of the business profile. If we believe the company's business profile is at the higher and stronger end of 'moderate', then we will choose 'bbb-' to be the ICS; if the company business profile is at lower and weaker end of 'moderate', we will choose the ICS to be 'bb+".

**Exhibit 2: Determining Indicative Credit Score**

| **FINANCIAL PROFILE** | **BUSINESS PROFILE** | | | | | | |
|---|---|---|---|---|---|---|---|
| | 7 **Excellent** | 6 **Very Strong** | 5 **Strong** | 4 **Moderate** | 3 **Weak** | 2 **Fairly Weak** | 1 **Vulnerable** |
| **aaa** | aaa | aa | a+ | a- | bbb | bb+ | bb- |
| **aa+** | aa+ | aa | a | bbb+ | bbb | bb+ | bb- |
| **aa** | aa+ | aa- | a- | bbb+ | bbb- | bb+ | bb- |
| **aa-** | aa | a+ | bbb+ | bbb | bbb- | bb+ | bb- |
| **a+** | aa | a | bbb+ | bbb | bbb- | bb+ | bb- |
| **a** | aa- | a | bbb | bbb- | bb+ | bb | bb- |
| **a-** | a+ | a- | bbb | bbb- | bb+ | bb | bb- |
| **bbb+** | a | bbb+ | bbb- | bbb- | bb+ | bb | b+ |
| **bbb** | a- | bbb+ | bbb- | bb+ | bb | bb- | b+ |
| **bbb-** | a- | bbb | bbb- | bb+ | bb | bb- | b+ |
| **bb+** | bbb+ | bbb | bbb- | bb+ | bb | bb- | b+ |
| **bb** | bbb+ | bbb- | bb+ | bb | bb- | b+ | b |
| **bb-** | bbb | bbb- | bb+ | bb | bb- | b+ | b |
| **b+** | bbb- | bb+ | bb | bb- | b+ | b+ | b |
| **b** | bbb- | bb+ | bb | bb- | b+ | b | b- |
| **b-** | bb+ | bb | bb- | b+ | b | b | b- |
| **ccc+** | bb+ | bb | bb- | b+ | b | b- | ccc+ |
| **ccc/ccc-** | bb | bb- | b+ | b | b- | ccc+ | ccc/ccc- |

## Business Profile Analysis

CSPI Ratings' business profile analysis mostly focuses on a variety of descriptive and qualitative factors, backed by quantitative assessment. The business profile is designed to rank a company's business risk exposure and its standing in the market by analyzing the macroenvironment in which it operates, its competitive strength relative to its peers, and the various industry risk exposures that the company faces. Together with the financial profile, the business profile is one of the two anchor factors used to derive the indicative credit score.

Within the business profile, there are three components we will assess on a company, which are macroenvironment, industry risk profile and the company's operations profile. CSPI Ratings believes a company's operational strength (determined by its operations profile) and its industry characteristics (reflected by its industry risk profile) are the two anchor factors when judging a corporate issuer's business-related credit risks. The macroenvironment's impact on a corporate issuer's creditworthiness is

not always obvious in relatively stable, developed or somewhat developed countries, and may only become substantial when a company's operating environment deteriorates to an extreme extent such as an extremely unfriendly political and legal environment, war, or constant and massive social unrest.

## How to determine the Business Profile of a corporate issuer

CSPI Ratings first combines a corporate issuer's industry risk profile and operations profile to obtain the assessment of the Industry and Operations Risk Profile (IORP), and then the impact of the macroenvironment is added to determine a company's business profile. Both the operations profile and IORP are assessed on a descriptive seven-category scale: 'excellent (7)', 'very strong (6)', 'strong (5)', 'moderate (4)', 'weak (3)', 'fairly weak (2)', and 'vulnerable (1)'. Both the macroenvironment and industry risk profile are determined on a five-point scale, which is 'very low risk (5)', 'low risk (4)', 'medium risk (3)', 'high risk (2)', 'very high risk (1)'. Exhibit 3 shows how to determine the combined assessment for industry risk and operational risk.

Within the assessment of the IORP, the operations profile is the dominant factor, which is assessed based on a company's standalone operational factors and reflects a company's operational strength before taking into consideration its industry characteristics and the macroenvironment. The industry risk profile's impact on the IORP is not a linear relationship and has no impact on the IORP assessment when the industry risk profile is scored at '4', and will raise the IORP by one notch if the industry risk profile is assessed to be lowest risk at a score of '5'. The industry risk profile becomes a significant rating factor if its score drops to the lower end of range, particularly when it is assessed as extremely high risk with a score of '1', which will cap the IORP assessment at 'moderate (4)' even the operations profile is assessed to be the highest grade of 'excellent'.

**Exhibit 3: Determining the IORP**

| | **Industry Risk Profile** | | | | |
|---|---|---|---|---|---|
| **Operations Profile** | (5) Very Low | (4) Low | (3) Medium | (2) High | (1) Very High |
| (7) Excellent | 7 | 7 | 6 | 5 | 4 |
| (6) Very Strong | 7 | 6 | 6 | 5 | 4 |
| (5) Strong | 6 | 5 | 5 | 4 | 3 |
| (4) Moderate | 5 | 4 | 4 | 4 | 3 |
| (3) Weak | 4 | 3 | 3 | 3 | 2 |
| (2) Fairly Weak | 3 | 2 | 2 | 2 | 1 |
| (1) Vulnerable | 2 | 1 | 1 | 1 | 1 |

Once the IORP is determined, we combine the macroenvironment and IORP to form the analytical opinion of a corporate issuer's business profile, which is shown in the grid table in

Exhibit **4**. The final assessment of the business profile is expressed in the same way as the operations profile and IORP in a seven-category scale: 'excellent (7)', 'very strong (6)', 'strong (5)', 'moderate (4)', 'weak (3)', 'fairly weak (2)', and 'vulnerable (1)'.

The macroenvironment's impact on a corporate issuer's business profile is also not a linear relationship; it has no impact on the business profile when the macroenvironment is assessed as lower risk (score of '4' or '5'). When the macroenvironment deteriorates to a score of '3', its impact on the business profile is at the stronger end such as when the IORP is assessed at the highest score of 'excellent (7)'. In such a case, the business profile is one notch lower than its IORP. The macroenvironment's impact on the business profile starts to increase noticeably when its assessment result drops to the lower levels of '1' and '2'.

**Exhibit 4: Determining the Business Profile**

| | Macroenvrionment | | | | |
|---|---|---|---|---|---|
| **IORP** | (5) Very Low | (4) Low | (3) Medium | (2) High | (1) Very High |
| (7) Excellent | 7 | 7 | 6 | 6 | 5 |
| (6) Very Strong | 6 | 6 | 6 | 5 | 4 |
| (5) Strong | 5 | 5 | 5 | 4 | 3 |
| (4) Moderate | 4 | 4 | 4 | 3 | 2 |
| (3) Weak | 3 | 3 | 3 | 2 | 1 |
| (2) Fairly Weak | 2 | 2 | 2 | 2 | 1 |
| (1) Vulnerable | 1 | 1 | 1 | 1 | 1 |

## How to score the Macroenvironment

CSPI Ratings believes the macroenvironment often has a great impact on a corporate issuer's ability to compete in a market and generate cashflow to meet its financial obligations on time. These macro-risks represent the fundamental uncertainties of doing business in a political, legal, and economic environment, as well as within a financial system that may or may not weaken an issuer's ability to raise funds. Several studies have revealed a high correlation between corporate default rates and sovereign crisis, macroeconomic volatility and chaos in the financial system. We assess the macroenvironment risk profile from four aspects: political and legal risk, economic strength, institutional assessment, and financial system risk. All these factors are qualitative judgements on their relative strength compared to global peers, while quantitative evidence is collected to support the qualitative judgements. We consider all these factors in a comprehensive manner and we may consider other factors that could impact a company's macroenvironment.

The macroenvironment is scored on a five-point scale with '5' representing the strongest macroenvironment and '1' the weakest. For issuers operating across multiple macroenvironments, we use the weighted average macroenvironment score rounding to the lower score if the sub-factors are weakening and rounding to the higher score if the sub-factors are strengthening. The weights will be determined based on a company's operational focus, which will include profit, revenue and operational assets. Profit (EBITDA, EBIT or Gross Profit etc.) is our starting point and may be adjusted if revenue and assets trend in substantially different directions.

### Political and Legal Risk

A stable and supportive political regime and effective legal system often provide great certainty to companies and reduces business risks. CSPI Ratings assesses a country's political and legal risks on its political stability, effectiveness and independence of its judicial system, government intervention risk, and other factors that may impact a business' operational environment.

CSPI Ratings penalizes a country's political stability assessment if the country constantly faces unpredictable and violent regime change, and political infighting that often leads to social unrest. In some extreme cases, if the country falls into a destructive and prolonged civil war that causes massive disruption to the business environment, CSPI Ratings may assess this country's political risk as extremely high.

The effectiveness and independence of a country's judicial system is very important for businesses to settle contractual disputes among themselves or with governments. Without a fair and independent judicial system, corruption often grows to such a point that will substantially increase the cost of doing business. In CSPI Ratings' view, an independent and effective judicial system will reduce the uncertainty and credit risks for all issuers.

Government intervention in the economy is a more controversial factor in the rating analysis, which may be helpful at a certain economic phase of a less developed economy with a history of heavy dependence on state support and planning, but harmful to a free economy that has an established free-market structure and spirit. Therefore, when CSPI Ratings assesses the government intervention risk, we consider it together with the local political structure, history and culture, and arrive at a conclusion of whether the intervention is supportive or destructive of the economy. CSPI Ratings does not simply consider government intervention as negative, and a positive assessment may be given in certain countries if such intervention is

proven helpful to restore market order and encourage economic growth. CSPI Ratings assesses government intervention on a three-point scale: 'negative', 'neutral', and 'positive'.

**Economic Strength**

The economic strength subfactor is drawn from our sovereign rating criteria. CSPI Ratings considers a country's economic strength risk as a relevant rating component for non-sovereign issuers such as corporate entities, since all companies need to operate in one or multiple countries or regions. The economic environment often may determine a company's market opportunities, an industry's business cycle, and the company's investment decisions. We focus our assessment of economic strength on a country's growth and competitiveness. Good prospects helps to anchor confidence among business, households and financial markets during times of shock, mitigating procyclical behavior in stress scenarios, thereby enhancing the resilience of an economy. Similarly, strong global competitiveness helps a country to mitigate the impact of worldwide shocks partly by making the country stand out as a relatively good place for business.

The trend growth is calculated over a long period (typically 10 years, including a three-year projection period), which should span at least one business cycle and thus reflect the fundamental growth prospect of a country. Our projections regarding GDP per capita growth are informed by government forecasts, projections from the IMF, World Bank, regional development banks and other sources, and a review of key growth drivers against their historical trends.

For detailed information on this topic, readers can refer to our sovereign criteria which will be published separately.

**Institutional Assessment**

Institutions have a broad impact on a country's creditworthiness through many aspects of the economy and government operations. In this section, we focus on political and financial institutions in two respects: (1) to what extent institutions and policies foster a stable/predictable environment for business activities, mitigate economic imbalances and thus facilitate sustainable economic growth and healthy public financial development over the medium to long term, or the contrary, leading to an unstable/unpredictable business environment, giving rise to economic and fiscal imbalances and thus the risk of sharp correction even in the absence of exogenous shocks, and (2) how well institutions and policies respond to internal and external shocks, and support economic performance and fiscal sustainability in the long term.

We observe that effective political institutions in advanced economies may differ due primarily to differences in social priorities and conditions as well as requirements for economic development. Thus, our analysis of political institutions in advanced economies and developing countries have commonalities as well as differences.

For detailed information on this topic, readers can refer to our sovereign criteria which will be published separately.

**Financial System Risk**

Banking system and capital market risks are a factor that we assess across most financial and corporate sectors as they form an essential part of the environment in which an entity operates. We believe the systematic risk associated with a country's banking industry and the broader capital markets are crucial risk factors for a non-sovereign issuer's macroenvironment. We draw this factor from our banking and financial institutions methodology as we believe such a factor will have a systemic impact on all corporate industries and companies.

Our analysis considers the structural stability of a jurisdiction's banking system, and the breadth and depth of its fixed income and equity markets. In our evaluation of banking system stability, we may consider factors such as its overall capital adequacy, asset quality, management, earnings and liquidity. The dispersion of credit quality among market participants may also be instructive in identifying any potential concentration of risks within the system. We may also consider the scale, growth and vulnerability of a market's shadow, or informal, banking system, which may encompass a wide range of intermediary firms and channels that may not be subject to the same level of regulatory supervision as licensed banks and non-bank financial institutions. Such intermediaries may include securitization structures, wealth management products and other schemes that act as de facto bridges between savers / investors and borrowers / corporations.

Outside the banking system, we review a country's bond and equity markets. Such reviews aim to address the market, interest-rate and liquidity risks associated with a corporate. To the extent that corporates rely on public fixed income and equity markets for funding, capital market stability may be critical to the resilience of its capital structure. In our review, we may assess the scale of a country's bond and equity markets relative to GDP, the availability of new issuances, the diversification of issuers, as well as liquidity conditions as reflected in bid-ask spreads and secondary market trading volume.

## How to score the Industry Risk Profile

Each industry has unique characteristics and cyclicality, which can differ greatly from one another. To properly reflect the specific characteristics of each industry and their impact on companies within that industry, we categorize the companies into industries and sub-industries, and assign an industry risk score to each industry on a five-point scale, with '5' as the highest score and lowest industry risk, and '1' as the lowest score and highest industry risk.

We break down the industry risk analysis into six components: concentration risk, entry barriers, growth prospects, profitability, substitution risk, cyclicality risk. Each of these six sub-factors is analyzed and assessed on a three-point scale as 'high risk', 'medium risk' and 'low risk', and then combined to derive the final industry risk score for each industry we cover. The industry risk score is applied uniformly to all companies in that industry and then incorporated into the analysis of a company's business profile. For companies that operate across multiple industries, CSPI Ratings adopts a weighted average approach to combine the different industry risk scores to derive a weighted-average industry risk score, rounded to the nearest integer. The weights usually are determined by the share of profit or revenue that a company generates from each industry.

**Exhibit 5: Sub-factors for Industry Risk Profile Assessments**

| | | |
|---|---|---|
| **Industry Risk Profile** | Concentration risk | Each sub-factor is assessed on a three-point scale: high, medium, low. All assessments are relative to other industries, not on absolute terms. For example, the concentration risk of industry A is compared to all other industries before deriving the outcome of high, medium or low. |
| | Entry barrier | |
| | Growth perspective | |
| | Profitability level & trend | |
| | Substitution risk | |
| | Cyclicality risk | |

For the specific industry risk score and their detailed assessments, readers can refer to CSPI Ratings' Industry Risk Analysis Guideline, which will be published separately.

## How to score the Operations Profile

CSPI Ratings considers five operational sub-factors when assessing a corporate issuer's operations profile, which comprise operating scale, products, services and technology (PST), brand image and market share (BIMS), operating efficiency, and business diversity. These five sub-factors will be assessed on a seven-point numeric scale, with '7' as the highest score and lowest risk, and '1' as the lowest score and highest risk.

### Operating Scale

Historical experience and studies have demonstrated that larger and more established businesses tend to have better ability to survive the economic down cycles than small companies and start-ups. This is because the larger and more established businesses usually have wider and deeper sales networks and distribution channels, longer historical ties with clients, suppliers and financiers, and more flexibility to sell assets to raise funds, etc. CSPI Ratings believes the larger the operating scale is, the lower the credit risk it holds. However, it is also challenging to properly compare the operating scale across different industries. For instance, asset and capital-heavy industries like oil and gas, heavy machinery manufacturing and semiconductors, by nature have larger asset bases than asset-light industries like media and entertainment, Internet and software. To properly score this rating factor, CSPI Ratings uses an industry-specific guidance for the rating committees on their assessment.

Operating scale can be judged from many aspects. For example, some companies have large sales and distribution networks but generate less revenue and profits, while other companies may record large sales but invest little in fixed assets to generate such sales. To properly assess the operating scale, CSPI Ratings uses key indicators like revenue and operating cashflow as the starting point, with supplementary adjustment factors like reserves, operating assets, profits or distribution network size, etc. CSPI Ratings assesses operating scale on a seven-point scale, with '7' as the highest score and largest scale, and '1' as the lowest score and smallest scale.

### Products, Services & Technology (PST)

The competitiveness of a corporate entity is often reflected in the products and services it provides compared to its rivals. When a company's products and services are essential, unsubstitutable or extremely desirable, this company holds greater bargaining power over its clients and suppliers, as well as substantial competitive advantages over its competitors. CSPI Ratings assesses a company's products and services on the following aspects: product innovation and roadmap, quality of products and services, the pricing premium of its products and services, and client stickiness to the company's products and services.

A company's technology innovation is often the source of its future competitive advantage. Technology is increasingly important to all products and services across all industries over the last few decades, whether in construction and engineering or consumer products. Product innovation is often driven by the company's technology advantages over its peers. When assessing the PST, CSPI Ratings not only considers the product and service offerings within the industry, but also compares across industries to examine potential substitution risks. For certain sunset industries, if the entire industry is falling out of favour, a low PST score may be given for all companies in it, no matter how much quality premium one company has over its peers.

We assess the technology advantage not only on a relative basis, which focuses on comparing companies within a specific industry, but also on an absolute basis, by comparing the technology content of an industry's products and services across different industries, particularly when such technology advantages can tangibly boost competitiveness and entry barriers for an industry's products and services.

CSPI Ratings scores a company's PST factor on a seven-point scale, with '7' as the highest score and most competitive on product, service and technology, and '1' as the lowest score and least competitive among its peers. Exhibit 6 provides a general guide on how rating committees will assign scores to each company.

**Exhibit 6: Products, Services & Technology (PST)**

| Score | Description |
|---|---|
| **7** | The company's products and services are essential, unsubstitutable and extremely desirable, and the company is the technology leader and sets standards for the industry and controls most of the key industry patents. Its rivals are not able to close the technology and quality gap for a very long time. |
| **6** | The company's products and services are essential and desirable, and the company has a substantial technology advantage over the vast majority of its competitors with various patent protections. Its rivals are not able to close the technology and quality gap in the foreseeable future. |
| **5** | The company's products and services are important in the industry, and the company is a technology innovator in some aspects with some patent protection. However, the company's technology lead is not signficant and it needs much effort to maintain its position in its industry. |
| **4** | The company's products and services are generic and subject to substitution risk, and the company is a technology innovator in some aspects with some patent protection. However, the company's technology lead is not significant and it needs much effort to maintain its position in the industry. |
| **3** | The company's products and services are generic and substitutable, and the company is a technology follower in some aspects with very little patent protection. The company faces challenges in keeping up with technology development. |
| **2** | The company's products and services are easily replaced, and the company is a technology follower in every aspect with no patent protection. The company has fallen behind the industry's technology development noticeably. |
| **1** | The company's products and services are obsolete, and the company uses other players' technologies. The company is increasingly falling behind the industry's technology development and has no hope of catching up. |

### Brand Image and Market Share (BIMS)

CSPI Ratings believes that even for a generic product maker or seller, branding plays a material role in its business. In the information era, public image is a crucial intangible asset that may make or break a company. CSPI Ratings considers Brand Image as an important rating factor for a company's competitiveness, and assesses a corporate entity's Brand Image not only on the brands of its products but also the company's image and brand as a whole. A highly recognized product or company brand often gains consumer loyalty and client confidence, and contributes to the company's long-term success. However, it

is not always easy to quantify the degree to which a company's brand image can help or hurt its competitiveness. Many market studies often calculate brand values in dollar amounts and provide rankings over different brands. Our analysts and rating committees may consider such market studies as a reference, but we do not use them as the sole or main driver in judging a company's brand image. A brand's market value is not always equal to the brand or company competitivenesss, even though some correlations do exist. Our analysts and committees exercise their own judgement.

A company's competitive strength can also be measured by the market share of its products and services, which is usually supported by the products offered, marketing efforts and brand image. CSPI Ratings believes the higher the market share gained by a corporate entity, the more competitive it is. In those monopolized or duopolized markets where market share concentration tends to be high, we usually score this sub-factor high for market leaders if their market shares are expected to be sustainable. For highly fragmented industries, no company holds an obvious advantage over its peers, hence we usually give low scores for this sub-factor to all companies in this industry. However, we may give the benefits to a company that has an advantage in its region  even if its market share may be small from a global perspective.

BIMS is assessed on a seven-point scale, with '7' as the highest score and '1' as the lowest.

**Exhibit 7: Brand Image & Market Share (BIMS)**

| Score | Description |
|---|---|
| **7** | Top brand recognition with extremely high customer stickiness, which creates insurmountable barriers for competitors.<br><br>Dominant market share and lead over competitors by a very large margin, so no meaningful competition in foreseeable future. |
| **6** | Very high brand recognition with very high customer stickiness, which creates very strong barriers for competitors.<br><br>Leading market share which is sustainable in the foreseeable future, a lead over the competition by a solid margin but some competitors are following closely behind. |
| **5** | High brand recognition with high customer stickiness, which creates strong barriers for competitors.<br><br>One of the leaders in terms of market share but needs to watch out for competitors as it could fall out of the leaders' group if technology trends, market conditions or customer preferences turn against the company. |
| **4** | Moderate brand recognition with some customer stickiness, which creates some barriers for competitors.<br><br>The company is not in a leading position in terms of market share but a close follower and not showing any sign of falling far behind. The company is able to keep up with market developments and maintain its market share. |
| **3** | Little brand recognition and not much customer stickiness; competitors can replace the company with some effort.<br><br>Small market share which may not be sustainable if the company can't keep up with market developments and competitors step up their efforts to take market share from the company.. |
| **2** | Very little brand recognition, no customer stickiness, widespread competition.<br><br>Tiny market share which is not sustainable if the competitors enter its market. The company cannot create much meaningful barriers to deter rivals. |
| **1** | No brand recognition, no customer stickiness, widespread competition.<br><br>Negligible market share which is not sustainable if the competitors enter its market. The company cannot create any meaningful barrier to deter rivals. |

### Operating Efficiency

One of the most important factors in competitiveness where a corporate entity can differentiate itself from its peers is operating efficiency. Even though the measurement of operating efficiency could differ from industry to industry, CSPI Ratings considers three common measurement factors for all corporate issuers: overall cost structure, fixed cost and variable cost flexibility, and working capital management.

A cost base which is lower than the industry average usually demonstrates the company's ability to generate profits even in a downturn. A higher cost base often leads to lower margins and renders the company vulnerable to unexpected market events. Other than the overall cost structure, it is also crucial to understand how flexible the company's cost structure is. A

higher fixed cost base normally means less flexibility in cutting costs during tough times, which dampens the company's ability to compete and survive.

Working capital turnover is also an important indicator of how a company manages its short-term capital inflows and outflows, which in turn reveals the company's ability to manage its liquidity and capital efficiency. In some cases, the process of managing working capital is more important than working capital turnover ratio itself in our rating analysis. Due to the different characteristics of various industries, the working capital turnover ratio often varies greatly from industry to industry. Cross-industry comparisons often tell little on how efficient the company truly is.

**Exhibit 8: Operating Efficiency**

| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|
| Company's cost structure is the lowest in the industry, which has consistently led to highest profitability among its peers.<br><br>Consistently demonstrates excellent ability to manage fixed and variable costs in cyclical downturns.<br><br>Best working capital management capability, evidenced by consistently best cash conversion cycle in the industry. | Company's cost structure is at top end in the industry, which has consistently led to much higher profitability than its peers.<br><br>Consistently demonstrates strong ability to manage fixed and variable costs in cyclical downturns.<br><br>Strong working capital management, evidenced by consistently top performance on the cash conversion cycle in the industry. | Company's cost structure is better than the industry average, which has consistently led to higher than average profitability.<br><br>Consistently demonstrates above average ability to manage fixed and variable costs in cyclical downturns.<br><br>Good working capital management, evidenced by consistently above average cash conversion cycle in the industry. | Company's cost structure is average in the industry, which led to average profitability.<br><br>Consistently demonstrates average ability to manage fixed and variable costs in cyclical downturns.<br><br>Average working capital management, evidenced by average cash conversion cycle in the industry. | Company's cost structure is worse than the industry average, which has consistently led to below average profitability.<br><br>Insufficient ability to manage fixed and variable costs in cyclical downturns.<br><br>Average working capital management, evidenced by consistently below average cash conversion cycle in the industry. | Company's cost structure is worse than most peers in the industry, which has consistently led to low profitability.<br><br>Very little ability to manage fixed and variable costs in cyclical downturns.<br><br>Weak working capital management, evidenced by consistently poor performance on the cash conversion cycle in the industry. | Company's cost structure is the worst in the industry, which has consistently led to the lowest profitability.<br><br>Incapable of managing fixed and variable costs in cyclical downturns.<br><br>Worst working capital management, evidenced by consistently the worst cash conversion cycle in the industry. |

### Business Diversity

In general, it is believed that if a company has multiple business lines that are exposed to different business cycles and have no or low correlation among them, it will be able to weather one specific industry downturn better than a company with only one business line. The cashflow generated from other uncorrelated business activities often can provide a buffer to the company's financial performance and reduce cashflow volatility. CSPI Ratings considers a company with more uncorrelated business lines carry less credit risk than single industry companies.

In addition to business lines, CSPI Ratings also considers product diversity, geographic diversity, client and supplier diversity as other key indicators when assessing a company's business diversity. CSPI Ratings scores a company's business diversity on a seven-point scale, with '7' as the highest score and most diversified, and '1' as the lowest score and least diversified.

Exhibit 9: Business Diversity

| | |
|---|---|
| **7** | Business diversity, geographic diversity, product diversity, supplier diversity, client diversity. At least five clearly defined and uncorrelated business lines, and other diversities are all fully achieved. |
| **6** | Business diversity, geographic diversity, product diversity, supplier diversity, client diversity. At least four clearly defined and uncorrelated business lines, and other diversities are all fully achieved. |
| **5** | Business diversity, geographic diversity, product diversity, supplier diversity, client diversity. At least three clearly defined and uncorrelated business lines, and other diversities are all fully achieved. |
| **4** | Business diversity, geographic diversity, product diversity, supplier diversity, client diversity. At least two clearly defined and uncorrelated business lines, and other diversities are mostly achieved. |
| **3** | Business diversity, geographic diversity, product diversity, supplier diversity, client diversity. Among these five types of diversities, three are mostly achieved. |
| **2** | Business diversity, geographic diversity, product diversity, supplier diversity, client diversity. Among these five types of diversity, two are reasonably achieved. |
| **1** | Business diversity, geographic diversity, product diversity, supplier diversity, client diversity. Among these five types of diversity, one or none is reasonably achieved. |

### Combining sub-factors to obtain the Operations Profile

The score of each sub-factor of the Operations Profile is combined to calculate a weighted average assessment score, which is mapped out to achieve the final assessment of the Operations Profile. The weight of each sub-factor is preset for all companies to ensure maximum comparison and consistency, which are ‘20%’, ‘20%’, ‘15%’, ‘25%’ and ‘20%’ for operating scale, PST, BIMS, operating efficiency, and business diversity respectively, as shown in Exhibit 10.

Exhibit 10: Sub-factors for Operations Profile

| Weight | Sub-Factors |
|---|---|
| 20% | Operating Scale |
| 20% | Products, Services & Technology |
| 15% | Brand Image & Market Share |
| 25% | Operating Efficiency |
| 20% | Business Diversity |

The rating scale for the Operations Profile is defined in seven numeric categories: ‘7,6,5,4,3,2,1’, which correspond to ‘excellent’, ’very strong’, ‘strong’, ‘moderate’, ‘weak’, ‘fairly weak’, and ‘vulnerable’. The weighted average assessment score is banded into the descriptive categories shown in Exhibit 11.

Exhibit 11: Translation Table for Weighted Average Assessment Scores to Operations Profile

| Weighted average assessment score | Operations Profile |
|---|---|
| **>6.5 - 7** | Excellent |
| **>5.5 - 6.5** | Very Strong |
| **>4.5 - 5.5** | Strong |
| **>3.5 - 4.5** | Moderate |
| **>2.5 - 3.5** | Weak |
| **>1.5 - 2.5** | Fairly Weak |
| **1.0-1.5** | Vulnerable |

# Financial Profile Analysis

CSPI Ratings' financial profile analysis focuses on a variety of numeric and quantitative indicators designed to reveal the financial strength and leverage of each company. CSPI Ratings ranks the company's financial profile by analyzing its cashflow-based leverage, financial volatility, debt structure, financial policy, and profitability relative to peers. Combining the Business Profile and Financial Profile, we will derive the indicative credit score for a corporate issuer.

We mainly rely on four core leverage ratios, namely debt to EBITDA, fund from operations (FFO) to debt, EBITDA interest coverage, gross debt over total capitalization, and two non-core leverage ratios, namely operating cashflow over debt and free cashflow over debt; as well as two core profitability measures, namely EBITDA margin and return on invested capital (ROIC). Each of these eight ratios is assessed on a five-year weighted average basis with the chronological weights of 10%, 15%, 25%, 25% 25% for the year t-2, t-1, t, t+1, t+2 respectively, where t represents the current year. More weight is given to future years to emphasize CSPI Ratings' ratings are forward-looking opinions on a company's creditworthiness. However, when a company goes through drastic transformation or changes in corporate structure such as mergers and acquisitions, large one-time capital investment or dividend payout, etc., the historical financial data may not properly reflect what a company will be like in future. In these cases, CSPI Ratings applies the weights of 40%, 30%, 30% for the current year and subsequent two years. Some of the elements of these ratios are not based on generally accepted accounting principles such as EBITDA, which will be defined by CSPI Ratings. All ratios are calculated on an adjusted basis, and the definitions of these ratios are subject to CSPI Ratings' interpretation.

If a company is in a particularly volatile industry, or expects to experience very high cashflow uncertainty in the coming years, or if the company's financial performance is irrelevant for some reason in some years, the criteria allow rating committees to adopt a weighting that properly reflects the company's true financial strength and credit profile.

Both the leverage profile and profitability assessment are based on an 18-point scale, which has both alphabetic and numeric scales, with 'aaa' as the highest profitability and lowest financial leverage, and 'ccc/ccc-' as the lowest profitability and highest financial leverage. The corresponding alphabetic and numeric scale is shown as Exhibit 12. The numeric value is used to calculate the averages and weighted averages.

**Exhibit 12: Corresponding Numeric Value for Each Letter Scale**

| **Letter Scale** | aaa | aa+ | aa | aa- | a+ | a | a- | bbb+ | bbb | bbb- | bb+ | bb | bb- | b+ | b | b- | ccc+ | ccc/ccc- |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Numeric Value** | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

## How to determine the Financial Profile of a corporate issuer

Each sub-factor of the financial profile will be assigned a numeric score according to the analytical guidance set out in these criteria, and then a weighted average leverage profile score and profitability assessment score are calculated based on the preset weights shown in Exhibit 13. Once the numeric value for the leverage profile and profitability assessment are determined for a company, they are converted to the corresponding alphabetic scale based on Exhibit 14.

CSPI Ratings does not simply combine the leverage profile and profitability assessment through a weighted average approach, instead considers the leverage profile as the anchor factor for the financial profile analysis and the profitability assessment as the complementary factor. CSPI Ratings believes a company's default risk is directly correlated to its financial leverage but not its profitability. However, a stronger and increasing profitability will often help a highly leveraged company to reduce or slow down its leverage growth; on the other hand, a weaker and weakening profitability may likely cause a less leveraged company to increase its financial leverage to cope with declining cashflow and meet capital spending needs. The impact of a company's profitability on its ability to meet debt obligations is not always straightforward, and is certainly not a linear relationship and never monotonic.

**Exhibit 13: Sub-Factors for Financial Profile**

| | Sub-Factors | Weight | Ratios |
|---|---|---|---|
| **Financial Profile** | Leverage Profile | 30% | Debt/EBITDA |
| | | 20% | FFO/Debt |
| | | 30% | EBITDA Interest Coverage |
| | | 20% | Gross Debt/Total Capitalization |
| | Profitability Assessment | | EBITDA Margin |
| | | | Return on Invested Capital |

**Exhibit 14: Converting Numeric Scores to Letter Scale**

| Numeric Score | Letter Scale |
|---|---|
| >17.5 | aaa |
| >16.5 - 17.5 | aa+ |
| >15.5 - 16.5 | aa |
| >14.5 - 15.5 | aa- |
| >13.5 - 14.5 | a+ |
| >12.5 - 13.5 | a |
| >11.5 - 12.5 | a- |
| >10.5 - 11.5 | bbb+ |
| >9.5 - 10.5 | bbb |
| >8.5 - 9.5 | bbb- |
| >7.5 - 8.5 | bb+ |
| >6.5 - 7.5 | bb |
| >5.5 - 6.5 | bb- |
| >4.5 - 5.5 | b+ |
| >3.5 - 4.5 | b |
| >2.5 - 3.5 | b- |
| >1.5 - 2.5 | ccc+ |
| <=1.5 | ccc/ccc- |

CSPI Ratings adopts a notching approach to adjust a company's leverage profile to derive the financial profile by adjusting up and down the leverage profile based on the company's profitability. If the profitability assessment is determined to be 'very strong', the financial profile is usually two notches higher than its leverage profile except when the leverage profile is at the high end of the spectrum, while if the profitability assessment is 'strong', the leverage profile is raised one notch to arrive at the financial profile. Conversely, if the profitability assessment is 'weak' or 'very weak', we will consider lowering the leverage profile by one or two notches in the assessment of the financial profile, except when the leverage profile is at the low end of the spectrum. Exhibit 15 demonstrates how we combine the leverage profile and profitability assessment to derive the financial profile.

**Exhibit 15: Determining the Financial Profile**

| Leverage Profile | Profitability Assessment | | | | |
|---|---|---|---|---|---|
| | VS | S | M | W | VW |
| **aaa** | aaa | aaa | aaa | aa+ | aa |
| **aa+** | aaa | aa+ | aa+ | aa | aa- |
| **aa** | aa+ | aa+ | aa | aa- | a+ |
| **aa-** | aa+ | aa | aa- | a+ | a |
| **a+** | aa | aa- | a+ | a | a- |
| **a** | aa- | a+ | a | a- | bbb+ |
| **a-** | a+ | a | a- | bbb+ | bbb |
| **bbb+** | a | a- | bbb+ | bbb | bbb- |
| **bbb** | a- | bbb+ | bbb | bbb- | bb+ |
| **bbb-** | bbb+ | bbb | bbb- | bb+ | bb |
| **bb+** | bbb | bbb- | bb+ | bb | bb- |
| **bb** | bbb- | bb+ | bb | bb- | b+ |
| **bb-** | bb+ | bb | bb- | b+ | b |
| **b+** | bb | bb- | b+ | b | b- |
| **b** | bb- | b+ | b | b- | ccc+ |
| **b-** | b+ | b | b- | ccc+ | ccc+ |
| **ccc+** | b | b- | ccc+ | ccc+ | ccc/ccc- |
| **ccc/ccc-** | b- | ccc+ | ccc/ccc- | ccc/ccc- | ccc/ccc- |

## How to score the Leverage Profile

A company's cashflow generation capacity mostly determines its ability to repay financial obligations, therefore CSPI Ratings focuses on examining how a company matches its current and future cashflow to borrowings and other debt obligations. When assessing a company's financial leverage, the criteria emphasizes a set of cashflow-based credit ratios, instead of the usual balance sheet-based financial indicators used by equity analysts.

CSPI Ratings regards these five leverage ratios as the core indicators to assess a corporate issuer's leverage profile, but the focus on each of these ratios is slightly different, with more weight given to debt-to-EBITDA, EBITDA interest coverage, and gross debt-to-total capitalization. Each of the five ratios is calculated with a weighted average of historical and projected numbers, which are used to obtain the numeric score for each ratio according to the ranges set out in Exhibit 16. For example, if a company's five-year weighted average Debt-to-EBITDA ratio is calculated to be 3.85x, falling into the range of 3.67 to 4, then the alphabetic rating for this factor is 'bb' and the numeric score for the Debt-to-EBITDA ratio is '7'.

**Exhibit 16: Leverage Profile Analysis Ratios**

| | | Debt/EBITDA | | EBITDA Int. Cov. | | Gross Debt/Cap (%) | | FFO/Debt (%) | |
|---|---|---|---|---|---|---|---|---|---|
| Letter | Numeric | Low | High | Low | High | Low | High | Low | High |
| aaa | 18 | --- | 0.00 | 20 | --- | 0 | 15 | 65 | --- |
| aa+ | 17 | 0.00 | 0.67 | 18 | 20 | 15 | 20 | 60 | 65 |
| aa | 16 | 0.67 | 1.00 | 16 | 18 | 20 | 23 | 56 | 60 |
| aa- | 15 | 1.00 | 1.33 | 14 | 16 | 23 | 27 | 52 | 56 |
| a+ | 14 | 1.33 | 1.67 | 12 | 14 | 27 | 30 | 48 | 52 |
| a | 13 | 1.67 | 2.00 | 10 | 12 | 30 | 33 | 44 | 48 |
| a- | 12 | 2.00 | 2.33 | 9 | 10 | 33 | 37 | 40 | 44 |
| bbb+ | 11 | 2.33 | 2.67 | 8 | 9 | 37 | 40 | 36 | 40 |
| bbb | 10 | 2.67 | 3.00 | 7 | 8 | 40 | 43 | 32 | 36 |
| bbb- | 9 | 3.00 | 3.33 | 6 | 7 | 43 | 47 | 28 | 32 |
| bb+ | 8 | 3.33 | 3.67 | 5 | 6 | 47 | 50 | 24 | 28 |
| bb | 7 | 3.67 | 4.00 | 4 | 5 | 50 | 53 | 20 | 24 |
| bb- | 6 | 4.00 | 4.50 | 3 | 4 | 53 | 57 | 16 | 20 |
| b+ | 5 | 4.50 | 5.00 | 2 | 3 | 57 | 60 | 12 | 16 |
| b | 4 | 5.00 | 5.50 | 1.5 | 2 | 60 | 63 | 8 | 12 |
| b- | 3 | 5.50 | 6.00 | 1 | 1.5 | 63 | 67 | 0 | 8 |
| ccc+ | 2 | 6.00 | 7.00 | 0.5 | 1 | 67 | 70 | -3 | 0 |
| ccc/ccc- | 1 | 7.00 | --- | --- | 0.5 | 70 | --- | --- | -3 |

The table will be applied to all companies that fall into the definition of corporates set out according to these criteria. Once the numeric score is determined for each ratio, a preliminary weighted average leverage profile score is calculated according to the weights set out in Exhibit 17, which later is mapped to derive the alphabetic rating of the preliminary leverage profile according to Exhibit 16.

**Exhibit 17: Weighted Average Leverage Profile Score**

| | Weight | Ratios |
|---|---|---|
| **Leverage Profile Score** | 30% | Debt/EBITDA |
| | 20% | FFO/Debt |
| | 30% | EBITDA Interest Coverage |
| | 20% | Gross Debt/ Total Capitalization |
| **Supplementary** | | Operating Cash Flow/Debt |
| | | Free Cash Flow/Debt |

However, for some industries where the proposed leverage ratios are not relevant, we may use other leverage measures to help analysts and rating committees analyze these companies' financial leverage. If such different approaches are used, we will provide detailed explanations on industry-specific criteria such as the Industry Risk Analysis Guideline, which shall be published separately, and any such application will always be disclosed in our rating reports.

## Toning Factors for Leverage Profile

The LPS that is assessed, based on four core financial leverage ratios, reveals a lot about a corporate issuer's financial risks, but not all. The cashflow leverage ratios, though calculated on a time-weighted basis, don't capture information on how a company's debt structure such as short-term debt concentration and financial policies such as management's financial

aggressiveness will impact the company's longer term financial performance. To arrive at the final leverage profile assessment, CSPI Ratings fine tones the preliminary LPS on five toning factors: cashflow variation, debt structure, financial policy, financial volatility, and off-balance sheet investments.

**Cashflow Variation**

Though EBITDA and FFO are good reflections on the company's ability to generate operating cashflow, they do not incorporate different companies' working capital management, expansion strategy, requirements for reinvestment, asset disposal and dividend policy. Operating cashflow (OCF) differentiate companies with similar FFO by their working capital management, and free cashflow (FCF) measures the cashflow after taking into account capital expenditure. These two ratios, though they tend to have higher volatility than EBITDA and FFO, better reflect the company's cash requirements and debt servicing capability. Therefore, in addition to the EBITDA and FFO debt servicing ratios mentioned above, CSPI Ratings also utilizes OCF/Debt and FCF/Debt as additional factors to assess the rated entities' debt-servicing ability.

Even though these two cashflow ratios are not the core measures in our assessment on a company's financial leverage, they reveal a great deal of information on a company's financial performance. We will only use these two ratios for adjustments to our initial assessment on the leverage. If the two ratios demonstrate substantial information that contradicts our initial assessment, the analysts and rating committees will consider such discrepancies and may adjust the final leverage profile up or down. However, the maximum adjustment allowed is two notches.

**Debt Structure**

CSPI Ratings assesses a corporate issuer's debt structure on three factors: short-term debt concentration, foreign currency debt exposure and interest rate risk. Of these three factors, the short-term debt concentration ratio is the key driving determinant for our assessment of a corporate issuer's debt structure. If a corporate issuer's short-term debt accounts for less than 50% of total debt, the debt structure assessment will be 'neutral'; if the ratio is in the range of 50-80%, CSPI Ratings considers this issuer's debt structure as 'negative'; if such concentration exceeds 80%, the debt structure assessment will be 'very negative'. Even if the short-term debt concentration is less than 50%, the debt structure assessment could still be negative if the company has substantial foreign exchange risk and interest rate risk exposure.

When examining the foreign exchange risks, CSPI Ratings focuses on how much a company's debt is denominated in foreign currencies and how much foreign currency cashflow this company can generate to service its foreign currency debt. In the case of mismatch of foreign currency obligations and cashflow, CSPI Ratings assesses the company's access to foreign currency borrowings or capital market funding to determine the true currency risk over the short and long term. A large mismatch between foreign currency obligations and cashflow will lead to a negative assessment of currency risk exposure.

In addition, interest rate risk exposure is an important consideration. For companies with large amounts of debt carrying variable interest rates, CSPI Ratings stress-tests the company's ability to service its interest payments under a hypothetical interest hike scenario. The stress scenario is usually set at increments of 100bps on the interest rates, while the key indicators to be assessed are the EBITDA-to-interest coverage and FFO-to-interest coverage ratios. If the rating committees believe there is substantial weakness in the coverage ratios when the interest rate changes, CSPI Ratings may lower the debt structure assessment result.

**Financial Policy**

The financial risk analysis, based on the standard assumptions of cashflow assessments and financial ratios, don't always capture all the credit risks that may arise from a company's operations, particularly if a company's financial policies may indicate greater event risks. A company's sudden corporate actions and investment decisions often change its balance sheet and cashflow in future and have a great impact on the ratings, if such decisions and actions are beyond our standard assumptions. CSPI Ratings assesses a company's financial policy mainly on three aspects: management's intention and tolerance of the company's financial leverage level, the comprehensiveness and transparency of the company's financial policies, and management's track record of following established financial policies. Some other factors may also be considered, such as the effectiveness of management's communications to external parties on its financial policies, and shareholders' influence on the company's short-to-long term financial targets.

CSPI Ratings assesses a company's financial policy on a 3-category scale: positive, neutral and negative.

Combining the debt structure and financial policy assessments, the impact on a company's leverage profile score (LPS) is set in Exhibit 18. The LPS can be adjusted up one notch if the debt structure is neutral and the financial policy assessment is positive, or down by up to three notches if the debt structure and financial policy assessment are both very negative.

Exhibit 18: Adjustments for effect of debt structure and financial policy assessments

| | Financial Policy Assessment | | |
|---|---|---|---|
| **Debt Structure** | **Positive** | **Neutral** | **Negative** |
| **Neutral** | +1 notch | 0 | -1 notch |
| **Negative** | 0 | -1 notch | -2 notches |
| **Very Negative** | -1 notch | -2 notches | -3 notches |

### Financial Volatility

Under a standard scenario, our cashflow and leverage analyses have a horizon of five years: two years of historical performance plus three years of financial projections. However, the longer-term financial performance may also carry some credit indication on how a company has performed in the distant past, particularly in the last economic or industry downturn. The extreme leverage case often reveals how stretched a company's financial leverage can be, despite its current leverage profile. For example, our cashflow analysis may produce a leverage profile score of 'a+', but historically the company's leverage profile dipped to 'b' five years ago, when the industry was experiencing a severe downturn. If our analysts think such volatility has a high likelihood of being repeated in future, the rating committee may lower this company's leverage profile score. This downward adjustment is considered a cushion between current financial performance based on our base-case projections and the potential medium-term variance that may arise in extreme situations.

The financial volatility toning factor is more like a downward pressure adjustment to the ratings, where the maximum allowed downward adjustment is 3 notches.

### Investment

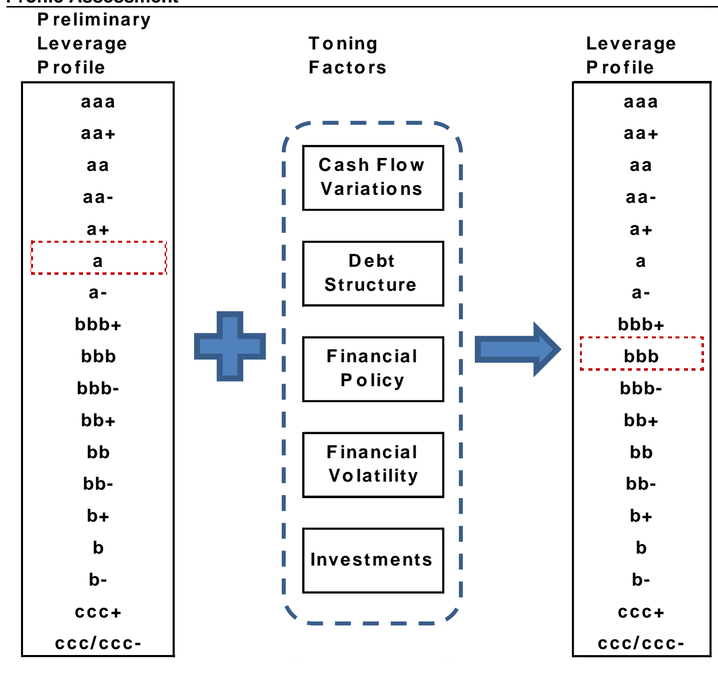
In most cases, CSPI Ratings' financial profile analysis focuses on consolidated financial statements to capture the financial performance of the entire company. However, when a company has substantial unconsolidated investments and/or assets that are only booked at cost or original value in the balance sheet, and if such investments and assets' current market value substantially exceeds the cost and original value, the company's balance sheet may be understated and the financial leverage may be overstated. If such investments or assets can be liquidated within a reasonably short period to repay debts when the company is in need of cash, these unconsolidated investments and assets are credit positive to the company's ratings.

CSPI Ratings may adjust a company's leverage profile score upwards if following conditions are met, and the actual number of notches that can be adjusted upwards depends on the size of these investments and assets.

- The leverage profile score can be raised by one or several notches if we assume the unconsolidated investments and assets are liquidated and the proceeds are used to repay debt.
- Such investments and assets can be liquidated at fair prices within a reasonable time.

The combined effect of these five toning factors may be positive or negative for a company's leverage profile, and their impact on the final leverage profile assessment is illustrated in Exhibit 19.

**Exhibit 19: Impact of Toning Factors on leverage profile and Final Leverage Profile Assessment**




## How to score the Profitability Assessment

Profitability is one of the key measures in determining how a company performed compared to its peers. In general, higher profitability means better ability to generate wealth and value for the company's stakeholders. We always regard a company with higher and sustainable profitability to be better. CSPI Ratings assesses a corporate issuer's profitability in the context of the industries the company is involved in. However, it would be challenging to compare profitability across different sectors and industries. Some industries are asset and capital-heavy, and naturally have lower average profitability than some other industries that generate profits mostly through services. Therefore, it would be unfair to rate a top profitability performer in an asset and capital-heavy industry below a bottom performer in an asset and capital-light industry, particularly when such profitability differences are purely driven by industry characteristics.

The common profitability assessment factors like EBITDA margin and return on invested capital (ROIC) are used to measure profitability for all corporates to ensure companies can be assessed from the same perspective. CSPI Ratings not only assesses the company's absolute profitability, but also considers the long-term trend and volatility of the company's profitability. For absolute profitability, we compare the company's profitability with its peers in the same industry using a five-point scoring system: '5,4,3,2,1'. The highest profitability within the industry will be assigned a score of '5'. However, we use a three-point scale to assess the trend and volatility of profitability, which are 'outperform', 'average', 'underperform'. The trend and volatility of profitability may be analyzed based on the absolute EBITDA or other profit trends and volatility, or it may be assessed on the EBITDA margin or other margin trends and volatility. The absolute profitability and the trend and volatility of profitability will then be combined to derive our profitability assessment, which is expressed in a five-point scale: 'very strong (VS)', 'strong (S)', 'medium (M)', 'weak (W)', 'very weak (VW)'.

**Exhibit 20: Determining the Profitability Assessment**

| | Level of Profitability | | | | |
|---|---|---|---|---|---|
| **Trend & Volatility** | 5 | 4 | 3 | 2 | 1 |
| Outperform | VS | VS | S | M | W |
| Average | VS | S | M | W | VW |
| Underperform | S | M | W | VW | VW |

When assessing profitability, two profitability ratios are assessed separately according to the guidelines set out in Exhibit 21. CSPI Ratings rating committees will take a holistic view on a company's profitability, instead of simply relying on the arithmetic

average or the sum of profitability ratios. We calculate the EBITDA margins and ROICs for a company over a period that includes both historical facts and projections. The rating committees will examine the ratios separately to finalize the profitability assessment for this company.

**Exhibit 21: Level of Profitability Analysis Ratios**

| | High | | | | Medium | | | |
|---|---|---|---|---|---|---|---|---|
| | EBITDA Margin | | ROIC | | EBITDA Margin | | ROIC | |
| Numeric | Low | High | Low | High | Low | High | Low | High |
| **5** | 60 | --- | 30 | --- | 35 | --- | 20 | --- |
| **4** | 45 | 60 | 20 | 30 | 25 | 35 | 15 | 20 |
| **3** | 25 | 45 | 12 | 20 | 12 | 25 | 10 | 15 |
| **2** | 12 | 25 | 8 | 12 | 8 | 12 | 5 | 10 |
| **1** | --- | 12 | --- | 8 | --- | 8 | --- | 5 |

| | Low | | | | Regulated Utilities | | | |
|---|---|---|---|---|---|---|---|---|
| | EBITDA Margin | | ROIC | | EBITDA Margin | | ROIC | |
| Numeric | Low | High | Low | High | Low | High | Low | High |
| **5** | 20 | --- | 15 | --- | 10.0 | --- | 6.5 | --- |
| **4** | 12 | 20 | 10 | 15 | 6.0 | 10.0 | 4.5 | 6.5 |
| **3** | 6 | 12 | 5 | 10 | 3.0 | 6.0 | 2.5 | 4.5 |
| **2** | 3 | 6 | 2.5 | 5 | 1.0 | 3.0 | 0.5 | 2.5 |
| **1** | --- | 3 | --- | 2.5 | --- | 1.0 | --- | 0.5 |

To maintain maximum comparability and consistency for companies across different industries, CSPI Ratings doesn't think it is ideal to provide profitability guidance for each industry. Instead, CSPI Ratings classifies all industries into four categories: high profitability, medium profitability, low profitability and regulated utilities; and provides profitability assessment guidance for each of these groups. The capital and asset-focused industries like airlines, heavy equipment manufacturing, automobile, midstream energy may use the low profitability guidance table, while the internet and software service sectors, and pharmaceutical and biotechnology industries may use the high profitability guidance table. We also provide an assessment guidance for regulated utilities, as companies in this sector tend to have very different profitability performance due to local regulations on pricing and services.

In certain industries or sub-industries, the EBITDA margin or ROIC may not be the most suitable indicators of profitability due to industry characteristics, so variation of margin or return ratios may be used to assess the profitability of companies in those industries. In these cases, our specific Industry Risk Analysis Guideline shall provide more clarity and insight.

## Adjustment Factors

The ICS captures the common rating factors for all corporate issuers regardless of region, industry and business type, but there are some company-specific factors that are not commonly applied to all issuers. To properly reflect such company-specific factors and their impact on the credit rating, CSPI Ratings indtroduces adjustment factors to modify the ICS before deriving an SACP for a corporate issuer. CSPI Ratings lists three adjustment factors, namely corporate structure and governance, liquidity and supplementary analysis.

### Corporate Structure and Governance

In an increasingly globalized world, companies often operate across multiple regions and jurisdictions, and more countries are participating in global trade and cross-border activities than ever. Even within one country, companies are becoming more sophisticated and complex in their business activities. However, some companies are also using unnecessarily complicated corporate structures for various reasons, such as maximizing benefits for certain shareholders to escape investigations and inspections by certain jurisdictions. As the complexity of corporate structures increases, CSPI Ratings thinks the legal complication and recovery prospects of corporate bonds become increasingly uncertain. CSPI Ratings does not automatically penalize any corporate issuers with complicated corporate structures, but we will lower their ICS if the rating committees conclude that substantial corporate structure risks exist.

Corporate governance is another key factor in the assessment of corporate structure and governance. There are several elements in our corporate governance analysis: the effectiveness and independence of the board and management, the board's oversight over management, the integrity of the company's executives, management's strategy and implementation, management's ability to align strategy with business position etc.

CSPI Ratings may lower the ICS by up to two notches if both the corporate structure and governance are assessed negatively. Our rating committees will conclude the analysis based on historical evidence and expected corporate practices.

**Liquidity**

Whether a company faces imminent default risks is often determined by its liquidity situation. For a highly leveraged issuer, its default risk may not be imminent if its liquidity is abundant. On the other hand, the default risk would be much higher for a company with very tight liquidity even if its financial leverage is relatively low. Therefore, liquidity is a crucial factor for any issuer's credit rating and its measurement could vary greatly among corporates, banks, insurers and other types of issuers.

For a corporate issuer, we use two liquidity ratios, the quick ratio and cashflow liquidity ratio, as the starting point for our assessment and we make adjustments based on the company's other potential liquidity sources to reach the final assessment. The liquidity factor will adjust up or down the ICS by one or multiple notches, depending on the ICS level and the liquidity assessment. We assess a company's liquidity on a 7-point scale with '7' as the highest score with the best liquidity condition and '1' as the lowest score with the weakest liquidity condition. The descriptive terms in our liquidity assessment is similar to our business profile and operations profile assessment, which are 'excellent (7)', 'very strong (6)', 'strong (5)', 'moderate (4)', 'weak (3)', 'fairly weak (2)', and 'vulnerable (1)'.

The quick ratio is a measure of how a company's liquid resources can meet its short-term financial liabilities, and is defined by CSPI Ratings as the sum of cash, marketable securities and accounts receivables divided by current liabilities. We also recognize that the quick ratio may not be a good liquidity indicator for companies whose accounts receivable are not so liquid and may not be easily converted into cash. An example is the Chinese local government financing vehicles' (LGFVs') accounts receivable from the government. Equally, the quick ratio does not capture the liquidity of companies whose inventories may have strong liquidity, such as retailers of certain consumer goods.

The cashflow liquidity ratio is designed to measure the company's refinancing risk of short-term debt and how the short-term cash inflows cover its mandatory short-term cash outflows, and is defined as the sum of available cash and inflows including liquid assets on hand, funds from operations (FFO) and working capital inflows (outflows) etc., divided by the sum of the company's short-term cash outflows including short-term debt payment, cash interest and mandatory capital expenditure etc.

Exhibit 22 demonstrates the scoring range of these two ratios. When assessing liquidity, CSPI Ratings analyzes the two ratios separately, and make conclusions based on the information revealed by these ratios. We do not combine the two ratios arithmetically. The ratios are assessed on a 6-24 month forward-looking basis. We focus on a 24-month forward liquidity assessment for investment grade issuers, and a 12-month liquidity assessment for speculative grade issuers. The liquidity assessment period may be shortened to 6 months for some highly speculative or near-default issuers which usually carry an ICS of 'b-' or below.

**Exhibit 22: Liquidity Profile Analysis Ratios**

| | Quick Ratio | | CashFlow Liquidity | |
|---|---|---|---|---|
| | Low | High | Low | High |
| **(7) Excellent** | 2.5 | --- | 2.0 | --- |
| **(6) Very Strong** | 2.1 | 2.5 | 1.8 | 2.0 |
| **(5) Strong** | 1.7 | 2.1 | 1.5 | 1.8 |
| **(4) Moderate** | 1.3 | 1.7 | 1.2 | 1.5 |
| **(3) Weak** | 0.9 | 1.3 | 1.0 | 1.2 |
| **(2) Fairly Weak** | 0.5 | 0.9 | 0.6 | 1.0 |
| **(1) Vulnerable** | --- | 0.5 | --- | 0.6 |

The above two ratios only provide a starting point for the liquidity assessment. CSPI Ratings also considers other factors like the company's relationship with lending institutions and access to capital markets, its undrawn and committed banking facilities, reputation among lenders and regulators, unconsolidated long-term financial investments that can be liquidated quickly etc. These additional considerations may revise up or down the initial assessment.

The liquidity assessment may adjust up or down the ICS by several notches, and its impact on the ratings is summarized in Exhibit 23. The influence of the liquidity assessment on ICS is nonlinear and may impose a ceiling on the company's stand-alone credit profile. For example, for a company to be rated investment grade which is 'bbb-' or above, its liquidity must be assessed as '4' or above. If the liquidity assessment is '2', the SCAP will be capped at 'b' if the company's ICS is 'bbb-' or above, and capped at 'b-' if the company's ICS is 'b-' to 'bb+'. Similarly, if a company's liquidity assessment is the worst at '1', the company's SCAP will be capped at 'b' or 'b-' depending on the ICS.

The liquidity assessment may also raise a company's ICS when the liquidity is assessed at the strong end of the scoring range. As shown in Exhibit 23, we allow the company's SACP to have a minimum of 'b-', even if the ICS is at 'ccc+' and 'ccc/ccc-', when its liquidity condition is extremely strong at '7' or '6'.

**Exhibit 23: Impact of Liquidity Assessment on Indicative Credit Score**

| | Liquidity Assessment | | | | | | |
|---|---|---|---|---|---|---|---|
| **ICS** | **(7) Excellent** | **(6) Very Strong** | **(5) Strong** | **(4) Moderate** | **(3) Weak** | **(2) Fairly Weak** | **(1) Vulnerable** |
| **aaa** | 0 | 0 | 0 | 0 | Cap SACP on 'bb+' | Cap SACP on 'b' | Cap SACP on 'b' |
| **aa+** | 0 | 0 | 0 | 0 | Cap SACP on 'bb+' | Cap SACP on 'b' | Cap SACP on 'b' |
| **aa** | 0 | 0 | 0 | 0 | Cap SACP on 'bb+' | Cap SACP on 'b' | Cap SACP on 'b' |
| **aa-** | 0 | 0 | 0 | 0 | Cap SACP on 'bb+' | Cap SACP on 'b' | Cap SACP on 'b-' |
| **a+** | 0 | 0 | 0 | 0 | Cap SACP on 'bb+' | Cap SACP on 'b' | Cap SACP on 'b-' |
| **a** | 0 | 0 | 0 | 0 | Cap SACP on 'bb+' | Cap SACP on 'b' | Cap SACP on 'b-' |
| **a-** | 0 | 0 | 0 | 0 | Cap SACP on 'bb+' | Cap SACP on 'b' | Cap SACP on 'b-' |
| **bbb+** | 0 | 0 | 0 | 0 | Cap SACP on 'bb+' | Cap SACP on 'b' | Cap SACP on 'b-' |
| **bbb** | 0 | 0 | 0 | 0 | Cap SACP on 'bb+' | Cap SACP on 'b' | Cap SACP on 'b-' |
| **bbb-** | 0 | 0 | 0 | 0 | Cap SACP on 'bb+' | Cap SACP on 'b' | Cap SACP on 'b-' |
| **bb+** | 0 | 0 | 0 | 0 | -1 | Cap SACP on 'b-' | Cap SACP on 'b-' |
| **bb** | 0 | 0 | 0 | 0 | -1 | Cap SACP on 'b-' | Cap SACP on 'b-' |
| **bb-** | 0 | 0 | 0 | 0 | -1 | Cap SACP on 'b-' | Cap SACP on 'b-' |
| **b+** | +1 | +1 | 0 | 0 | 0 | Cap SACP on 'b-' | Cap SACP on 'b-' |
| **b** | +1 | +1 | 0 | 0 | 0 | Cap SACP on 'b-' | Cap SACP on 'b-' |
| **b-** | +1 | +1 | 0 | 0 | 0 | Cap SACP on 'b-' | Cap SACP on 'b-' |
| **ccc+** | +2 | +1 | +1 | 0 | 0 | 0 | 0 |
| **ccc/ccc-** | +2 | +2 | +1 | +1 | 0 | 0 | 0 |

### Supplementary Analysis

The supplementary analysis is the last component we consider in determining the SACP of a company, and is designed to fine tune our ratings. The supplementary analysis involves a holistic review of the company's credit risk profile and can lead us to raise our ICS by one notch if the assessment is positive and lower the ICS by one notch if the assessment is negative. A neutral assessment of the supplementary analysis causes no change to the ICS.

Each of our underlying sub-factors has a range of possible values, not a single value. Consequently, each of these assessments may be at the upper, lower or mid-point of such a range. The SACP may reflect the upper, lower or mid-point of the range. To fine tune the ratings to reflect peer comparisons, we adjust the ICS one notch higher if the SACP is believed to be at the upper end of the ranking range, one notch lower if the SACP is believed to be at the lower end of the ranking range, and no change if the SACP is believed to be in the middle of the ranking range. Such adjustments are reflected in our supplementary analysis.

CSPI Ratings also considers additional factors not already covered in the assessment of ICS. Such factors are the generally less frequently observed credit risk characteristics, and may impact one specific group of companies in a positive or negative way, and may reflect unpredictability or uncertainty risk attributes positively or negatively.

We do not expect any supplementary analysis adjustment to be a rare or exceptional event. Instead, we believe it may be common to reflect a refined view of a company or to capture the unique risks for certain companies in the increasingly complicated capital markets.

## Stand-Alone Credit Profile (SACP)

Both the indicative credit score and stand-alone credit profile are not ratings, but components of an issuer credit rating or issuance rating. We do not assign outlooks to the SACP or ICS, or place them on credit watch. The SACP is CSPI Ratings' opinion on an issuer's creditworthiness in the absence of extraordinary support or burden from external parties. SACP differs from an ICR in that it does not include the potential extraordinary support from a parent or government in the event of credit stress. However, the SACP does include systemic and recurring support from external parties like the parent or government.

For corporate issuers, the SACP is generally assigned at the issuer level, and not assigned to specific obligations, except in some cases when an issuer does not have an ICR. Both the ICS and SACP are expressed on a scale of 'aaa' to 'd', which corresponds to the issuer credit rating scale 'AAA' to 'D'. We use the lowercase letters for the ICS and SCAP to indicate their status as components of a rating rather than a rating.

## External Support Assessment (ESA)

CSPI Ratings takes into account the possibility that extraordinary support for a corporate issuer, in the event of a credit distress, could come from a parent, a government or an associated entity. The assessment of the likelihood of such external support focuses on two parts: 1) the strategic importance of a company and its ties to its supporters, either the parent or government, which will determine the willingness of the supporting entity to support the company; and 2) the supporting entity's own credit strength which often determines how much support it can extend to the company. The external support assessment, if assessed to be likely, will raise a company's SACP by one or more notches for the derivation of its ICR.

CSPI Ratings assesses a parent's willingness to support the company on a five-point scale: 'almost certain', 'extremely strong, 'strong', 'moderate', and 'low'. We assess the willingness of support by a government on a seven-point scale: 'almost certain', 'extremely strong', 'very strong', 'strong', 'moderately strong', 'moderate', and 'low'. After combining the supporting entity's willingness to support with its ability to support, the actual support level is determined for the company.

We adopt both top-down and bottom-up approaches to determine the uplift in terms of notches from the support of both the parent and government. In the categories of higher willingness to support, a top-down approach is usually applied, and in the categories of lower willingness to support, a bottom-up approach is usually adopted.

According to CSPI Ratings' corporate criteria, whether a supporting entity holds economic interests, such as shares, in the company is not the premise to determine whether such support is likely. As long as our analysts and rating committees believe that an entity's default may cause economic losses, business disruptions, reputational damage or other types of losses for the potential supporters at a magnitude that cannot be accepted by the supporting entity, CSPI Ratings may believe there is a willingness of support.

The parent or government's ability to support is determined by their credit strength and available financial resources. We may use their stand-alone credit profiles or ICRs as the measure of their ability to support.

## Related Criteria and Research

- Rating Symbols and Definitions, 7 May 2018
- General Principles of Credit Ratings, 21 November 2017

# Appendix I Example of A Hypothetical Case

In this appendix, we will provide readers with a hypothetical company and walk through the steps on how we derive our ratings for this company. Assuming a company XYZ has the historical and projected financial ratios shown in Exhibit 24, the time-weighted average ratios are calculated and its corresponding numeric leverage profile value is obtained, then the weighted-average preliminary leverage profile score is calculated to be 7.7, which is mapped to derive a letter assessment of the leverage profile scale (LPS) for company XYZ, which in this case is 'bb+' as shown in Exhibit 24:

**Exhibit 24: Calculation of weighted-average preliminary leverage profile score for Company XYZ**

| Company XYZ | | t-2 | t-1 | t | t+1 | t+2 | Weighted-Average | Preliminary LPS | |
|---|---|---|---|---|---|---|---|---|---|
| **Ratios** | **Weight** | 10% | 15% | 25% | 25% | 25% | | **Numeric** | **Letter** |
| Debt/EBITDA | 30% | 5.3 | 4.6 | 4.5 | 4.8 | 4.2 | 4.6 | 5 | b+ |
| EBITDA Interest Coverage | 30% | 3.6 | 4.5 | 5.0 | 5.6 | 6.2 | 5.2 | 8 | bb+ |
| Gross Debt/ Total Capitalization | 20% | 45 | 40 | 42 | 43 | 42 | 42.3 | 10 | bbb |
| Funds From Operations/Debt | 20% | 26 | 28 | 32 | 30 | 28 | 29.3 | 9 | Bbb- |
| | | | | | | | | **7.7** | **bb+** |

Once the preliminary LPS is determined to be 'bb+', we assess the toning factors. We assume company XYZ's operating cashflow to debt and free cashflow to debt ratios indicate no substantial risk and supports the preliminary leverage profile score, and the company has a neutral debt structure and financial policy, but has demonstrated some financial volatility over the past five years which we think will continue in future and may have a negative impact on the company's financial leverage. We also assess the company as having some unconsolidated and undervalued off-balance sheet investments like equity rights and land holdings, which may reduce the company's leverage ratios and raise the company's preliminary leverage profile by 2 notches. The net effect of toning factors is an uplift by one notch of the preliminary leverage profile, hence the final leverage profile assessment is 'bbb-'.

Furthermore, if we assume the company's profitability history and projections are as shown in Exhibit 25, and assume the company operates in an industry with high profitability, the level of profitability assessment is '3' according to our criteria. If we further assume the company's profitability has demonstrated greater than normal volatility and experienced a decreasing trend in recent years without prospects of improvement in the near future, the company's profitability trend and volatility will be assessed as 'underperform'. Combining the level of profitability at '3' with its trend and volatility of 'underperform', the profitability assessment is 'weak'.

**Exhibit 25: Profitability Assessment for Company XYZ**

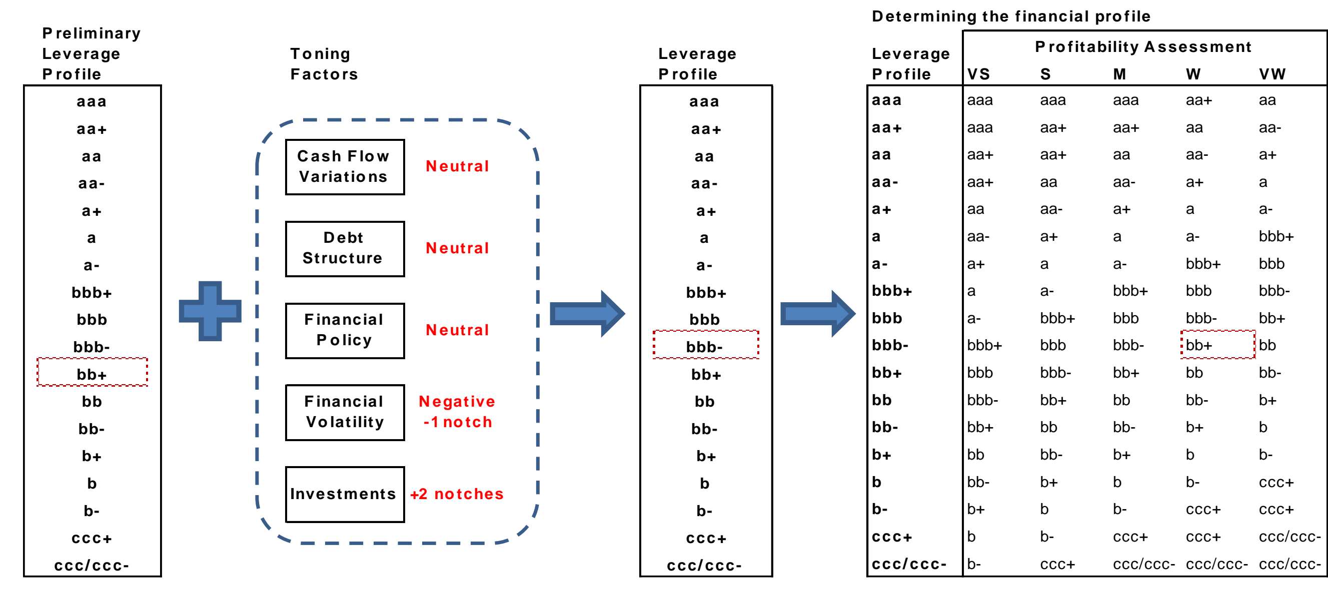
| Company XYZ | | t-2 | t-1 | t | t+1 | t+2 | Weighted-Average | Level of Profitability |
|---|---|---|---|---|---|---|---|---|
| **Ratios** | **Weight** | 10% | 15% | 25% | 25% | 25% | | |
| EBITDA Margin | 50% | 28.8 | 30.2 | 30.1 | 29.2 | 28.0 | 29.2 | 3 |
| Return on Invested Capital | 50% | 18.5 | 18.8 | 17.7 | 18.6 | 17.6 | 18.1 | 3 |
| | | | | | | | | **3** |

The financial profile of company XYZ may then be assessed as 'bb+' as a result of its 'bbb-' leverage profile and 'weak' profitability assessment. Exhibit 26 summarizes the process of the financial profile assessment.

Assuming the company's business profile is assessed as 'weak', the combination of its 'weak' business profile and 'bb+' financial profile will generate an indicative credit range of 'bb-' to 'bb'. If the committee believes the company's business profile is at the stronger end of 'weak', then the final ICS is chosen to be 'bb'.

We further assess other adjustment factors such as corporate structure and governance, liquidity, supplementary analysis as well as external support from a parent or a government entity. The final ICR is derived after all the adjustments based on these considerations. For company XYZ, if we assume no adjustment is made, its ICR is the same as its indicative credit score of 'BB'.

**Exhibit 26: Full Process of Financial Profile Assessment**




| Leverage Profile | Profitability Assessment VS | S | M | W | VW |
|---|---|---|---|---|---|
| aaa | aaa | aaa | aaa | aa+ | aa |
| aa+ | aaa | aa+ | aa+ | aa | aa- |
| aa | aa+ | aa+ | aa | aa- | a+ |
| aa- | aa+ | aa | aa- | a+ | a |
| a+ | aa | aa- | a+ | a | a- |
| a | aa- | a+ | a | a- | bbb+ |
| a- | a+ | a | a- | bbb+ | bbb |
| bbb+ | a | a- | bbb+ | bbb | bbb- |
| bbb | a- | bbb+ | bbb | bbb- | bb+ |
| bbb- | bbb+ | bbb | bbb- | bb+ | bb |
| bb+ | bbb | bbb- | bb+ | bb | bb- |
| bb | bbb- | bb+ | bb | bb- | b+ |
| bb- | bb+ | bb | bb- | b+ | b |
| b+ | bb | bb- | b+ | b | b- |
| b | bb- | b+ | b | b- | ccc+ |
| b- | b+ | b | b- | ccc+ | ccc+ |
| ccc+ | b | b- | ccc+ | ccc+ | ccc/ccc- |
| ccc/ccc- | b- | ccc+ | ccc/ccc- | ccc/ccc- | ccc/ccc- |

**Exhibit 27: Determining the Indicative credit score**

| FINANCIAL PROFILE | BUSINESS PROFILE Excellent | Very Strong | Strong | Moderate | Weak | Fairly Weak | Vulnerable |
|---|---|---|---|---|---|---|---|
| **aaa** | aaa | aa | a+ | a- | bbb | bb+ | bb- |
| **aa+** | aa+ | aa | a | bbb+ | bbb | bb+ | bb- |
| **aa** | aa+ | aa- | a- | bbb+ | bbb- | bb+ | bb- |
| **aa-** | aa | a+ | bbb+ | bbb | bbb- | bb+ | bb- |
| **a+** | aa | a | bbb+ | bbb | bbb- | bb+ | bb- |
| **a** | aa- | a | bbb | bbb- | bb+ | bb | bb- |
| **a-** | a+ | a- | bbb | bbb- | bb+ | bb | bb- |
| **bbb+** | a | bbb+ | bbb- | bbb- | bb+ | bb | b+ |
| **bbb** | a- | bbb+ | bbb- | bb+ | bb | bb- | b+ |
| **bbb-** | a- | bbb | bbb- | bb+ | bb | bb- | b+ |
| **bb+** | bbb+ | bbb | bbb- | bb+ | bb | bb- | b+ |
| **bb** | bbb+ | bbb- | bb+ | bb | bb- | b+ | b |
| **bb-** | bbb | bbb- | bb+ | bb | bb- | b+ | b |
| **b+** | bbb- | bb+ | bb | bb- | b+ | b+ | b |
| **b** | bbb- | bb+ | bb | bb- | b+ | b | b- |
| **b-** | bb+ | bb | bb- | b+ | b | b | b- |
| **ccc+** | bb+ | bb | bb- | b+ | b | b- | ccc+ |
| **ccc/ccc-** | bb | bb- | b+ | b | b- | ccc+ | ccc/ccc- |

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