Urban Infrastructure Investment and Financing Industry (Urban Investment Industry)

Credit Rating Methods and Models

(PJFM-CTGY-JCSSTRZ-2024-V1.0)

安融(香港)信用評級有限公司
ANRONG(HONG KONG)CREDIT RATINGS COMPANY LIMITED

Table of Contents

This document is translated from the Rating Methodology for Sovereign published on November 28, 2024. In case of any discrepancies or inconsistencies between the English and Chinese versions, the English version shall prevail.

Rating Methodology

Release Date

November 28, 2024

Analyst Contact

Lam Yui Ying, lamyuiying@arrating.com

Rating Director

Hu Chao, huchao@arrating.com

Client Services

Hong Kong, cs@arrating.com

I. Overview

AnRong (Hong Kong) Credit Rating Co., Ltd. (ARHK) has developed the "Credit Rating Methods and Models for the Urban Infrastructure Investment and Financing Industry (Urban Investment Industry) (PJFM-CTGY-JCSSTRZ-2024-V1.0)" (referred to as "this methodology and model") in order to enhance the consistency, accuracy, and stability of rating methodologies, models, and rating results, in accordance with relevant laws, regulations, and the provisions of ARHK's rating business-related management systems.

This methodology and model determines the rating benchmarks for the rated entities by combining sovereign risk adjustment factors, which, along with inherent adjustment factors, lead to the BCA rating of the rated entity. The BCA rating, combined with external support, produces the final credit rating of the rated entity. Specifically, ARHK first constructs the "Regional Strength and Risk" dimension by fully considering the macro and regional strength, regional growth potential, and regional and industry risks of urban infrastructure investment and financing enterprises (referred to as "Urban Investment Enterprises"). Then, it constructs the "Operational and Financial Risk" dimension by thoroughly considering the enterprise's profitability, growth potential, and financial risks. The Pre-SRAF rating level of the rated entity is derived from a two-dimensional matrix mapping of "Regional Strength and Risk" and "Operational and Financial Risk". The rating benchmark for the rated entity is determined by combining sovereign risk adjustment factors, followed by deriving the BCA rating through inherent adjustment factors. Finally, the rated entity's credit rating (model result rating) is obtained by considering external support.

In terms of grade symbols, BCA grades are represented by a sequence of symbols ranging from "aaa" to "c". Except for "aaa" and grades below "cc" (inclusive), each credit grade can be fine-tuned with "+" or "-" symbols to indicate a slightly higher or lower credit level than the base grade. The final credit grade symbols correspond to a sequence from "AAA" to "C". Similarly, except for "AAA" and grades below "CC" (inclusive), each credit grade can be fine-tuned with "+" or "-" symbols.

This methodology and model becomes effective from the date of announcement.

II. Scope of Application

The model referred to in this method pertains to urban investment enterprises, which are economic entities established with independent legal status by local governments and their departments and subordinate agencies. Their purpose is to serve local economic development, meet the needs of infrastructure construction and urban safety operations, and stimulate industrial investment through financing and investment. This is achieved by means of fiscal funds or the injection of land, state-owned equity, possess independent legal person status.

Urban Investment Enterprises primarily engage in investment and financing functions. Their business is closely related to local governments, characterized by a certain level of public service or quasi-public service, without maximizing profits as the main goal. Their debt repayment capacity is partially supported by local government fiscal expenditures. With the changes in the policy and regulatory environment and the needs of their own development, urban investment enterprises have gradually expanded their business from traditional fields such as primary land development, infrastructure construction, and affordable housing construction to areas such as public utilities, real estate, construction, state-owned asset investment, and industrial funds. They have gradually acquired certain market attributes. However, regardless of how the business content changes, as long as the evaluated entity continues to operate with the main functions granted by the local government, rather than profit maximization, it can still be recognized as an urban investment enterprise.

ARHK defines the criteria for urban investment enterprises as follows:

(1) The main business of the rated entity is urban infrastructure investment and financing;

(2) The income or profit of the rated entity mainly comes from urban infrastructure investment and financing;

(3) If the above two conditions are not met, but a comprehensive examination of the company's business model, asset structure, income, and profit structure determines that the company clearly meets the characteristics of an urban investment enterprise, ARHK will also categorize it as an urban investment enterprise.

III. Basic Assumptions

1. Assumption of Stability in Debt Repayment Environment

ARHK assumes that the macroeconomic environment, industry competition environment, regulatory environment, legal environment, and financial market environment will not undergo unexpected changes, or face irresistible factors such as natural disasters or wars.

2. Assumption of Operational Stability

ARHK assumes that the rated entity is in a stable and continuous operational state, with consistent operational and financial data, and that historical data can serve as a basis for predicting future operations. In the foreseeable future, there will be no significant changes in the rated entity's ability to continue operations due to the macroeconomic environment, industry competition environment, regulatory environment, legal environment, and financial market environment. There will be no sudden operational changes or major unforeseen changes that have not been disclosed in advance. These changes include, but are not limited to, sudden changes in the nature of the rated entity, mergers and acquisitions, debt restructuring, significant asset changes, major regulatory penalties, defaults, bankruptcy reorganizations, and other significant negative events.

3. Assumption of Data Authenticity

ARHK assumes that the data obtained from public authoritative channels and provided by the rated entity (including but not limited to data compiled by the rated entity, data issued by third-party intermediary institutions entrusted by the rating object, and data issued by other regulatory-recognized professional institutions for the rating object) are true, legal, complete, and effective, with no malicious embellishment or forgery, and no significant misleading statements.

4. Assumption of No Difference in Debt Repayment Willingness

ARHK assumes that the rated entity has the same willingness to repay its similar debts and has not established a repayment order arrangement for similar debts.

IV. Characteristics of Credit Risk

ARHK considers that the credit risks of Urban Investment Enterprises mainly include the following aspects:

1. Inherent Risk

In terms of intrinsic risk, since most of the assets injected into urban investment enterprises at their establishment are non-profit, public welfare assets or assets with poor liquidity, the overall asset quality is low, and local government financing platforms mainly invest in public welfare or non-profit projects, which have long construction cycles and low returns, and are difficult to recover costs in the short term. The projects themselves have insufficient cash flow and low capital turnover rates, increasing the debt repayment pressure and credit risk of local government financing platforms. The public welfare or non-profit nature of urban investment enterprises' projects determines that the repayment of related debts depends on local government support. The uncertainty of local government support may lead to insufficient subsequent funds, increasing potential credit risk concerns. Urban investment enterprises often operate irregularly, investing in repetitive and inefficient construction projects, and commonly face issues such as "Short-term debt for long-term purposes" and other maturity mismatches, which exacerbate the scale of liabilities and credit risk of urban investment enterprises.

2. Policy and Legal Risk

As local government investment and financing platforms, urban investment enterprises are significantly influenced by national policies, especially due to their inseparable relationship with local government investment, financing, and fiscal policies. The degree of regulatory oversight by relevant authorities on the market-oriented operations of local governments, local government investment and financing platforms, and financial institutions will have a major impact on the operations, investment, and financing of urban investment enterprises. Urban investment enterprises commonly face issues such as land use rights pledge guarantees, accounts receivable mortgage guarantees, and mutual guarantees, which to some extent increase legal risks.

3. Government Debt Management Risk

Local governments, in order to develop the regional economy and improve people's livelihood, raise substantial funds through debt. The control of government debt risk and the regulatory system are not strong enough, the risk awareness of local government departments is weak, and the financial market operations are not standardized and the regulatory strength is insufficient. These factors will lead to government debt management risk, thereby affecting the debt repayment ability and credit risk of urban investment enterprises.

4. Local Fiscal Risk

Local governments often increase fiscal revenue through land sales when developing the regional economy, and the income from land sales accounts for a large proportion of fiscal revenue, which is greatly influenced by land resources, land transactions, and real estate market policies. Local fiscal revenue is closely related to economic growth, and when the economy is in decline, local fiscal revenue generally decreases. Areas with lagging economic development generally have less local fiscal revenue. The above factors can all lead to local fiscal risk, thereby affecting the debt repayment ability of urban investment enterprises.

V. Rating Methodology and Model Framework

"Regional Strength and Industry Risk" reflects the operating environment, operating conditions, development space, and risks of the banking sector. "Operating and Financial Risk" reflects a bank's ability to manage its functions, assets, and financing environment, as well as associated risks.

The rating methodology and model development path for the banking sector by ARHK are as follows:

Step 1: Establish an evaluation indicator system, defining the names, meanings, scoring, and weighting of evaluation indicators.

Step 2: Determine the grades for "Regional Strength and Industry Risk" and "Operating and Financial Risk."

Step 3: Based on the grades from the two dimensions, determine the Pre-SRAF rating grade for the rated entity using a two-dimensional matrix.

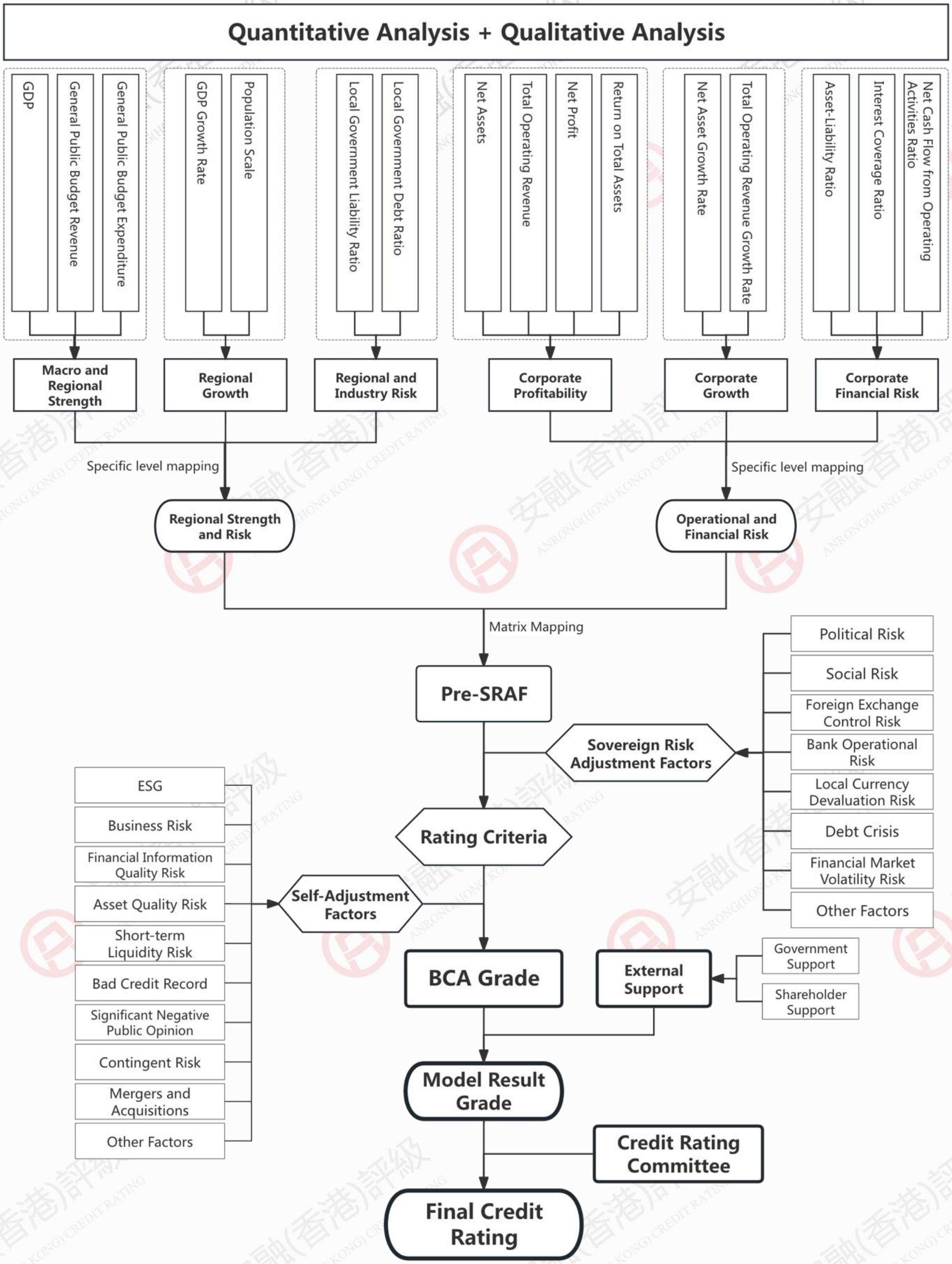
Step 4: Determine the rating benchmark for the rated entity by incorporating sovereign risk adjustment factors.

Step 5: Derive the BCA grade for the rated entity by considering its specific adjustment factors.

Step 6: Consider external support to obtain the rated entity's credit rating (Model Result Grade).

Considering that the "three-tier, nine-grade system" is widely used in the rating industry both domestically and internationally, where "three-tier" refers to A, B, and C, and "nine-grade" refers to "AAA", "AA", "A", "BBB", "BB", "B", "CCC", "CC", "C", and considering that the difference in default probabilities among "CCC", "CC", and "C" is not significant, mainly reflected in differences in loss given default (LGD) which is not the focus of ARHK's assessments and forecasts, ARHK combines "CCC", "CC", and "C" into one grade when setting evaluation indicators and grades. Except for external support indicators and dimensions, which are set to three grades, all other indicators and dimensions are set to seven grades. Additionally, the symbol "D" (determined by the Credit Rating Committee) is used to indicate that the rated entity is unable to fulfill its obligations, and default is confirmed.

Grade Meanings: Grades range from the lowest (Grade 1) to the highest (Grade 7, or Grade 3 if only three grades are used). Higher grades indicate a more positive assessment and forecast of the rated entity's debt repayment ability and willingness.


Quantitative Analysis + Qualitative Analysis
GDP
General Public Budget Revenue
General Public Budget Expenditure
GDP Growth Rate
Population Scale
Local Government Liability Ratio
Local Government Debt Ratio
Net Assets
Total Operating Revenue
Net Profit
Return on Total Assets
Net Asset Growth Rate
Total Operating Revenue Growth Rate
Asset-Liability Ratio
Interest Coverage Ratio
Net Cash Flow from Operating Activities Ratio
Macro and Regional Strength
Regional Growth
Regional and Industry Risk
Corporate Profitability
Corporate Growth
Corporate Financial Risk
Specific level mapping
Specific level mapping
Regional Strength and Risk
Operational and Financial Risk
Matrix Mapping
Pre-SRAF
Political Risk
Social Risk
Foreign Exchange Control Risk
Bank Operational Risk
Local Currency Devaluation Risk
Debt Crisis
Financial Market Volatility Risk
Other Factors
Sovereign Risk Adjustment Factors
Rating Criteria
ESG
Business Risk
Financial Information Quality Risk
Asset Quality Risk
Short-term Liquidity Risk
Bad Credit Record
Significant Negative Public Opinion
Contingent Risk
Mergers and Acquisitions
Other Factors
Self-Adjustment Factors
BCA Grade
External Support
Government Support
Shareholder Support
Model Result Grade
Credit Rating Committee
Final Credit Rating

1. Pre-SRAF Rating Levels

ARHK analyzes "Regional strength and risk" mainly from three factors: macro and regional strength, regional growth potential, and regional and industry risk. In terms of "Operational and financial risk," it mainly analyzes three factors: corporate profitability, corporate growth potential, and corporate financial risk. A total of sixteen indicators are set, each given a corresponding weight, and each indicator is divided into seven levels. Through level mapping, the final Pre-SRAF rating level of the evaluated entity is determined using a two-dimensional matrix mapping table.

(1) Regional Strength and Risk

Primary Indicator	Secondary Indicator	Tertiary Indicator
Regional Strength and Risk	Macroeconomic and Regional Strength	GDP
		General Public Budget Revenue
		General Public Budget Expenditure
	Regional Growth Potential	GDP Growth Rate
		Population Scale
	Regional and Industry Risk	Local Government Debt Ratio
		Local Government Debt Rate

A. Macroeconomic and Regional Strength

Macroeconomic and regional strength are analyzed from the perspectives of macroeconomic and regional strength. The macroeconomic situation directly determines the external operating environment of urban investment enterprises. Generally, a good macroeconomic environment will bring more business opportunities to urban investment enterprises and facilitate their business activities. Therefore, the stronger the macroeconomic and regional economic strength, the lower the regional risk.

ARHK considers indicators such as GDP, general public budget revenue, and general public budget expenditure in its assessment of macroeconomic and regional strength.

Generally, the higher the GDP indicator value, the better the regional economic development status, the stronger the local economic development momentum, the better the development of the real economy and financial markets, and the better the operating conditions of local finances and urban investment enterprises, resulting in lower credit risk for urban investment enterprises. Typically, urban investment enterprises in regions with higher GDP are given higher valuations.

The higher the general public budget revenue indicator value, the stronger the fiscal strength of the local government, and the lower the credit risk for urban investment enterprises.

The higher the general public budget expenditure indicator value, the stronger the local government's sustainable payment strength, and the lower the credit risk for urban investment enterprises.

B. Regional Growth Potential

ARHK measures the regional growth potential of Urban Investment Enterprises primarily through GDP growth rate and population size.

The higher the GDP growth rate indicator, the more it indicates that the regional economic development is on an upward trend, with stronger economic growth momentum and greater development potential, which drives infrastructure investment while enhancing the financial strength of local governments. Therefore, the higher the GDP growth rate, the lower the credit risk of urban investment enterprises.

Population is an important carrier and primary engine of economic development. The higher the population size indicator, the greater the potential for regional economic development, the more it can create business opportunities, attract more corporate investment, and thus more effectively promote regional economic growth and enhance government financial strength, resulting in lower credit risk for urban investment enterprises.

C. **Regional and Industry Risk**

The heavier the regional debt burden, the higher the regional risk. The urban infrastructure investment and financing industry (Urban Investment Industry) is a vital foundation for sustainable national economic development and is considered a weak cyclical industry, significantly influenced by industry policies. Changes in the economic cycle have a certain impact on the development level of the industry. The urban infrastructure investment and financing industry is characterized by regional or industry exclusivity, with some of its business primarily consisting of public welfare projects, generally exhibiting weak profitability, closely related to local economic and fiscal strength as well as local development planning.

ARHK measures the regional and industry risk of Urban Investment Enterprises primarily through local government debt ratio and local government debt rate.

The local government debt ratio reflects the extent of local government borrowing, the higher this indicator value, the greater the debt burden pressure on local governments, leading to increased credit risk for Urban Investment Enterprises.

ARHK's specific level mapping standards for "Regional Strength and Risk" are as follows:

Indicator	7	6	5	4	3	2	1
GDP (100 million)	≥6000	[3000,6000)	[1000,3000)	[300,1000)	[100,300)	[50,100)	<50
General Public Budget Revenue (100 million)	≥500	[150,500)	[50,150)	[20,50)	[10,20)	[5,10)	<5
General Public Budget Expenditure (100 million)	≥1,500	[500,1,500)	[150,500)	[50,150)	[30,50)	[15,30)	<15
GDP Growth Rate (%)	≥7	[5,7)	[3,5)	[1,3)	[0,1)	[-1,0)	<-1
Population Size (10,000 people)	≥1500	[1000,1500)	[500,1000)	[100,500)	[50,100)	[25,50)	<25
Local Government Debt Ratio (%)	<5	[5,15)	[15,30)	[30,45)	[45,60)	[60,75)	≥75
Local Government Debt Ratio (%)	<150	[150,250)	[250,400)	[400,600)	[600,800)	[800,1000)	≥1000

Note: In the above table, when converting the units of GDP (100 million), General Public Budget Revenue (100 million), and General Public Budget Expenditure (100 million) from RMB to USD, all relevant indicator data are divided by the foreign exchange conversion rate (USD/RMB=7.0827) as of December 29, 2023. This exchange rate is published by the China Foreign Exchange Trading Center authorized by the People's Bank of China (Central Bank) and is the foreign currency conversion rate designated by the State Administration of Foreign Exchange.

(2) Operational and Financial Risks

Primary Indicator	Secondary Indicator	Tertiary Indicator
Operational and Financial Risks	Corporate Profitability	Net Assets
		Net Assets
		Net Profit
		Return on Total Assets (ROA)
	Corporate Growth Potential	Net Asset Growth Rate
		Total Operating Revenue Growth Rate
	Corporate Financial Risk	Debt-to-Asset Ratio
		Interest Coverage Ratio

		Net Cash Flow from Operating Activities Ratio

A. Corporate Profitability

ARHK measures the profitability of urban investment enterprises using key indicators such as net assets, total operating revenue, net profit, and return on total assets (ROA).

Net assets can better reflect the operational scale and competitive advantage of urban investment enterprises. Net assets serve as the fundamental protection of the assessed entity's debt, excluding liabilities, especially the impact of interest-bearing debt on asset scale. Therefore, urban investment enterprises with larger net assets have stronger capital strength, more opportunities to obtain support for infrastructure construction, other related projects, investment and financing, and credit support from financial institutions, stronger profitability, stronger risk resistance, and lower credit risk. Net assets generally include paid-in capital, other equity instruments, capital reserves, other comprehensive income, surplus reserves, and undistributed profits, as well as minority shareholders' equity. Paid-in capital is usually the main component of net assets, formed through shareholder capital injections and asset allocations. Urban investment enterprises should pay close attention to the methods of government capital injection and asset allocation, such as monetary funds, houses and buildings, other physical assets, land use rights, and other intangible assets. Different assets have different liquidity and varying capacities to secure debt.

The total operating income is both a key indicator for measuring the market position of the evaluated entity and a basis for assessing its ability to generate operating cash flow. For urban investment companies, due to the strong public welfare nature of their main business, long construction cycles, difficulty in recovering costs in the short term, low returns, and high dependence on government subsidies, the higher the total operating income and its stability, the stronger the evaluated entity's profitability and the lower its credit risk.

Urban investment companies primarily undertake public welfare projects, which often result in delayed settlements, slow payment recovery, low gross profit margins, and typically low net profits. Government subsidies constitute a major part of net profit, while investment income from equity investments is also an important source of profit for urban investment companies. Net profit directly reflects the evaluated entity's profitability, the higher the net profit, the stronger the profitability, and the stronger the ability to secure its debts.

The return on total assets indicates the overall profitability of the evaluated entity's total assets, including net assets and liabilities, and is an important indicator for assessing the asset operation efficiency of the evaluated entity. The higher the return on total assets, the stronger the overall profitability of the evaluated entity.

B. Corporate Growth Potential

The main indicators used by ARHK to measure the growth of urban investment enterprises are net asset growth rate and total operating revenue growth rate.

Net asset growth rate reflects the speed of capital scale expansion of the rated entity and is an important indicator for measuring its growth. A higher net asset growth rate indicates that the rated entity's future development will be stronger.

Total operating revenue growth rate assesses the rated entity's growth, industry position, and market competitiveness of its products. A higher total operating revenue growth rate reflects a better market outlook for the rated entity's products and business. If the total operating revenue growth rate exceeds the industry average growth rate, it indicates that the rated entity's products and business have good competitiveness in the market. Conversely, it suggests that the rated entity's products and business competitiveness is declining.

C. Corporate Financial Risk

For urban investment enterprises, due to their special "government" attributes, their three major financial statements considerably reflect their connection with the government.

(1) From the balance sheet of urban investment enterprises, it can be seen that the majority of assets are related to the government. For example, accounts receivable are primarily from government departments, other receivables mostly involve transactions with government-related institutions, and inventories are largely government-commissioned projects or other public welfare projects.

(2) From the income statement of urban investment enterprises, it is evident that the main source of total profit is other income (from government subsidies. Previously, government subsidies were included in non-operating income. After the implementation of "Enterprise Accounting Standards No. 16 - Government Subsidies" (Finance and Accounting [2017] No. 15), subsidies

related to the enterprise's daily activities are included in other income or offset related costs and expenses, while those unrelated to daily activities are included in non-operating income).

(3) From the cash flow statements of urban investment enterprises, it can be seen that financing largely relies on their relationship with the government. The important components of cash flow from operating activities, "receipts of other cash related to operating activities" and "payments of other cash related to operating activities," are mostly transactions with government-related agencies.

With this government relationship in place, the asset-liability situation of urban investment enterprises is more important than their profitability or even cash flow status. Moreover, in the financial statements of urban investment enterprises, what best reflects the relationship between urban investment enterprises and the government is the asset side, especially current assets, rather than their income structure. As urban investment enterprises diversify their businesses, it is difficult to determine their close relationship with the government solely from their income structure. Many urban investment enterprises engage in agency construction and other related businesses, with unrecognized revenue, and related investments are only reflected in inventory, contract assets, and other current asset items. Therefore, balance sheet analysis is the core of financial risk analysis for urban investment enterprises.

The main indicators used by ARHK to measure the financial risks of urban investment enterprises are the asset-liability ratio, interest coverage ratio, and net cash flow from operating activities ratio.

The asset-liability ratio reflects the debt level and debt repayment risk of a rated entity. From the perspective of debt repayment ability, the lower the asset-liability ratio, the better. The lower the asset-liability ratio, the more assets the rated entity has available for debt repayment, and the lower the financial risk of the rated entity.

The interest coverage ratio reflects the extent to which the rated entity's profitability ensures the repayment of maturing debt. A higher interest coverage ratio indicates a stronger ability of the rated entity to pay interest expenses and a stronger debt repayment ability.

The ratio of net cash generated from operating activities to current liabilities evaluates the ability of the cash flow generated by the rated entity during operations to cover short-term liabilities. A higher net cash flow from operating activities ratio indicates that the rated entity's cash flow can better cope with short-term debt repayment pressure and emergencies.

ARHK's specific mapping standards for "operating and financial risk" are as follows:

Indicators	7	6	5	4	3	2	1
Net Assets (100 million)	≥500	[250,500)	[100,250)	[50,100)	[25,50)	[10,25)	<10
Total Operating Revenue (100 million)	≥70	[30,70)	[10,30)	[3,10)	[1,3)	[0,1)	<0
Net Profit (100 million)	≥6	[3,6)	[1.5,3)	[1,1.5)	[0.5,1)	[0,0.5)	<0
Return on Assets (ROA) (%)	≥2	[1.25,2)	[0.75,1.25)	[0.5,0.75)	[0.25,0.5)	[0,0.25)	<0
Net Assets Growth Rate (%)	≥20	[10,20)	[5,10)	[0,5)	[-5,0)	[-10,-5)	<-10
Total Operating Revenue Growth Rate (%)	≥50	[25,50)	[10,25)	[0,10)	[-10,0)	[-25,-10)	<-25
Asset Liability Ratio (%)	<40	[40,50)	[50,60)	[60,65)	[65,70)	[70,75)	≥75
Interest Coverage Ratio (times)	≥2.5	[2,2.5)	[1.5,2)	[1,1.5)	[0.5,1)	[0,0.5)	<0
Net Cash Flow from Operating Activities Ratio (times)	≥0.5	[0.25,0.5)	[0,0.25)	[-0.25,0)	[-0.5,-0.25)	[-0.75,-0.5)	<-0.75

Note: In the above table, when converting the units of net assets (100 million yuan), total operating revenue (100 million), and net profit (100 million) from RMB to USD, all relevant indicator data are divided by the foreign exchange conversion rate (USD/RMB=7.0827) as of December 29, 2023. This exchange rate is published by the China Foreign Exchange Trading Center authorized by the People's Bank of China (central bank) and is the foreign currency conversion rate designated by the State Administration of Foreign Exchange.

(3) Pre-SRAF Rating Level Mapping

Based on the aforementioned indicators and weights for macro and regional strength, regional growth potential, and regional and industry risks, a mapping tier for "regional strength and risk" can be obtained. Based on the aforementioned indicators and weights for corporate profitability, corporate growth potential, and corporate financial risk, a mapping tier for "operational and financial risk" can be obtained.

By combining the mapping tiers of the above two dimensions, through the Pre-SRAF rating level two-dimensional matrix, ARHK can obtain the two-dimensional matrix Pre-SRAF rating level mapping for urban investment enterprises.

The Pre-SRAF rating level mapping is as follows:

Pre-SRAF Rating Level		Regional Strength and Risk						
		7	6	5	4	3	2	1
Operational and Financial Risks	7	aaa	aaa/aa+	aa+/aa	aa/aa-	aa-/a+	a+/a	a-/bbb+
	6	aaa/aa+	aa+/aa	aa/aa-	aa-/a+	a+/a	a-/bbb+	bbb/bbb-
	5	aa+/aa	aa/aa-	aa-/a+	a+/a	a/a-	bbb+/bbb	bbb-/bb+
	4	aa/aa-	aa-/a+	a+/a	a/a-	a-/bbb+	bbb/bbb-	bb+/bb
	3	aa-/a+	a+/a	a/a-	a-/bbb+	bbb/bbb-	bb+/bb	bb-/b+
	2	a/a-	a-/bbb+	bbb+/bbb	bbb/bbb-	bb+/bb	bb-/b+	b/b-
	1	a-/bbb+	bbb+/bbb	bbb/bbb-	bb+/bb	bb-/b+	b/b-	ccc or Below

2. Sovereign Risk Adjustment Factors

Sovereign risk adjustment factors are important considerations for entities undergoing international credit ratings. ARHK uses sovereign risk adjustment factors such as "Political Risk," "Social Risk," "Foreign Exchange Control Risk," "Bank Operational Risk," "Local Currency Devaluation Risk," "Debt Crisis," "Financial Market Volatility Risk," and "Other Factors" to conduct international credit adjustments for urban investment enterprises, resulting in the international rating benchmark for the rated entities. Since the factors affecting sovereign credit risk are numerous and dynamically change with international relations, economic, and industry developments, the sovereign credit risk adjustment items listed in this method may not cover all adjustment elements, and continuous accumulation, summarization, and optimization in practical rating work are needed.

(1) Political Risk

If the rated entity has significant domestic political risk and geopolitical risk, its credit rating may be downgraded.

(2) Social Risk

If the rated entity has significant social conflicts, ethnic conflicts, or cultural or religious conflicts, its credit rating may be downgraded.

(3) Foreign Exchange Control Risk

If the rated entity has significant risk of restricted capital flow, its credit rating may be downgraded.

(4) Bank Operational Risk

If the rated entity has significant risk of funds not being exchanged in a timely manner, its credit rating may be downgraded.

(5) Local Currency Devaluation Risk

If the rated entity has significant local currency depreciation risk, its credit rating may be downgraded.

(6) Debt Crisis

If the rated entity has a significant international external debt crisis, its credit rating may be downgraded.

(7) Financial Market Volatility Risk

If the rated entity has significant financial market volatility risk, its credit rating may be downgraded.

(8) Other Factors

Other factors refer to all sovereign factors beyond the aforementioned ones that may affect the debt repayment capability and willingness of urban investment enterprises. ARHK will make appropriate adjustments to its credit rating based on specific circumstances.

The specific sovereign risk adjustment factors are as follows:

Level 1 Factor	Level 2 Factor
Political Risk	Domestic Political Risk
	Geopolitical Risk
Social Risk	Social Conflict
	Ethnic Conflict
	Cultural or Religious Conflict
Foreign Exchange Control Risk	Restricted Capital Flow
Bank Operational Risk	Operational Risk
Local Currency Devaluation Risk	Local Currency Devaluation Risk
Debt Crisis	Debt Crisis
Financial Market Volatility Risk	Financial Market Volatility Risk
Other Factors	Other Factors

3. Rating Benchmark

ARHK derives the rating benchmark of the evaluated entity based on the Pre-SRAF rating level combined with sovereign risk adjustment factors.

4. Self-Adjustment Factors

Self-adjustment is a supplementary analysis conducted on the basis of evaluating common characteristics of urban investment enterprises, focusing on the individual characteristic elements of the evaluated urban investment enterprises. The evaluation result after adjusting for individual characteristics is the foundational credit rating that can fully reflect the credit level of the urban investment enterprise itself. It is noteworthy that only factors that affect the credit risk of urban investment enterprises and occur only in individual urban investment enterprises will be examined in the adjustment items. ARHK uses self-adjustment factors such as "ESG," "Business Risk," "Financial Information Quality Risk," "Asset Quality Risk," "Short-Term Liquidity Risk," "Poor Credit Record," "Significant Negative Public Opinion," "Contingent Risk," "Mergers and Acquisitions," and "Other Factors" to adjust urban investment enterprises. Due to the numerous factors affecting credit risk and their dynamic changes with economic and industry development, the adjustment items listed in this method may not cover all adjustment elements, requiring continuous accumulation, summarization, and optimization in the practice of rating work.

(1) ESG

ESG is the abbreviation for Environment, Social Responsibility, and Corporate Governance, which are important factors influencing the sustainable business development potential of the evaluated entity. If the evaluated entity performs poorly in ESG aspects, it may affect the stability of its production operations and financial performance, thereby increasing the credit risk of the evaluated entity. ARHK focuses on the negative impacts of various ESG factors. If the evaluated entity has relevant risk factors, its credit rating may be adjusted.

(2) Business Risk

If the evaluated entity has significant business transformation risks or cyclical business fluctuation risks, its credit rating may be downgraded.

(3) Financial Information Quality Risk

Financial information is the basis for evaluating the financial risk of the evaluated entity. When conducting financial risk assessments, special attention should be paid to whether the audit conclusion of the financial report is not an "Unqualified Opinion", or at the parent company level, whether there are significant financial risks not reflected in the consolidated financial statements, and whether the financial data is distorted. If negative, its credit rating may be downgraded.

(4) Asset Quality Risk

The current assets of urban investment enterprises mainly consist of monetary funds, accounts receivable, other receivables, inventory, and contract assets. The majority of these current assets are oriented towards the government sector. When analyzing current assets, it is important to consider the regional economy, finance, government support, and business sustainability of the urban investment enterprise. ARHK places particular emphasis on the liquidity of current assets. For example, regarding "accounts receivable" and "prepayments," ARHK focuses on the portion formed by trade business, which is not related to the government. ARHK believes that compared to government-related "accounts receivable" and "prepayments," those formed by trade business carry higher risk.

The non-current assets of urban investment enterprises mainly consist of long-term equity investments, investment properties, construction in progress, fixed assets, and intangible assets. These assets are mostly operational assets of urban investment enterprises. ARHK focuses on the effectiveness and market-oriented operational efficiency of non-current assets (including future operational capabilities, profitability, and cash flow conditions). For example, regarding long-term equity investments, ARHK pays special attention to the expansion of the balance sheet through cross-shareholding, increasing both the asset and equity sides while enhancing the investment income in the profit statement. A comparative analysis is conducted on the changes in long-term equity investments and minority shareholder equity. For instance, Company A fully owns Company A1, and Company B fully owns Company B1. Currently, Company A transfers 30% of A1's equity to Company B, and Company B transfers 30% of B1's equity to Company A, thus achieving cross-shareholding. The result is that Company A and Company B still consolidate A1 and B1, respectively, but each increases their long-term equity investments and minority shareholder equity, thereby expanding both the asset and equity sides, achieving an expansion of the balance sheet.

In the past, the intangible assets of urban investment enterprises were primarily land use rights. Since 2020, many urban investment enterprises have been engaging in concession business, and this type of concession right is accounted for as "intangible assets" in accounting. Urban investment enterprises can obtain concession rights through government allocation, purchase, or transfer from PPP project operations. The former is recorded at appraised value, while the latter two are recorded at acquisition cost or construction cost. According to the "Infrastructure and Public Utilities Concession Management Measures," infrastructure and public utility concessions refer to the government's legal authorization, through competitive means, of legal persons or other organizations within or outside the People's Republic of China. This is done through agreements that clarify rights, obligations, and risk-sharing, stipulating that they invest in, construct, and operate infrastructure and public utilities within a certain period and scope to obtain profits and provide public products or services. In addition to the commonly seen urban and rural water supply franchise rights, sewage treatment franchise rights, highway toll rights, and waste disposal franchise rights, urban investment enterprises are also actively engaging in sand and gravel mining rights, parking space franchise rights, new energy charging station operation rights, sea area usage rights, advertising operation rights, and tourism scenic project operation rights. Therefore, when analyzing the intangible assets of urban investment enterprises, besides focusing on land use rights, ARHK also places significant emphasis on franchise rights. It should be particularly noted that the assessment of franchise rights is challenging and can easily lead to inflated recorded values.

ARHK generally evaluates the asset quality of the rated entities from two aspects: quality and structure. The quality aspect mainly analyzes the effective value of asset items, while the structure aspect mainly analyzes the reasonableness of the proportion of asset items in the total assets. ARHK focuses on analyzing accounts receivable and restricted assets for urban investment enterprises.

For urban investment enterprises, accounts receivable have characteristics such as a large book balance and close relationships between the accounts receivable counterparties and local governments or other regional urban investment enterprises. Therefore, the larger the proportion of receivables from a single entity to total assets, the longer the age of the receivables, the more imperfect the bad debt provision policy, the more insufficient the provision amount, the tighter the working capital of the rated entity, the greater the potential for losses, cash outflow losses, and opportunity cost losses, and the greater the risk. Additionally, as more urban investment enterprises engage in trade business, some urban investment enterprises' accounts receivable and prepayments contain large trade-related amounts, leading to capital being tied up. The products involved in urban investment enterprises' trade business mostly include coal, steel, building materials, non-ferrous metals, and agricultural products. In terms of business models, urban investment enterprises often adopt a "purchase based on sales" model, also known as "two-end locking," which involves first negotiating the required goods and prices with downstream demand enterprises before purchasing upstream. This model not only avoids price fluctuation risks but also accelerates turnover, reduces inventory pressure, and improves trade operation efficiency. A few urban investment enterprises have " Exposure Business" in their trade operations, meaning they do not lock in upstream and downstream, which carries a certain market risk exposure. Typically, large-scale trade business does not provide substantial support for the credit level of urban investment enterprises. Instead, ARHK pays more attention to the potential risks brought by trade business to urban investment enterprises. These risks mainly arise from the settlement methods of urban investment enterprises' trade business, which generally involve prepaying the full amount to upstream suppliers during procurement and granting certain credit terms to downstream customers during sales. This results in a large amount of operating capital being tied up in trade business, reflected in financial statements as an increase in trade-related accounts receivable and prepayments. Furthermore, when analyzing urban investment enterprises' trade business, ARHK also notes that the profitability of such business is generally weak.

The role of urban investment enterprises is essentially a financing platform, with the relative pledge of a large number of assets being a commonality in the industry, thereby forming a significant amount of restricted assets. Restricted assets refer to assets whose liquidity is limited due to pledges and other reasons. Generally, restricted assets cannot be freely traded or realized, making it difficult to generate economic benefits or only generating minimal economic benefits, which in turn weakens the debt repayment ability of urban investment enterprises. The higher the proportion of restricted assets in the total assets, the more frequent the pledges, the greater the potential debt repayment pressure and credit risk. For urban investment enterprises, restricted assets mainly include monetary funds, accounts receivable, notes receivable, inventory, fixed assets, intangible assets, construction in progress, long-term equity investments, etc. ARHK mainly considers the proportion of restricted assets in total assets, the types of pledged assets, and the forms of pledges.

(5) Short-term Liquidity Risk

If the evaluated entity has short-term liquidity risks that are sufficient to affect its medium- and long-term credit status, its credit rating may be downgraded.

(6) Adverse Credit Records

If the evaluated entity has adverse credit records such as overdue debts or other records of dishonesty, its credit rating may be downgraded.

(7) Significant Negative Public Opinion

If the evaluated entity is subject to significant negative public opinion and the impact has not been eliminated, its credit rating may be downgraded.

(8) Contingent Risks

If the evaluated entity faces litigation risks or guarantee (joint liability guarantee) compensation risks, its credit rating may be downgraded.

(9) Mergers and Acquisitions

Platform integration is an important factor related to the credit level of urban investment enterprises. If the evaluated entity is undergoing or is likely to undergo significant mergers and acquisitions within the next 1-3 years, its credit rating may be appropriately adjusted.

(10) Other Factors

Other factors refer to any factors other than those mentioned above that may affect the debt repayment ability and willingness of urban investment enterprises. If the evaluated entity has other adverse factors sufficient to affect its medium- and long-term credit status, ARHK will make appropriate adjustments to its credit rating based on the specific situation.

The specific self-adjustment factors are as follows:

Primary Factor	Secondary Factor
ESG	E
	S

Primary Factor	Secondary Factor
	G
Business Risk	Business Transformation Risk
	Business Cyclical Fluctuation Risk
Financial Information Quality Risk	Quality of Financial Information
Asset Quality Risk	Accounts Receivable
	Restricted Assets Situation
Short-term Liquidity Risk	Short-term Credit Risk
Bad Credit Record (without overlap with other factors)	Debt Overdue
	Other Credit Record
Significant Negative Public Opinion	Significant Public Opinion Risk
Contingent Risk	Litigation Risk
	Guarantee (Joint Liability Guarantee) Compensation Risk
Mergers and Acquisitions	Mergers and Acquisitions Risk
Other Factors	Other Factors

5. BCA Rating

ARHK derives the evaluated entity's BCA rating based on the rating benchmark, combined with its own adjustment factors.

6. External Support

The external support adjustment factors are as follows:

Primary Factor	Secondary Factor
Government Support	Government Support Willingness
	Government Support Historical Record
Shareholder Support	Shareholder Support Willingness
	Shareholder Support Strength

If the evaluated entity can still obtain stable external support when facing a liquidity crisis and having difficulty fulfilling debt commitments, it will help stabilize the expectations of relevant parties, thereby reducing the likelihood of the evaluated entity experiencing an actual liquidity crisis. At the same time, the specific rescue measures taken by external supporters when the evaluated entity encounters an operational or liquidity crisis will help increase the likelihood of debt repayment at maturity or reduce the default loss rate. The external support obtained by urban investment enterprises usually comes from the government and shareholders. ARHK mainly considers the external support situation of urban investment enterprises from the two aspects of government support and shareholder support.

(1) Government Support

Urban investment enterprises bear a deep government "Imprint." Even though they have undergone mixed-ownership reforms in recent years, the majority shareholder or actual controller of urban investment enterprises is still typically the local government. Therefore, government support is fundamental to the development of urban investment enterprises. By obtaining sustainable and substantial support, these enterprises can effectively enhance their liquidity and maintain stable and continuous development. The government support for urban investment enterprises is mainly assessed through two dimensions: the willingness of government support and the historical record of government support. Based on a comprehensive evaluation of these two dimensions, the degree of government support received by the evaluated entity is determined.

ARHK considers government support willingness for urban investment enterprises from the following three aspects: the proportion of shares held by the government and its funding representatives in the evaluated entity, the business support provided by the government to the evaluated entity, and the government's control over the evaluated entity. The government's methods of asset injection into urban investment enterprises generally include financial capital injection, land asset injection, administrative and institutional asset injection, equity injection, and franchise rights injection. The funds raised by urban investment enterprises are primarily directed towards the following projects: transportation infrastructure (highways, rail transit, high-speed rail and other railway and station investment, construction, and operation), urban renewal (including old city renovation, commissioned land acquisition and relocation, "three old" renovation, urban village renovation, shantytown renovation, land consolidation and agency, land quota trading, land development and consolidation, demolition service business, resettlement housing construction, rural homestead reclamation), public housing construction and operation (construction of affordable housing, resettlement housing, public rental housing, unified construction housing, talent housing construction, operation, and leasing), public utilities (water supply, water services, sewage treatment, water, electricity, and gas supply, heating, public transportation operation, passenger transport, transportation, etc.), industrial park development and operation (industrial park development, construction, and operation, investment in industrial park supporting facilities, industrial park demolition, etc.), marine infrastructure and operation (land reclamation, port infrastructure, sea reclamation, mudflat development, etc.), undertaking provincial urban renewal project loans, education investment and construction, cultural tourism, water conservancy infrastructure, agricultural infrastructure, municipal infrastructure, and state-owned capital operations. The feasibility study, project approval, land use, investment, and construction of the above projects all rely on the support of local governments.

Government support history primarily considers the level of support received from the government (general or special support) over the past 5 years.

The mapping of government support is as follows:

Government Support		Government Support Willingness		
		3	2	1
Government Support Historical Record	3	3/2	2/1	1/0
	2	2/1	1/0	0
	1	1/0	0	0

(2) Shareholder Support

The support of shareholders for urban investment enterprises is primarily assessed based on two dimensions: the willingness of shareholders to support and the capability of shareholders to provide support. By comprehensively evaluating these two dimensions, the level of shareholder support received by the evaluated entity is determined.

In terms of shareholder support willingness, the focus should be on the evaluated entity's position and importance within the entire group structure and development strategy of the shareholders. This should be specifically considered from the following perspectives: the proportion of shares held by shareholders in the evaluated entity; the position of the evaluated entity within the shareholder's business layout; the evaluated entity's contribution to the shareholder in terms of assets, income, profits, and cash flow; the legal relationship of joint guarantees with shareholders; and the impact of the evaluated entity's default on the shareholders.

The capability of shareholder support mainly considers the current support strength of the shareholders and the historical record of shareholder support.

Shareholder support mapping is as follows:

Shareholder Support		Shareholder Support Willingness		
		3	2	1
Shareholder	3	3/2	2/1	1/0

Support Strength	2	2/1	1/0	0
	1	1/0	0	0

7. Final Credit Rating

ARHK comprehensively considers external support to obtain the credit rating of the rated entity (model result).

The credit rating derived from this methodology and model serves as a reference credit rating for the rated entity and is only used as a reference for the analyst's recommended credit rating and the credit rating committee's determination of the credit rating. The final credit rating is determined by the credit rating committee, and there may be differences between the final credit rating and the model rating.

VI. Limitations of This Method and Model

1.ARHK's judgment of various rating elements for such companies is based on their historical operational conditions. However, the impact of relevant elements and their future development on debt repayment ability may vary due to changes in the external environment. Therefore, this methodology model cannot guarantee accurate prediction of the actual future default risk of such companies.

2.This methodology model only lists the key rating elements that need to be examined when rating such companies. It does not cover all the elements that need to be considered when evaluating the credit risk of such companies, such as non-systemic industry risks and major unexpected events in individual enterprises in the future.

3.There are human factors in the selection of indicators in this methodology model. The weight of elements in the rating model represents the relative importance of rating elements based on human assessment. The rating model includes critical qualitative assessment factors, which may lead to this rating methodology model's inability to fully and accurately reflect credit risk. At the same time, each member of the Credit Rating Committee may consider more factors beyond the scope of the rating methodology model when making their own judgment conclusions, thus the final credit rating always carries a subjective influence. ARHK will periodically or occasionally review this methodology model and revise it as appropriate.

Appendix:

Formulas for Indicators

i. Debt to Asset Ratio = Total Liabilities / Total Assets × 100%

ii. Return on Total Assets = EBIT / Average Total Assets × 100%

iii. EBIT = Total Profit + Interest Expenses Included in Financial Expenses

iv. EBITDA = EBIT + Depreciation + Amortization (Amortization of Intangible Assets + Amortization of Long-term Deferred Expenses)

v. EBITDA Interest Coverage Ratio = EBITDA / (Interest Expenses Included in Financial Expenses + Capitalized Interest Expenses)

vi. Local Government Debt Ratio = Local Government Debt Balance / GDP × 100%

vii. Local Government Debt Ratio (Narrow Definition) = Local Government Debt Balance / General Public Budget Revenue × 100%

viii. Total Operating Revenue Growth Rate = (Operating Revenue of the Most Recent Year - Operating Revenue of the Previous Year) / Operating Revenue of the Previous Year × 100%

ix. Net Cash Flow Ratio from Operating Activities = Net Cash Flow from Operating Activities / Current Liabilities

安融(香港)信用評級有限公司
ANRONG(HONG KONG)CREDIT RATINGS COMPANY LIMITED
Address：Office 02 on 6th Floor, Bupa Centre,
No.141 Connaught Road West, Hong Kong
Website：www.arrating.com