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JCR's Rating Methodology

I. Rating Framework

1. Credit Strength

(1) Credit Strength and Likelihood of Recovery

A credit rating is an assessment of one's financial strength, specifically as it relates to one's ability to meet debt obligations (corporate bonds, CP, loans, and other obligations), and pay principal and interest in accordance with financial agreements. Each individual obligation has its own contract, so the likelihood of recovery for each individual obligation, should the issuer go bankrupt, varies according to each contract. A rating is therefore required to determine the likelihood (credit strength) that the obligor will go bankrupt and default on its obligation (be unable to pay) and the likelihood of recovery of the obligation should the obligor go bankrupt.

As such, a rating represents a comprehensive decision on an assessment of an obligor's credit strength and the likelihood of recovery should the obligor bankrupt. But it is ultimately at base only an assessment of an obligor's credit strength as a going concern. The likelihood of the principal and interest being paid on time as specified in the contract is largely dependent on the obligor remaining financially stable and able to generate the required cash flow regularly. In contrast, if the obligor goes into bankruptcy there would be a significant delay in the recovery of the principal and interest. In most cases, even when the probability of recovery seems high, it is extremely difficult to recover 100 percent of the principal and interest, so it is not considered appropriate to use the likelihood of recovery as the core consideration in the assessment of how certain the obligation is likely to be performed.

At JCR, we refer to a rating that provides insight into an obligors' ability as a going concern to perform its obligations as a Long-Term Senior Debt Rating. In determining a Long-Term Senior Debt Rating, specific contractual details, preferred status among obligations, and the degree of recoverability are not taken into consideration, because the purpose of this rating is to get a comprehensive grasp of all of the obligor's obligations. Those individual factors are reflected in the assessment of individual obligations. Therefore, individual obligation ratings of an obligor may diverge upwards or downwards relative to the Long-Term Senior Debt Rating of the same obligor.

(2) Assessment of Credit Strength

Payments of obligations are taken from the cash flow generated from the obligor's daily operating activities. When assessing credit strength, it is therefore important to determine whether the volume (profitability) and stability of this cash flow matches that of the obligation to be repaid. It is extremely

important to analyze the relative relationships between cash flow and obligations, because no matter how large the cash flow is, if the obligation is heavy, the obligation to repay it will be a heavy burden. The obligor must be able to support this obligation. At the same time, however, if the cash flow and the obligation are small, the repayment burden will be light.

When assessing credit strength, focus is placed on two main issues. The first is the business foundations (business risks)—whether the obligor will be able to maintain and eventually expand its business foundations over time and generate the required cash flow. The second is the financial foundations (financial risks)—whether the obligor's financial situation will adversely affect the ability to repay obligations.

There are cases, however, when the obligor's credit strength is not dependent only on specific factors, such as business and financial foundations, but is sustained by credit support from external parties. The JCR recognizes financial support given by parent companies to subsidiaries—the state's financial support to banks based on safety nets such as the Deposit Insurance System—and will consider them when assessing an obligor's credit strength.

(3) Specific Corporate Default Rate Estimation Model

JCR has developed a quantitative model, referred to as the Individual Corporate Default Rate (CDR) Estimation Model, which is used to compute the cumulative default probability of an obligor's CDR. In the rating process, while the quantitative and qualitative analysis of industries and individual obligors is the core of the research, other results, such as those from the above estimation model, are used as reference data in the process of assessing credit strength as a means to enhance the objectivity of the rating.

(4) Guarantees and Keep-Well Agreements

With obligations supported by a guarantee or keep-well agreement, both the principal obligor and the guarantor (or the provider of the keep-well agreement) are rated individually on their ability to pay principal and interest on the obligation. The higher rating of the two is assigned as the official credit rating for the obligation, but in cases where the rating of the keep-well agreement provider is not significantly higher than that of the principal obligor, a downward rating adjustment by one or more notches may be made on the keep-well agreement provider's rating.

2. Likelihood of Recovery

(1) How the likelihood of recovery is determined

As mentioned above, the core foundation for a rating is the obligor's credit strength (its likelihood of default). The JCR rating codes indicate the degree of likelihood of this kind of default occurring. For the creditor, the likelihood of recovery, should the obligor go into bankruptcy, is also a matter of significant interest. When there is a discrepancy in the likelihood of recovery among individual

obligations, to the point of soliciting caution among the investors, there may be cases where the JCR assigns a notch differential (either above or below one or two notches, sometimes more) from the Long-Term Senior Debt Rating.

(2) Assessment of Likelihood of Recovery

In assessing the likelihood of recovery, JCR takes three factors into consideration: (a) the level of credit strength of the obligor (based on the Long-Term Senior Debt Rating); (b) the financial structure of the obligor; and (c) the relative contractual position of the obligation being rated. For these factors, a notch differentiation by a mechanical application is not used. Instead, various factors are considered to comprehensively reach a determination.

(a) Credit Strength of the Obligor (Long-Term Senior Debt Rating)

When an obligor’s credit strength is high, the likelihood of default is low; therefore, assessing the chances of default in such a case may seem somewhat superfluous. If the Long-Term Senior Debt Rating falls to BB or lower, JCR may reflect the likelihood of recovery as a notch differential. In the case of subordinated bonds, however, where the likelihood of recovery is clearly below that of other obligations, a notch differential is noted even if the Long-Term Senior Debt Rating is BBB or above.

(b) Financial Structure of the Obligor

In general, the larger the debt is (in relation to readily convertible assets such as cash, deposits, and securities), the lower the chances are of recovery. In turn, the more secured liabilities the obligor owns, the lower the chances are of recovery on unsecured bonds. Thus, the financial structure of the obligor has a material impact on the likelihood of recovery. The JCR uses the ratio of cash and deposits, securities and tangible fixed assets as reference data in assigning notch differentials. In the case of a holding company that relies on external funding to finance its shares, when ranking the recovery of claims, creditors of the parent holding company will rank subordinate to the creditors of the subsidiaries. As structural subordination occurs—taking the ratio of shares held to equity (double leverage rate) into consideration—a notch differential may be assigned between a holding company and a core subsidiary.

(c) Relative Contractual Position of the Obligations Being Rated

When assessing the contractual position of the obligation being rated, it’s extremely important to examine (a) the contract details of the obligation and (b) the obligor’s financial structure. Subordination provisions, financial covenants and security are among the contractual items that relate to the obligation.

Subordination Provision

When an obligation is subject to a subordination provision, the agreement expressly states that the priority of repayment is subordinate to the unsecured senior obligations and, in the case of bankruptcy, the likelihood of recovery becomes extremely low. Therefore, regardless of the rating assigned to the Long-Term Senior Debt Rating, it will be subject to a notch differentiation. Subordinated bonds (loans) with defined maturity and in perpetual subordinated bonds (loans) are assigned one or more notches and two or more notches downward, respectively, relative to the Long-Term Senior Debt Rating. Furthermore, with respect to a bank's short term subordinated bonds (Tier 3 bonds), with the rating on defined maturity subordinated bonds as the upper limit and in perpetual subordinated bonds as the lower limit, determination will be made upon examination of the likelihood of principal and interest being deferred by the bank's capital adequacy falling below the minimum capital adequacy ratio provided for by the Banking Law.

Financial Covenants

Financial covenants can be divided roughly into negative pledge covenants and other provisions (security switching provisions, profit maintenance provisions, net worth maintenance provisions, dividend restriction provisions), but when comparing the degree of impact of the financial covenants with the rating, negative pledge provisions are the most basic and the most important covenants. When security is provided for other obligations that are included within the scope of the negative pledge, the negative pledge requires that the obligor provide the equivalent ranked security to the unsecured obligation. The scope provided for is extremely variable, ranging from a broad definition of "other obligations," which includes bank borrowings and foreign bonds, to narrow definitions such as "other domestic unsecured corporate bonds (excluding bonds with security-switching provisions)." In terms of the recovery of claims, the narrower the scope is, the higher the likelihood is that the creditor will be placed in a subordinate position. Therefore, when the Long-Term Senior Debt Rating is low and there is no negative pledge or a severely limited scope on a negative pledge, the rating may be affected. The effects of financial covenants other than negative pledges on ratings are somewhat indirect, as acceleration only comes into play when the provision has been breached.

Secured Obligations

Secured obligations are repaid ahead of unsecured obligations at the time of collateral disposal and have a higher level of safety compared with unsecured obligations. For obligors whose credit strength is quite low, it is quite possible they will have to repay obligations by disposing of their assets, and the existence or lack of security affects the degree of safety represented by such obligors. In such cases, unsecured obligations may be rated lower than secured obligations. On one hand, when the obligor's credit strength is relatively high, there may

be cases where unsecured obligations are rated lower than secured credits. On the other hand, when the credit strength of the obligor is relatively high, the impact on the degree of safety due to the existence or lack of a security is minimal. Thus, no distinction is given to the rating.

(3) The Thinking Behind Notching-up

In assigning a rating on individual obligations that is higher than the Long-Term Senior Debt Rating (a notching-up), taking into account the likelihood of recovery, JCR considers three points of importance: (a) that there is not only a partial coverage of the principal and interest paid on the obligation, but also an ability to cover larger amounts than that of the total; (b) that obligations can be performed before too long before repayments are made after defaulting; and (c) that the likelihood of recovery is not influenced by the post-default credit conditions of the obligor. Collateral on securities that have both credit strength and liquidity (such as government bonds) and collateral on deposits (the risk of loss of value due to an offset needs to be low) may be considered as satisfying such conditions. However, in a case where, although secured, there are other obligors with higher seniority and the likelihood of recovery is low, they would not be eligible for notching-up. In addition, under corporate rehabilitation proceedings, special care must be taken when dealing with the possibility of limitations being imposed on exercising security rights. At any rate, the above factors are taken into account for each individual case to determine the eligibility for notching-up.

3. About Outlook on the Future

A credit rating assesses an obligor's ability to perform its obligations over time. Thus, estimating the ability to generate income in the future and predicting future financial conditions is important. In analyzing the obligor, therefore, JCR makes assessments after taking into account the obligor's future plans for capital investments and financing. In other words, based on today's financial statements and management plans, and taking into consideration the examination of industry trends and business foundations, a view is formed based on estimations of future balance sheets and profits and losses, the future trend of management indicators are forecast. In such cases, JCR also analyzes the obligation's sensitivity to changes in economic conditions and considers all "worse case scenarios."

In assessing ratings, JCR makes its determination based on an outlook of the conditions and business environment of obligors over a span of three years. However, if it can be foreseen that the obligor will face a large redemption of bonds five years from now, for example, such risks that are substantially longer than a span of three years will be taken into account when assigning ratings.

4. Short Term Rating

(1) Relationship Between Long Term and Short Term Ratings

While the long-term ratings indicate the certainty of performance of medium- to long-term obligations, short-term ratings indicate the certainty of short-term obligations, normally within one

year. At the same time, however, short-term credit strength cannot be divorced from medium- and long-term credit strength. For example, an outlook that predicts the degree of certainty of the obligor performing under medium- and long-term obligations will also have a significant impact on the short-term funding through which the obligor's relationship with customers and banks is directly affected. Furthermore, among the short-term ratings, CP ratings are assigned in respect to CP issuing limits that are maintained over a medium- to long-term period. Therefore, when determining short-term ratings, the JCR creates a three-year outlook on the obligor's conditions and business environment, just the same as it does for a long-term rating. The assessment of medium- and long-term credit strength thus forms the basis of JCR's determination of short-term ratings. As a result, there is some correspondence between short-term ratings and long-term ratings as shown in the table below.

However, the correspondence indicated in the table is simply an indication. Assigned ratings may differ on individual issues. This is because, as noted below, in short-term ratings, liquidity analysis is added to the assessment of medium- and long-term credit strengths, but the liquidity conditions (the ratio of liquid assets and liquidity at hand to assets – liabilities, fund flow patterns, and the like), which are the subject of the analysis, differ widely across industries, business and individual companies.

(Cover) Correspondence between Long Term Rating and Short Term Rating

Long Term Rating	Short Term Rating				
AAA	J-1+				
AA+	J-1+				
AA	J-1+				
AA-	J-1+				
A+	J-1+	J-1			
A		J-1			
A-		J-1	J-2		
BBB+			J-2		
BBB			J-2		
BBB-			J-2	J-3	
BB+				J-3	
BB				J-3	NJ
BB-					NJ
B+					NJ
B					NJ
B-					NJ
CCC					NJ
CC					NJ
C					NJ
D						D

(NB) Corresponds set out above are purely indications and in each specific case different ratings maybe assigned as a result

(2) Focus on Liquidity Analysis in Short Term Rating

The basic thinking behind the analysis of short-term ratings does not differ significantly from that

of long-term ratings, but in a short-term rating, the weight is placed in the relatively near future and liquidity analysis is added. In a liquidity analysis, the following components are examined: (a) contents and the level of liquidity; (b) funds flow conditions; (c) ability to raise funds; (d) CP issuance limits and uses of funds.

(a) Content and the Level of Liquidity

Liquidity is the primary source for short-term fund settlements and consists of cash and deposits, to which securities are added. An assessment is made, however, by calculating the real liquidity level by deducting from it the funds that are already earmarked for such uses as temporary employment of funds for capital investments, and discounting the value of securities and other similar instruments according to the degree of liquidity.

(b) Funds Flow Conditions

In order to assess the certainty of the funds settlement, the stability of funds flow on a monthly and weekly basis is assessed. Using a funds flow table, timing and quantitative and qualitative matching are confirmed. Attention is placed on the following funds flow patterns: funds flow pattern of adjusting imbalances in ordinary revenues and expenditures using short-term funds; financing capital investments using fixed liabilities and retained earnings; and financing closings and seasonal needs with short term funds.

(c) Ability to Raise Funds

From the perspective of examining the capacity to raise funds, JCR assesses unrealized gains in the obligor's assets and the capacity to provide collateral. A judgment is made on the obligor's potential ability to finance at a crunch time by examining its long-term relationships with financial institutions, including its main bank, through analysis of the amount of borrowings, directors originated or seconded from the financial institution, and the cross-holding of shares.

(d) CP Issuance Limits and Use of Funds

In rating CPs, JCR also analyzes the issuance limit and the use of funds. For example, in refinancing, the following factors are considered: the existing outstanding balances (Is the proportion of CPs among all obligations excessive?); the funds flow pattern if they are used as working capital (Is the issuing limit appropriate in relation to the amounts needed). Comparisons will then be made with respect to the investment size and overall strength of the company. Through these types of analyses, JCR makes a judgment on whether, after issuing CPs, an impact on the obligor's financial conditions would cause a material change in its balance sheet or funds flow.

(3) Backup Line

While the uses of funds raised through issuing CPs are diverse, CP is generally issued to help finance working capital and settlement funds that are commonly refinanced through issuing CPs. There is a risk, however, that due to some unforeseen factors and the market's experiencing turbulence, refinancing using CPs may become impossible. These events may occur due to factors not related to changes in the credit risks of the issuer and can be considered market risks. A backup line is a credit facility negotiated with a bank in advance to provide a backup source of funding should such a market risk occur. This is separate from a normal bank guarantee. A backup line is a tool to supplement the availability of CP settlement funds and is not a credit enhancement like a bank guarantee. (If, for example, an issuer is faced with a credit risk deterioration, a loan for CP settlement funds may not be executed). Therefore, the level of the backup line is not related to the CP credit risk (rating). However, JCR takes the view that ensuring sufficient liquidity against market risks is necessary. If the liquidity in hand is cash—deposits or bank credit lines that have been adequately secured—then establishment of a backup line is not needed. But if liquidity is lacking, a backup line is required.

Methods to assess the backup line are as follows.

(a) A healthy level of liquidity sufficient to cover the CP issuance line is estimated considering the corporate performance outlook, changes in funds demand, use of funds and other similar factors.

(b) Real liquidity in hand is calculated. The liquidity is composed of cash and deposits and liquid securities. However, a downward adjustment needs to be made by deducting those assets that are being used as security against obligations, or discounting those whose liquidity is low, while liquidity supplements such as commitment line and overdraft facilities from financial institutions are added.

(c) Deficiency of liquidity in hand calculated by (a) and (b) above should be

II. Perspectives on Credit Strength Assessment

1. Assessing Corporate Credit Strength

An assessment of corporate credit strength is performed based on identification of risks peculiar to the corporation and then compared against the analysis of the business and financial foundations corresponding to these risks. In cases where the corporate rating prior to country ceilings exceeds the country ceiling for the country in which the corporation is domiciled, then the country ceiling will be the rating for the corporation.

Below, principally focusing on ordinary industrial corporations (resident corporations), an overview of the assessment of credit strength will be presented, separating the process into business foundation, financial foundation, and the use of the credit risk estimation model.

2. Business Foundation

JCR precisely assesses the business foundation of the corporation being rated, and based on the results of that assessment, the rating process is initiated by projecting, or estimating, future cash flows.

(1) Properties of the Industry (Industry Trends)

It is important, first of all, to adequately examine the properties of the industry in which the corporation being rated operates. A precise assessment of the industry is an important tool in gaining an accurate understanding of the corporate performance of the company being rated, and it is also efficient in projecting difficulties or risks that the corporation may be confronted with in the future.

For example, whether the industry to which the corporation belongs is a growing industry or a mature industry will significantly influence the corporation's future performance. Some industries will suffer instability in performance over the short term due to product and material prices; some relatively stable industries will not be significantly affected by economic changes.

Specific items to be examined would include:

- Size of the market. Purely domestic market or a global market?
- Degree of dependence on specific industries. Trends in the customer industries.
- Growing industry or mature industry?
- Industry structure. Is it an oligopoly or a highly competitive industry?
- Is it a regulated industry backed by policies? If so, what is the outlook for future liberalization?
- Is the industry a commodity-type industry or stable industry?
- Trends in technological innovation. If the pace of technological innovation is quick then the degree of business risk would be that much higher and the ability to generate profits to recover the investment within a short period is needed.
- Identification of problems and issues faced by the industry. For example, supply and demand balances, international competition, availability of materials, system issues and the like.

Those are general items to be examined but, in addition to them, for each company of a particular industry, an assessment of its future ability to generate income is made from a perspective specific to the industry. For example, when it comes to site-oriented industries such as retail, electrical railways, or real estate, JCR makes its analysis, in combination with analyzing the general demand trends (for example, personal consumption), by placing weight on the potential for development and the competitive conditions of the principal business region in which the corporation operates and the expansion plans of their competitors. In addition, because corporations are generally diversified in the businesses in which they are engaged, the examination will also need to cover multiple industries in which they operate. In such a case, examinations based on the perspectives discussed above will be performed for each industry.

(2) Position in Industry and Competitiveness

The position of corporate entities rated in the industry and what features they possess are examined from the following perspectives.

- Position within the industry (ranking, market share). Is the corporation in a monopolistic position, or is it merely a marginal supplier?
- Is its market share increasing or decreasing?
- Characteristics, strengths, and weaknesses in the industry.

(3) Properties of Corporate Entities

Even among corporations in the same industry, management resources and styles differ among companies, causing corporation-specific risks to arise. Examination will focus on the following items.

(i) History

This is the history of the founding of the company, which may have a strong influence on the basic character of the corporation and the formation of corporate culture. It is not simply a review of history, but also has significance in assessing current and future conditions of the corporation's business base.

(ii) Management

Identifying and understanding the capabilities, performance, and stance of senior management are essential in undertaking a rating. Directly querying top management about what management policies are being formulated in response to changing environments and what measures are being taken to achieve management goals is extremely useful in ascertaining the direction of management. In principle, when undertaking a rating, interviews are held with top management to obtain insight into management policies and similar items of importance.

(iii) Organization

An assessment is made of whether the organizational composition and staff posting are appropriate to meet the management policies of the company, of whether the organization has become rigid, and of other issues in relation to management philosophy, employees' motivation, and corporate culture.

(iv) Shareholders and Affiliations

The number and proportion of shares held by the major shareholders is checked. The stable shareholders, capital affiliations, financing affiliations, and other similar matters concerning corporate shareholders will be considered. For changes in major shareholders, the background to the changes and the effect they may have on management policies is examined. Being a member of a specific group can lead to stability of product sales, securing of materials, financing, and other

benefits, but these examinations focus on the significance of the corporation's being a member of the group with respect to avoiding management risks.

(v) Employees

Identification will be made of the special features of the employee structure in comparison with competitors in the industry, in terms of the number, age composition, average number employment years, wage levels, and relationships with the labor union. Per capita efficiencies will also be examined.

(vi) Sales Composition

Corporate management has become increasingly diverse, and there is an increasing number of companies engaged in diverse fields. The examinations discussed above will be conducted for each business that a company is engaged in and include the sales composition balance among industries.

(vii) Production and Sales Conditions

Production and sales results by divisions will be traced, and analysis will break this down into volume and pricing factors. The results will be reconciled against economic changes and industry trends, to highlight the special qualities of the corporation being rated and the assessed relation to management policies, and similar criteria.

- Status of product customers and source of materials
- Selling method (direct or through a sales agency)

(viii) Status of Capital Investments

The characteristics of production facilities differ according to industry and business. There are differences in whether mass production or small-lot production of a variety of products is used, whether production is located close to the consuming region or the materials-production region, or whether it is concentrated production or dispersed production, and similar matters.

The following points are checked and judgments are made against the industry and business.

- Relative level of production facilities and technology. Existence of originality.
- Status of overseas expansion (overseas installation of production or sales base) and future direction.
- Capital investment trends (content, amount, investment effects).
- Identification of production and sales results by division.

(ix) Technology Level and Research and Development Capabilities

Technological abilities and development abilities are a source of corporate growth and are critical factors in making judgments about the future of a corporation. This is a particularly

important factor in industries where technological innovations are rapid. The risks are significant in areas where enormous investments are required. The overall strength of the company will be examined, using a comparative analysis of historical development results, originality of production methods and ownership of patents, research and development organization and changes to its staffing, proportion of R&D expenses to sales, and other relevant indices.

(x) Subsidiaries and Affiliates

If the corporation being rated has subsidiaries and affiliates, it will be necessary to assess the business foundation of the overall group, including the subsidiaries and affiliates. In rating the parent company of a corporate group, JCR compiles and analyzes individual data of the group companies on a consolidated basis, to realistically determine the ability of the group as a whole to repay obligations.

(xi) Management Plan

Examination of management plans based on future management policies is extremely important in deciding a rating. Information on management philosophy, policies regarding medium- and long-term plans, and actions taken for issues at hand, which is the sort of information obtained from the direct interviews with senior management, will be focal points when making rating decisions. Together with analyses of data on the management plans of the corporation being rated (production and sales plans, capital investment plans, profit-and-loss plans, projected balance sheets, projected cash flow statements, and other materials), information obtained in interviews will be taken into account, and comprehensive judgments will be made of the appropriateness of management plans and the ability of management to achieve them. Management plans are directly linked to future cash flow outlook and debt trends, and its assessment is significant because it concentrates all of the analyses that have been performed from different perspectives into one.

3. Financial Foundation

After taking into account the financial management policies learned from interviews with the management, the balance sheet is analyzed to identify the actual financial status of the company. Judgments on the health and sustainability of the company are made by examining the soundness of asset composition, balance in the capital structure, degree of leeway and safety in funding.
The principal matters examined and the matters to which attention are paid are as follows.

(1) Major Matters

For accounts on the balance sheet, changes and the reasons for them will be analyzed, and the soundness and liquidity of items will be examined. Scrutiny of the details of items is important in linking financial condition to profitability or to production and sales conditions, so examinations will

include the correlation of the related items.

(2) Capital Composition

For capital composition, the short-term liquidity of funds and long-term stability of capital will be examined by looking at the balance between assets and capital or investments, and the source of financing.

(i) Liquidity

There are some latent inconsistencies between liquidity and safety of funds on the one hand and the ability to generate income on the other. For example, while on the surface the liquidity ratio may be favorable, there may be cases where there are dead stocks, bad loans, or shortfalls in purchase obligations due to inadequate credit strength. The degree of equilibrium may also differ according to differences in the rate of growth and peculiarities of the industry or business. The cost composition, production period, procurement and sales conditions, and seasonal changes are taken into account.

(ii) Stability

A basic condition for a sound rating is for a corporation to be generating a reasonable level of income and exhibiting some stability, but even if there is some volatility in the ability to generate income, whether the capital composition provides it with the strength to withstand such volatility will be examined.

For long-term stability, the principal ratios concerning a company's operations will be analyzed, such as its debt equity ratio, fixed asset ratio, ratio of fixed assets to long-term capital, and other similar ratios. These ratios differ depending upon the industry and business, and especially concerning dependence on external contracting, operational structure, and sales organizations. Care is taken in making the assessments.

(iii) Funding

By linking actual and projected profit-and-loss results, as well as actual financial conditions and investment plans, a corporation's financing and use of funds are identified and the pattern of its ability to pay its obligations and its skill in raising and investing funds are examined. Banking relationships and changes in relationships will also be looked at, but in particular, the corporation's relationships with financial institutions and its ability to raise funds are looked at regularly, because they are critical for rating the corporation.

(3) Financial Indicators

A corporation's ability to generate income and its financial conditions are reflections of its past

performance, and such factors provide important data for analysis. Based on an analysis of these financial indices, projections will be made of how the management indicators will change in the future.

Insight into the various factors behind the numbers is also needed, not limited to a simple tracing of numbers and judgment of relative performance of indicators among competitors in the same industry or business type, but also analyzing the numbers in the context of corporate trends, changes in the business foundation, management policies, and other qualitative elements. These are tied together in profitability forecasts. In undertaking a rating, analyses are performed by confirming the qualitative factors against management indices, and the results of the analysis of management indices are used as leads in examining qualitative factors.

In determining a rating, there are some differences in the indices selected for analysis, depending upon the industry, but a wide variety of indices—including profitability, safety, growth, and size—are analyzed, and an assessment is made of a corporation's profitability and the degree of stability in its financial foundations. Specifically, sales, profits, outstanding debt, and other actual values and financial indices are computed, and time-series comparisons and comparative analysis are performed.

The two following points are important in analyzing financial indices. First, financial statements are the result of past management, while ratings are assessments of future ability to pay obligations. Analysis of current status and projecting future profitability and financial conditions will be important. Second, it is not enough to trace movements of numbers over time. These movements must be understood in the context of the qualitative factors behind them. The high profitability of a corporation is due to the corporation producing a quality of product that competitors cannot imitate. The reason for a corporation's payables cycle being stretched may, for example, be due to the pressure created by products whose recovery is slow. Evaluations are made based on actual conditions. Along with understanding background factors through changes in numbers, qualitative information obtained through interviews and meetings with a corporation are examined using actual financial data.

Many financial data are used in assessing size, profitability, and safety. The major indices used include the following:

(i) Indices relating to size: Sales, operating profit, equity

(ii) Indices relating to profitability: Operating margin, return on total assets

(iii) Indices relating to safety: Interest coverage ratio, interest bearing debt/EBITDA, debt to equity ratio, equity ratio

4. Use of the Credit Risk Estimation Model

When undertaking these analyses, the credit risk estimation model ("Specific Corporate Default Rate Estimation Model") is used as a reference. This model was independently developed by JCR, and from individual corporate financial data, the probability of a corporation going into bankruptcy during a specified period is estimated.