ANALYSIS METHODS OF THE INSOLVENCY RISK

PhD. Univ. Lecturer Gabriela Munteanu
„Andrei Șaguna” University – Constanța

Abstract

A company’s capacity to be solvent/able* – to defeat the insolvency risk, has an important position within the System of financial-patrimonial analysis. Any problem regarding the payment of obligatory taxes generates prejudice and requires urgent solving. Key words: solvability, insolvency, financial balance, financial-patrimonial analysis, risk evaluation, working capital.

***

The financial balance is absolutely imperative (cannot be omitted under any circumstances). In the economic practice it can be conceived that a company that encounters some difficulties renounce temporarily certain growth objectives, economica objectives or social objectives. However, the company cannot renounce the solvability objective assuring, which represents the financial condition of survival.

The company’s capacity to fulfill its obligation within term is appreciated according to the concrete economic-financial conditions on which the activity is run. A company may have temporary or occasional difficulties determined by the non-payment of some important debts in timely manner or by the acceleration of payments within a period of rapidly growing activity. In this case, the difficulties may appear as an expression of momentary disaccordance without damaging the company’s image. Simple solutions can allow the getting over these difficulties and the reinitiation of payments: obtaining a longer payment term from the suppliers, the delay of the financial debts, short-term loans. The company may encounter periodical financial difficulties: delay of payments in certain periods of the year or in the periods of acceleration of the growth. Although the company’s existence is not endangered, its image can be damaged due to periodical disturbances.

* Solvability represents the company’s capacity to face the payment obligations resulting either from previous contracted responsibilities, or from current operations whose accomplishment conditions the continuation of activity, or from obligatory prelevations.
Economic and Financial Analysis

The permanence of some payment difficulties is the expression of structural financial and economic fragility which may generate the narrowing of activity, reduction in the number of employees, the re-structuring of the administration system and, in serious cases, the **insolvency of the company**.

The financial patrimonial analysis is basically a static analysis in which there is priority for the value and solvability of the company. This type of analysis has represented for a long time **the only way to evaluate risk**.

There is reference to the main operational instruments used by the financial analysis for the investigation of insolvency risk: **The working capital** and **solvability rates**.

The analysis of the patrimonial working capital

From a patrimonial point of view, the active and the passive are made of two large masses:

- a relatively permanent mass (duration >1 year), consisting of the fix active ($A_i$) and the permanent capital (CP);
- a mobile mass (duration <1 year), consisting of the circulating active ($A_c$) and the short term obligations (OTS).

According to the patrimonial theory a company is solvable if it is assured the balance of the masses of the same duration, if the following financial rules are fulfilled:

\[
\text{Fix active (} A_i \text{)} = \text{Permanent capital (CP)}; \\
\text{Circulating active (} A_c \text{)} = \text{Short term obligations (OTS)}; \\
\]

The strict fulfillment of these balance equations implies an activity without stoppages, perfectly regular regarding the income and payment. The company must own sufficient funds to pay the obligations when the term imposes so. The practical accomplishment of these requirements is difficult because the **actives** (as potential funds inlet) and the **passives** (as potential funds outlet) are asymmetrical from the risk point of view. While the situation of the short term obligations is certain, **the transformation of the active in available funds is aleatory**, being prone to disturbance by a series of economic, financial factors and their context. This asymmetry imposes the necessity to build a reserve, of a margin able to support the „term irregularities”, known in the economic theory as the **Patrimonial working capital**.

**The working capital** can be defined starting from the elements in the superior part of the balance: $FR (WC) = CP - A_i$.

**The working capital** represents the part of the permanent capital that is over the net immobilisations and can be affected to the circulating actives.
financing, starting from the elements at the bottom of the balance: \( FR = A_c - OTS \).

**The working capital** represents the exceeding of circulating actives over the value of short term obligations. Starting from the proper part and from that borrowed of the permanent capital, there can be calculated a proper working capital, respectively a foreign working capital.

**The proper working capital** measures the exceeding of the proper capital over the value of the fix actives. The calculation formula:

\[
\text{Proper working capital} = \text{Patrimonial working capital} - \text{short and medium time obligations}
\]

**The foreign working capital** represents the difference between the patrimonial working capital and the proper working capital.

The notion of working capital, resulted from the correspondence of the actives’ liquidity with the passives’ exigibility, permits the short term appreciation of the risk of non payment of obligations, of the insolvency risk. Between the circulating actives, with potential liquidities (obtained through the accomplishment of stocks, income of debts and keeping the available funds) and the potential exigibility may exist, practically, the following situations:

- \( A_c = OTS \), meaning \( FR = 0 \)

  The short term solvability seems to be assured, but this balance is fragile, being likely to be destroyed by any irregularity of the debts.

- \( A_c > OTS \), meaning \( FR > 0 \)

  It is registered as a potential liquidity exceeding on short term related to the potential exigibility on short term. The company has a good situation in terms of solvability, because it is likely to fulfill the term obligations, having an extra buffer stock of potential liquidities.

- \( A_c < OTS \), \( FR < 0 \)

  The potential liquidities do not cover entirely the potential exigibility, the company having problems concerning the financial balance.

  The appreciation corresponding to the significance of the working capital for the financial balance requires the consideration of the average duration of the actives and the passives, which in practice are not equal other than as an exception.
If the circulating actives are rotating (become liquid) faster than the obligations, it means that the company can assure its own financial balance. A classic example in this way is represented by the situation of the companies in the distribution sector whose activity is characterized by a rapid rotation of the circulating actives, through cash incoming of the sales (clients), and a slower rotation of the short term obligations, due to favourable payment terms, granted by the suppliers. On these conditions, the financial balance is compatible not only with a smaller working capital but also with a negative working capital.

If the circulating actives are rotating slower than the short term obligations (the transforming time of the actives into liquidities overtakes the time of obligation payment), the maintaining of the financial balance requires a positive working capital and with a high value.

There results that there is not a simple and clear relation between the working capital and the insolvency risk of a company. Certain companies fulfill the requirements of financial balance even with a negative working capital, while other prove to be insolvable despite a positive working capital. Furthermore, certain companies maintain their solvability with a low working capital, while others encounter financial difficulties despite a high working capital.

The financial results can be damaged very rapidly in time. There appears more and more evident the necessity of more precise information regarding the future, at the insolvency risk. As a reaction to these practical requirements, the diagnosis of insolvency risk has known an important development due to the use of some Statistics methods of financial situation analysis starting from a sum of rates.

The “scoring” method has as an objective the providing of some predictive models for the evaluation of insolvency risk of a company. The method is based on the statistic techniques of the discriminatory analysis. Its application implies the observation of a group of companies made of two distinct groups: a group of companies with financial difficulties and a group of companies without any financial problems. For each of the two groups there is established a series of rates which would allow the differentiation of the two company groups.

Further to application of discriminatory analysis, there is obtained for each company with a “Z” score, linear function of an assembly of rates. The distribution of the various scores allows the distinction between the healthy companies and those with financial problems.

The “Z” score attributed to each company is determined by the function:
Economic and Financial Analysis

\[ Z = a_1 x_1 + a_2 x_2 + a_3 x_3 + \ldots + a_n x_n \], where:

- \( x \) represents the rates implied in the analysis;
- \( a \) represents the coefficient of balance of each rate.

In economic theory there have been elaborated a series of models based on The Soring Method, among which the best known are: Altman Model; Conan and Holder Model; Holder, Loeb and Partier Model; Bank of France Model etc.

E.I. Altman used the information obtained through the study of a wide range of companies, some of which became bankrupt and others survived and noticed that the analysis based on more variables permitted the prediction of 75% of the bankruptcy cases, two years before this occurred.

The function established by Altman: (example)

\[ Z = 3.3 x_1 + 1.0 x_2 + 0.6 x_3 + 1.4 x_4 + 1.2 x_5 \], Where:

- \( X_1 \) = The current result before taxing / Total active
- \( X_2 \) = Business figure/ Total active
- \( X_3 \) = Stocks capitalization/ loans (long term debts)
- \( X_4 \) = reinvested profit/ total active
- \( X_5 \) = circulating active/ total active

The stocks capitalization represents the absolute degree given by the multiplication of the last stocks course in a finalised exercise with the number of actions.

The net circulating actives represent the difference between the circulating actives and circulating passives.

From the content of indicators there results that their levels are better according to a higher absolute value. Therefore the “\( Z \)” score is as it follows:

- \( Z<1.8 \) – imminent state of insolvency;
- \( Z>3 \) – the financial situation is good, the company can be trusted by the bank (it is solvable);
- \( 1.8<Z<3 \) – the financial situation is difficult, with visibly diminished performances and close to the edge of insolvency.

Conan and Holder Model has the basic function: (example)

\[ Z = 0.16 x_1 + 0.22 x_2 - 0.87 x_3 - 0.10 x_4 + 0.24 x_5 \], where: (6)

\( X_1 \) represents the partial solvability rate = (Debts + Placements + Available funds) / (Short term obligations);
Economic and Financial Analysis

\[ Z = -1.25 x_1 - 2.003 x_2 - 2.824 x_3 + 5.221 x_4 - 0.689 x_5 - 1.164 x_6 + 0.706 x_7 + 1.408 x_8, \]

where:
- \( x_1 = \text{Financial expenses rate} = \text{Financial expenses/ Full exploitation excedent} \)
- \( x_2 = \text{Invested capital covering rate} = \text{Permanent capital / Invested capital} \)
- \( x_3 = \text{Obligation refund capacity rate} = \text{Self-financing capacity/ Obligations} \)
- \( x_4 = \text{Exploitation full margin rate} = \text{Full exploitation excedent / Business figure} \)
- \( x_5 = \text{Average duration of the financial credit/loan} = (\text{Average balance x Suppliers x T}) / (\text{Goods buying}) \)
- \( x_6 = \text{Added value raising rate} = (\text{Added value}_1 - \text{Added value}_2) / \text{Added value}_p \)
- \( x_7 = \text{Average duration of the client credit/loan} = (\text{Average balance clients x T}) / \text{Sales} \)
- \( x_8 = \text{Physical investment rate} = \text{Investments/ Added value} \)

According to the value of \( Z \) there can be distinguished the following situations:
- non-favourable situation \( Z < -0.25 \);
Economic and Financial Analysis

- uncertain situation \(-0.25 \leq Z \leq 0.125\);
- favourable situation \(Z > 0.125\).

The scoring method practically completes the classic methods of risk analysis, having a primarily predictive characteristic.

Informational valences of the scoring method should not be overrated, as the discriminating analysis reduces the basic information by selecting the most significant rates, considered as constant across times whereas the company is an economical-social system acting within a complex environment, with various variables influencing its weakness or its health.

Conclusion

It is recommended the use of scoring method together with other classical diagnostic methods like the analysis of financial balance, the profitability analysis, cash flow analysis and finally, an assessment of the global risk of the company.

A permanent solvency condition appears as a major constraint because it allows the removal of bankruptcy risk and thus the disappearance of the company would be avoided.

Bibliography: