Solvency Opinion Scenario Analysis

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A scenario analysis is a common procedure within the cash flow test performed as part of a fraudulent transfer or other solvency analysis. The purpose of such a scenario analysis is to help assess the risk inherent in a proposed leveraged transaction. Depending on the nature of the debtor company and on the terms of the proposed corporate transaction, the preparation of a scenario analysis within the context of a solvency opinion can be a complex undertaking. A thorough understanding of the linkages between the company risk factors and the company cash flow drivers will help the financial adviser produce a reliable transaction opinion. This discussion focuses on the application of scenario analysis in the cash flow test, the different types of debtor company operating scenarios, and the scenario development procedures commonly used by the financial adviser.

Introduction

Independent financial advisers are often asked to issue solvency opinions in order to provide an assessment of a debtor company's solvency as of the date of a proposed leveraged transaction.

A debtor company board of directors will often request that a solvency opinion be procured as part of its due diligence process in order to fulfil its duty of due care. Examples of corporate transactions that may involve the preparation of solvency opinions include, but are not limited to, the following:

1. Leveraged dividend recapitalizations
2. Equity security redemptions
3. Leveraged asset purchases
4. Substantial liability payments

In many instances, the types of corporate transactions involve the debtor company incurring large amounts of debt, thus necessitating the preparation of a solvency opinion. When performing a solvency opinion, the financial adviser often performs the three tests related to fraudulent transfers:

1. The balance sheet test
2. The cash flow test
3. The capital adequacy test

The balance sheet test and the capital adequacy test are beyond the scope of this discussion.

This discussion focuses on scenario analysis considerations for the cash flow test. Specifically, this discussion (1) explains how scenario analysis, including sensitivity and stress tests, are used when performing the cash flow test; (2) describes several different types of company operating scenarios; and (3) describes how the financial adviser uses information gained through the due diligence procedures to develop scenarios and to perform sensitivity and stress tests as part of the cash flow test.

Summary Description of the Cash Flow Test

The cash flow test is used to assess the debtor company's ability to pay its financial obligations (including any new debt related to the proposed leveraged transaction) as those obligations mature.

The starting point for the cash flow test is typically a set of earnings or cash flow projections developed by the debtor company management. The length of the projection period should be equal to the length of the repayment period for any proposed financing related to the transaction.

The financial adviser will use the financial projection to estimate the debtor company's cash flow,

after taking into account both operating and financing obligations. In addition, the financial adviser will consider the expected capital investment and working capital needs of the debtor company.

The cash flow test is "passed" if the debtor company has the ability to meet its financial obligations and to remain in compliance with any debt covenants in each year of the projection period.

As part of his or her due diligence, the financial adviser generally will also perform a scenario analysis. This scenario analysis may include sensitivity and stress testing. The financial adviser may perform these procedures in order to help further assess the risk of debtor company insolvency caused by the proposed transaction.

This due diligence exercise may be especially rigorous when the debtor company is operating in a risky or volatile industry or is highly levered prior to the execution of the proposed transaction.

The scenario analysis can be a useful risk management tool for both fiduciaries and managers. This is because the scenario analysis has the added benefit of giving these parties insight into how the proposed transaction debt may affect the financial stability of the debtor company under various operating conditions.

Scenario Analysis

The terms "scenario analysis" and "sensitivity analysis" are often used interchangeably. However, for the purposes of this discussion, a distinction can be made.

While a scenario represents the set of circumstances that the debtor company could face in the future, the sensitivity analysis is related to the observed outcomes achieved by changing key variables of the scenario.

For purposes of this discussion, a scenario is defined as follows:

> a possible future environment, either at a point in time or over a period of time. A projection of the effects of a scenario over the time period studied can either address a particular firm or an entire industry or national economy. To determine the relevant aspects of this situation to consider, one or more events or changes in circumstances may be forecast, possibly through identification or simulation of several risk factors, often over multiple time periods.[1]

A scenario analysis can be thought of as deterministic or stochastic in nature. A deterministic analysis typically has single-point estimates for key inputs and outcomes determined by the parameter values.

On the other hand, a stochastic analysis will have one or more random variables and is used to estimate the probability of outcomes within a forecast. A common example of a stochastic analysis is a Monte Carlo simulation. While certain elements of this discussion may be applicable to both deterministic and stochastic scenario analyses, the primary focus of this discussion is on deterministic scenarios.

The deterministic scenario analysis will typically include a base case scenario, a zero growth scenario, and a downside risk scenario. However, certain situations may call for a more robust analysis. Such an analysis may include several types of scenarios and multiple sensitivity and stress tests.

Types of Scenarios[2]

Scenarios can be grouped into several broad categories, including the following:

1. Single event scenarios
2. Multi-event scenarios
3. Historical scenarios
4. Reverse scenarios
5. Synthetic scenarios

Single event scenarios are relatively straight forward and are usually not the types of events that would result in a chain of successive events.

However, multi-event scenarios are the result of multiple factors that cause a chain of successive events due to causal linkages between various factors.

Reverse scenarios are developed by determining what set of conditions will lead to a specified financial result. This type of analysis often presents a challenge. This is because such an analysis involves a comprehensive understanding of the risk dynamics of the subject debtor company.

Historical scenarios are based on actual historical events. The advantage of historical scenarios is that the short, medium, and long-term effects of the event can be observed.

Further, the effect of the event on specified risk factors and the relationships between risk factors can be studied. Based on this study, the financial adviser can make proper adjustments when developing a scenario that assumes a similar event occurs at some point in the future.

Synthetic scenarios involve hypothetical circumstances that have not been observed but could

occur at some point in the future. An example of a synthetic scenario would be the development of breakthrough technologies.

Synthetic scenarios may be more subject to challenge. This challenge may occur because such scenarios incorporate more assumptions than do other types of scenarios, and the scenario assumptions may be more subjective in nature.

No matter the type of scenario, care should be taken to consider and understand the types of operational disturbances (including factors that may be internal or external to the debtor company) that could cause such scenarios.

Examples of the categories of internal and external factors include economic, industry, and company-specific factors. When designing scenarios, elements falling into any or a combination of these categories can be used as the event catalyst or as the basis of the scenario.

Management-Prepared Financial Projections Are the Starting Point

The scenario analysis process typically starts with general due diligence regarding the debtor company followed by a thorough analysis of the company's financial projections, which often serve as the first scenario.

It is the financial adviser's responsibility to make sure that the length of the projection period corresponds to the length of the repayment period for any new debt related to the proposed transaction. Further, it is the responsibility of the financial adviser to consider the reasonableness of the financial projections provided to the adviser by the debtor company management.

The financial adviser's due diligence regarding (1) the debtor company's operations and (2) the reasonableness of the financial projections can yield valuable information that can be used in developing meaningful scenarios. Additionally, this information may provide a road map to areas of risk within the debtor company's operations.

The financial adviser should understand the narrative behind the financial projections and the relationships between the assumptions and variables that drive the projections. When developing scenarios, the financial adviser uses this knowledge to ensure that changes to key variables:

1. correctly flow through the model and
2. accurately reflect the relationships between cash flow drivers.

The diligence related to the financial projections also helps the financial adviser to be able to recognize additional scenarios that should be analyzed.

The following illustrative questions are financial-projection-specific inquiries that may aid the financial adviser due diligence efforts:

1. What is the functional use or purpose of the financial projection?
2. How experienced is the subject company management in preparing financial projections?
3. When were the financial projections prepared?
4. How does the company's current financial projection reconcile to past projections?
5. How closely does the company's most recent actual performance compare to the prior year's financial projection?
6. How comprehensive are the financial projections and the supporting documentation?
7. Who prepared the financial projections?

These questions may help the financial adviser to identify risks associated with the financial projections. For example, if the projections provided by management for the base case scenario are a year old and more recent operating results show a negative variance relative to the projection, then there may be an increased level of risk associated with the company achieving the level of performance presented in the projection. In that case, a potential scenario more in line with the company's most recent performance may be appropriate.

Financial projections that are considerably higher than operating historical performance may raise a red flag and may reflect a new product launch, acquisitions, or other corporate actions that may not prove to be successful.

In this case, the financial adviser may consider developing a scenario that removes the impact of the risky corporate action.

Further, the purpose of financial projections can have an impact on how they should be perceived and may indicate aggressive or conservative bias. Financial projections that were previously used in relation to a potential merger transaction and are also provided to the financial adviser for a solvency analysis may appear to be optimistic relative to historical performance. In this case, a potential scenario could be a scaled back level of financial performance based on historical growth rates or industry benchmarks.

A financial projection reasonableness analysis may be a component of the solvency analysis. This

is because such a reasonableness analysis encompasses the evaluation of many factors and requires the understanding of the interrelationships of these factors while also considering the impact of outside influences on company-specific risk elements.

The financial adviser will develop a thorough understanding of the mechanics of the debtor company projection model—as well as the "story" supporting the projection—before moving forward with the scenario analysis.

Developing Additional Scenarios

There are several ways to develop relevant and plausible scenarios using various sources of data. Based on the information gathered through the due diligence process, the financial adviser can create any type of scenario previously mentioned in this discussion based on event causal factors that could be detrimental to the company. As mentioned previously, the categories of causal factors include economic, industry, and company-specific.

Economic and industry based scenarios will necessarily have a company-specific component. This is because the effect of economic and/or industry stimuli on each company may be slightly different based on unique attributes such as management culture, operating model, cost structure, and management depth.

Economic Scenarios

When performing due diligence in relation to a solvency analysis, a financial adviser may perform economic research to understand historical trends and the economic outlook as of the solvency date.

Many times during this research, the financial adviser may take notice of various factors or assumptions with an element of uncertainty that could serve as the basis for scenarios in the cash flow test.

For example, while all companies have a certain level of exposure to general economic conditions, certain companies that are more directly correlated to general economic health may be more sensitive to variances in economic indicators. If the economy and, therefore, the debtor company were to perform at a lower level than indicated in the financial projection, then the company solvency status could be affected. This may be a scenario worthy of analysis.

Industry-Based Scenarios

When the financial adviser is preforming industry due diligence research, he or she may find information regarding the expected growth of the industry, historical and prospective sector performance. In addition, the financial adviser may learn about factors that influence industry dynamics such as expected new technology, industry consolidation or fragmentation, changes to barriers to entry, and regulatory changes.

As with the other risk factors identified in this discussion, debtor company management may use current, historical, and forward-looking industry data in conjunction with other data in order to:

1. develop strategic plans,
2. project profitability, and
3. estimate capital needs.

The unfavorable divergence of any of these aforementioned industry factors from the assumptions used in the financial projection has the potential to change the debtor company solvency status if appropriate plans to mitigate risks are not in place.

Therefore, a robust cash flow test scenario analysis will usually incorporate industry-related risk elements, such as those mentioned above, into one or more scenarios.

Company-Specific Factors

There are many company-specific risk factors that would be informative when included in scenarios for the cash flow test. The debtor management team may be a valuable resource for assistance in identifying the company's unique areas of risk that may be modeled as part of the cash flow test.

This information may be gained from management interviews as well as from debtor company financial reports, strategic plans, and other corporate documents.

The aforementioned management sources can alert the financial adviser to any unique elements of risk, such as the following:

1. Geographic concentration
2. Customer concentration
3. Key person dependence
4. Supplier concentration
5. Technology or other intellectual property obsolescence
6. Lack of product or service diversification
7. Unique exposure to changes in laws or regulations
8. Potential or existing litigation
9. Strained supplier relations
10. Strained employee relations
11. Plant physical capacity constraints
12. Plant and equipment obsolescence

For example, let's assume that, after gathering information related to the items listed above, the financial adviser discovers that the debtor company:

1. generates over 30 percent of its revenue from a single customer that happens to be the client of a key relationship manager,
2. has been operating for five years,
3. has one product,
4. has increased revenue by over 300 percent over the last three years, and
5. is expecting to reduce the level of total revenue attributable to one client to 10 percent over the next three years by growing its customer base.

An example scenario that the financial adviser could develop from the information gathered, would be the loss of the key relationship manager. This scenario would necessarily involve a reduction in projected revenue.

However, the extent of the cash flow loss depends on the company factors such as management's responsiveness and experience with financial hardship and company turnarounds. The company's ability to adjust its cost structure and to replace lost revenue should be reflected in the scenario.

Sensitivity Analysis

After developing several scenarios, the financial adviser may run sensitivities of all or certain scenarios to observe the outcomes resulting from incremental changes in the key variables.

A sensitivity is defined as:

> the effect of a set of alternative assumptions regarding a future environment. This alternative scenario can be the result of a single or several alternative risk factors, occurring either over a short or long period of time. A scenario used for sensitivity testing usually represents a relatively small change in these risk factors or their likelihood of occurrence. Since a sensitivity test represents the effect of a scenario, it usually reflects the effect of multiple related factors or their likelihood of occurrence.[3]

For example, when a financial adviser uses the debtor company management projections as a starting point and then adjusts the variables to reflect small changes in execution of management's plan, then that is a sensitivity analysis.

In the example about the key relationship manager, an appropriate sensitivity to perform would be to vary the revenue lost by the debtor company due to the departure of the key relationship manager.

By reviewing the outcomes to various sensitivities, the financial adviser may be able to observe the responsiveness of the cash flow relative to changes in the key variables within the framework of the given scenario.

"The financial adviser may include stress tests in the cash flow test scenario analysis in order to evaluate the debtor company's ability to meet its debt obligations under extreme operating conditions."

Stress Testing

A stress test is defined as:

> a projection of the financial condition of a firm or economy under a specific set of severely adverse conditions that may be the result of several risk factors over several time periods with severe consequences that can extend over months or years. Alternatively, it might be just one risk factor and be short in duration. The likelihood of the scenario underlying a stress test has been referred to as extreme but plausible.[4]

The financial adviser may include stress tests in the cash flow test scenario analysis in order to evaluate the debtor company's ability to meet its debt obligations under extreme operating conditions.

The stress test may stretch the company to the point that projected cash flows are insufficient to meet projected debt obligations in one or more periods. However, the goal is to gauge how much operational adversity the company can withstand after taking on the new debt related to the proposed transaction. As with other scenarios analyzed as part of the cash flow test, the financial adviser may consider any company mitigating actions.

Examples of stress test scenarios include, but are not limited to, natural disasters, terrorist attacks, political instability (revolution, regime changes), regulatory changes, economic recession/depression, and war as well as company-specific situations such as the loss of key people, unfavorable judgment in a lawsuit, product obsolescence, and fraud.

The stress tests can also be extreme versions of scenarios already used in the analysis. For example, a scenario involving the loss of a key relationship manager was discussed previously. A stress test version of this scenario would be if the key relationship manager not only left the debtor company along

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with his client, but also convinced other relationship managers to leave the company resulting in a 50 percent revenue decrease.

As mentioned in the definition, a stress test could also consist of a combination of factors. These are risks that the financial adviser should discuss with management in order to understand any contingency plans that could mitigate the impact on the debtor company operations.

Summary

When performing the cash flow test, the financial adviser may draw on the information obtained from performing projection reasonableness and other due diligence to develop meaningful scenarios.

The financial adviser may also include sensitivities of the selected scenarios in order to develop a robust cash flow analysis. The closer the debtor company is to being distressed prior to the execution of the transaction and the more leveraged the transaction, the more scenarios and sensitivities may be considered.

Stress testing may be informative for users of the solvency opinion as it helps to define the level of financial and operational stress the debtor company can endure. It also provides information regarding the effectiveness of contingency plans and mitigating factors in extremely unlikely yet plausible scenarios.

The use of various scenarios, sensitivities, and stress tests ensure that the cash flow test is a reliable component of the solvency analysis, so that the opinion can withstand a contrarian review.

The scenario analysis can be an effective risk management tool that helps to clarify the level of risk being assumed in connection with proposed leveraged corporate transactions.

Notes:

1. *Stress Testing and Scenario Analysis* (Ottawa, Canada: International Actuarial Association, July 2013), 3.
2. Ibid., 12–16.
3. Ibid., 4.
4. Ibid.

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