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The Influence of Financial Due Diligence in M&A on Investment Decision Based on Financial Data Analysis

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Abstract: With the gradual growth of enterprise mergers and acquisitions activities, the role of financial due diligence in investment decisions has become increasingly prominent. In the traditional financial due diligence process, due to the constraints of information granularity and analytical tools, potential financial risks cannot be fully revealed. Starting from the analysis of financial data, this article expounds its application value and practical effectiveness in the due diligence process. The research builds an assessment system based on four core dimensions: profitability, debt-paying ability, operational efficiency, and risk identification, and analyzes its role and function in valuation correction, risk early warning, and decision support. The research results show that the data-driven due diligence approach can improve the accuracy of investment decisions, is of great significance for merger and acquisition integration and performance prediction, and promotes the realization of high-quality merger and acquisition transactions.

Keywords: mergers and acquisitions; financial due diligence; financial data analysis; investment decision

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1. Introduction

Enterprise mergers and acquisitions, as an important tool for strategic expansion and resource integration, are characterized by the coexistence of high returns and high risks. Whether a merger and acquisition can succeed depends crucially on whether a reasonable assessment of the financial situation of the target enterprise can be made before the merger and acquisition. Financial due diligence plays a core role in verifying financial issues, validating valuation bases, and supporting investment decisions in this process. Traditional due diligence methods are single and difficult to meet the increasingly complex and changeable market environment in terms of efficiency, accuracy, and depth of risk identification. With the development of data analysis technology, due diligence methods based on financial data have gradually constructed a new type of analytical architecture that is structured, quantitative, and dynamic. This article focuses on the application of due diligence based on financial data analysis in actual mergers and acquisitions, and analyzes its role in improving the quality of investment decisions.

2. An Overview of Merger and Acquisition Financial Due Diligence Based on Financial Data Analysis

Due to the increasingly frequent activities of enterprise mergers and acquisitions, financial due diligence has become an important link in identifying transaction risks, supporting valuation judgments, and optimizing investment decisions [1]. The traditional

due diligence methods mainly rely on manual judgment and static table analysis, which cannot meet the current demand for rapid and accurate decision-making. However, with the development of information technology, data-driven financial analysis methods have gradually been integrated into the due diligence process, transforming it into a data-based and model-based process. By constructing a standardized financial indicator system and introducing trend analysis and anomaly identification methods, due diligence can conduct a more comprehensive and systematic analysis of the economic situation and existing risks of the target enterprise. It can not only improve the timeliness and coverage of risk identification, but also provide a scientific basis for subsequent valuation adjustment and transaction structure design.

3. The Application of Financial Data Analysis in Merger and Acquisition Financial Due Diligence

3.1. The Content and Process of Financial Due Diligence

Through a comprehensive assessment of an enterprise's financial status, due diligence aims to identify potential risks, verify the enterprise's value, and ensure the safety of the invested capital. During the process of mergers and acquisitions, the focus of due diligence is to conduct a comprehensive review of the financial situation of the target enterprise to confirm the authenticity and sustainability of its financial status. The specific contents include the structure of assets and liabilities, profitability, revenue composition, cash flow status, liability details, accounts receivable, contingent matters, and tax compliance etc. Through quantitative analysis of these data, a comprehensive understanding of the financial stability of the target enterprise can be achieved, and its problems can be evaluated at different levels.

Common due diligence is divided into five stages: data collection, data organization, financial analysis, risk identification, and report output. The investigation starts with obtaining data resources such as financial statements, accounting vouchers, and contract lists. Through a unified process, multi-source data is processed, and key issues are identified by means of ratio analysis, trend analysis, and other methods [2]. Subsequently, abnormal items are identified based on industry benchmarks to form a risk list and investment suggestions. With the development of financial data analysis technology, this process is moving towards standardization, systematization, and automation, further enhancing the efficiency and scientific nature of due diligence, and providing strong numerical support for investment, mergers, and acquisitions (Figure 1).

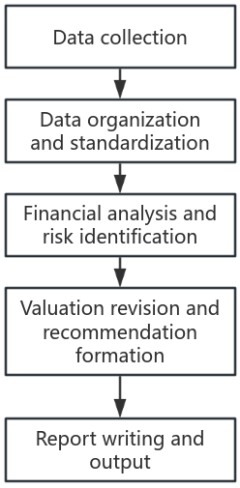

Figure 1. Flowchart of Financial Due Diligence for Mergers and Acquisitions.

3.2. Core Financial Indicator Analysis Methods

Financial indicator analysis, as an important part of the financial due diligence in mergers and acquisitions, quantitatively presents the operation, debt repayment, profit, efficiency, and development potential of the target enterprise, providing a basis for the risk identification, valuation judgment, and transaction structure design of the target company. Compared with traditional static report reading, modern financial data analysis focuses more on integrating historical trends, comparative data, and systematic relationships among indicators, and achieves more comprehensive and accurate analysis conclusions through modeling methods [3].

Profitability is the primary assessment indicator. The commonly used indicator is the return on equity (ROE), which is used to measure the efficiency of a company's return on the funds invested by shareholders. The calculation formula is as follows:

$$ROE = \frac{Net\ Income}{Shareholder'Equity} \tag{1}$$

When the ROE is higher than the industry average, the underlying causes should be further analyzed to determine whether this result is due to the improvement of actual profitability or the financial amplification effect brought about by high-leverage operations. Return on total assets (ROA) is an important indicator reflecting the efficiency of asset utilization:

$$ROA = \frac{Net\ Income}{Total\ Assets} \tag{2}$$

To understand the profit structure of the product, it is also necessary to examine the Gross Margin, which reveals the cost control ability of the enterprise:

$$Gross\ M\ arg\ in = \frac{Re\ venue - COGS}{Re\ venue} \times 100\% \tag{3}$$

In terms of debt-paying ability, due diligence mainly assesses the target enterprise's capacity to fulfill debt obligations in the short term and medium to long term, with a particular focus on its repayment capacity and financial stability. The current ratio indicates the coverage degree of a company's current assets over current liabilities:

$$Current\ Ratio = \frac{Current\ Assets}{Current\ Liabilities} \tag{4}$$

If this indicator remains below 1 for a long time, it usually indicates that the enterprise's working capital situation is poor and there are hidden dangers in its short-term debt-paying ability. The Debt Ratio is calculated by the ratio of total liabilities to total assets in a company's balance sheet and is used to measure the overall financial leverage level of the enterprise. Under normal circumstances, when the asset-liability ratio exceeds 70%, it can be considered that the enterprise is in a highly leveraged operation state and is facing significant debt repayment pressure and financial risks.

$$Debt\ Ratio = \frac{Total\ Liabilities}{Total\ Assets} \tag{5}$$

The analysis of operational capacity mainly starts from the efficiency of asset turnover, focusing on indicators such as the accounts receivable turnover rate, inventory turnover rate, and total asset turnover rate. For example:

$$Accounts\ \ Re\ c\ eivable\ Turnover = \frac{Net\ Credit\ Sales}{Average\ Accounts\ \ Re\ ceivable} \tag{6}$$

The higher the turnover rate, the higher the utilization efficiency of the enterprise's assets usually means, especially for industries highly sensitive to cash flow, such as retail and manufacturing, which has important reference significance. If the collection cycle of accounts receivable of the target enterprise continues to be prolonged, it may indicate a weakened ability to recover funds, thereby bringing potential risks to the cash flow integration after the merger and acquisition.

Growth analysis focuses on the future expansion potential of the enterprise. Revenue growth rate and net profit growth rate are the two most commonly used indicators:

$$Re\ v\ enue\ Growth\ Rate = \frac{Re\ venue_t - Re\ venue_{t-1}}{Re\ venue_{t-1}} \times 100\% \tag{7}$$

$$Net\ \ Pr\,o\,fit\ Growth\ Rate = \frac{Net\ Income_t - Net\ Income_{t-1}}{Net\ Income_{t-1}} \times 100\% \quad (8)$$

If the growth rate is significantly higher than the industry average and remains stable continuously, the forecast multiple can be appropriately increased in the valuation, or more aggressive valuation methods, such as EV/EBITDA or PEG models, can be used.

3.3. Risk Identification and Valuation Correction Mechanism

The primary task of financial due diligence in mergers and acquisitions is to identify potential risks based on an assessment of the objective value of the target enterprise and incorporate these risk factors into the transaction pricing considerations. Traditional valuation methods usually assume that the target enterprise is in good operating condition, often ignoring potential problems such as large profit volatility, difficult capital turnover, and unbalanced debt structure [4]. Therefore, the risk identification mechanism based on financial data analysis can effectively track the changing trends of key financial indicators, identify abnormal fluctuations, and conduct in-depth analysis of the underlying reasons. Through the exploration of key financial indicators, due diligence can reveal potential problems that may exist in the management and operation of an enterprise, thereby providing investors with a more comprehensive risk understanding and prevention basis.

Common financial risks include the significant impact of non-recurring gains and losses on net profit, low accounts receivable turnover rate, excessively high asset-liability ratio, and non-standard revenue recognition. These issues can be quantitatively identified by establishing a risk early warning model, and the key parameters in the valuation model can be adjusted accordingly to optimize the valuation results. When applying the discounted Cash Flow (DCF) model for valuation, if the financial data of the target enterprise shows that its cash flow is unstable or has poor sustainability, the cost of capital (WACC) should be increased accordingly to reflect the additional risks assumed in the investment, thereby obtaining a more reasonable judgment of the enterprise value.

$$Firm\ Value = \sum_{t=1}^{n} \frac{FCF_t}{(1+WACC)^t} \quad (9)$$

The risk identification and valuation correction mechanism based on financial data analysis constitutes an important bridge from due diligence to investment decision-making. It not only improves the rationality of merger and acquisition pricing but also enhances the flexibility and risk resistance of the transaction structure, becoming an important link in contemporary merger and acquisition financial analysis.

4. The Impact of Merger and Acquisition Financial Due Diligence Based on Financial Data Analysis on Investment Decisions

4.1. Enhance the Scientific Nature of Investment Judgment

The key to merger and acquisition transactions lies in whether resources with actual value can be obtained at a reasonable price. The traditional methods that rely on the experienced judgment of senior managers and static report analysis often have difficulty in identifying the latent risks in financial data promptly and lack unified and objective assessment standards. In contrast, financial data analysis methods, by structuring, quantifying, and visualizing financial information, can significantly enhance the scientificity and transparency of decision-making, providing more verifiable and traceable bases for merger and acquisition judgments.

By establishing a financial indicator system, the investor can conduct a detailed assessment and quantitative assignment of the main financial characteristics of the target enterprise, and further analyze its development trend. Table 1 presents a comparison of the main financial indicators of the companies to be acquired in each year with the industry average, which can serve as an important reference for identifying problems and assessing value during the due diligence process.

Table 1. Comparison of Main Financial Indicators of the Target Enterprise with the Industry (Unit: %).

Indicator name	202120222023	Industry average (2023)	Trend analysis
ROE	12.5 10.2 8.7	11.4	The decline is obvious.
Gross profit margin	35.6 36.1 36.3	33.2	Stable with a slight increase
Asset-liability ratio	68.0 72.4 75.1	60.0	The leverage risk increases.
Accounts receivable turnover rate	4.1 3.5 2.8	4.3	The efficiency of collection has declined.
Revenue growth rate	10.8 6.4 3.2	8.5	The growth potential is weakening.

Based on trend analysis, investors can incorporate the above financial data into the valuation model, such as changing the WACC in the DCF model or making conservative predictions for future cash flows, to reflect the possible fluctuations in returns brought about by the deterioration of the enterprise's finances. This method, based on data modeling and multi-index linkage analysis, can effectively reduce the interference of subjective judgment and improve the rationality and consistency of merger and acquisition pricing and transaction structure design. Adopting a financial data-driven analysis approach can help decision-makers make judgments on a more comprehensive, rational, and verifiable basis. It not only effectively reduces transaction risks but also provides reliable decision-making references for senior management.

4.2. Reduce the Risk Costs during the Merger and Acquisition Process

Under normal circumstances, merger and acquisition transactions carry significant risks. If potential risks are not fully identified and confirmed during the merger and acquisition process, it may lead to problems such as excessive financial burden, integration difficulties, and even asset losses in the later stage. In-depth research on financial information can assist investors in accurately identifying key financial risks before mergers and acquisitions, quantitatively analyzing the degree of harm of risks, and establishing corresponding risk management measures in the early stage, thereby minimizing the expenses incurred during the merger and acquisition process to the greatest extent.

The common risk signals mainly include unstable profit quality, tight cash flow, abnormal asset-liability structure, and low operational efficiency. The following table shows the main risk factors identified by 10 target enterprises in a certain industry before mergers and acquisitions based on their financial data, reflecting that these financial risks have a certain degree of universality and representativeness within the industry. The statistics of common financial risk indicators of the target enterprises for mergers and acquisitions are shown in Table 2.

Table 2. Statistics of Common Financial Risk Indicators of Merger and Acquisition Target Enterprises (N=10).

Types of financial risks	Indicator name	Anomaly determination criteria	Occurrence frequency (proportion)
Profit quality fluctuation	Net profit/operating cash flow ratio	<0.8	60%
Liquidity risk	Accounts receivable turnover rate	< Industry average - 20%	70%
Leverage ratio risk	Asset-liability ratio	>70%	50%
Low-cost efficiency	Operating cost rate	>Industry average+10%	40%

Tax compliance or historical delinquency risks	Tax and surcharges/Revenue ratio	>Industry average +1.5σ	30%

Based on the above identification results, the investor can dynamically adjust the discount rate (WACC) in the valuation model, lower the free cash flow forecast, or add risk hedging mechanisms such as deferred payment and put option agreements in the transaction structure. For instance, when the asset-liability ratio of the target enterprise exceeds the warning line by 70%, the WACC can be increased by 1 to 2 percentage points in the DCF valuation model to offset the risk premium and reduce the risk of excessive payment. The risk identification mechanism driven by financial data enhances the depth and breadth of due diligence, effectively improves the security of merger and acquisition decisions, and provides a strong guarantee for controlling transaction costs.

4.3. Optimize the Integration and Performance Prediction after Mergers and Acquisitions

The purpose of due diligence is not only to assess potential risks and economic benefits before the acquisition, but also to provide a clear benchmark and direction for the integrated management and performance after the acquisition, making the operation after the merger and acquisition more efficient and orderly. The key to the success of mergers and acquisitions lies in the integration effect, and the success or failure of integration depends on a thorough understanding and in-depth grasp of the business model, asset status, and financial structure of the target enterprise. Due diligence based on financial data analysis can help investors build merger and acquisition plans, providing a solid data foundation for subsequent integration planning and performance prediction. Through financial data, investors can establish a key performance indicator system required during the merger and acquisition integration period, such as profit growth rate, cost savings rate, and profitability improvement rate. During the due diligence stage, investors can build operational models for various departments, business lines or product lines by analyzing the historical data of the target enterprise, which is conducive to identifying the entry points for integration and collaboration. For instance, by analyzing financial data to reveal problems such as high purchase prices or overly long and complex supply chains in the product cost structure, investors can adopt strategies like centralized purchasing and joint bargaining during the integration stage, thereby achieving cost optimization and savings.

The performance prediction model can effectively construct the expected path of an enterprise's future performance, provided that a series of accurate financial parameters are input, such as revenue growth rate, operating profit margin, useful life of assets, and capital investment etc. Based on the financial analysis results obtained from due diligence, the investor can formulate a financial planning model for the next three to five years and simulate the performance of revenue, profit, and cash flow in different environments by setting variable values under different scenarios (such as conservative, benchmark, and optimistic). Specifically, based on the preset parameters before the merger and acquisition integration, three scenario prediction results can be constructed to evaluate the feasibility of achieving the goals after the integration. For details, please refer to Table 3:

Table 3. Performance Forecast during the Merger and Acquisition Integration Period (Unit: Million yuan).

Indicator	The current year	Conservative Scenario (Year 2)	Benchmark Scenario (Year 2)	Optimistic Scenario (Year 2)
Operating income	1,200	1,260	1,320	1,400
Net profit	96	90	105	125
Operating cash flow	110	100	115	135

Integrated gross profit margin (%)	32.5	33.0	34.0	35.5

Through financial data analysis, enterprises can adopt dynamic monitoring at all links of merger and acquisition activities, build an effective performance assessment and evaluation system, and achieve continuous tracking and regular assessment of the entire process of mergers and acquisitions and related risks. With the help of BI technology and ERP platforms, enterprises can adopt performance tracking mechanisms on a monthly or quarterly basis to ensure the full implementation of merger and acquisition synergy goals and planned indicators.

5. Conclusion

This article focuses on financial due diligence in merger and acquisition transactions. From the perspective of financial data analysis, it systematically expounds its mechanism of action in aspects such as risk identification, value judgment, investment decision-making, and prediction of integration effects. The research suggests that by establishing a systematic financial evaluation index system and adopting data-driven analysis methods, not only can the scientific nature of investment decisions be effectively enhanced and the risk costs during the merger and acquisition process be reduced, but also strong support can be provided for the integration of goal setting and performance evaluation. Compared with traditional methods, data-driven analysis shows significant advantages in terms of efficiency, accuracy, and traceability.

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