THE RESEARCH OF FINANCIAL FORECASTING AND VALUATION MODELS

#1S. VENKAT REDDY, *Assistant professor,*
venkatreddy9753@gmail.com,
Department of Business Administration (JBIET),
JB INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS), HYDERABAD

#2HUDIGI GURURAJ, *MBA Student,*

Department of Business Administration (JBIET),
JB INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS), HYDERABAD

#3Dr.P. SUBRAHMANYAM, *Associate Professor,*
Subramanyampudukodu@gmail.com,
Department of Business Administration (JBIET),
JB INSTITUTE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS), HYDERABAD

ABSTRACT: There has long been a strong intellectual attraction among academics all around the world with the study of money. As the economy grows, financial professionals both inside and outside the country are looking for more effective research methods. However, little is known about the primary elements that determine a company's value or how financial analysis has evolved over time. Given the circumstances, this study examines and categorizes major research findings concerning the beginnings and evolution of financial analysis. The study then goes into the factors that influence a company's worth, including both monetary and non-monetary factors. It also discusses various common valuation approaches worth mentioning. The paper's conclusion addresses potential flaws with the prevalent valuation systems in use today by comparing estimated and real findings. It also makes suggestions for how to improve these procedures. This essay's goal is to provide students with a useful resource for enhancing their understanding of this subject.
Keywords: Financial analysis, value drivers, valuation models

1. INTRODUCTION

China's market economy is growing and stable, thus enterprises are prioritizing standards and scientific principles to regulate their behavior. Assessing a company's operational health requires a thorough financial study. The companies' ability to meet obligations, make revenue, manage assets, and use borrowed funds is assessed. Financial analysis goes beyond analysing past financial events. Financial forecasting, which links the earliest and end stages of the financial management cycle, is based on it. Thorough financial analysis is essential.

Chinese financial analysis is practically impossible due to many issues. Despite outdated information, financial records show a company's growth over time. Historical data alone cannot adequately study our dynamic and growing civilization. Upstream producers, middle-level suppliers, and downstream consumers are becoming more integrated, therefore enterprises must ensure that their growth and management strategies are implemented by more than just internal staff. Business must have total network or process management to see the big picture and maintain an enlarged value chain. Financial analysis still struggles to assess the complete value chain and industry chain beyond a single firm. Financial experts must work hard to comprehend and fix these challenges.

2. THE DEVELOPMENT OF FINANCIAL FORCASTIN AND VALUATION MODELS

Budding Period of Financial Analysis

The early 1900s saw financial analysis in American banks, which finished in 1919 with financial statements. Financial analysts in the West began assessing a company's creditworthiness. Lending banks utilize financial statement analysis to verify lent companies' operational soundness. According to Railway Report Decomposition, American academic Thomas Uduro created financial analysis in 1900. Uduro studied financial and accounting record analytic fundamentals. Alexander Wall invented the Ratio Analysis System in 1919. Recent advances in financial statement analysis include Novi Bell's Profit and Loss Analysis Chart and Stefan Gill's Trend Analysis. These findings indicate that financial statement research is now a separate field.

Development Period of Financial Analysis

After substantial changes, financial analysis expanded for a decade in the late 20th century. Many new financial research methods have been created by US scholars. Alexander Wall showed a foundational ratio analysis method. However, ratio analysis may not fully explain the balance sheet-ratio relationship. To solve this problem, Stephen (1925) and

Bliss (1923) developed comparison analysis and trend analysis. More personal financial elements were added to these methods. We used dynamic financial data and the industry average to better understand business performance. Please note that these financial viewpoints cannot accurately assess a company's financial situation or predict future events. Researchers began constructing a complete financial indicator system. DuPont analysis provides a thorough framework for comparing business performance. It was first discussed by American politicians Pierre DuPont and Donaldson Brown in 1919. This method maximises shareholder earnings and asset operating efficiency.

From a single index to a more thorough index, financial analysis has evolved. Please note that the more comprehensive index still contains issues. Next, Alan J. Marcus and Krishna G. Palepu modified DuPont research methodological markers in 2000. Alan J. Marcus investigated a selection of indications using DuPont analysis. Marcus used DuPont analysis to examine financial leverage. Krishna G. Palepu's option replaces return on equity with long-term development. It's a popular use of financial ratio analysis.

Traditional methods for valuing a corporation focus on financial measures, which provide retrospective data and don't properly reflect its potential. Managers may prioritize short-term profits above long-term strategy. Traditional financial analysis may not correspond with the organization's purpose. Internal and external organization interactions and information sharing are ignored by the existing system. This hinders strategic decision-making and operational management.

Due to financial indicators' many issues, more researchers are calling for their change.

Progressive Maturation Period of FinancialAnalysis

The late 20th century saw the peak of financial analysis. Much scholarly research has predicted money's future. Stern Stewart Consulting Company introduced EVA performance ranking in 1990. Contrary to other financial metrics, Economic Value Added (EVA) comprehensively evaluates a firm's profitability and cost of capital using GAAP. Increasing corporate value is the goal. Increasing company performance evaluation accuracy requires more specific criteria. In his 1999 review of business cash flow, Pewa covered key concepts, cash management methods, the influence of derivatives and options, and cash flow statement comparisons. According to Gibson (2002), business owners that monitor cash flow changes may spot issues sooner.

Researchers have also blended value management and strategic management to promote economic added value. In the principal-agent paradigm, financial metrics alone cannot satisfy firm stakeholders and financial experts. To fix this, they recommend the Balanced Scorecard. Merton Miller and Franco Modigliani proposed EVA in 1958 and 1961. Profit should be calculated using accounting data and economic elements like capital cost. This component expands profitability assessments and reduces bias from standard

financial indicators. In 1992, Harvard professors Robert and David created the balanced scorecard. It was designed for balance and planning. Customer, internal corporate process, and learning and growth are now non-financial factors in the financial index. These enhanced the enterprise-wide strategic analysis tool. Strategy maps were introduced by Kaplan and Norton (2000). A company-wide or individual strategic vision can be translated into quantitative indicators to help the Balanced Scorecard (BSC) deliver strategic management.

Outperforming established research methods, the non-financial index is becoming a popular way to value a corporation. This is because it predicts patterns and builds critical associations. Using non-financial criteria to make decisions can help managers achieve strategic goals, say experts. This alignment increases organizational performance by efficiently implementing goals. Some difficulties remain. Little is known about the distribution of weights among performance indicators, many factors affect non-financial indicator quality, and there are few practical theoretical frameworks to help choose assessment indicators.

3. THE DRIVING FACTORS OFENTERPRISE VALUE

Value drivers are financial and non-financial pushing forces that shape organizational value. Standards are developed with operational and economical considerations. The ease of gathering and interpreting financial driving factor data makes them suitable for many research methods. Because of this, it cannot swiftly assist management in making business decisions. Most financial value drivers favor short-term corporate success over long-term value growth, leading to reckless behaviors. Non-monetary indicators can assess behavior modification programs' success. This optimizes corporate resources. Using financial analysis alone to study enterprise value is insufficient. Assessments must include non-financial value drivers.

Financial Drivers

Value drivers are financial and non-financial pushing forces that shape organizational value. Standards are developed with operational and economical considerations. The ease of gathering and interpreting financial driving factor data makes them suitable for many research methods. To understand corporate value, non-financial value creators must be analyzed as well as financial analysis. Non-financial indicators may examine repetitive triggers for result-oriented behavior. Organizations use resources more efficiently. Our valuation approach helps us predict future events and solve problems by determining the value of present components.

Liquidity

Solvency analysis examines a company's debt repayment and financial security. It may reveal business financial hazards. This is a key factor in a company's longevity. An organization's short-term solvency depends on its existing assets, obligations, and important commitments. Fast ratios

and current ratios are crucial markers of a company's short-term solvency.

Asset management

A company's operating capacity reflects its internal cash flow. Monitoring this metric may demonstrate managerial competency and business efficiency. The firm uses its capital more efficiently and effectively if its capital turnover ratio is positive. A company's financial success is measured by its capital turnover and operational efficiency. This examination aims to show the company's operational and managerial skills. A company's debt-repayment ability is tied to its profitability. This greatly affects asset efficiency and conversion. Thus, operational competency reveals a company's overall performance. Creditors, investors, and operating managers can better comprehend a company's longevity and profitability by examining its operational skills. This makes company performance evaluation fair, impartial, and complete. Operational competency is measured by fixed asset, accounts receivable, inventories, and total asset turnover.

Profitability

A profit funds a group's survival and growth. Interests of investors, creditors, managers, and others are linked to the issue. A company's profitability is usually determined by examining its core operational initiatives. Certain uncommon or great firm practices may be overlooked as long-term success predictors. Profitability is based on operating income, expenses, investment income, profit, net interest rate on sales, and return on equity, among other financial metrics. Studying these factors can determine a company's profitability.

Growth ability

A company's growth capacity is its ability to expand while carrying out a variety of commercial operations. Businesses must continuously raise production in order to survive and expand in the face of quickly increasing technology breakthroughs and fluctuating market conditions. By applying this strategy, businesses can effectively eliminate threats to their market competitiveness. For enterprise managers, quantitative growth should be subordinate to long-term development. The growth rates of net assets, total assets, net profit, and principal business revenue are used to assess a company's growth potential.

Non-financial Drivers

A variety of things can influence the future trajectory of financial development. Market share, consumer happiness, innovation, development capability, and strategic objectives are among the criteria stated above. Greater emphasis is placed on innovation capabilities, workforce, supply chain alliances, and corporate architecture.

Reserve of talents

Human capital refers to an organization's personnel's collective expertise and competencies, with a focus on the management team. Competency is comprised of work routines, industry expertise, professional experience, education, and distinctive abilities. As a result, human capital must be prioritized among non-financial variables in research-driven corporate value growth. The knowledge, experience, temperament, and capability of employees are the focus of HR study.

The structure of capital

Intrinsic intellectual capital is the structural capital of a company. The fundamental and comprehensive framework and methods used by a company to overcome barriers and develop value. Because of its copyability and distribution, organizational integrity, and specialization, structured capital is an enterprise-wide asset. Enterprise platforms may engage and energize human capital, allowing the business to realize its potential. As a result, accumulating structural capital is simple. Structural capital is frequently a company's major non-financial asset. Organizational structures, business processes, company culture, and information systems are all examined on a regular basis.

Strategic relationship

The term relational capital in business refers to long-term partnerships formed with external stakeholders. This collaboration is distinguished by the recognition of mutual interests. Experience is distinguished by its distinct collection of knowledge. Relational capital provides the business with new competitive advantages through operational efforts and strategic investments. Relationship capital can be analyzed in a variety of scenarios due to the distinctions between corporations and cooperative enterprises. Transactions involving strategic partners, stockholders, creditors, suppliers, distributors, and customers are included.

Innovation

To develop significant insights, investment and innovation must collide. These organizations may benefit from new resources provided by these associations. In respect to innovation, knowledge-based innovation capital is made up of achievement, achievement, technique, and culture. By continually investing in innovation capital into business operations, one may improve product quality, recruit customers, react to changing consumer needs, and create value.

Non-financial value generators are as reliant on human capital as a house's foundation. Structure is not supported when it is not present. Human capital is also unified and balanced by structural capital. Innovation capital ensures the survival and growth of businesses. Relational capital facilitates external contacts and direct business collaborations. An organization can develop, expand, and preserve internal value by optimizing the synergy of these four components.

The valuation methods

Similar firm valuation approaches, such as discounted cash flow, are widely used in China. A small number of academics use the option pricing methodology to calculate business value. The acceptability of three valuation methodologies, as well as their benefits and drawbacks, is then assessed.

Relative valuation methods

This method of indirect asset appraisal is also known as the

relative value method, market approach, and comparable company method. Choose benchmarks from relevant industries and use direct or analogous approaches to analyze target organizations. Evaluating relative valuation is a simple and basic technique. The price-to-earnings (P/E) and price-to-book (P/B) ratios are two popular relative valuation indicators.

P/E ratio method

The P/E ratio approach calculates a company's value by averaging the P/E ratios of a large number of comparable enterprises. The earnings per share of a company determine its worth. The formula is as follows: To calculate a company's enterprise value, multiply its profits per share by the industry average P/E ratio.

The P/E ratio method is widely used to examine industries that are consistently profitable as well as unlisted or freshly initial public (IPO) enterprises. Using and acquiring data for the P/E ratio strategy is simple, according to the computation formula. The P/E ratio expresses the link between investment and earnings by evaluating a company's profitability. The price-to-earnings ratio (P/E) has several inherent drawbacks. Businesses must be profitable for this technique to be effective. Companies with negative earnings are unconcerned about expected results. Furthermore, selected businesses must meet certain criteria. Analogy judgment is subjective regardless of industry, business strategy, or management level. The P/E ratio technique is influenced by both the overall economy and particular company profit margins. During moments of economic expansion, values tend to be inflated. During economic downturns, the market may assign a lower value to projected value.

P/B ratio method

The P/B ratio, like the P/E ratio, prioritizes the company's net assets. The assessed enterprise value of a company rises in lockstep with its net assets. The calculating formula is: Business value is computed by multiplying the assessed net assets per share by the industry's average price-to-book ratio.

In contrast to the P/E ratio, general enterprises' positive net assets make them ideal for a wide range of business kinds. In contrast to net income, net assets are less susceptible to manipulation. Furthermore, changes in net assets accurately reflect business value. Both the P/B and P/E ratios use comparable firms. The evaluation results are skewed. Furthermore, different accounting rules have an impact on net asset performance. The use of analogies is subjective. The price-to-book (P/B) ratio undervalues companies in the high-tech and service sectors because they have little net assets.

The relative value approach is simple to compute and understand. Technical analysis and forecasting may be rendered obsolete by employing the financial data of the target company gathered from the database and network. The relative value approach to determining value is simple, prudent, and low-risk. This method is unsuitable because it

ignores commercial distinctions. The influence of analog companies on estimation findings is significant.

Relative valuation methods

Absolute valuation, commonly known as the discount technique, evaluates a company's value based on its operational performance. A company's enterprise value is determined by discounting its expected future earnings to their current value. Absolute valuation employs the discount cash flow (DCF) and economic value added approaches.

The present value of a company's assets is calculated for a certain time period by adding the discounted values of its cash flows. The discounted cash flow technique has two models based on the financial flow: equity discount and free cash flow. The equity and free cash flow discount models classify free cash flow differently. The bulk of discounted cash flow valuation models use free cash flow discount models. The valuation method of discounted cash flow (DCF) is complicated. Valuation includes determining the forecast term, discount rate, and cash flows during the projection period. The DCF valuation model incorporates subjective components that are determined by the assessor. The precision of values is affected by parameter selection.

Option pricing model valuation method

At the moment, option pricing model valuation comprises a full methodology for determining the model's value. Furthermore, the finite difference method, binary tree methodology, and Monte Carlo simulation method are used. The finite-difference method uses numerical iterations to return from an option's endpoint to its starting position (Hull and White, 1990). American cuisine is reasonably priced. One problem is that it cannot price path-dependent and high-dimensional options. Monte Carlo simulation is currently a popular numerical approach. Boyle (1997) used Monte Carlo simulation as his option pricing methodology. The author mentioned that reducing variance could improve the computing efficiency of Monte Carlo simulations. After that, the researcher used control and dual variable technologies to improve Monte Carlo simulation. This method priced European call options by using dividends. The least-square Monte-Carlo simulation method developed by Longstaff and Schwartz (2001) has had a significant impact on American option pricing research.

In China, the discounted cash flow (DCF) method is commonly used to value firms. Quantifiable quantities are altered by using the similar company technique. The option simulation method is regarded as a more exact approach to firm valuation due to its capacity to allow for changeable customisation of essential parameters. This strategy is particularly useful in domains with limited historical data or specialized expertise, such as expanding industries. Option pricing is a more complicated way than other methods. At the moment, China only uses it seldom.

4. THE VALUATION OF NAURA USINGDCF MODEL

Section two entails selecting a publicly traded firm for valuation study. This research study discusses issues and

suggests solutions to improve valuation methodologies. The causes of disparities between measured and actual outcomes will be investigated.

NAURA, a well-known and large high-tech firm, manufactures and distributes electronic components and apparatus. Sales, production, R&D, and service delivery are all handled by a single business. The company is China's biggest producer of high-end electronics. Precision instruments, automatic control, semiconductor, photovoltaic, and lithium battery goods developed by R&D are among the other developing industries.

There are numerous opportunities for the company's future growth. Suspending the 2020 incentive program will benefit the organization's technological achievements and long-term development. PV and IC equipment will grow at a faster rate if IC equipment income exceeds the breakeven point. The DCF model projects the company's stock price by 2020 based on key financial ratios and revenue growth data acquired over a two-year period. The model's operation is influenced by the following assumptions:

The company's revenue will rise in three ways. Beginning in 2020, the first five years resulted in a 40% rise in revenue. Following a geometric deceleration, the pace of sales growth stabilized around 6% over the next six years. Sustainable growth began at a 6% annual pace. EBITDA accounts for 13% of operating revenue. State regulations currently require a 20% enterprise income tax. The enterprise mean capital cost is currently discounted by 10%. Long-term obligations and cash holdings are equivalent in the 2020 and 2019 annual reports. The findings are as follows:

Table 1 DCF research findings.

NAURA ended at 180.74 yuan on December 31, 2020, contrary to predictions. It was worth 221 yuan. There are three probable explanations for the large difference between estimated and actual costs. COVID-19 is the primary reason why local and foreign economies are growing at substantially slower rates than expected. Its revenue growth in 2020 fell short of expectations. In 2020, the United States set its sights on the Chinese semiconductor industry. The company's main focus is on semiconductor apparatus, which is similar to chips. As a result, it is almost certain to have a big influence. Third, in order to encourage economic growth, many governments have increased money circulation. The significant changes in benchmark interest rates caused by this strategy have had an influence on firm valuation.

Comparable commercial methodologies and the standard discounted cash flow model may not always allow for the incorporation of systemic risk into the evaluation process. COVID-19 symptoms first appeared in early 2020. A valuation method that takes the economic consequences of COVID-19 into account could increase precision.

5. CONCLUSION

Financial statements explain previous operational outcomes, evaluate present finances, and project future performance to aid in decision-making and expansion. As a result of the rapid advancement of information and data, traditional approaches to financial analysis and valuation are inadequate in addressing the demands of operational management and strategic decision-making. This is due to their lack of focus on business goals and disrespect for internal and external interdependencies. The advancement of financial analysis requires the examination of business upstream and downstream value chain data. This methodology has the ability to enable financial analysis to overcome financial statement restrictions, incorporate both internal and external organizational aspects, and assure alignment with organizational objectives. Financial analysis can help you make better company decisions.

Financial analysis based on the value chain idea requires trustworthy data even in the context of modern accounting theory. Furthermore, it is bound by the inherent characteristics of the accounting system. Nonetheless, value channels differ greatly among sectors. It is difficult to provide a succinct review of commonly used assessment processes. This issue may need further investigation.

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \cdots + \frac{CF_n}{(1+r)^n} \qquad PV = \frac{CF*(1+g)}{(r-g)}$$

CF = The cash flow for the given year.

CF_1 is for year one, CF_2 is for year two, CF_n is for additional year

r = the discount rate

g = sustainable growth rate

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