Analysis of Decision Value of Financial Risk Quantitative Tools

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Keywords: Financial risk; Quantitative tools; Decision value

Abstract: Financial risk quantification tools have become the mainstream tool for financial risk measurement and management. With the innovative construction of China's multi-level capital market system and the gradual improvement of financial system functions, financial risks present some new uncertainties. Taking effective tools to quantitatively analyze and manage the risks of China's financial market is conducive to fully improving the decision-making value of financial policies. This paper demonstrates the inherent drawbacks of financial risk quantification tools, combined with the characteristics of risk decision-making, and demonstrate the value of financial risk quantification tools in the field of decision-making.

1. Introduction

As a result of the promotion of global regulatory agencies, the quantitative analysis method of financial risks has been widely studied, accepted, absorbed and applied to its own management activities by global financial institutions. It has become an important measure for financial institutions to improve their management level and enhance their brand image. Financial risk quantification tools Due to certain standardization model scenarios, there are also some drawbacks. These are the factors that we should consider when making decisions based on this tool.

2. Quantitative analysis

2.1 Misunderstanding of expectations

Expectation is an extremely important concept in the statistical analysis of risk-based quantitative analysis. However, what exactly is expected? What is the expected loss of a credit portfolio in credit risk management? An identical credit portfolio, for two financial institutions with different operating capabilities and different operating styles, the expected losses may be quite Big difference. If this expectation is not a stable and reliable existence, why can we use it to measure risk? First, the expected value expressed in historical data is not a completely objective existence, but is generated by the active participation of managers at that time. the result of. The expected value of historical data contains the management process of people at that time. As today's risk taker, we can't simply take the expected value of historical data as an objective existence. Logically speaking, our risk management ability must at least reach the average level of the former managers, in order to control the risk to historical expectations. Second, history cannot be repeated, but decisions must be geared towards the future. Objectively speaking, the external environment and the risk operation mechanism have undergone tremendous changes, so as today's decision makers, it is impossible to repeat the past decision-making behavior. Logically, a risk strategy that matches business strategy is difficult to generate based on historical imagination and simulation. Therefore, the expectations discussed in the risk management theory are not the most likely conditions in the future, nor the average of the possible future conditions, but the statistics of historical results. It is the historical average result of a certain period, a certain range, and a certain environment. reflect. This "expected" concept is not suitable for direct risk decision making beforehand, but is suitable for post hoc risk level assessment.
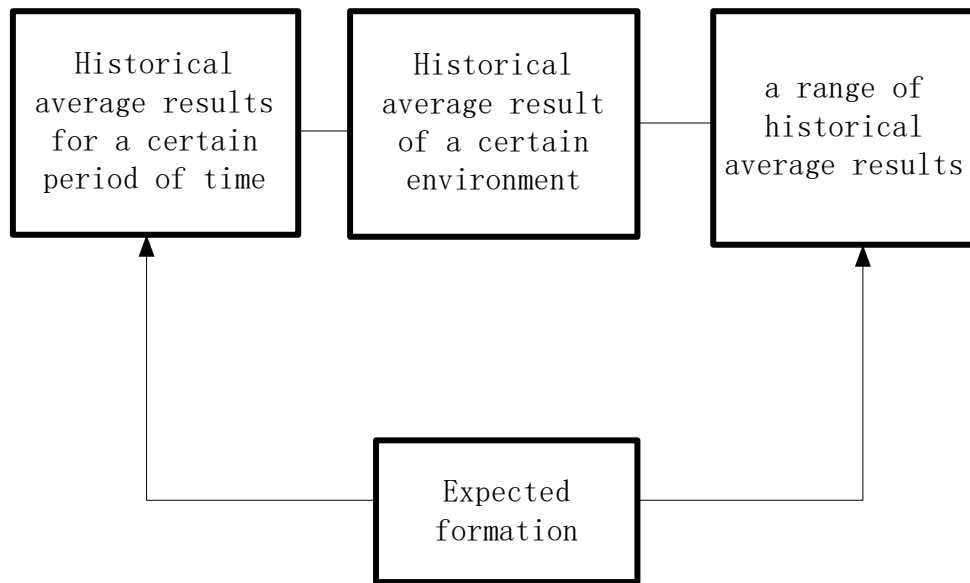
Historical average results for a certain period of time → Historical average result of a certain environment → a range of historical average results

Expected formation

Fig.1. Expected formation factor

2.2 Limitations of the model

The construction of the model is the core of the entire risk quantitative analysis. However, the accuracy of the model has always been questioned. First of all, the model is the abstraction of the real world. The information simplified by the model often implies the source of value. For example, the long-term gap model usually ignores the basis risk. The market effectiveness model usually ignores the information asymmetry and the human non-economic. The company value model usually ignores the influence of the strategy's selectivity on the company's value. The information that these models simplify is often the value. Risk management can't rely on the model, but it can't be completely swayed by the model. Risk management based solely on the model is not only likely to ignore potential risks, but is also more likely to keep pace with business innovation due to self-limited thinking patterns. Secondly, the posteriority of the model determines the finiteness of its life cycle, and the solidified model is difficult to reflect the ever-changing real world. The model is a simplified description of the real world and is an approximate mirror image of the law of market operation. The higher the approximation of the model to the real market operating law, the more effective the model is. However, it is inevitable that the variability of the real world is outside the model, and the stability law described by the model will gradually weaken or even lose its effectiveness in the face of changing markets. In addition, the existence of complex interrelated realities in the real world also makes the self-contained model tend to ignore potential related factors, which have become increasingly important in this increasingly connected world.

2.3 Imperfect assumptions of "rational economic man"

As the main body of economic activities, people play a key role in economic decision-making activities. The assumption of "completely rational economic man" truly reflects people's self-interest, but the economic decision-making process is far more complicated than such a hypothesis. The influence of human feelings and emotional reactions on economic decision-making is crucial. It is an important decision-making variable that is difficult to capture by quantitative analysis. People's subjective, emotional, subconscious driving and other reasons determine that the economic decision made by "people" cannot be completely rational. For example, for the same economic outcome, people's feelings and decision-making motives will pay more attention to relative results than absolute results; people's current feelings should be far more intense for the future; the pain caused by losses is far more profitable. These differences in subjective feelings and emotions determine that if you rely solely on quantitative analysis, the observation of economic processes must be rough and simplified; if you rely solely on models to guide decisions, it may be passive and arbitrary. People are the main body of financial decision-making. Therefore, in the

decision-making process, risk managers should consider how to link management actions with customer decision-making patterns, and consider what their potential decision-making drivers are. This requires managers to have a more detailed understanding and a more subtle grasp of the market.

3. Quantitative analysis in risk decision making

3.1 Risk decision begins with expected management

First, expectation management is a matter of choice. Statistical expectations are based on the results of average data across time, across cycles, and across industries, while aggressive development strategies cannot be limited to historical averages and should focus on the future. As the main body of free competition in the market, we are not likely to win an average. The customer groups selected by financial institutions are biased, and their own risk management capabilities are not necessarily in the industry average. From a future-oriented perspective, the starting point for risk decision-making should first be the real predictable target of the financial institution. Which kind of customer group is this expected target located in the market? What kind of business model is needed to achieve such an expected goal? What kind of risk strategy needs to be implemented? This expectation is the "initial heart" of business development. When it comes to risk decision-making, it is the risk appetite of management. The first thing that risk appetite needs to solve is the trade-off problem, which is not all-inclusive. Around this starting point, through the transmission of risk appetite, construct an internal management ecology that realizes "expectation", which is the starting point for the sustainable development of financial institutions. Second, expectation management is a boundary issue. Market research has found that although the expected changes may be large, the expected changes in volatility are relatively stable. The core of risk management is the management of uncertainty. Relatively stable volatility provides a relatively reliable measure of uncertainty for risk management, and this metric provides a good reference for setting up the boundary of risk management. It is based on this understanding that international advanced financial institutions usually determine risk preferences based on statistical understanding of uncertainty and their own tolerance. When choosing a "biased" expectation, it makes sense to set the tolerance bottom line with reference to the volatility of historical data.
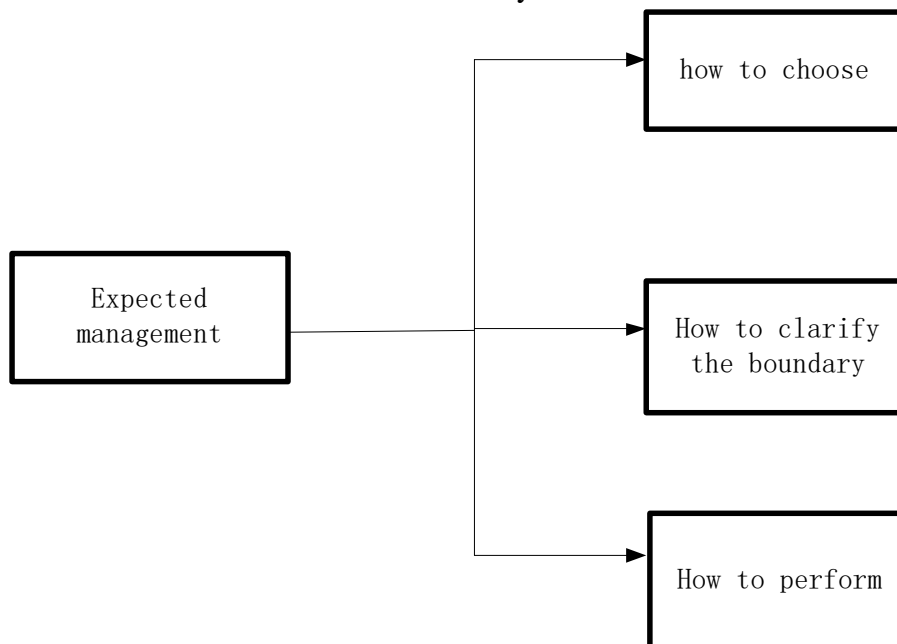

Fig.2. Expected management

3.2 Risk decision-making depends on data-driven

The development of big data technology has made decision makers no longer forced to accept a

simplified model framework. The traditional quantitative model is the abstraction and simplification of the real world, which is largely due to the methodology of traditional research, that is, hypothesis, data validation, and explanation of causality. In this research path, the concept precedes the phenomenon, and the concept proves its description and understanding of reality through the model. The use of big data analysis methods allows people to directly describe phenomena without concept. That is, phenomena precede concepts, models break away from causal constraints, and move toward a panoramic description of the real world, which will greatly expand decision makers. The attitude of decision makers is the premise that data plays a decision-driven role. When the concept precedes the phenomenon, the subjective experience takes precedence over the quantitative model, and the decision maker may make decisions based on his experience and the results of the individual's integration of information. Data-driven risk decisions first require managers to put down their own concepts and choose to give up when data is not supported. This requires a whole set of corporate culture changes, changing the tendency to take measures with intuition and instinct alone, and repeatedly demonstrate the feasibility of decision making through data in the decision-making process. One of the successful experiences of Wells Fargo's small and micro business is to build the ability of data analysis and implementation as a core operational capability, outsourcing a large amount of accounting processing, text processing, etc., but operating data analysis as its core competence, so its Most of the senior management has a statistical background and excellent data analysis capabilities. It can be said that the success of Wells Fargo's small and micro business is a typical case of data-driven decision making.
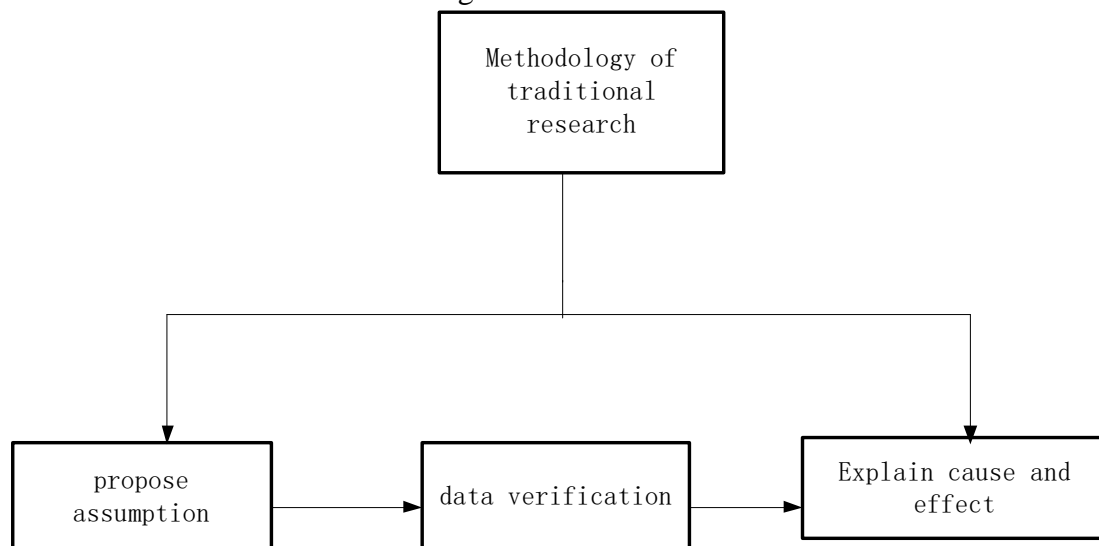

Fig.3. Path of traditional research

3.3 Risk decision-making focuses on value growth

From the narrow "economic man" assumptions of customers, we can find a point of growth in value between the "needs" of customers and the "wants" of financial institutions. What needs to be realized is that the customer is not pursuing the maximization of simple economic benefits, but the satisfaction of self-demand. Understanding the needs of customers only from an economic perspective will inevitably fall into the trap of price wars. For example, data analysis shows that customers who use different channels (counter, online banking, mobile phone) are more sensitive to price and different needs for product diversification. Physical outlets attract counter customers, and the potential for cross-selling is relatively weak. The price is relatively passive. The difference is that the demand points of different customer groups are different, and different channels lock different customers. Second, recognizing the non-economic nature of customers, it is possible to exploit the potential business value of marketing activities for commercial financial institutions. Marketing activities are not a simple means of raising awareness, but a subtle choice of customers and guiding customers' business processes. For example, providing relatively few products can help improve the actual purchase rate of customers and provide products with comparative differences. It

is conducive to improving the selection rate of intermediate products, giving customers benefits in a small amount and multiple ways is more conducive to improving customer stickiness, and so on. Business decision-makers clearly understand and take the initiative to stay away from the behavioral orientation of "non-economic people" in order to focus on real value growth. Starting from the subjective feelings of human beings, for the same economic value, the current interests are higher than the future interests, the pain of loss is higher than the happiness of profit, and the same feeling affects the behavior mode of business decision makers without exception. Good managers can recognize and correct such subjective feelings and return to the real path of value growth. Secondly, choosing a business model with a long-term perspective can help managers to get rid of the narrow vision of financial profit, and help managers focus their attention on value growth and decision-making from a value perspective. The value of the business, the value of the product is not the current financial profit, but the present value of all possible future profits. If the financial institution breaks away from the long-term perspective of "value" to tap the current financial profit, it is likely to win the present, but lose the future. When the interest rate level is lower than 10%, in the face of today's 100 yuan profit and the future profit of 10 yuan per year, the decision makers who obey the inner feelings will choose the former, and the rational decision makers who are "economic people" will choose the latter. In the management of commercial financial institutions, risk decision-makers should pay attention to the impact of the "human" variable in economic activities.

4. Conclusion

Financial risk quantification tool, as a tool for assessing financial risk, has its inherent limitations as a tool. When making risk decision-making, it must pay close attention to the limitations of the tool, and combine the initial origin of financial decision-making, data carrier, and target appeal. Make necessary corrections to the results of risk measurement and continuously improve the value of tools in financial decision-making.

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