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TASK

TO MASTER THESIS

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2. The term of the student's submission of thesis on April 25, 2024

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1.To reveal the theoretical foundations for enhancing financial risk management at enterprises.

2. To assessment of financial risk management effectiveness at Huawei for 2021-2023.

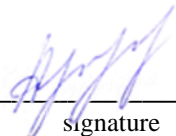
3. Propose recommendations for risk mitigation at the company Huawei

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2	Preparation of the thesis' first section
3	Completion of the first section according to the supervisor recommendations. Writing the thesis' second section
4	Completing of the second section according to the supervisor recommendations. Preparation of the thesis' third section
5	Completing of the third section according to the supervisor recommendations. Preparation of a report for a scientific conference with a presentation of the main results of the thesis
6	Writing of the introduction, conclusions of the thesis. Making references list
7	Submission of the thesis to the Department of Management and Administration

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INTRODUCTION

Financial risk management is a key aspect of the stability and success of any enterprise. These risks can include fluctuations in exchange rates, changes in interest rates, credit risk, as well as other market and operational risks that can negatively affect the financial condition of the company.

Effective management of these risks not only allows enterprises to protect themselves from potential losses but can also become a source of competitive advantage, as companies capable of adequately responding to changes in the financial environment can more effectively plan their activities and minimize the negative impact of economic fluctuations.

Enterprises that demonstrate a high level of financial risk management often enjoy greater trust from investors and creditors, which can provide them better access to financial resources.

Thus, managing financial risks plays a critical role in ensuring the long-term stability and success of an enterprise, and is also important for maintaining its reputation and financial health. In this context, the development and implementation of effective strategies and tools for managing these risks become particularly relevant tasks for modern enterprises.

In today's world, where globalization and technological innovation are continuously reshaping the economic landscape, companies, especially tech giants like Huawei, are facing unprecedented challenges in financial risk management. Huawei, as a global leader in information and communications technology (ICT) solutions, is particularly vulnerable to exchange rate fluctuations, changes in international trade policies, and technological transformations due to its extensive global market presence. Effective financial risk management is crucial for companies like Huawei, as it is not only related to short-term financial stability but also to long-term sustainable development and global competitiveness.

Theoretical and practical aspects of managing financial risks have been explored by scholars such as Zhongyang C., Xiaoming Z., Fenfei C., Bernstein P., Akomea-Frimpong I., Jin X., Osei-Kyei R., Ouyang Z., Lu M., and others. However, despite the significant number of works dedicated to these issues, there is no unified approach to assessing the effectiveness of financial risk management, necessitating a refinement of its content, objectives, and models.

The purpose of the thesis is to explore the theoretical foundations and improve the practical aspects of managing financial risks at an enterprise.

To achieve the set goal, the following tasks were formulated and solved:

- define the essence of the concepts "financial risks" and "financial risk management" of an enterprise;
- generalize models of financial risk management at an enterprise;
- characterize advanced practices in financial risk management at enterprises;
- characterize the types of financial risks at company Huawei for 2021-2023;
- analyze the financial and economic activities of company Huawei for 2021-2023;
- evaluate the financial risk management strategies of company Huawei;
- identify internal and external factors influencing risk using SWOT analysis;
- construct a risk matrix for determining their priority based on probability and impact on the enterprise;
- propose recommendations for risk mitigation at the company.

The object of the study is the process of managing financial risks at an enterprise. The subject of the study is the theoretical and methodological approaches to managing financial risks at an enterprise.

Research methods. The work uses a wide range of general and specific methods of theoretical and empirical knowledge: generalization, systematization, comparison, financial-economic analysis, SWOT analysis, and graphical method.

SECTION 1

THEORETICAL FOUNDATIONS FOR ENHANCING FINANCIAL RISK MANAGEMENT AT ENTERPRISES

1.1 Definitions and key concepts in financial risk management

American economist Knight (1921) pointed out in "Risk, Uncertainty, and Profit" that risk and uncertainty cannot be completely equated. He defined risk as "measurable uncertainty" and "unmeasurable uncertainty" as "true uncertainty", and pointed out that risk can bring both profits and losses. Modern risk management emphasizes that risk is a measurable uncertainty that can be quantitatively analyzed.

Financial risk refers to risks related to finance, such as financial market risk, financial product risk, financial institution risk, etc. The consequences of a financial institution's risk are often not limited to its own impact, but have strong negative externalities. If certain trading activities fail, it may threaten the survival of a financial institution; If a financial institution fails, it may have an impact on the entire financial system due to association and contagion effects; If the financial system fails to function properly, it will lead to serious systemic risks in the entire economy and society. Due to the complexity and importance of risk itself, there have been various expressions of risk in both theoretical and practical circles, and there has been no unified definition for a long time. The broad definition of risk usually refers to the uncertainty of future outcomes, including both the possibility of future losses and the possibility of returns. Narrowly defined risk mainly emphasizes the uncertainty of losses [11].

Financial risk management, as a core component of the financial sector, continues to evolve to adapt to the dynamic changes in the market. It encompasses not only the traditional processes of risk identification, assessment, monitoring, and control but also extends to more advanced management strategies. These strategies

involve integrated risk management, which consolidates different types of risks for a unified evaluation; risk transfer, which utilizes financial market instruments such as insurance and derivatives to shift potential losses to other parties; and the establishment of risk limits to ensure that a single event cannot cause irreparable damage to the entire institution. In addition, financial institutions have adopted statistical techniques like Value at Risk (VaR) to quantify potential losses and assess the impact of risks on financial conditions through economic capital. The concept of risk-adjusted returns encourages investors to consider the risks undertaken while looking at returns. The application of stress testing helps institutions evaluate their resilience under extreme conditions, and fostering a healthy risk culture is key to ensuring internal recognition of the importance of risk management within an organization. With the regulatory environment becoming increasingly stringent, regulatory compliance has become a challenge that financial institutions must face, and the establishment of a risk data warehouse provides strong data support for risk management. The development of these management strategies and tools has not only enhanced the risk management capabilities of financial institutions but also provided a solid foundation for financial stability and sustainable development [27].

Against the backdrop of continuous development of economic and financial globalization, as well as the emergence of financial innovation, the manifestations and scope of financial risks are constantly changing. Nevertheless, financial risks still have the following common characteristics [69]:

1. **Universality of Financial Risks:** Participants in the financial markets face a rapidly changing environment. Due to the asymmetry of information, no one can fully grasp the workings of the market. Financial risks exist objectively and are not subject to human will; they accompany financial activities and cannot be entirely eliminated. They can only be mitigated through proactive prevention and management to reduce their adverse impacts.

2. **Uncertainty of Financial Risks:** Financial risks represent a form of uncertainty. The distribution and state of future economic conditions, such as gains

and losses, cannot be precisely known. However, by analyzing financial risks and mastering certain information, using probability theory, statistics, and modern technology, it is possible to establish technical parameters for various financial risks and measure the uncertainty of financial activities by estimating the probabilities of different possible outcomes.

3. **Concealment and Suddenness of Financial Risks:** Financial risks are not necessarily present only during financial crises. The losses caused by the inherent uncertainty of financial activities are often masked by seemingly good performance. For example, the concealment of risks in banking credit operations can be attributed to several factors: the cyclical nature of credit operations that can conceal many losses or adverse factors; the ability of banks and other deposit-taking financial institutions to create derivative deposits, which can mask the consequences of immediate financial risks through inflation, loan repayments, and other means; and the concealment of some exposed financial risks by administrative suppression due to the monopoly, government intervention, and privileges within the financial industry. The suddenness of financial risks is closely linked to their concealment. Financial institutions have the ability to create credit, which allows them to continuously create new credit over a long period, thereby covering up past losses and issues. These risk factors accumulate over time and eventually manifest suddenly.

4. **Complexity of Financial Risks:** The complexity of financial risks can be seen in the diversity of causes, types, and areas where they exist. The causes of financial risks include inherent vulnerabilities and cyclical patterns, regulatory deficiencies and errors, and irrational behaviors in the financial market that lead to behavioral deviations. There are various types of financial risks, such as interest rate risk, market risk, and credit risk. Additionally, financial risks are widespread across different areas, including stock markets, bond markets, credit markets, foreign exchange markets, and financial derivative markets, where they form and accumulate.

In summary, financial risks are universally present in the financial market and are characterized by uncertainty, concealment, suddenness, complexity, and contagion. Therefore, in the process of deeply understanding and correctly grasping the characteristics of financial risks, it is necessary to recognize them not only from a single perspective but also from a systemic perspective. This is an inevitable requirement for effectively controlling financial risks.

The process of fund circulation refers to the path through which funds flow in the economic system, including the fundraising, distribution, use, and management of funds (Figure 1.1).

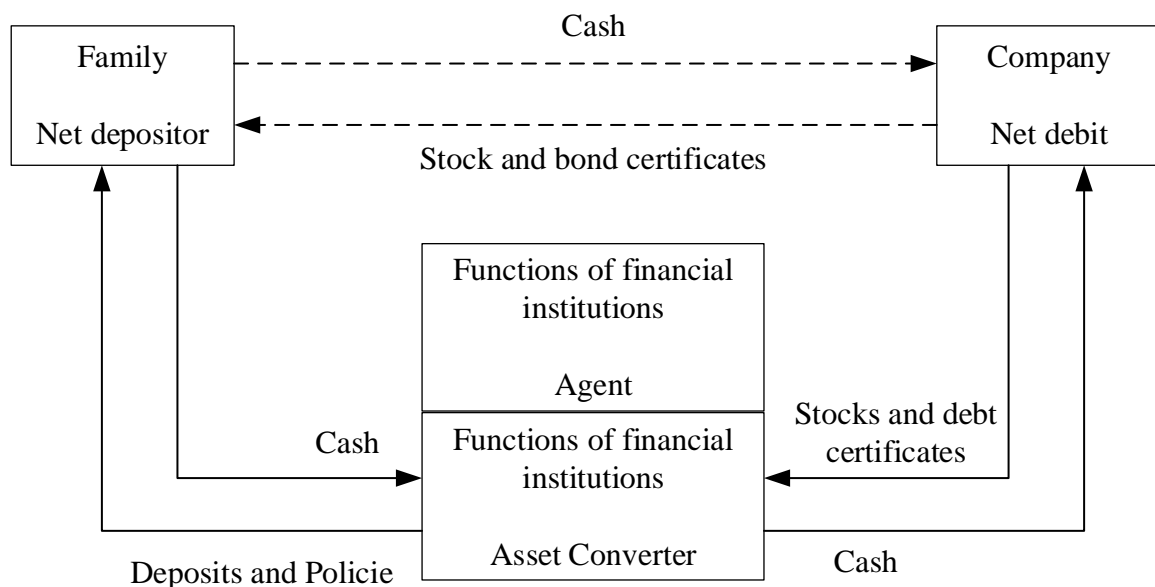


Figure 1.1 - The process of fund circulation

Source: compiled by the author on the basis of [5, 43]

The significance of capital circulation for Huawei lies in its ability to ensure the company's continuous engagement in critical business activities such as research and innovation, global market expansion, product line upgrades, and enhancement of service quality. Through effective capital fundraising, allocation, and management, Huawei can maintain operational efficiency, seize investment opportunities, meet customer demands, strengthen market competitiveness, and ultimately achieve long-term financial stability and sustainable corporate

development. Smooth capital circulation also allows Huawei to retain sufficient flexibility and adaptability in the face of external economic fluctuations or market challenges, supporting the realization of its strategic goals and the consolidation of its position as a global technology leader (Table 1.1).

Table 1.1 - The different understandings of concepts by different authors

Author	Definition	Comment
Chen Zhongyang [5]	Risk management is the core, essence, and fundamental function of finance. It goes beyond safeguarding to determining direction and creating value.	Professor Chen Zhongyang's perspective highlights the strategic role of risk management within financial institutions and its impact on financial development and the progress of civilization.
Zhang Xiaoming and Chen Fenfei [69]	Financial risks have characteristics such as universality, uncertainty, concealment, suddenness, complexity, and controllability.	This description provides a multidimensional understanding of financial risks, which is instrumental for financial institutions in establishing a holistic risk management framework.
Peter L. Bernstein [2]	Risk management is a hallmark and watershed of human civilization.	Professor Bernstein elevates the importance of risk management to a new level, considering it a key measure of civilization's advancement.

Author 1: Chen Zhongyang is a professor at the School of Finance and Economics of Renmin University of China and a senior researcher at the Chongyang Institute of Finance.

Author 2: Zhang Xiaoming, Chen Fenfei. Lecturer and doctoral supervisor at the School of Economics and Management, Beijing Jiaotong University.

Author 3: Peter L. Bernstein, American financial historian.

After comparing the definitions of financial risk management by different authors in the table, we can summarize their similarities and differences:

Similarities:

1. **Comprehensiveness:** All definitions agree that financial risk management is a comprehensive process that includes multiple steps such as risk identification, assessment, control, and monitoring.

2. **Objective-Oriented:** Each definition emphasizes that the purpose of financial risk management is to reduce potential losses and create value, ensuring the stable operation of financial institutions.

3. **Dual Nature of Risk:** The definitions mention that risk management is not only about the prevention and reduction of losses but also involves the side of risk as an opportunity for profit.

4. **Preventive and Responsive Management:** There is a recognition that risk management is not just about responding to incurred losses but more importantly, about preventive measures and control.

Differences:

1. **Role and Scope of Risk Management:**

The definition from the Zhihu column focuses more on the internal risk management processes within financial institutions.

Chen Zhongyang emphasizes the role of risk management in the core functions of finance and discusses the status of risk management in the development of civilization.

Zhang Xiaoming and Chen Fenfei describes the characteristics of financial risks from a more macro perspective, including their impact on the economy and society.

2. **Strategic Aspect of Risk Management:**

The Zhihu column and Zhang Xiaoming and Chen Fenfei define risk management more from an operational perspective.

Chen Zhongyang and Professor Bernstein discuss the strategic significance of risk management for financial institutions and the entire civilization from a broader management perspective.

3. **Attitude Towards Risk:**

Chen Zhongyang suggests that risk management is not only about controlling risks but also about taking and utilizing risks to achieve the development and value creation of financial institutions.

Although the definitions of financial risk management by different authors share common core ideas, they exhibit different focuses on the role of risk management, its strategic significance, attitudes towards risk, and cultural and historical perspectives

Understanding the concept of financial risk management through the perspectives of different individuals provides us with a multi-faceted view. This not only aids in a comprehensive examination of the complexities inherent in financial risks but also fosters a deeper understanding of the mechanisms and multi-dimensional characteristics of financial risk management. The integration of knowledge from various viewpoints helps to create innovative management strategies and solutions, thereby enhancing the adaptability and effectiveness of risk management. Moreover, being aware of different experts' opinions enables us to better adapt to the ever-changing market environment.

Huawei's mastery of the definition and key concepts of financial risk management indicates that the company has a profound understanding and preparation for the volatility and uncertainties of the financial markets. This suggests that Huawei considers risk management as a core component in its strategic planning and daily operations, ensuring the ability to identify, assess, monitor, and control various risks that could impact the company's financial health and business objectives.

Methods for defining the concept of 'definition and key aspects of financial risk management' are presented in Figure 1.2.

Mastering these contents can help Huawei enhance decision-making quality, reduce risks, improve compliance and capital utilization efficiency, strengthen strategic strength, promote long-term development, and enhance competitive advantage.

Methods for defining the concept of "definition and key aspects of financial risk management"	
	Strategic Level: Financial risk management defines how financial institutions strategically plan to identify and prioritize various potential risks.
	Process Perspective: It includes a series of continuous steps, from risk identification to assessment, monitoring, control, and reporting, forming a complete risk management cycle.
	Tools and Techniques: It involves the use of various quantitative and qualitative tools, such as VaR, stress testing, and economic capital models, to quantify and manage risks.
	Regulatory Compliance: It ensures that risk management measures are in line with current laws and regulations, reflecting responsiveness and adaptation to regulatory requirements.
	Culture and Behavior: It emphasizes the establishment of a risk-aware culture that encourages individuals and teams to engage in responsible risk management behaviors.

Figure 1.2 - Methods for defining the concept of "definition and key aspects of financial risk management"

Source: compiled by the author on the basis of [5, 43, 69]

Based on the information provided and the insights gained from the various sources, we can conclude that the essence of financial risk management is reflected in the following key points:

1. Proactivity and Strategic Planning
2. Comprehensive Approach
3. Regulatory Compliance
4. Use of Advanced Tools and Techniques
5. Integration with Business Operations
6. Cultural Significance
7. Dynamic and Adaptive
8. Balance Between Risk and Reward
9. Crisis Prevention and Response
10. Education and Training

So we can formulate a broad definition of financial risk management as a proactive, strategic, and comprehensive process that integrates advanced tools and techniques with regulatory compliance, business operations, and cultural practices to effectively identify, assess, and mitigate financial risks while balancing the pursuit of opportunities for growth. It is a dynamic field that adapts to changes in the financial environment and includes crisis prevention and response strategies, with a focus on professional education and training to enhance the capabilities of risk management professionals.

1.2 Financial risk management models

The main goal of financial risk management is to increase shareholder returns, and the ability to effectively control financial risks largely determines whether managers can achieve this goal. Therefore, financial risks have become a content that every practitioner in the financial system needs to understand and master. According to different classification criteria, financial risks can be classified into different types.

Financial risk management models are a comprehensive set of analytical tools and techniques designed to help financial institutions identify, assess, monitor, and control various potential risks in the ever-changing market environment. These models cover not only traditional areas such as market risk, credit risk, operational risk, liquidity risk, and systemic risk but also extend to emerging risk types such as model risk, strategic risk, and reputational risk.

Market risk models, such as Value at Risk (VaR), quantify the impact of market variable fluctuations on the value of a portfolio; credit risk models evaluate the probability of default by debtors; operational risk models focus on losses resulting from internal process failures or external events; liquidity risk models

measure the ability to quickly buy or sell assets without significantly affecting market prices; systemic risk models consider the interconnections among financial institutions and their potential impact on the stability of the entire financial system. Additionally, model risk pertains to the losses that may arise from the inaccuracies or misuse of risk models themselves, strategic risk concerns the potential risks from erroneous investment strategies, and reputational risk management models assess the impact of negative events on an institution's brand and market confidence.

With the advancement of globalization and technology, financial risk management models are integrating new data sources, mathematical algorithms, and computational techniques, such as artificial intelligence and machine learning, to enhance the accuracy and responsiveness of risk forecasting. At the same time, these models are also adapting to changes in the regulatory environment, such as the higher capital and liquidity requirements proposed by Basel III, which strengthens the collection of risk data, the transparency of risk reporting, and the strictness of risk control.

The effective implementation of financial risk management is crucial for protecting the interests of investors, maintaining the stability of the financial market, and promoting the healthy operation of the overall economy. In the face of the continuous development of the financial market and new challenges, financial risk management models will continue to evolve to address new market conditions and types of risks, ensuring that financial institutions can operate continuously and robustly.

Descriptions of financial risk management models from five different angles are presented in Table 1.2.

At the same time, many Chinese or international experts and scholars have expressed their understanding of financial risk management models from different perspectives:

1.Chen Zhongyang - A professor at the School of Finance, Renmin University of China, who in his lectures deeply analyzed the development history of financial

risk management in China, discussing the necessity and importance of financial risk management.

Table 1.2 - Descriptions of financial risk management models from five different angles

Model Type	Concept	Source
Market Risk Models	Focus on assessing and quantifying the impact of market variable fluctuations on portfolio value.	Philippe Jorion [27]
Credit Risk Models	Used to evaluate the probability of default by debtors and their impact on the quality of a financial institution's assets.	Gupta et al. [11]
Operational Risk Models	Involve assessing the risk of losses due to internal failures, human errors, system malfunctions, or external events.	William L. McGill, et al., [35]
Liquidity Risk Models	Help financial institutions evaluate their ability to quickly sell or buy large volumes of assets without significantly affecting market prices.	Anthony Saunders and Marcia Millon Cornett [43]
Systemic Risk Models	Aim to quantify the interconnectedness among financial institutions and their potential impact on the stability of the entire financial system.	Andrew Haldane and Robert May [17]

2.Wang Zhicheng - An associate professor at the Guanghua School of Management, Peking University, who, along with his collaborators, proposed the MMVaR (Mark to Market Value at Risk) risk measurement indicator, which improved the estimation of risk by about 20%-30%, providing theoretical support for Basel III.

3.Huang Jiayu - A researcher at the School of Economics, Guangxi University, who explored the issues of risk management for commercial banks under the background of Internet finance. Although no specific summary of viewpoints

was provided, the research may involve the impact of Internet finance on risk management for commercial banks.

4. Darrell Duffie - Professor of Finance at Stanford Business School, has made significant contributions to financial risk management, asset pricing, and credit risk modeling. Professor Duffie emphasized in his research the significant importance of financial innovation and financial engineering in improving the efficiency of social capital allocation.

At the same time, mastering management tools for enterprise financial risk systems helps with risk prevention and control, effectively preventing and controlling financial risks, protecting the safety of company assets, providing accurate risk assessment for management, assisting in making more reasonable business decisions, optimizing resource allocation, and reducing unnecessary financial losses for cost control. Ultimately improving the company's ability to adapt to market fluctuations, maintaining business continuity and stability, and providing a solid foundation for risk management for the company's long-term financial health and sustainable development.

Many large enterprises internationally use the management tools of their financial risk systems to improve their revenue and operate in a healthier manner. Enterprise financial risk management systems are a comprehensive set of tools and platforms that utilize advanced technologies such as big data, artificial intelligence, and machine learning algorithms to assist enterprises in identifying, assessing, monitoring, and mitigating risks. These systems typically feature real-time data integration, budget control, cash flow forecasting, audit tracking, and compliance checks. They quantify risks through methods such as sensitivity analysis, scenario analysis, and risk metrics like Value at Risk (VaR). Additionally, they support risk mitigation strategies including diversification, hedging, and insurance. The systems also emphasize internal controls and policy formulation, ensuring that financial operations adhere to internal policies and procedures. They enhance the organization's risk management capabilities through staff training and the cultivation

of a risk-aware culture. With the evolution of technology, these systems are playing an increasingly pivotal role in risk management, becoming a key tool for ensuring the long-term stable development of enterprises.

Management tools for enterprise financial risk systems are presented in Figure 1.3.

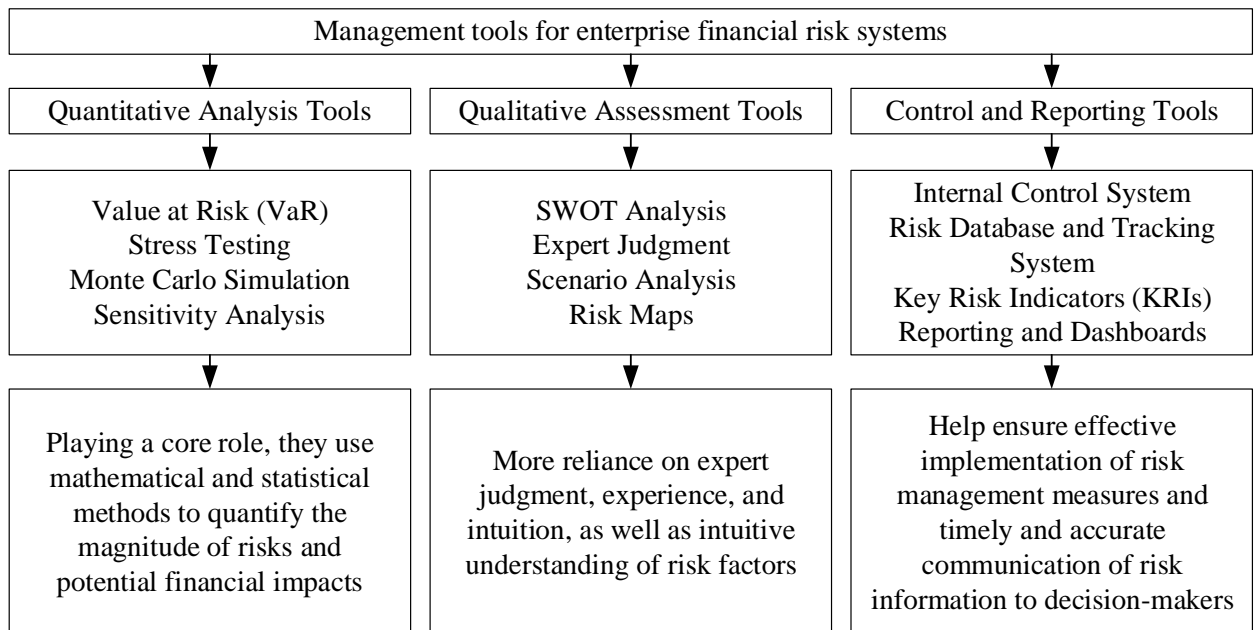


Figure 1.3 -Management tools for enterprise financial risk systems

Source: compiled by the author on the basis of [11, 27, 35]

Huawei's mastery of enterprise financial risk management tools indicates that the company has a systematic and professional approach to identifying, assessing, monitoring, and addressing financial risks. This reflects Huawei's strict control over internal financial processes and its sensitivity to changes in the external economic environment, demonstrating its sophistication and maturity in financial risk management.

Financial risk management models are characterized by the following aspects:

1. Quantitative: Modern financial risk management models are often based on mathematical and statistical principles, providing a quantitative approach to measure and analyze risk. For example, the VaR (Value at Risk) model is a widely used tool

for risk measurement that estimates the maximum loss that could occur over a given period, at a certain confidence level.

2.Comprehensive: These models typically consider a variety of risk factors, such as market risk, credit risk, liquidity risk, etc., and attempt to assess these risks in an integrated manner. The Total Risk Management system adds "price" and "preference" factors to the existing risk management system to balance objective measurement with subjective preferences.

3.Adaptive: As financial markets continuously evolve, risk management models must be updated and improved to adapt to new market conditions. The Conditional Value at Risk (CVaR) model, for instance, was developed to address some of the shortcomings of the VaR model by considering not only the frequency of losses exceeding the VaR but also the conditional expectation of these losses.

4.Prospective: Financial risk management models aim to predict future risk events and devise strategies in advance. This requires models to consider not just historical data but also market trends, macroeconomic factors, and other elements that could influence future risks.

5.Systemic: Under the framework of Enterprise Risk Management (ERM), risk management models view various risks not in isolation but as part of a whole, considering their interactions and potential systemic risks [27].

These characteristics together form the core attributes of financial risk management models, enabling them to effectively deal with the complexity and uncertainty of financial markets.

In financial practice, the application and demonstration of risk management models typically follow these steps and characteristics:

1.Data Collection and Processing: It starts with collecting relevant market data, transaction data, credit ratings, etc., and cleaning and preprocessing the data to ensure its accuracy and usability.

2.Model Selection: Based on the objectives of risk management and available data, an appropriate risk management model is selected. For example, the VaR

model might be used for market risk, while a credit migration model could be used for credit risk.

3. Parameter Estimation: Model parameters are estimated using historical data or other methods. For instance, in the VaR model, the volatility and correlation of asset returns need to be estimated.

4. Risk Measurement: Risk indicators are calculated using the selected model, such as VaR values, stress test results, expected losses, etc.

5. Risk Mapping: Risk measurement results are presented in the form of charts, reports, etc., to facilitate understanding and communication. Common tools include risk heatmaps, cumulative distribution function graphs, and risk value curves [35].

Through these steps, financial institutions can systematically identify, measure, monitor, and control risks while ensuring that risk management activities are consistent with business objectives and regulatory requirements.

A common example of financial risk management in real life is the measurement and management of market risk for an investment portfolio. Market risk refers to the risk of a decrease in the value of an investment portfolio due to adverse movements in market factors such as stock prices, interest rates, exchange rates, etc. Here, we illustrate the use of the VaR (Value at Risk) model to measure the market risk of a stock portfolio.

Suppose an investor holds a portfolio consisting of two stocks, Stock A and Stock B. For simplicity, we assume that the price movements of Stock A and Stock B follow a normal distribution, and the following information is known:

The expected return (μ_A) for Stock A is 8%, and the volatility (σ_A) is 15%.

The expected return (μ_B) for Stock B is 10%, and the volatility (σ_B) is 20%.

The correlation coefficient (ρ_{AB}) between Stock A and Stock B is 0.5.

The weight (W_A) of Stock A in the portfolio is 60%, and the weight (W_B) of Stock B is 40%.

We want to calculate the VaR for a 95% confidence level (i.e., $\alpha = 5\%$) over a one-day time horizon.

First, calculate the expected return (μ_P) and volatility (σ_P) of the portfolio (Figure 1.4).

$$\mu_P = W_A \cdot \mu_A + W_B \cdot \mu_B$$

$$\sigma_P = \sqrt{W_A^2 \cdot \sigma_A^2 + W_B^2 \cdot \sigma_B^2 + 2 \cdot W_A \cdot W_B \cdot \sigma_A \cdot \sigma_B \cdot \rho_{AB}}$$

Substitute the known values:

$$\mu_P = 0.6 \cdot 0.08 + 0.4 \cdot 0.10 = 0.06 \text{ (or 6\%)}$$

$$\sigma_P = \sqrt{0.6^2 \cdot 0.15^2 + 0.4^2 \cdot 0.20^2 + 2 \cdot 0.6 \cdot 0.4 \cdot 0.15 \cdot 0.20 \cdot 0.5}$$

$$\sigma_P = \sqrt{0.0108 + 0.016 + 0.00360}$$

$$\sigma_P = \sqrt{0.0294} \approx 0.054 \text{ (or 5.4\%)}$$

Figure 1.4 – Risk assessment [17]

Next, we need to find the Z value corresponding to a 95% confidence level. This Z score can be found using a standard normal distribution table or statistical software. For a 95% confidence level, the Z value is approximately 1.645.

Finally, calculate the VaR value (Figure 1.5).

$$\text{VaR} = \mu_P \cdot \Delta t + \sigma_P \cdot \sqrt{\Delta t} \cdot Z$$

Where Δt is the time horizon, which is $1/365$ for one day, assuming a year has 365 days.

Substitute the values:

$$\text{VaR} = 0.06 \cdot \frac{1}{365} - 0.054 \cdot \sqrt{\frac{1}{365}} \cdot 1.645$$

$$\text{VaR} \approx 0.000164 - 0.000253 \cdot 1.645$$

$$\text{VaR} \approx 0.000164 - 0.000413$$

$$\text{VaR} \approx -0.000249$$

Figure 1.5 – VaR calculation [17]

Since VaR values are typically expressed as positive numbers, indicating the worst-case loss scenario, the negative sign here indicates the percentage loss. Therefore, the portfolio's VaR at a 95% confidence level for a one-day period is approximately a 0.249% loss.

This example demonstrates how mathematical methods and statistical principles can be used to quantitatively measure and manage financial risk. In actual

operations, financial institutions use more complex and accurate models and consider a wider range of risk factors and market conditions.

Because there are different influencing factors, companies of different categories usually choose financial risk management models based on the following key factors

1. **Type of Risk:** Different types of risks may require different management models. For instance, market risk might utilize a VaR (Value at Risk) model, while credit risk might necessitate a credit migration model or a probability of default model.

2. **Data Availability:** The choice of model is often constrained by the type and quality of data available. Some models may require extensive historical data, while others might rely on expert judgment or forward-looking data.

3. **Model Complexity:** Organizations will choose models of an appropriate level of complexity based on their technical capabilities and resources. More complex models may offer deeper insights but also demand more computational resources and expertise.

4. **Regulatory Requirements:** Regulatory bodies may recommend or mandate the use of specific risk management models, particularly for banks and large financial institutions. For example, the Basel Accords have specific requirements for how banks calculate their capital adequacy ratios.

5. **Cost-Benefit Analysis:** The balance between the cost of developing and maintaining a model and the risk management benefits it provides should be considered when selecting a model [11].

Taking these factors into consideration, financial institutions can choose the risk management model that best suits their specific needs and circumstances.

The Development History of Financial Risk Management.

In the practice of financial risk management, the theory of financial risk management has emerged and developed. The theory of financial risk management originated in the 1930s, but its true formation was in the 1980s, which was closely

related to the continuous financial crises at that time, such as the Black Monday stock market crash in the United States in 1987, the Japanese stock market crisis in 1990, the European currency crisis in 1992, the Mexican peso crisis from 1994 to 1995, the collapse of Bahrain Bank in 1995, and the Asian financial crisis in 1997. The occurrence of these events has caused significant damage to the healthy development of the world economy and financial markets [35].

At the same time, it also makes people aware of the necessity and urgency of financial risk management.

1. Value at Risk VaR model. The risk management method based on VaR (Value at Risk) loss has been proposed and gradually emerged. VaR is the estimated maximum market value loss that may occur within a given position, and is the worst-case expected loss during a holding period within a given confidence interval. The RiskMetrics model and CreditMetrics model are typical representatives of VaR models in measuring market risk and credit risk. The RiskMetrics model calculates the VaR values of all assets by dividing them into stocks, bonds, foreign exchange, and commodities to obtain the VaR values of each type of asset. The CreditMetrics model uses a historical credit rating transfer matrix to obtain the VaR value of any combination under the influence of asset credit rating transfer. order

Previously, the VaR method had become a widely studied and adopted financial risk assessment and measurement model by major financial institutions worldwide.

2. Theory of overall risk management. Although the VaR model plays an important role in quantitatively calculating risk, it also has certain limitations as it only calculates financial asset risk based on objective probability, focusing only on the statistical characteristics of risk and not all risks. The new development of financial risk management, the Total Risk Management (TRM) system, adds "price" and "preference" factors to the existing risk management system's single variable "probability", in order to achieve a balance between objective measurement and

subject preferences, thereby achieving comprehensive risk control and opening up new paths and perspectives for complete financial risk management.

3.Comprehensive risk management

From individual events such as the collapse of Bahrain Bank, Union Bank of Ireland, and long-term capital funds, to systemic events such as the Mexican financial crisis, Asian financial crisis, and financial turmoil in some Latin American countries, all indicate that losses are no longer caused by a single risk, but by the interweaving of multiple risk factors such as credit risk, market risk, and operational risk. Therefore, when conducting risk management, it is necessary to start from the overall situation and build a comprehensive risk management system. Risk management is gradually entering a new stage - the comprehensive risk management stage. Due to the fact that this new type of integrated risk management starts from the overall perspective of the enterprise, it is often referred to as enterprise risk management (ERM). The main focus of enterprise risk management is on risk hedging and the impact of risk on the overall value of the enterprise, which is the latest direction in the development of risk management theory. The core idea of comprehensive risk management is to comprehensively manage various levels, business units, and risks within the enterprise as a whole. The emergence of the concept of comprehensive risk management originated from the Committee of Sponsoring Organizations of the National Commission, a subsidiary of the United States Committee Against False Financial Reporting [43].

The study of Fraudulent Financial Reporting (COSO) on risk management. COSO believes that developing a unified risk definition, providing key principles and concepts, and a risk management framework with clear direction and guidelines will help businesses meet this challenge. In September 2004, COSO released a research report on Enterprise Risk Management - Integrated Framework, marking the establishment of a comprehensive risk management theory. In 2004, Basel II also included market risk and operational risk in the scope of capital constraints, proposing three regulatory pillars: capital adequacy ratio, regulatory supervision and

inspection, and market discipline. In 2010, Basel III added leverage ratio supervision mechanisms and liquidity risk supervision indicators on the basis of the three major regulatory pillars, becoming an important force in promoting the maturity of comprehensive risk management theory. The development of comprehensive risk management has enriched the connotation and scope of risk management theory [17]. Risk management in practice is becoming increasingly mature, and new risk management methods are constantly emerging. But modern risk management has far exceeded this category, including not only activities such as internal control and risk hedging to prevent losses, but also profit centered risk management activities such as risk pricing, economic capital allocation, and risk adjusted return on capital. Due to the importance of risk management, the integration of risk management activities with investment and financing decisions has become the core content of enterprise management

1.3 Advanced practices in financial risk management at enterprises

Advanced practices in corporate financial risk management refer to the comprehensive application of a series of mature financial strategies and technical means by enterprises to establish a complete risk management system, including but not limited to the stages of risk identification, assessment, control, monitoring, and reporting. This system is designed to help enterprises fully understand the financial risks they face, formulate effective risk response measures, optimize resource allocation, enhance the enterprise's adaptability to market changes and its ability to withstand risks, thereby ensuring the financial stability and sustainable development of the enterprise.

The Figure 1.6 can clearly demonstrate the advanced practical processes of enterprise financial risk management.

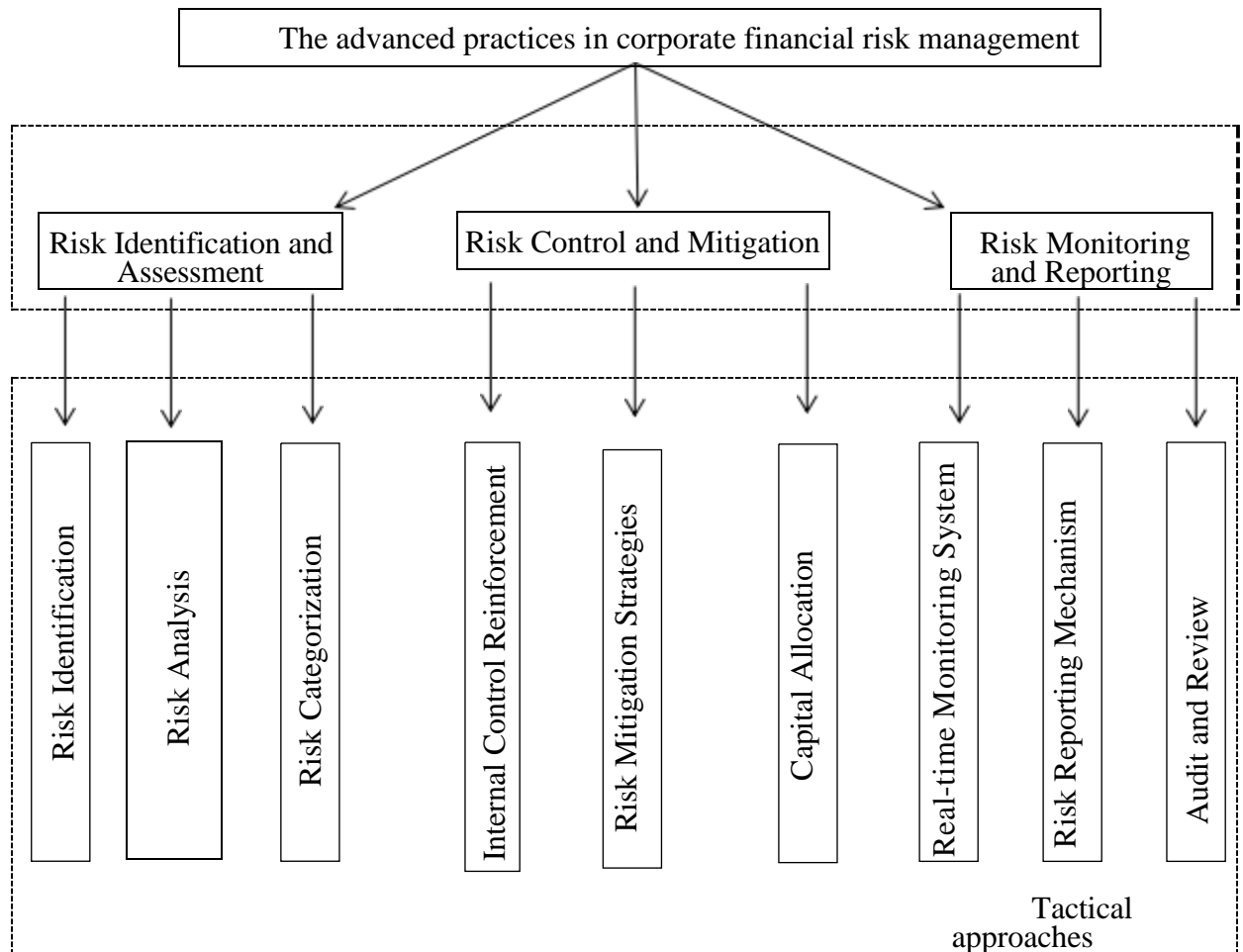


Figure 1.6 - The advanced practices in corporate financial risk management
 Source: compiled by the author on the basis of [5, 11]

Huawei's advanced practices in corporate financial risk management demonstrate that the company has adopted a proactive and forward-looking approach in this area, reflecting its leadership within the industry and high regard for financial stability.

This approach shows Huawei's deep understanding of potential risks in a complex economic environment and its capability to address these risks through innovative management tools and strategies.

It can help Huawei enhance its competitiveness, ensure financial stability, enhance strategic flexibility, enhance investor confidence, provide a solid risk management foundation for the company's long-term development and global

expansion, ensure that the company's financial activities on a global scale comply with local laws and regulations, and reduce compliance risks.

Enterprises that practice advanced financial risk management at the right time benefit from [40]:

- Improved decision-making quality- Enhanced market adaptability
- Reduced potential losses- Optimized capital allocation
- Strengthened investor confidence- Elevated corporate reputation
- Compliance with regulatory requirements- Increased internal efficiency
- Long-term sustainable development- Conversion of risks into opportunities
- Enhanced transparency and accountability- Prevention and resolution of crises
- Improved employee engagement- Promotion of innovation
- Protection of corporate value

Implementing advanced financial risk management practices at the right time allows enterprises to make more informed and rational decisions, quickly identify and respond to market changes to maintain a competitive edge, and effectively control and mitigate risks to reduce potential financial losses. These practices also enable better capital allocation, enhancing the efficiency of capital use to support business growth and expansion. By doing so, they can bolster the confidence of investors and stakeholders, elevate the corporate brand image to attract more customers and partners, and facilitate better long-term strategic planning for sustainable development. Moreover, they can uncover potential business opportunities, turning risks into growth prospects, and develop contingency plans to effectively prevent or resolve potential crises. Additionally, these practices can increase employee engagement and responsibility, allowing the company to explore new markets and innovate new products more freely.

Taking Huawei as an example, Huawei, recognized as a leading global provider of communications technology, has implemented advanced practices in financial risk management that serve as a model for the industry. The company

employs a robust Three Lines of Defense Model, where business management personnel are primarily responsible for internal controls, while dedicated departments offer professional support and promote methodological development. Huawei has successfully integrated business and finance, empowering business operations with financial expertise and challenging the traditional adversarial view of finance. Through financial transformation, the company has seen the CFO role evolve to significantly impact continuous growth. Huawei's strict expense budget management, combined with comprehensive financial training for employees, ensures that financial acumen is embedded across the organization. The internal audit department, consisting of highly skilled professionals, plays a critical role in maintaining financial integrity and often transitions personnel into key financial director roles. The company's risk management policy is designed to build a comprehensive risk management system, aligning with strategic objectives. Huawei's financial shared services center has been instrumental in the digital transformation of financial management, enhancing value through integrated operations. The practice of internal control and risk management at Huawei is reinforced by real-world case studies and training, aimed at equipping employees with practical skills to manage risks and ensure business continuity. Underpinning it all is a solid corporate governance structure that ensures clear accountability, focused responsibility, and a system of checks and balances, providing a strong foundation for managing financial risks.

Conclusions for section 1

The first part of the financial risk management section comprehensively introduces the foundational definitions and key concepts of the field, providing a solid theoretical basis for understanding the complexities of financial risks. It delves into the construction and application of financial risk management models, which

are essential tools for assessing and controlling key risk elements such as market risk, credit risk, and operational risk. These models assist financial institutions and businesses in the identification, measurement, monitoring, and mitigation of risks.

Furthermore, the section highlights advanced practices in financial risk management within enterprises, encompassing the application of innovative risk management methods and technologies, integrated risk data management, the establishment of risk warning systems, and the innovative application of risk mitigation strategies. The aim of these practices is to enhance the efficiency and effectiveness of risk management, ensuring that companies can maintain stability amidst financial market fluctuations, protect asset value, and foster long-term sustainable business development. Through these comprehensive measures, businesses and financial institutions are better equipped to respond to market changes and strike a balance between risk and return.

Considering the pursuit of maximizing shareholder interests by financial institutions themselves and the enormous harm of financial risks, effective control of financial risks is of great significance for both microeconomics and macroeconomics.

Therefore, financial stability is closely linked to the development of the real economy, and financial risk management is an important means to promote overall macroeconomic stability and development. Winning the battle to prevent and resolve major risks is a strategic move to maintain overall economic and social stability, a key move to promote high-quality development, a beneficial move to implement the "people-centered" development concept, and a pragmatic move to enhance the core competitiveness of the financial industry.

SECTION 2

ASSESSMENT OF FINANCIAL RISK MANAGEMENT EFFECTIVENESS AT HUAWEI FOR 2021-2023

2.1 Analysis of the types of financial risks company

Financial risk is typically defined as the uncertainty of future income of an asset portfolio caused by the fluctuation of financial variables. It encompasses not only the possibility of loss that financial institutions such as banks, trust companies, securities firms, and insurance companies may suffer due to various uncertainties, but also the potential for loss faced by individuals, corporations, and governments in all financial activities due to uncertainty. The origin of financial risk lies in the severe disconnection between the real economy and the virtual economy, with the overexpansion of the virtual economy being the root cause of financial risk. The formation mechanism of financial risk involves the internal stability mechanism, impact mechanism, and transmission mechanism of the financial system, which can gradually spread and impact the real economy.

For a company, the presence of financial risk can have a significant impact on its financial condition and market performance. Companies may face various financial risks such as liquidity risk, credit risk, financing risk, and investment risk during financial activities like fundraising and investment. These risks could lead to the deterioration of a company's financial condition, cash flow exhaustion, and even corporate crises. For instance, a company might face high debt and financial leverage risks due to over-reliance on debt financing, or its financial condition might worsen due to investment mistakes. Additionally, the volatility of the financial market can affect a company's stock price and market value, thereby influencing the company's financing costs and investment returns. Therefore, companies need to establish an

effective risk management system to identify, assess, monitor, and control financial risks, ensuring the company's stable operation and long-term development.

Huawei is a global leader in information and communications technology (ICT) solutions, headquartered in Shenzhen, China. Since its establishment in 1987, Huawei has grown into a large multinational corporation with over 180,000 employees and operations in more than 170 countries and regions worldwide. The company adheres to principles of prudent operations, continuous innovation, and open collaboration, providing end-to-end solutions across various sectors including telecommunications operators, enterprises, consumer devices, and cloud computing [3].

Huawei's product portfolio spans communication networks, information technology, smart terminals, and cloud services, all aimed at bringing the conveniences of the digital world to individuals, families, and organizations. Through open cooperation with partners, the company works to create shared value. Huawei not only fosters positive industry development but also actively engages in sustainable social development activities, such as bridging the global digital divide, participating in disaster relief efforts, and promoting green, low-carbon environmental concepts [33].

In terms of research and development, Huawei invests heavily and continuously drives technological innovation with R&D centers around the globe and collaborates with multiple international companies to develop new technologies and solutions. Huawei also actively participates in the formulation of international standards, contributing significantly to the core standards of 3GPP LTE [6].

Huawei's global influence has been widely recognized, with the company being named one of the world's most influential by several authoritative organizations and ranking at the forefront in various market sectors. The company also actively fulfills its corporate social responsibilities, contributing to social development through a range of projects and collaborations.

Huawei's more detailed introduction is as follows [41]:

1. **Global Presence:** Huawei operates in over 170 countries and regions, serving more than one-third of the world's population. This indicates Huawei's significant position in the global communications market.

2. **Products and Services:** Huawei offers a range of smart terminal products, including smartphones, tablets, personal computing devices, wearables, and provides cloud services and digital energy solutions. In the field of communication networks, Huawei offers comprehensive network equipment and services to telecom operators.

3. **R&D and Innovation:** Huawei places a strong emphasis on research and development and innovation, with R&D centers located worldwide, including in Bangalore, India, and Stockholm, Sweden. The company collaborates with multiple international enterprises to advance technological progress, such as partnerships with 3Com, Siemens, and Motorola.

4. **Technical Contributions:** Huawei has made contributions in various technical fields, including proposals in the core standards of 3GPP LTE and innovations in the field of optical transmission, such as building the world's first 1T OTN network in collaboration with European operators.

As mentioned above, Huawei, as a global leader in information and communications technology (ICT) solutions, has substantial strength and a wide range of businesses, facing a variety of financial risks that cover operational risks, management risks, financial risks, and policy risks, among others. The more prominent risks include [34]:

1. **Operational Risk:** Huawei operates in over 170 countries and regions worldwide, thus its business activities are influenced by international economic and political situations. This includes fluctuations in foreign exchange rates, market trend insights, customer service efficiency, costs of complying with local business and legal requirements, difficulties in intellectual property protection, foreign exchange and cash controls, changes in economic environment and regulatory

requirements, political instability, social unrest, cultural and religious conflicts, acts of terrorism, trade barriers, export controls, tariffs, and economic sanctions.

2. **Management Risk:** As a large-scale, cross-regional enterprise with numerous subsidiaries, Huawei requires an effective compliance officer selection, training, and supervision mechanism. In addition, management policies for related-party transactions are crucial in preventing significant related-party transaction risks.

3. **Financial Risk:** Huawei may face risks associated with interest rate changes and foreign exchange rate fluctuations. The company analyzes interest rate risk exposure and uses a combination of floating and fixed interest rate bank loans to mitigate risks. At the same time, due to foreign currency exposure, mainly in US dollars and euros, it is necessary to implement foreign exchange management policies and hedging strategies to reduce the impact of exchange rate fluctuations.

4. **Policy Risk:** Changes in tax and foreign exchange policies may affect Huawei's business operations. Moreover, uncertainties in industrial policies can also lead to risks, especially in the context of technological or business model transformations.

5. **Compliance Risk:** Huawei emphasizes compliance with applicable financial laws and regulations and has established a financial compliance control system to manage compliance risks.

Macroeconomic factors, regulatory environment, and technological change are three indispensable dimensions in the analysis of financial risks. Macroeconomic factors include economic growth, inflation, interest rates, monetary policy, and fiscal policy, etc., which collectively influence a company's operating costs, market demand, investment returns, and financing conditions, thereby profoundly affecting the company's profitability and financial stability. The regulatory environment involves government policies and regulations applicable to various industries, including legal and compliance requirements, tax policies, etc., which determine the company's compliance costs, operational restrictions, and market access conditions, playing a crucial role in the company's long-term strategic planning and business

model choices. Technological change refers to the transformation of industry and market competition landscape due to technological advancement and innovation, which requires companies to continuously adapt and adopt new technologies to maintain competitiveness, while also bringing risks such as increased R&D investment, technological obsolescence, and business model disruption. These three dimensions are interwoven, together shaping the complex and variable financial risk landscape that companies face.

2.2 Analysis of the financial and economic activities of the company Huawei

Financial risks in a company refer to the various uncertainties inherent in business operations and the market environment that could potentially lead to financial losses or fluctuations in a company's financial performance. This includes, but is not limited to, market risk, which involves volatility in income and profits due to changes in supply and demand, as well as price fluctuations; credit risk, which pertains to losses incurred from the failure of customers or counterparties to fulfill their financial obligations; liquidity risk, which relates to the company's ability to meet its short-term financial commitments; exchange rate risk, which impacts the company's foreign currency assets and liabilities due to fluctuations in foreign exchange rates; interest rate risk, which affects the company's borrowing costs and investment returns due to changes in market interest rates; policy and regulatory risk, which involves the potential impact of changes in government policies and legal regulations on the company's operations and financial condition; and competitive risk, where intense market competition could lead to a decrease in the company's market share and profitability. These risks can affect the company's cash flow, profitability, asset value, and overall financial stability, thereby having a negative impact on the company's long-term development and investor confidence [33].

Why prioritize evaluating and considering a company's financial risks, what is the significance of this, and what benefits will it bring?

In the operation of a company, prioritizing the assessment and consideration of financial risks is a crucial step, which has a profound impact on the company's long-term development and strategic planning. Financial risk management not only protects the company from sudden economic fluctuations and market uncertainties but also brings a series of positive benefits to the enterprise.

Firstly, through financial risk assessment, the company can better understand its financial condition and identify potential weaknesses and loopholes. This helps the company to formulate preemptive strategies in advance, such as diversifying investments, using risk hedging tools, or purchasing insurance products to diversify risks, thereby being more composed when facing adverse situations.

Secondly, good financial risk management can enhance the company's reputation and market position. Investors, creditors, and partners are more inclined to cooperate with companies that demonstrate strong risk management capabilities, which can reduce the company's financing costs and enhance its competitiveness in the market.

Additionally, the assessment and management of financial risks help the company comply with regulations, avoiding legal sanctions or reputational losses due to non-compliance. This involves not only adhering to financial reporting and tax regulations but also complying with international standards such as anti-money laundering and counter-terrorism financing, ensuring the company's legal and compliant operations on a global scale [24].

Furthermore, financial risk assessment helps the company maintain flexibility and adaptability in economic fluctuations and market changes. By continuously monitoring market trends and financial indicators, the company can timely adjust its business strategies, seize new business opportunities, and avoid or reduce potential losses.

Lastly, financial risk management also contributes to the company's sustainable development. By effectively managing financial risks, the company can maintain stable growth during different stages of the economic cycle, avoiding the impact of short-term financial difficulties on long-term strategic goals and social responsibilities.

Here are some financial data of Huawei from 2021 to 2023 (Table 2.1).

Table 2.1 - Performance indicators of Huawei from 2021 to 2023

Year	Revenue (Billion Yuan)	YoY Change	Net Profit (Billion Yuan)	YoY Change	R&D Investment (Billion Yuan)	R&D as % of Revenue	Operating Cash Flow (Billion Yuan)	Debt to Assets Ratio
2021	6368	-28.6%	1137	75.9%	1427	22.4%	596.7	57.8%
2022	6423	0.9%	356	-68.7%	1615	25.1%		58.9%
2023	7042	9.64%	870	144.4%	1647	23.4%		

In 2023, the company's annual revenue increased by 9.64% compared to 2022, indicating a growth trend in the company's revenue.

In 2023, the company's net profit increased significantly by 144.4% compared to 2022, indicating a significant improvement in profitability.

The year-on-year change rate of net profit in 2022 was -68.7%, which may indicate that the company experienced a significant decline in profitability from 2021 to 2022.

The year-on-year change rate of net profit in 2023 has significantly increased, which may indicate that the company has taken effective measures to improve its financial situation, or there has been a positive change in the market environment.

Impact on the company:

Helps Huawei enhance its profitability, improve its financial situation, and enhance market confidence. To ensure the sustainability of profit growth and manage any potential risks.

These data points depict Huawei's financial performance and operational status in different years, as well as its strategies and outcomes in R&D, different business segments, and regional markets. At the same time, they also reflect the

challenges and coping strategies of Huawei amidst global economic and political changes.

When assessing and prioritizing a company's financial risks, businesses need to consider multiple aspects, including but not limited to financing risks, operational risks, inventory management risks, liquidity risks, etc. On the other hand, conducting a vertical analysis of a company's profits is also a good way to identify risks

Vertical Analysis of Huawei's Profit Statement from 2021 to 2023 (Table 2.2).

Table 2.2 - Dynamics of performance indicators of Huawei from 2021 to 2023

Financial Indicator	2021 (Hundred Million RMB)	2022 (Hundred Million RMB)	2023 (Hundred Million RMB)	Change
Sales Revenue	636,807	642,338	704,174	10.6% growth from 2021 to 2023
Operating Profit	42,216	6,071	104,401	Significant increase in 2023
Operating Margin (%)	6.60%	6.60%	14.80%	Significant increase in 2023
Net Profit	35,562	5,114	86,950	Significant increase in 2023
Cash Flow from Operating Activities	59,670	17,797	9,859	Decrease in 2023
Cash and Short-term Investments	373,452	53,709	67,128	Increase in 2023
Total Assets	982,971	1,063,804	1,263,597	Increase in 2023
Total Liabilities	197,144	28,353	308,414	Increase in 2023
Owner's Equity	437,076	62,859	507,568	Increase in 2023
Asset-Liability Ratio (%)	57.80%	58.90%	59.80%	Slight increase in 2023
R&D Expenditure	142,700	161,500	164,700	Continuous increase
R&D Expenditure as a % of Sales	22.40%	25.10%	23.40%	High ratio maintained

Based on this table, we can conclude that Huawei demonstrated strong financial resilience and profitability amidst challenges and uncertainties from 2021 to 2023. Notably, in 2023, the company saw a significant increase in both its operating margin and net profit, indicating positive outcomes from efforts in product portfolio optimization, operational efficiency enhancement, and increased R&D investment. The sustained high percentage of R&D expenditure also reflects

Huawei's commitment to innovation and long-term competitiveness, potentially establishing a solid foundation for future market competition. For Huawei, this signifies that despite global supply chain challenges and increased market pressures, the company has been able to maintain a robust financial position and market standing through internal management and strategic adjustments. This showcases Huawei's adaptability and potential as a leading global provider of communication technology.

The following are Huawei's financial highlights from 2017 to 2021 (Table 2.3, Figure 2.1-2.5).

Table 2.3 - Financial performance indicators of Huawei from 2017 to 2021

Metric	2021 (USD Million)	2021 (CNY Million)	2020 (CNY Million)	2019 (CNY Million)	2018 (CNY Million)	2017 (CNY Million)
Revenue	99,887	636,807	891,368	858,833	721,202	603,621
Operating profit	19,044	121,412	72,501	77,835	73,287	56,384
Operating margin	19.1%	19.1%	8.1%	9.1%	10.2%	9.3%
Net profit	17,837	113,718	64,649	62,656	59,345	47,455
Cash flow from operating activities	9,360	59,670	35,218	91,384	74,659	96,336
Cash and short-term investments	65,304	416,334	357,366	371,040	265,857	199,943
Working capital	59,122	376,923	299,062	257,638	170,864	118,503
Total assets	154,184	982,971	876,854	858,661	665,792	505,225
Total borrowings	27,465	175,100	141,811	112,162	69,941	39,925
Equity	65,040	414,652	330,408	295,537	233,065	175,616
Liability ratio	57.8%	57.8%	62.3%	65.6%	65.0%	65.2%

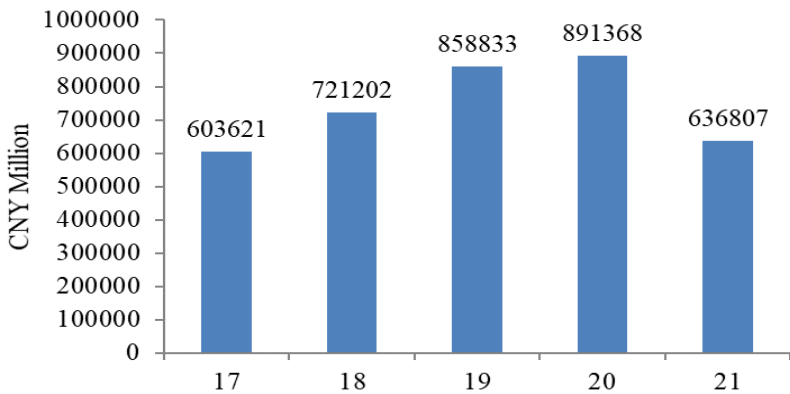


Figure 2.1 - Dynamics of Huawei's Revenue from 2017 to 2021

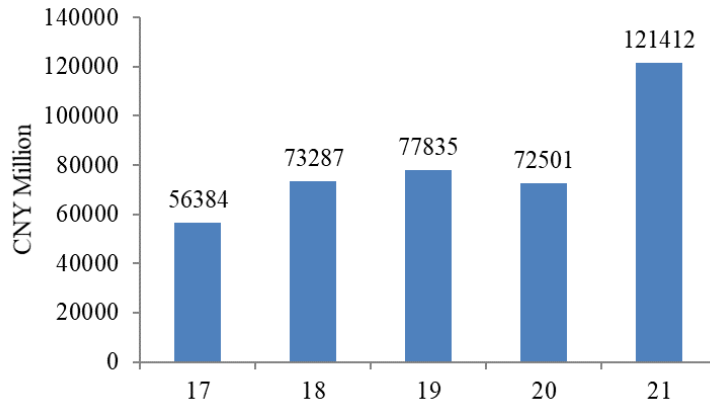


Figure 2.2 - Dynamics of Huawei's Operating Profit from 2017 to 2021

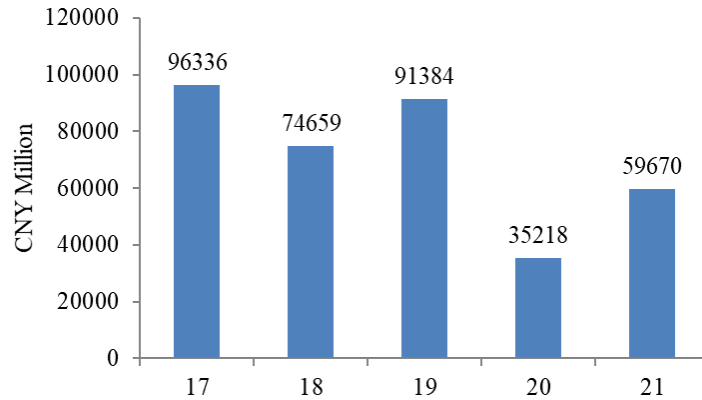


Figure 2.3 - Dynamics of Huawei's Cash Flow from Operating Activities from 2017 to 2021

Region	2021 (CNY Million)	2020 (CNY Million)	YoY (%)
China	413299	597983	-30,9
EMEA	131467	180819	-27,3
Asia Pacific	53675	64466	-16,7
Americas	29225	39664	-26,3
Other	9141	8436	8,4
Total	636807	891368	-28,6

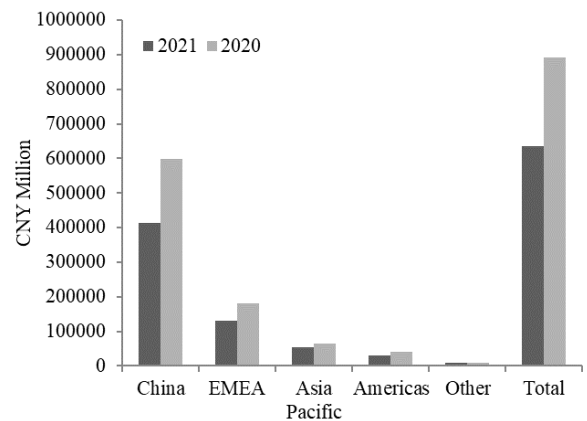


Figure 2.4 - Structure of Huawei's Revenue by Region for 2020-2021

Segment	2021 (CNY Million)	2020 (CNY Million)	YoY (%)
Carrier Business	281469	302621	-7
Enterprise Business	102444	100339	2,1
Consumer Business	243431	482916	-49,6
Other	9463	5492	72,3
Total	636807	891368	-28,6

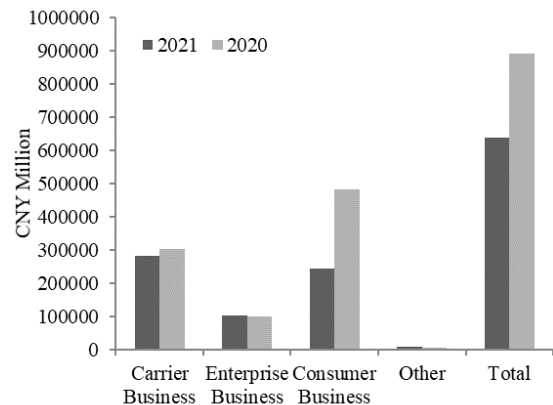


Figure 2.5 - Structure of Huawei's Revenue by Segment for 2020-2021

From the above three figures, it can be seen that:

1. Despite facing external pressures and challenges, such as sanctions from the United States, Huawei maintained its profitability from 2017 to 2021, with a significant increase in net profit in 2021.

2. The company's R&D investment continued to grow, reaching a historical high in 2021, indicating Huawei's commitment to technological innovation and the construction of long-term competitiveness.

3. Although Huawei's consumer business was significantly impacted in 2021, the enterprise business and other new business areas maintained growth, showing the company's efforts in diversification and market adaptability.

4. Huawei has maintained a certain level of competitiveness in the global market, especially in 5G network construction, where the user experience was rated as the best in multiple countries.

Significance for the company [12]:

Maintaining technological leadership, improving market adaptability, strengthening financial stability, and enhancing risk management capabilities, Huawei has demonstrated strong risk management capabilities, effectively responding to external risks and uncertainties through diversified product lines and market strategies. At the same time, it comes with related privacy protection, which is also a crucial link.

Huawei protects privacy with innovative technologies are presented in Figure 2.6 [47].

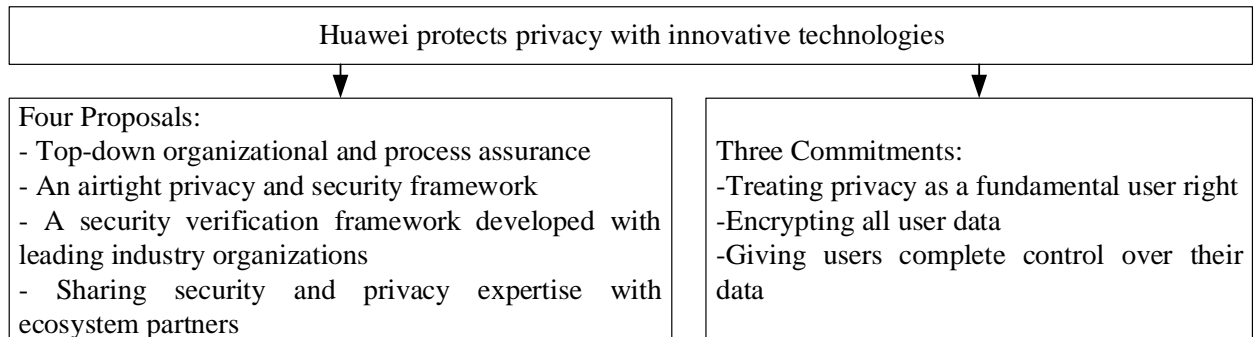


Figure 2.6 – Huawei protects privacy with innovative technologie

Huawei's use of innovative technology to protect privacy demonstrates the company's high regard for user data security and privacy rights. With increasing stringent data protection regulations globally and growing user concerns over personal privacy, Huawei's proactive approach to privacy protection through technological innovation not only meets market and regulatory demands but also bolsters user trust and brand loyalty.

Strengthening company system certification is also a way to avoid or reduce risks

HuaWei has been evaluated and certified by numerous independent third parties, receiving the following certifications:

ISO 9001 (quality management) TL 9000 (quality management for the ICT industry)

IATF 16949 (quality management for the automotive industry) ISO 14001 (environmental management)

ISO 14064-1 (quantification and reporting of greenhouse gas emissions and removals)

ISO 45001 (occupational health and safety management) IECQ QC 080000 (hazardous substance process management)

ISO 50001 (energy management) ISO 22301 (BCM)

ISO 28000 (supply chain security management) ISO/IEC 20000-1 (IT service management)

ISO/IEC 27001 (information security management) ISO/IEC 27017 (cloud security management)

ISO/IEC 27034 (application security) ISO/IEC 27018 (protection of personally identifiable information in public clouds)

ISO/IEC 27701 (privacy information management) ISO/IEC 29151 (protection of personally identifiable information)

CSA STAR (cloud security management) PCI DSS and PCI 3DS (payment card industry data security)

SOC 1, 2, and 3 (system and organization controls) ISO 27799 (health information security) ISO 26262 (road vehicles – functional safety) [68].

Financial reports are the best evidence for analyzing financial risks and business operations (Table 2.4).

Table 2.4 – Financial reports of Huawei for 2020-2023

Metric	2021 (CNY Million)	2020 (CNY Million)	YoY (%) 2021	2022 (CNY Million)	YoY (%) 2022	2023 (CNY Million)	YoY (%) 2023
1	2	3	4	5	6	7	8
Revenue	636,807	891,368	(28.6)%	642,338	0.9%	704,174	9.6%
Gross profit	307,442	327,132	(6.0)%	281,925	(8.3)%	325,364	15.4%
- Gross profit margin	48.3%	36.7%	11.6%	43.9%	(4.4)%	46.2%	2.3%
Total operating expenses	(246,827)	(255,323)	(3.3)%	(271,279)	9.9%	(283,644)	4.6%
- as % of revenue	38.8%	28.6%	10.2%	42.2%	3.4%	40.3%	(1.9)%
Other income, net	60,797	692	8,685.7%	31,570	(48.1)%	62,681	98.5%
Operating profit	121,412	72,501	67.5%	42,216	(65.2)%	104,401	147.3%
- as % of revenue	19.1%	8.1%	11.0%	6.6%	(12.5)%	14.8%	8.2%
Net finance income	493	(367)	(234.3)%	1,018	106.5%	(6,659)	(754.1)%

Continuation of Table 2.4

1	2	3	4	5	6	7	8
Income tax	(8,227)	(7,655)	7.5%	(8,384)	1.9%	(10,646)	27.0%
Net profit	113,718	64,649	75.9%	35,562	(68.7)%	86,950	144.5%

Huawei's total revenue in 2021 reached CNY636,807 million, representing a 28.6% YoY decrease. Net profits grew by 75.9% YoY to CNY113,718 million.

Huawei's total revenue in 2022 reached CNY642,338 million, representing a 0.9% YoY increase. Net profits amounted to CNY35,562 million.

Huawei's total revenue in 2023 was CNY704,174 million, which was a 9.6% YoY increase. Our net profit was CNY86,950 million.

These data comprehensively demonstrate that Huawei is addressing external challenges and seeking new growth points through strategic adjustments and technological innovation while maintaining financial stability. Despite facing market and supply chain pressures, Huawei still enhances its market position and profitability by increasing research and development investment and optimizing its business structure.

Comparison of Huawei's financial performance indicators with other companies for 2023 is presented in Table 2.5 [42].

Table 2.5 - Comparison of Huawei's financial performance indicators with other companies for 2023

Company	Revenue (RMB Billion)	Net Income (RMB Billion)	Research & Development Expense (RMB Billion)	Reporting Period
Huawei	7042	870	1647	144%
Apple	27544	6876	-	-0.9%
Nvidia	4313	2103	-	189%
Microsoft	15034	5115	-	-0.5%

Five-year financial summary of Huawei s presented in Table 2.6.

Table 2.6 - Five-year financial summary of Huawei for 2019-2023

Metric	2023 (US\$ million)	2023 (RMB million)	2022 (RMB million)	2021 (RMB million)	2020 (RMB million)	2019 (RMB million)
Sales revenue	99,448	704,174	642,338	636,807	891,368	858,833
Operating profit	14,744	104,401	42,216	121,412	72,501	77,835
Operating margin	14.8%	14.8%	6.6%	19.1%	8.1%	9.1%
Net profit	12,280	86,950	35,562	113,718	64,649	62,656
Cash flow from operating activities	9,859	69,807	17,797	59,670	35,218	91,384
Cash vs. short- term investments	67,128	475,317	373,452	416,334	357,366	371,040
Working capital	59,550	421,662	344,938	376,923	299,062	257,638
Total assets	178,454	1,263,597	1,063,804	982,971	876,854	858,661
Total borrowing	43,556	308,414	197,144	175,100	141,811	112,162
Owner's Equity	71,682	507,568	437,076	414,652	330,408	295,537
Debt-to-asset ratio	59.8%	59.8%	58.9%	57.8%	62.3%	65.6%

From the table data, it can be seen that Huawei has a strong momentum in business growth

2.3 Evaluation of the success and limitations of the risk mitigation strategies

The assessment of the limitations of risk mitigation strategies is a complex process that requires businesses or financial institutions to conduct an in-depth analysis of the multi-dimensional limitations of their existing risk management measures. This includes questioning the basic rationality of the strategy design and anticipating various practical difficulties that may be encountered during the implementation process. For instance, it is necessary to evaluate whether risk mitigation measures can adapt to rapidly changing market conditions, such as abrupt changes in consumer behavior, adjustments in competitors' strategies, and updates in regulatory policies. At the same time, consider the cross-border risks in the

context of globalization, such as exchange rate fluctuations, international tensions, and transnational legal disputes. Additionally, the assessment should include the adaptability and resilience of risk mitigation strategies in the face of emerging risks, such as cyber threats, ethical issues of artificial intelligence, and the impact of climate change.

Enterprises need to conduct an assessment of the limitations of their risk mitigation strategies under various circumstances, such as changes in internal and external environments, business model transformation, intensification of market volatility, updates in regulatory policies, technological advancements, organizational restructuring, implementation of key projects, major investment decisions, and after experiencing crises or failures. This evaluation helps companies identify the shortcomings of their existing risk management measures, thereby taking proactive steps to address potential risks and ensuring the stable operation and sustainable development of the enterprise.

Taking Huawei as an example, as a global leader in communication technology, the company places great emphasis on the assessment of the limitations of risk mitigation strategies when facing intense international market competition, political and economic uncertainties, and rapid technological iteration. Huawei has established a comprehensive risk management system and continuously reviews and updates its risk management strategies to adapt to the ever-changing global market environment. For instance, in response to export restrictions and technological blockades by the U.S. government, Huawei effectively mitigated direct risks and enhanced its resilience by diversifying its supply chain, increasing R&D investment, and expanding into new markets. In addition, Huawei focuses on corporate culture construction, strengthening employees' awareness and sense of responsibility towards risk management. The company conducts regular risk management training and exercises to improve the overall risk response capabilities of the organization.

Through such assessments, companies can not only promptly identify and remedy the deficiencies in their current risk management measures but also maintain

keen insight and rapid response capabilities in the complex and ever-changing business environment. This allows them to take effective preventive and responsive actions before risks occur, reducing potential losses and achieving long-term stable development.

Enterprises engage in the process of risk mitigation strategy limitation assessments as a systematic project that involves an in-depth analysis of the current risk management systems, identification of potential shortcomings, and the formulation of corresponding improvement measures. This process typically encompasses several key steps:

Firstly, "Risk Identification" is crucial where enterprises must comprehensively recognize various risks that could impact their operations and strategic objectives, including market risk, credit risk, operational risk, and legal and compliance risks. For instance, Huawei, during its global expansion, faced multiple risks such as varying legal regulations, cultural differences, and market competition across different countries.

"Existing Strategy Evaluation" involves assessing the effectiveness of current risk mitigation strategies, which includes a thorough review of strategy design, execution, resource allocation, and technological application. Huawei conducts internal audits and seeks external consultations to evaluate the resilience of its global supply chain against potential disruptions.

"Limitation Identification" is the next step, where enterprises identify the limitations of their current strategies, which could range from incomplete coverage to insufficient resource investment, outdated technology, and lack of staff training. Recognizing the risks of market dependency, Huawei has adopted a diversified market strategy.

"Implementation and Monitoring" involve putting the improvement measures into action and ensuring they meet the expected outcomes through effective monitoring mechanisms. Huawei has established a risk management office to coordinate and oversee the implementation of global risk management activities.

Lastly, "Continuous Improvement" is essential as risk management is an ongoing process. Enterprises need to continually review and update their risk mitigation strategies to adapt to changes in the external environment and internal strategy adjustments. Huawei holds regular risk management meetings to discuss and resolve emerging risk issues.

Through these steps, enterprises can ensure their risk mitigation strategies are effective against various potential risks, thereby protecting the company's long-term value and sustainable development. Huawei's example demonstrates that systematic risk management enables enterprises not only to respond to current challenges but also to prepare for future uncertainties.

When conducting risk mitigation strategy limitation assessments, enterprises can also employ various methods to enhance the effectiveness of the assessment:

"Internal Audits"- "External Consultations"- "Staff Training" - "Simulation Drills"- "Stakeholder Communication" - "Case Studies" - "Culture Building" [13].

By integrating these methods, enterprises can conduct comprehensive and in-depth risk mitigation strategy limitation assessments, leading to more effective and sustainable risk management strategies. Huawei has successfully navigated various risk challenges and maintained a leading position in the global market through these approaches.

Enterprises carry out risk mitigation strategy limitation assessments in a comprehensive and in-depth process that requires them to first understand the various risks that may affect their operations and strategic objectives through risk identification. This includes market risks, credit risks, operational risks, and legal and compliance risks. Subsequently, enterprises need to conduct an in-depth analysis of these risks, assessing their likelihood and potential impact, which may involve both qualitative and quantitative analyses, such as probability theory, statistical analysis, and stress testing. Based on this analysis, enterprises must evaluate the effectiveness of their existing risk mitigation strategies, encompassing a thorough review of strategy design, execution, resource allocation, and technological

application. Following this, enterprises need to identify the limitations of their current strategies, which may include incomplete coverage, insufficient resource investment, outdated technology, and lack of staff training. They then develop specific improvement measures, which could involve strengthening internal controls, optimizing capital structure, enhancing technological systems, increasing staff training, and improving communication mechanisms. After formulating these measures, enterprises implement them and ensure they achieve the desired effects through effective monitoring mechanisms. It is also essential to continuously review and update risk mitigation strategies to adapt to changes in the external environment and internal strategies.

Huawei has adopted a diversified market strategy and invested significantly in establishing a network security laboratory to bolster the security of its products and services. By establishing a risk management office, Huawei coordinates and oversees the execution of global risk management initiatives and regularly convenes risk management meetings to discuss and resolve emerging risk issues. Furthermore, Huawei conducts emergency drills based on various risk scenarios, leverages information technology to improve risk monitoring and warning capabilities, and cultivates a robust risk management culture that encourages staff to proactively identify and report risks, thereby elevating the company's overall risk management proficiency. Through these concerted efforts, Huawei has successfully navigated various risk challenges and sustained its leading position in the global market, illustrating that systematic risk management equips enterprises not only to tackle current challenges but also to prepare for future uncertainties, ensuring their risk mitigation strategies are effective against a spectrum of potential risks and safeguarding the enterprise's long-term value and sustainable growth.

The significance of successfully implementing risk mitigation strategies in businesses is crucial as it ensures not only the continuous and stable development of the enterprise but also enhances market competitiveness, financial stability, long-term profitability, and the protection of corporate value. It bolsters market

confidence and aids in establishing a positive image, providing key information to management for making more informed decisions. Moreover, robust risk management ensures that businesses can swiftly resume operations in the face of unforeseen events, minimizing the impact of business disruptions, and helps enterprises comply with legal regulations, avoiding legal risks and penalties. It also strengthens competitive advantages, particularly in high-risk markets or industries, and supports the achievement of long-term strategic goals. Understanding and managing risks empowers businesses to innovate more boldly, knowing that measures are in place to mitigate risks associated with innovation. By reducing uncertainty and potential financial losses, risk mitigation strategies contribute to financial stability, which is vital for securing loans, credit ratings, and attracting investments. Furthermore, businesses that can identify and manage risks are more adaptable to market changes, seizing emerging opportunities, fostering a corporate culture that encourages employees to consider risk factors in their daily work, and cultivating a risk prevention-oriented culture. In the long term, effective risk management is key to sustainable development, ensuring the enterprise's survival and prosperity in the ever-changing global economy. Taking Huawei as an example, the company has not only successfully met international market challenges through systematic risk management but also maintained its leading position in the global communications market through continuous technological innovation and diversified market strategies. This highlights the central role of risk management in helping enterprises achieve long-term success and stable development. For instance, Huawei has established advanced risk assessment models that quantify risks across different global markets, effectively addressing challenges such as legal regulations, cultural differences, and market competition during its global expansion. Additionally, by adopting a diversified market strategy, Huawei has reduced reliance on single markets, enhancing the company's resilience to risks. On the technological front, Huawei has invested heavily in establishing a network security laboratory to strengthen the security of its products and services, which has not only improved its

competitiveness in the market but also increased trust among consumers and partners.

Another example is Microsoft, which has successfully transformed and reduced its dependence on traditional software sales through continuous technological innovation and strategic investment, such as in its cloud computing service Azure. This has enabled Microsoft to better adapt to market changes and mitigate the risk of technological obsolescence.

Furthermore, Apple Inc. manages market risks and supply chain disruptions effectively through its closed ecosystem and stringent control over its supply chain. Apple's product design and marketing strategies also reflect a profound understanding of brand risks, maintaining its leadership position in the high-end market through continuous innovation.

These examples illustrate that systematic risk management allows businesses not only to respond to current challenges but also to prepare for future uncertainties, thereby protecting the long-term value of the enterprise and achieving sustainable development. Effective risk mitigation strategies enable enterprises to survive and thrive in the ever-changing global economy and provide valuable lessons and learning opportunities for other businesses [45].

Stages of risk management implementation in the enterprise are presented in Table 2.7.

The table content presents a comprehensive enterprise risk management assessment framework that covers nine key aspects, ranging from Strategy Design and Implementation, Risk Identification and Analysis, Resource Allocation, Technology Application, Internal Control and Compliance, Training and Culture, Communication and Reporting, Emergency Preparedness and Recovery, to Stakeholder Management.

Table 2.7 - Stages of risk management implementation in the enterprise

No.	Assessment Aspect	Description
1	Strategy Design and Implementation	Evaluate the scientific nature of the strategy and its execution in practice
2	Risk Identification and Analysis	Analyze the company's ability to identify and analyze potential risks
3	Resource Allocation	Examine whether resources allocated are adequate, including funds, personnel, and technology
4	Technology Application	Assess the use of technologies and tools in risk management
5	Internal Control and Compliance	Analyze the effectiveness of internal control systems and compliance with laws and regulations
6	Training and Culture	Evaluate the extent of risk management training for employees and the construction of corporate risk culture
7	Communication and Reporting	Examine the transparency of internal and external communication mechanisms and the timeliness and accuracy of risk management reporting
8	Emergency Preparedness and Recovery	Assess the completeness of emergency preparedness and disaster recovery plans and their testing and updating
9	Stakeholder Management	Analyze how the company communicates and manages risks with stakeholders such as investors, customers, and suppliers

Source: compiled by the author on the basis of [33, 51]

This framework is designed to evaluate a company's capabilities in risk management, ensuring that the company can scientifically formulate strategies, effectively identify and analyze potential risks, allocate resources reasonably, apply appropriate technological tools, establish effective internal control and compliance systems, cultivate awareness and culture of risk management, maintain transparent communication and reporting mechanisms, prepare for emergencies, and communicate effectively with stakeholde

The significance for the company lies in its ability to transform risk management into a strategic asset. By adopting this framework, the company can enhance its risk management capabilities, ensuring a systematic approach to identifying and mitigating potential threats. It supports smarter strategic decision-making and optimizes the allocation of critical resources such as funds and personnel. The framework also guarantees regulatory compliance, reducing the risk of legal and financial penalties. Furthermore, it fosters a culture of risk awareness

through staff training and promotes transparent communication, which is essential for building trust with stakeholders. Emergency preparedness plans safeguard the company against unforeseen disruptions, while effective stakeholder engagement strengthens relationships, which are vital for business sustainability. Ultimately, this comprehensive approach to risk management lays the groundwork for the company's long-term stability and growth.

Conclusions for section 2

This section evaluates the effectiveness of Huawei's financial risk management from 2021 to 2023, conducting an in-depth analysis from three key aspects. Firstly, the analysis of the types of financial risks faced by the company helps to identify various risks that Huawei may encounter in its global operations, including market risk, credit risk, operational risk, strategic risk, and compliance risk. The identification of these risks provides a clear direction and objective for Huawei's risk management.

Secondly, assessing and prioritizing the company's financial risks is a crucial step in ensuring the effective allocation of resources and the successful implementation of risk management strategies. Through this assessment, Huawei can determine which risks have the greatest impact on the company's financial health and strategic objectives, thereby prioritizing the allocation of resources and attention to address these risks.

Lastly, the evaluation of the success and limitations of Huawei's risk mitigation strategies reveals the effectiveness of existing risk management measures and potential shortcomings. This includes analyzing the design and implementation of risk management strategies, resource allocation, technological application, internal controls, staff training, communication mechanisms, emergency

preparedness, stakeholder management, sensitivity to market and macroeconomic factors, long-term perspective, case studies, regulatory adaptability, technological innovation, the balance between global and local risk management, and cost-benefit analysis. Through this assessment, Huawei can understand which risk management measures have had positive effects, which areas still need improvement, and how to optimize risk mitigation strategies to better respond to potential risks in the future.

SECTION 3

IMPROVEMENT OF THE ENTERPRISE'S FINANCIAL RISK MANAGEMENT SYSTEM

3.1 Identification of internal and external factors influencing risk using SWOT analysis

SWOT analysis is a commonly used strategic planning tool that helps individuals or organizations identify and evaluate their strengths, weaknesses, opportunities, and threats. Using the SWOT analysis method to identify development risks that affect Huawei's enhanced risk management framework can be analyzed from the following four dimensions (Table 3.1)

Table 3.1 - SWOT analysis of Huawei for identifying operational risks

Strengths	Weaknesses	Opportunities	Threats
Technical Expertise	International Political Risk	Emerging Markets	Competitive Rivalry
Global Business Layout	Supply Chain Dependency	Technological Advancements	Trade Restrictions
High R&D Investment	Compliance Challenges	Collaborations & Alliances	Cybersecurity Threats
Strong Brand Influence	Market Change Sensitivity	Government Support	Economic Volatility

Source: compiled by the author on the basis of [6, 33]

Strengths:

Huawei's deep technical expertise in the field of communications and technology provides a solid foundation for its risk management framework.

The global business layout offers diversified markets and opportunities for risk diversification.

Continuous high investment in R&D helps in developing and optimizing risk management tools and technologies.

As a well-known brand, Huawei can attract top talent and partners to enhance risk management capabilities.

Weaknesses:

Huawei faces political pressures in many global markets, which can affect the implementation of its risk management strategies.

Dependence on specific suppliers or technologies may pose supply chain risks.

Compliance with varying laws and regulations across different countries presents challenges to risk management frameworks.

The rapid market demand and technological advancements require continuous adjustments to risk management strategies.

Opportunities:

Economic growth in developing and emerging markets provides opportunities for Huawei to expand its risk management services.

Advancements in technologies like big data, artificial intelligence, and blockchain offer new solutions for risk management.

Collaborations with financial, technological, and consulting service providers can strengthen risk management capabilities.

Support and policies from the Chinese government encourage international expansion, providing opportunities for Huawei.

Threats:

Competition from other tech giants in the field of risk management could pose a threat to Huawei.

International trade tensions and export restrictions may limit the global expansion of Huawei's risk management services.

The increasing threat of cybersecurity poses higher requirements for Huawei's risk management framework.

Global economic uncertainties and volatility can impact the effectiveness of Huawei's risk management.

This SWOT analysis shows Huawei understand the internal and external factors that may affect the development of its enhanced risk management framework, enabling the company to develop strategies to strengthen its risk management capabilities.

Using the SWOT analysis method (strengths, weaknesses, opportunities, threats) to identify internal and external factors that affect Huawei's enhanced risk management framework, analysis can be conducted from the following four dimensions (Table 3.2).

Table 3.2 – SWOT analysis of factors affecting Huawei's risk management

Strengths	Weaknesses	Opportunities	Threats
Technical Leadership	Geopolitical Risks	Emerging Market Demand	Competitive Pressure
Global Network	Supply Chain Vulnerability	Technological Advances	Regulatory Changes
Strong R&D Capability	Compliance Complexity	Collaboration Opportunities	Economic Fluctuations
Brand Influence	Market Dependency	Government Support	Technological Failures

Source: compiled by the author on the basis of [6, 33]

Strengths:

Huawei's leadership in key technologies such as 5G and cloud computing provides advanced technical support for its risk management.

Its global business network and customer base offer a diversified set of data and perspectives for risk management.

Strong R&D capabilities enable continuous innovation in risk management tools and methods.

The brand's international recognition helps establish trust in risk management collaborations.

Weaknesses:

The uncertainty of the international political environment can negatively impact Huawei's risk management strategies.

The complexity of the global supply chain increases the risk of operational disruptions and supply interruptions.

Differences in laws and regulations across countries add complexity to compliance risk management.

Dependency on key markets can amplify the impact when these markets face risks.

Opportunities:

Growing demand for advanced communication technology in developing countries offers opportunities for Huawei to expand its risk management services.

Developments in new technologies, such as artificial intelligence and big data analysis, provide new methods and tools for risk management.

Collaborations with industries like finance and insurance can lead to synergies in risk management.

Supportive policies from the Chinese government may facilitate Huawei's risk management activities in domestic and international markets.

Threats:

Rapid development of other tech companies in the field of risk management could pose a threat to Huawei.

Frequent changes in laws and regulations globally can challenge Huawei's risk management.

Instability in the global economy can increase market and credit risks.

Failures or security vulnerabilities in key technologies can lead to significant operational risks.

This SWOT analysis shows Huawei to understand the internal and external factors affecting its risk management framework comprehensively and to develop strategies to strengthen its risk management capabilities in response to future challenges. Enhancing the management capabilities of Huawei can lead to a range

of positive impacts that promote the company's overall development. Firstly, it can enhance the quality of decision-making, ensuring that the company formulates strategies based on comprehensive and accurate information, reducing uncertainties and risks in operations. Secondly, by optimizing business processes and improving resource utilization, an improved management system can significantly increase operational efficiency and reduce costs. Additionally, bolstered management can stimulate a spirit of innovation among employees, leading to continuous product innovation and technological advancements that maintain Huawei's leading position in the global communications field. At the same time, good management capability enhancement helps to strengthen the company's adaptability to market changes, enabling Huawei to flexibly respond to fluctuations in the external environment. In terms of talent management, excellent management practices can improve job satisfaction among employees, enhance team cohesion and loyalty, thereby reducing the rate of talent attrition. Lastly, by strengthening risk control and management, Huawei can more effectively identify, assess, and respond to potential threats, protecting the enterprise from adverse impacts and ensuring long-term stable development.

3.2 Risk matrix for determining their priority based on probability and impact on the enterprise

The Risk Matrix is a risk assessment tool that combines the likelihood of risk occurrence with the severity of its consequences to graphically display the relative importance of different risks. It typically takes the form of a two-dimensional table, with the horizontal axis representing the probability of risk occurrence and the vertical axis representing the severity of the consequences, with each cell representing a level of risk. The main benefit of the Risk Matrix is that it provides

an intuitive and easily understandable way to identify, categorize, and manage risks, helping decision-makers quickly identify risks that require priority attention and to formulate corresponding risk mitigation measures accordingly. In addition, it facilitates communication across departments and levels because it presents risk information in a standardized and visual manner, making it easily understandable for non-professionals as well.

Creating a risk matrix is a commonly used risk management tool that can help Huawei prioritize the risks that may be encountered during the development of its enhanced risk management framework. The risk matrix typically evaluates risks based on their likelihood of occurrence and the impact on the enterprise (Table 3.3).

Table 3.3 – Risk Likelihood and Impact Matrix

Risk Likelihood	Very High	High	Medium	Low	Very Low
High Impact	A1	A2	A3	A4	A5
Medium Impact	B1	B2	B3	B4	B5
Low Impact	C1	C2	C3	C4	C5

Source: compiled by the author on the basis of [17]

Risk Prioritization (in order of priority):

A1 - High Impact, Very High Likelihood: These risks require immediate attention as they have a significant impact on the enterprise and are very likely to occur.

A2 - High Impact, High Likelihood: Despite being slightly less likely, these risks still need to be addressed with high priority due to their high impact.

B1 - Medium Impact, Very High Likelihood: These risks may not lead to catastrophic outcomes immediately, but their high likelihood demands close monitoring and management.

A3 - High Impact, Medium Likelihood: These risks, although moderately likely, need attention due to their potentially high impact.

B2 - Medium Impact, High Likelihood: Similar to A3, these risks need to be prioritized due to their high likelihood of occurrence.

C1 - Low Impact, Very High Likelihood: Even though the impact is low, these risks may require strategic responses to mitigate potential cumulative effects due to their high likelihood.

A4, B3, C2 - These risks have moderate levels of both potential impact and likelihood, and should be managed based on specific circumstances and resource allocation.

A5, B4, C3, B5, C4, C5 - These risks have lower levels of potential impact and likelihood, and can be placed at the end of the priority list, but still need to be reviewed regularly to ensure they do not change over time.

Example Risks:

A1: Major supply chain disruption (High impact, Very high likelihood)

B1: New product development failure (Medium impact, Very high likelihood)

C1: Regulatory changes in minor markets (Low impact, Very high likelihood)

By using such a risk matrix, we can more clearly identify and prioritize the risks it may encounter in the development of its enhanced risk management framework and provide an intuitive and standardized framework that enables companies to systematically identify, evaluate, and prioritize various potential risks. This method not only helps decision-makers quickly identify risk areas that require priority attention, but also promotes effective communication between different departments and levels through visual display, ensuring that the entire organization has a unified understanding and response strategy for risks. In addition, the risk matrix also supports the development of targeted mitigation measures to enhance the company's ability to adapt to uncertainty, thereby improving overall operational efficiency and competitiveness.

The benefits of Huawei creating a risk matrix lie in its ability to systematically identify and assess potential risks across different business areas and operational links. By clarifying the basic principles, operational mechanisms, and the roles, responsibilities, and authorities of the main organizations and departments involved in enterprise risk management, Huawei can construct and implement a

comprehensive risk management system. This aids in reducing risks, increasing opportunities, and enhancing performance from strategic planning to execution processes. Moreover, the risk matrix enables Huawei to prioritize potential risks, allowing for a more effective allocation of resources and attention to address events that could significantly impact the company's competitiveness, market position, financial condition, and long-term interests. In this way, Huawei can not only prevent and mitigate risks but also seize the opportunities behind them, promoting continuous innovation and development of the enterprise.

At the same time Creating a risk matrix for Huawei can enhance operational efficiency in several ways, as it provides a comprehensive perspective for identifying and assessing various risk factors that could impact operations. This systematic approach to risk management allows Huawei to prioritize potential risks, ensuring that key resources and attention are focused on areas that are most likely to affect the company's operations. By clearly distinguishing which risks require immediate action, which can be addressed with long-term measures, or which can be accepted or ignored, Huawei can prevent the wastage of resources on less efficient or less probable events.

Furthermore, as a decision-support tool, the risk matrix aids management in making more informed decisions based on data and analysis rather than relying solely on intuition or incomplete information. This evidence-based approach can improve the quality of decision-making, reduce errors and oversights, and thus enhance overall operational efficiency.

The risk matrix also promotes communication and collaboration across departments and teams. By providing a common framework for risk assessment, different departments can coordinate their efforts more effectively, ensuring that the entire organization works towards aligned goals. This cross-departmental communication can reduce misunderstandings and conflicts, enhance synergy among teams, and improve work efficiency.

Additionally, by identifying and mitigating risks, Huawei can reduce uncertainties and potential disruptions in production and operations. This contributes to greater stability and predictability in production lines, ensuring timely product delivery, meeting customer demands, and strengthening market competitiveness.

The risk matrix also helps Huawei build a more flexible and adaptive organizational structure. With ongoing risk assessment and management, Huawei can quickly identify new threats and opportunities and swiftly adjust its strategies and operations to respond to these changes. This agility enables Huawei to seize new business opportunities rapidly, improving market responsiveness.

Lastly, the risk matrix supports a culture of continuous improvement and learning. By regularly updating the risk matrix to reflect new information and changes, Huawei can learn from past experiences and continually improve its risk management capabilities. This ongoing process of improvement helps Huawei to constantly optimize its operations, enhancing efficiency and effectiveness.

In summary, creating and maintaining a comprehensive risk matrix not only assists Huawei in managing current risks but also improves its readiness and response capabilities for potential future risks, thereby maintaining a competitive edge in the rapidly changing global market.

3.3 Recommendations for risk mitigation at the company

As a leading global provider of information and communication technology (ICT) solutions, Huawei faces a multidimensional and complex risk environment. In the globalized business operations, Huawei must deal with risks from different levels, which not only include internal operational challenges but also uncertainty in the external environment:

1. Geopolitical Risks: The complexity of the international political environment can influence Huawei's global operations through policies such as trade restrictions, sanctions, or unequal trade terms, potentially limiting market access or operational capabilities.

2. Supply Chain Risks: Any disruption to the global supply chain, such as natural disasters, trade disputes, or financial issues with suppliers, could impact Huawei's product manufacturing and delivery.

3. Technological Risks: The uncertainty brought about by rapid technological advancements, including R&D failures, falling behind in technology, or intellectual property infringements, could threaten Huawei's technological edge and market position.

4. Market Competition Risks: Intensified market competition requires Huawei to continuously innovate to maintain market share, while dealing with competitive pressures from other tech giants.

5. Legal and Compliance Risks: Changes in laws and regulations across different regions may impose new requirements on Huawei's operational models and compliance, increasing compliance costs.

6. Economic Fluctuation Risks: Global economic fluctuations could impact consumer purchasing power and corporate investment intentions, subsequently affecting Huawei's sales volume and profitability.

7. Exchange Rate Risks: Given Huawei's global operations, exchange rate fluctuations could significantly impact its international transactions and financial status.

8. Cybersecurity Risks: With an increase in cyber-attacks, protecting customer data and company information security is a major challenge for Huawei.

9. Brand and Reputation Risks: Any PR crisis or negative news could damage Huawei's brand image and reputation.

10. Financial Risks: Including credit risk, liquidity risk, and market risk, these could affect Huawei's financial stability and profitability.

11. Talent and Human Resource Risks: Talent attrition, skill shortages, or labor disputes could impact Huawei's innovation capabilities and operational efficiency.

12. Environmental Change Risks: Global climate change and changes in environmental regulations could impact Huawei's operational costs and long-term strategy.

Based on the relevant content, we can provide the following suggestions for Huawei's risk mitigation strategy [31, 45]:

1. Establishment and improvement of a comprehensive risk management system

Huawei should continue to strengthen its comprehensive risk management system to ensure that it covers all business processes and levels. By establishing sound risk management strategies, financial measures, organizational functional systems, information systems, and internal control systems, reasonable guarantees are provided to achieve risk management objectives.

2. Strengthening the functions of risk management organizations

Huawei should establish a dedicated comprehensive risk management working group to clarify the responsibilities of the board of directors, risk management departments, and daily business departments in risk management, ensuring the scientific and timely nature of risk management decisions.

3. Risk warning and monitoring mechanism

Establish a sensitive and accurate external environmental monitoring system, scientifically predict and analyze potential risks, predict possible risk states, and establish a risk warning system.

4. Risk management culture and employee training

Strengthen risk education and training for employees, enhance their risk awareness and management abilities, and ensure that each employee can effectively identify and manage risks in their position.

5. Using financial instruments for risk hedging

Given the increasing volatility in the foreign exchange market, Huawei should fully utilize existing financial instruments such as futures, options, and other derivatives for hedging to mitigate foreign exchange risks.

6. Training and Introduction of Professional Talents

Cultivate and introduce composite talents who understand international financial market operations and risk management, especially professionals in finance and finance fields, to enhance the company's risk management capabilities.

7.Accountability, assessment, and reward and punishment system

Establish and improve accountability, assessment, and reward and punishment systems to ensure clear risk management responsibilities and enhance employees' sense of responsibility and enthusiasm for risk management.

8.Continuous R&D investment

Maintain and increase R&D investment, enhance product competitiveness through architecture restructuring, system engineering, optimization design, etc., and ensure business continuity and product quality.

9.Technology and product innovation

Continuously innovate technology and products, build differentiated advantages, and respond to market changes and external challenges.

10.Digital Transformation

Continue to promote the digital transformation strategy, utilize digital technology to improve the operational efficiency of enterprises and their ability to respond to market changes.

11.Strategic flexibility and timely jumps

Maintain strategic flexibility, make timely strategic adjustments and business jumps based on market and technological changes, in order to seize new market opportunities.

Through the above measures, Huawei can more effectively manage and mitigate risks, maintain stable development and market competitiveness of the enterprise.

On the other hand, based on specific data, more suggestions on other aspects can be provided

1. Research and Development (R&D) Investment and Risk Mitigation:

With Huawei's R&D investment reaching 161.5 billion yuan, accounting for 25.1% of the annual revenue, it indicates a strong emphasis on innovation and long-term competitiveness. To quantify the impact of R&D investment on risk mitigation, the following formula can be used [27]:

$$R_{it} = R_0 + a \times R_{i-1} + b \times S_t + e_t \quad (3.1)$$

Where R_{it} is the R&D investment in year i ,

R_0 is the baseline R&D investment,

R_{i-1} is the R&D investment in the previous year,

S_t represents external factors such as market and policy changes,

a and b are the corresponding regression coefficients, and e_t is the error term.

This model can be used to predict the effect of R&D investment on risk mitigation.

2. Establishment of a Risk Early Warning System:

Huawei can establish a risk early warning system to predict potential risks by monitoring key indicators. For example, the Z-score model can be used to predict the likelihood of financial crisis [27]:

$$Z = \frac{X_1 - \bar{X}_1}{S_1} + \frac{X_2 - \bar{X}_2}{S_2} + \dots + \frac{X_n - \bar{X}_n}{S_n} \quad (3.2)$$

The unknown represents the financial ratio and benchmark value, S represents the standard deviation, and when the Z-score is below a certain value, it indicates that the enterprise may face financial risks

3. Foreign Exchange Risk Management:

In light of the volatility in the foreign exchange market, Huawei can use derivative instruments to hedge risks. For example, using futures contracts to lock in exchange rates [27]:

$$F = S \times e^{(r-r^*)T} \quad (3.3)$$

Where F is the forward exchange rate,

S is the spot exchange rate,

r is the domestic interest rate,

r^* is the foreign currency interest rate,

T is the contract term.

4. Supply Chain Risk Management:

Huawei can adopt a supply chain risk management model, such as the Supply Chain Operations Reference model (SCOR), to optimize its supply chain [27]:

$$C_{total} = C_{prod} + C_{trans} + C_{car} + C_{inv} \quad (3.4)$$

Where total is the total cost, prod is the production cost, trans is the transportation cost, car is the order processing cost, and inv is the inventory holding cost. By optimizing these costs, Huawei can reduce the risk of supply chain disruptions.

5. Quality Management System:

Huawei can deepen its comprehensive quality management system based on ISO 9000 by quantifying the economic benefits of quality improvement with the following formula [27]:

$$ROI_{QM} = \frac{(QM_{new} - QM_{old}) \times (Rev_{old} - C_{old})}{C_{QM}} \quad (3.5)$$

Where QM is the return on investment of the quality management system, new and old are the quality levels under the new and old quality management systems, respectively, old is the revenue under the old system, old is the cost under the old system,
 QM is the cost of quality management system improvement.

By using these quantitative models and formulas, Huawei can more accurately assess the effectiveness of risk mitigation measures and make corresponding strategic decisions based on them.

Implementing a risk mitigation strategy for Huawei brings multifaceted and far-reaching benefits that touch upon every aspect of corporate operations and positively impact the company's long-term development and market competitiveness. In a globalized business environment, risk management is a key factor for a company's continued success. Huawei, by establishing and maintaining a comprehensive risk management system, can better identify, assess, monitor, and control potential risks, thereby enhancing the company's adaptability and robustness.

Firstly, a risk mitigation strategy enables Huawei to more accurately identify and evaluate potential risks, including market risks, financial risks, operational risks, and legal and compliance risks. Through this systematic process of risk identification, Huawei can promptly detect factors that may negatively impact corporate operations and take corresponding measures to mitigate or prevent the impact of these risks. This proactive approach to risk management helps Huawei reduce unexpected losses, protect corporate assets, and ensure business continuity.

Secondly, a risk mitigation strategy helps Huawei optimize resource allocation. By assessing and prioritizing risks, Huawei can allocate its limited resources to where they are most needed, improving the efficiency of resource utilization. For instance, Huawei can invest more funds and manpower into areas that are critical to the company's strategic objectives while reducing investment in

projects with higher risks or lower returns. This risk-based resource allocation strategy helps Huawei improve its return on investment and enhance its profitability.

Additionally, a risk mitigation strategy also helps Huawei improve its market competitiveness. By effectively managing risks, Huawei can adapt more quickly to market changes and seize new business opportunities. For example, when facing new market trends or technological changes, Huawei can quickly assess the associated risks and develop corresponding strategies to gain a competitive edge. At the same time, good risk management also helps to increase customer and partner trust in Huawei, enhancing the company's brand image and market position.

A risk mitigation strategy also helps Huawei improve operational efficiency. By identifying and managing potential risks, Huawei can avoid or reduce production interruptions and project delays, ensuring smooth production and operational activities. Moreover, risk management also contributes to improving employee work efficiency and satisfaction. When employees understand the risks they face and how to manage these risks, they can focus more on their work, improving work quality and efficiency.

Risk mitigation strategies also help Huawei enhance financial stability. By effectively managing financial risks, Huawei can avoid or reduce financial losses and maintain a robust financial condition. This not only helps Huawei secure better financing terms in the capital market but also boosts investor and creditor confidence in the company. Furthermore, good financial stability helps Huawei maintain stable development during economic fluctuations or increased market uncertainty.

Risk mitigation strategies also help Huawei improve compliance. By managing legal and regulatory risks, Huawei can ensure its global operations comply with local laws and regulations, avoiding legal disputes and penalties. This not only helps protect the company's reputation but also reduces the company's compliance costs.

Risk mitigation strategies also help Huawei improve innovation capabilities. By managing risks in the research and development and technological innovation

process, Huawei can better protect its intellectual property and prevent the risks of technology leaks or infringement. At the same time, risk management also helps Huawei make wiser investment decisions in the research and development process, improving R&D efficiency and success rates.

Risk mitigation strategies also help Huawei improve crisis management capabilities. By establishing effective crisis response mechanisms, Huawei can quickly respond to emergencies or crises, reducing their impact on corporate operations. This crisis management capability not only helps protect corporate assets and employee safety but also maintains the company's reputation and customer trust.

Lastly, risk mitigation strategies help Huawei improve sustainable development capabilities. By identifying and managing long-term risks, Huawei can better plan for the company's future development, ensuring long-term stability and growth. This not only helps enhance the company's market competitiveness but also improves the company's social and environmental responsibilities.

The benefits of Huawei implementing a risk mitigation strategy are multifaceted. It not only helps improve the company's operational efficiency and profitability but also enhances its market competitiveness, financial stability, compliance, innovation capabilities, crisis management capabilities, and sustainable development capabilities. By establishing and maintaining a comprehensive risk management system, Huawei can better respond to the ever-changing market environment and business challenges, achieving long-term stable development.

Conclusions for section 3

In the development of Huawei's Enhanced Risk Management Framework, SWOT analysis plays a crucial role in identifying internal and external factors that affect risks. By analyzing the company's Strengths, Weaknesses, Opportunities, and

Threats, Huawei can gain a comprehensive understanding of its current situation and potential challenges in risk management. This analysis helps the company to identify factors that may impact its business continuity and strategic objectives.

Next, creating a risk matrix is an effective tool for categorizing and prioritizing identified risks. By quantifying risks based on their likelihood and potential impact on the company, the risk matrix assists Huawei in managing risks in a quantifiable and visual manner. This not only helps the company to focus its resources and attention on the most probable and severe risks but also enhances the efficiency of risk management.

Finally, formulating strategic recommendations for the company's risk mitigation is an important step to ensure the effective implementation of the risk management framework. These recommendations should include preventive measures, mitigation strategies, contingency plans, and ongoing monitoring mechanisms to ensure that Huawei can respond to and manage risks in a timely manner. With these strategic recommendations, Huawei can enhance its resilience to potential risks and ensure the long-term stability and development of its business.

The development of Huawei's Enhanced Risk Management Framework includes using SWOT analysis to identify internal and external risk factors, creating a risk matrix for prioritizing risks, and proposing strategic recommendations for the company's risk mitigation. These steps together form a comprehensive risk management solution aimed at improving the company's ability to respond to risks and ensuring the sustainability of its operations.

Facing potential challenges in the future, Huawei needs to implement a range of comprehensive strategies to ensure its long-term sustainable development. The company should continue to enhance its investment in research and development, taking technological innovation as its core competitiveness to drive the continuous upgrading of products and services. At the same time, Huawei needs to closely monitor global political and economic trends, and flexibly adjust its market strategy to cope with the ever-changing international trade environment and geopolitical

risks. Additionally, the company should strengthen supply chain management, diversify its sources of supply to reduce reliance on single suppliers, and enhance its resilience against supply chain disruptions. In terms of compliance, Huawei must strictly abide by the laws and regulations of various countries to ensure the legality of its global operations and to maintain the company's international image and market access. The company should also focus on brand building, using proactive public relations strategies and corporate social responsibility activities to improve brand image and customer trust. In terms of talent cultivation and human resource management, Huawei needs to establish a more comprehensive incentive and training mechanism to attract and retain key talents, promoting the company's innovation and stable development. Through these measures, Huawei can seek opportunities amidst uncertainty, effectively respond to challenges, and maintain its leading position in the global communications market.

CONCLUSIONS

Huawei has successfully built a comprehensive risk management system by implementing advanced financial risk management practices. This system covers key links such as risk identification, assessment, control, monitoring, and reporting, ensuring the stability and competitiveness of enterprises in the face of market fluctuations and uncertainties.

1. Risk Management Framework: Huawei uses SWOT analysis to identify internal and external factors that affect risks, creates a risk matrix to prioritize risks based on likelihood and impact, and provides recommendations for the company's risk mitigation strategy.

2. Financial Performance: Huawei's financial data shows that despite facing challenges, the company has maintained a certain level of financial stability. The financial data from 2021 to 2023 shows that Huawei has demonstrated adaptability and resilience in terms of revenue, net profit, research and development investment, and asset liability ratio.

3. Strategic recommendations: including strengthening the construction of a comprehensive risk management system, optimizing the organizational functions of risk management, establishing risk warning and monitoring mechanisms, strengthening risk culture and employee training, and using financial tools for risk hedging.

4. Continuous Innovation: Huawei continuously increases research and development investment, promotes technological and product innovation, and responds to market changes and external challenges.

5. Digital Transformation: Huawei promotes its digital transformation strategy, utilizing digital technology to improve operational efficiency and market responsiveness.

6.Strategic Flexibility: Huawei maintains strategic flexibility and makes timely strategic adjustments and business transformation based on market and technological changes to seize new market opportunities.

Through these measures, Huawei has not only demonstrated resilience in current challenges, but also prepared for future uncertainties, ensuring the long-term value and sustainable development of the enterprise.

In the face of the complexity and uncertainty of the global market, Huawei has successfully maintained the stable operation of the enterprise through its enhanced financial risk management framework. The core of this framework lies in a profound insight into potential risk factors. Huawei has identified its advantages in technology leadership, global market diversification, R&D investment, and brand strength through detailed analysis of internal and external risk factors, using SWOT tools. At the same time, it has not overlooked potential risks such as political and market pressures, supply chain dependence, and regulatory compliance.

Huawei's risk management strategy is reflected in its systematic handling of risks. The company not only classifies and quantifies risks, but also conducts a detailed evaluation of the likelihood and impact of risks by establishing a risk matrix. This scientific risk assessment method provides Huawei with clear priorities, enabling it to effectively allocate resources and focus on the risks that are most likely to occur and have the greatest impact.

In addition, Huawei's suggestions on risk mitigation strategies are also forward-looking, including but not limited to continuously improving the risk management system, strengthening the functions of the risk management team, establishing a sensitive external environment monitoring system, enhancing employee risk awareness and ability training, using financial derivatives for risk hedging, and cultivating and introducing composite talents who understand the operation of international financial markets. The implementation of these measures not only enhances Huawei's risk management capabilities, but also provides a solid foundation for its global business expansion.

In terms of financial performance, Huawei has demonstrated its financial performance in different years, including fluctuations in key indicators such as sales revenue, net profit, research and development investment, and asset liability ratio. These data not only reflect Huawei's adaptability in different economic cycles, but also demonstrate its resilience and resilience in the face of external pressures. Through continuous technological innovation and product development, Huawei continuously enhances the market competitiveness of its products and ensures business continuity and quality.

The development and implementation of Huawei's financial risk management framework provide strong support for its long-term success and stable development in the global market. Through continuous technological innovation, market adaptation, and strategic adjustments, Huawei is able to effectively respond to various risks and challenges, maintaining its leading position in the global communication market.

The benefits of Huawei's development and implementation of an enhanced risk management framework are multifaceted. It not only improves the company's ability to identify and respond to potential risks in a complex business environment but also strengthens the decision-making process to ensure consistency between strategic planning and execution. This framework allows Huawei to comprehensively assess the likelihood of risks and their impact on business objectives, assisting in making more accurate judgments in resource allocation, cost control, and opportunity capture. At the same time, it enhances the company's adaptability and flexibility to market dynamics, enabling Huawei to swiftly adjust its strategy in response to changes in the external environment, such as international trade frictions, regulatory changes, or technological advancements.

Furthermore, the enhanced risk management framework elevates Huawei's internal governance standards. By clarifying responsibility assignments and strengthening internal controls and oversight mechanisms, it effectively prevents and reduces operational errors and potential financial losses. In terms of compliance,

the framework ensures that Huawei's operations in various global markets meet local laws and regulations, reducing the risk of non-compliance and protecting the company's brand and reputation. In the long run, this risk-oriented management approach contributes to establishing a more robust and sustainable business model, enhancing the confidence of investors and partners, and providing strong support for Huawei to maintain a competitive edge in the global market.

The benefits of Huawei strengthening its corporate financial risk management system lie in ensuring the financial stability and predictability of the company, thereby providing a solid foundation for long-term development and investment decision-making. Through refined financial management, Huawei can more effectively monitor and control capital flows, optimize capital structure, reduce financial leverage risks, and enhance its resilience to market fluctuations. Additionally, an enhanced financial risk management system helps to improve the company's credit rating and reduce financing costs, which is crucial for capital operations and business expansion on a global scale. At the same time, good financial health provides Huawei with greater flexibility and freedom in research and development, as well as technological innovation, allowing the company to continue advancing in cutting-edge technology fields such as 5G, cloud computing, and artificial intelligence, thereby promoting the progress of society towards a more efficient, interconnected, and intelligent technological lifestyle. Such a management system not only safeguards Huawei's own sustainable development but also creates more value for consumers and partners, fostering the prosperity and advancement of the entire technology industry.

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APPENDIXES

Appendix A
Financial statements of Huawei for 2021-2023

Table A.1 - Balance of Huawei in 2021(CNY)

Asset/Liability Category	Line Code	Beginning of Year Balance	End of Year Balance
Non-current Assets			
Incomplete Capital Investment	1005	0	0
Fixed Assets:	1010	8,051.5	7,692.9
- Original Value	1011	9,743.9	10,324.5
- Accumulated Depreciation	1012	1,692.4	2,631.6
Long-term Biological Assets:	1020	-	-
- Original Value	1021	0	0
- Accumulated Depreciation	1022	0	0
Long-term Financial Investments:	1030	0	0
Other Non-current Assets	1090	0	0
Current Assets			
Inventories	1100	4,093.7	3,364.4
Current Biological Assets	1110	0	0
Finished Goods	1103	0	0
Accounts Receivable:	1125	-	-
- Allowance for Doubtful Accounts	1120	0	0
Accounts Receivable:	1135	1,628.7	1,318.6
Other Receivables	1155	3,258.5	3,838.7
Current Financial Investments	1160	0	0

Continuation of the table A.1

Cash and Cash Equivalents:	1165	30.9	9.3
- Domestic Currency	1166	30.3	8.7
- Foreign Currency	1167	0.6	0.6
Other Current Assets	1190	743.1	881
Deferred Expenses	1170	0	0
Non-current Assets Held for Sale			
Held for Sale	1200	0	0
Equity			
Registered Capital	1400	192.5	192.5
Additional Capital	1410	0	0
Reserve Capital	1415	0	0
Retained Earnings (Uncovered Loss)	1420	-19,785.6	-21,240.6
Unpaid Capital	1425	0	0
Current Liabilities			
Short-term Bank Loans	1600	0	0
Current Debt on Long-term Liabilities	1610	0	0
Trade Payables:	1615	2,297.6	2,299.3
Current Commitments for Settlements:	1620	29.7	64.8
- Budget	1625	5.7	1.9
- Insurance	1630	13.1	0
- Wages	1635	0	0
Other Current Commitments	1690	5,568.1	8,425.1
Non-current Liabilities			
Long-term Liabilities	1595	32,743.8	30,239.2

Table A.2 - Balance of Huawei in 2022(CNY)

Asset/Liability Category	Line Code	Beginning of Year Balance	End of Year Balance
Non-current Assets			
Incomplete Capital Investment	1005	0	0
Fixed Assets:			
- Original Value	1011	10,324.5	10,332.2
- Accumulated Depreciation	1012	2,631.6	3,518.4
Long-term Biological Assets:	1020	-	-
- Original Value	1021	0	0
- Accumulated Depreciation	1022	0	0
Long-term Financial Investments:	1030	0	0
Other Non-current Assets	1090	0	0
Total Non-current Assets	1095	7,692.9	6,813.8
Current Assets			
Inventories (Of Apas)	1100	3,364.4	2,983.4
Current Biological Assets	1110	0	0
Final Product	1103	0	0
Accounts Receivable for Goods, Works, Services	1125	-	-
- Reserve for Doubtful Debts	1120	0	0
Accounts Receivable:			
- On a Budget	1135	1,318.6	344.1

Continuation of the table A.2

Other Current Receivables	1155	3,838.7	3,471.1
Current Financial Investments	1160	0	0
Cash and Cash Equivalents:	1165	9.3	86.6
- In National Currency	1166	8.7	86.2
- In Foreign Currency	1167	0.6	0.4
Other Current Assets	1190	881.0	816.3
Expenses of Future Periods	1170	0	0
Total Current Assets	1195	12,289.2	11,459.4
Non-current Assets Held for Sale and Disposal Group	1200	0	0
Total Assets			
Equity			
Registered Capital	1400	192.5	192.5
Additional Capital	1410	0	0
Reserve Capital	1415	0	0
Retained Earnings (Uncovered Loss)	1420	-21,240.6	-23,468.2
Unpaid Capital	1425	0	0
Total Equity	1495	-21,048.1	-23,275.7
Long-term Liabilities and Provisions	1595	30,239.2	29,452.4
Current Liabilities			
Short-term Bank Credits	1600	0	0
Current Debt on Long-term Liabilities	1610	0	0
Accounts Payable for Goods, Works, Services	1615	2,299.3	1,909.2
Current Commitments for Settlements:			
- With a Budget	1620	64.8	30.5
- For Insurance	1625	1.9	5.0
- Payroll	1630	0	9.4
Other Current Commitments	1690	8,425.1	10,142.6
Total Current Liabilities	1695	10,790.9	12,096.5
Total Liabilities	1695	10,790.9	12,096.5
Total Liabilities and Equity	1900	19,982.1	18,273.2

Table A.3 - Balance of HuaWei for 2023(CNY)

Asset/Liability Category	Line Code	Beginning of Year Balance	End of Year Balance
Non-current Assets			
Incomplete Capital Investment	1005	0	0
Fixed Assets:			
- Original Value	1011	10,332.2	10,613.8
- Accumulated Depreciation	1012	3,518.4	3,813.7
Long-term Biological Assets:	1020	-	-
- Original Value	1021	0	0
- Accumulated Depreciation	1022	0	0
Long-term Financial Investments:	1030	0	0
Other Non-current Assets	1090	0	0
Total Non-current Assets	1095	6,813.80	6,800.10
Current Assets			
Inventories (Of Apas)	1100	2,983.40	2,653.50
Current Biological Assets	1110	0	0
Final Product	1103	0	5.80
Accounts Receivable for Goods, Works, Services	1125	3,757.8	5,527

Continuation of the table A.3

- Net Realizable Value	1120	3,757.8	5,527
Accounts Receivable:			
- On a Budget	1135	344.1	305.7
Other Current Receivables	1155	3,471.1	3,712.3
Current Financial Investments	1160	0	0
Cash and Cash Equivalents:	1165	86.6	105.7
- In National Currency	1166	86.2	105.3
- In Foreign Currency	1167	0.4	0.4
Other Current Assets	1190	816.3	173.9
Expenses of Future Periods	1170	-	-
Total Current Assets	1195	11,459.40	12,478.10
Non-current Assets Held for Sale and Disposal Group	1200	0	0
Total Assets			
Equity			
Registered Capital	1400	192.5	192.5
Additional Capital	1410	0	0
Reserve Capital	1415	0	0
Retained Earnings (Uncovered Loss)	1420	-23,468.1	-22,183
Unpaid Capital	1425	0	0
Total Equity	1495	-23,275.7	-21,990.5
Long-term Liabilities and Provisions	1595	29,452.4	28,515.6
Current Liabilities			
Short-term Bank Credits	1600	0	0
Current Debt on Long-term Liabilities	1610	0	0
Accounts Payable for Goods, Works, Services	1615	1,909.2	3,394.7
Current Commitments for Settlements:			
- With a Budget	1620	30.5	0
- For Insurance	1625	5.0	8.1
- Payroll	1630	9.4	14.0
Other Current Commitments	1690	10,142.6	9,336.3
Total Current Liabilities	1695	12,096.5	12,753.1
Total Liabilities	1695	12,096.5	12,753.1
Total Liabilities and Equity	1900	19,278.2	19,278.2

Table A.4 - Statement of financial results of HuaWei for 2021

Article	Line Code	For the Reporting Period	For the Previous Period
Net Income (Sales) from Sales of Products (Goods, Works, Services)	2000	5,007.7 CNY	4,578.4 CNY
Cost of Sales of Products (Goods, Works, Services)	2050	(6,709.9) CNY	(6,638.4) CNY
Other Operating Income	2120	12,360.8 CNY	10,652.7 CNY
Other Operating Expenses	2180	(9,005.8) CNY	(10,364.2) CNY
Other Expenses	2270	(3,107.8) CNY	(2,369.4) CNY
Financial Results Before Tax:			
- Profit	2290	0 CNY	0 CNY
- Loss	2295	(1,455) CNY	(4,141) CNY
Income Tax	2300	0 CNY	0 CNY
Net:			
- Profit	2350	0 CNY	0 CNY
- Loss	2355	(1,455) CNY	(4,141) CNY

Table A.5 - Statement of financial results of HuaWei for 2022

Article	Line Code	For the Reporting Period	For the Previous Period
Net Income (Sales) from Sales of Products (Goods, Works, Services)	2000	22,005 CNY	5,007.7 CNY
Cost of Sales of Products (Goods, Works, Services)	2050	(20,487.7) CNY	(6,709.9) CNY
Other Operating Income	2120	10,280.7 CNY	12,360.8 CNY
Other Operating Expenses	2180	(10,805.6) CNY	(9,005.8) CNY
Other Expenses	2270	(3,220) CNY	(3,107.8) CNY
Financial Results Before Tax:			
- Profit	2290	0 CNY	0 CNY
- Loss	2295	(2,227.6) CNY	(1,455) CNY
Income Tax	2300	0 CNY	0 CNY
Net:			
- Profit	2350	0 CNY	0 CNY
- Loss	2355	(2,227.6) CNY	(1,455) CNY

Table A.6 - Statement of financial results of HuaWei for 2023

Article	Line Code	For the Reporting Period	For the Previous Period
Net Income (Sales) from Sales of Products (Goods, Works, Services)	2000	10,057.8 CNY	22,005.0 CNY
Cost of Sales of Products (Goods, Works, Services)	2050	(9,320.9) CNY	(20,487.7) CNY
Other Operating Income	2120	6,635.2 CNY	10,280.7 CNY
Other Operating Expenses	2180	(5,329.3) CNY	(10,805.6) CNY
Other Income	2240	0.1 CNY	0 CNY
Other Expenses	2270	(757.8) CNY	(3,220.0) CNY
Financial Results Before Tax:			
- Profit	2290	1,285.1 CNY	0 CNY
- Loss	2295	0 CNY	(2,227.6) CNY
Income Tax	2300	0 CNY	0 CNY
Net:			
- Profit	2350	1,285.1 CNY	0 CNY
- Loss	2355	0 CNY	(2,227.6) CNY