# Analysis of failure of risk management in Evergrande group debt crisis

*Liangsai* Liu [1*]

[1]Zhejiang University of Finance and Economics, School of Finance, Hangzhou 310018, China

**Abstract.** This study focuses on the failure of risk management in the Evergrande Group's debt crisis. By analyzing its debt expansion path, financial indicators, and macro-policy background, it reveals the root causes of the crisis. The research finds that Evergrande's long-term reliance on high-leverage financing and aggressive expansion led to an imbalance in its asset-liability structure and liquidity risks. This was compounded by delayed information disclosure and inadequate policy responses, ultimately leading to a debt crisis. Through time series analysis of financial data from 2022 to 2024, it is confirmed that Evergrande's debt-to-asset ratio has been continuously rising, its short-term debt repayment capability has deteriorated, and the cash flow gap has widened. Debt restructuring has not effectively improved the financial situation. The study proposes strategies such as debt restructuring, enhancing financial transparency, and establishing a risk warning system, providing a reference for real estate companies to manage risks and prevent systemic risks.

## 1 Introduction

### 1.1 Research background

In recent years, China's real estate sector has undergone a significant transformation, transitioning from rapid growth to deep restructuring. As a leading player in the industry, Evergrande Group rapidly rose to prominence through aggressive expansion strategies, accumulating substantial debt during its scale-up. However, with the slowdown in macroeconomic growth, tightening of real estate regulatory policies, and stricter financial regulations, the financing environment has led to the eruption of Evergrande Group's debt risks, which has drawing significant market attention. This event has not only severely impacted the company's survival and development but also had a broad impact on financial market stability and the industry ecosystem. A thorough investigation into the failure of risk management behind Evergrande Group's debt crisis is crucial for preventing systemic risks in the real estate sector and improving corporate risk management systems.

* Corresponding author: liangsai16@gamil.com

### 1.2 Research purpose and research questions

This study aims to conduct a thorough analysis of the key issues in risk management failure during the Evergrande Group's debt crisis, exploring the underlying mechanisms that led to the crisis. By examining the path of Evergrande's debt expansion and considering the macroeconomic and policy context, the study identifies vulnerabilities in Evergrande's risk management system from aspects such as the imbalance of the asset-liability ratio, liquidity risk exposure, and deficiencies in information disclosure. Additionally, the study uses time series analysis and other methods to quantitatively analyze Evergrande's financial indicators, accurately identifying the trends in risk evolution. Based on this, the study proposes a comprehensive response strategy that includes debt restructuring, financial transparency, and the establishment of risk warning systems, offering practical solutions for Evergrande to resolve its debt crisis. It also serves as a reference for other real estate companies to avoid similar risks and improve their risk management systems.

## 2 The evolution process of Evergrande's debt crisis and the failure of risk management

### 2.1 Development of Evergrande group and debt expansion path

Founded in 1996, Evergrande initially focused on Guangzhou's real estate market, rising rapidly through large-scale land reserves and high-turnover strategies. Its 2009 Hong Kong listing marked the start of aggressive expansion, characterized by aggressive land reserves (high-price acquisitions of "land king" projects inflated costs), diversified expansion (heavy investments in new energy vehicles, cultural tourism, and health sectors added financial pressure), high-leverage financing (reliance on bank loans, trust financing, and high-interest dollar bonds, especially during market booms). Debt drivers included the real estate sector's high profits, capital market incentives for scale, and lenient credit policies during market peaks, leading to overlooked debt risks [1].

### 2.2 Background of the formation of debt crisis

Macroeconomic slowdown: China's economic "new normal" and weak consumption/investment demand slowed Evergrande's sales and cash recovery. Tightened policies: The "three red lines" restricted debt ratios, while purchase/loan/sales curbs slowed sales. Tighter oversight of trust and bond financing limited new funds, straining cash flow as old debts matured.

### 2.3 Analysis of risk management failure performance

#### *2.3.1 Imbalance between asset-liability ratio and financing structure*

By end-2021, Evergrande's 82.59% debt-to-asset ratio exceeded the industry's 79.1%, with 40.3% short-term debt (vs. 32.6% industry average) and 59.7% long-term debt (vs. 67.4% industry average), as shown in Table 1. This structure relied on short-term debt for long-term projects, with illiquid land reserves and diversified assets failing to cover short-term obligations, increasing vulnerability to market/policy shifts.

**Table 1.** Comparison of asset-liability ratio and financing structure between Evergrande Group and real estate industry at the end of 2021.

| metric | Evergrande Group (end 2021) | Real estate industry average (end 2021) |
|---|---|---|
| asset-liability ratio | 82.59% | 79.1% |
| Net debt ratio | 152.9% | 94.9% |
| Short-term debt ratio | 40.3% | 32.6% |
| Long-term debt ratio | 59.7% | 67.4% |

### *2.3.2 Exposure to liquidity risk*

Table 2 reveals that Evergrande failed to manage liquidity risks during its debt expansion. By end-2021, its cash-to-short-term-debt ratio was 0.53, well below the industry average of 1.2, showing inadequate cash reserves for short-term debt. With a real estate market slump, sales collections faltered, and its net operating cash flow hit -65.63 billion yuan, contrasting sharply with the industry's 12.54 billion yuan, worsening the liquidity crisis [2].

Fund shortages caused project delays, eroding homebuyer confidence and further depressing sales, creating a vicious cycle. Its diversified businesses consumed capital without generating short-term cash flow. For example, its 125.847 billionyuan inventory far exceeded the industry average, tying up funds and weakening liquidity. Overall, Evergrande's liquidity mismanagement led to severe financial stress during market downturns, with the crisis intensifying.

**Table 2 .**Comparison of liquidity indicators between Evergrande Group and real estate industry at the end of 2021.

| metric | Evergrande Group (end 2021) | Real estate industry average (end 2021) |
|---|---|---|
| Cash to short debt ratio | 0.53 | 1.2 |
| Net operating cash flow (100 million yuan) | -656.3 | 125.4 |
| Inventory (in billion yuan) | 12,584.7 | 3,256.8 |

### *2.3.3 Lagging information disclosure and lack of internal control*

During debt expansion, Evergrande not only mishandled liquidity risks but also showed critical flaws in internal control and information disclosure. By end-2021, its cash-to-short-debt ratio of 0.53 (vs. industry 1.2) and net operating cash flow of -65.63 billion yuan (vs. industry +12.54 billion yuan) highlighted severe cash shortfalls, deepened by stalled projects and eroded buyer confidence. Inventory of 1.258 trillion yuan — 4x the industry average — trapped capital, worsening liquidity.

Table 3 shows delayed financial disclosures and missing debt risk warnings, preventing stakeholders from assessing risks. Weak checks on diversified investments and opaque reporting further damaged market trust. These combined failures intensified capital stress amid market downturns, driving the liquidity crisis deeper.

**Table 3.** Performance of information disclosure and internal control problems of Evergrande Group.

| Information disclosure and internal control issues | embody |
|---|---|
| Financial disclosure | Key financial data are delayed in disclosure, and information such as debt size and liability structure is not updated in a timely manner |
| risk pre-warning mechanism | The debt risk early warning system has not been established, and the potential risks are not predicted |
| Decision supervision | Major investment decisions lack effective checks and balances, such as diversified business investments lack rigorous arguments |

### *2.3.4 Policy changes and inadequate hedging mechanisms*

Faced with the frequent changes in real estate policies, Evergrande Group failed to establish an effective policy research and response mechanism, which was particularly evident in its handling of the 'three red lines' policy. By the end of 2021, Evergrande had not met any of the 'three red lines' requirements, indicating that it did not adjust its debt structure or optimize its financial condition in a timely manner when policy tightening signals emerged. Additionally, Evergrande's adjustments to its financing channels were delayed; after the policy tightening, its trust and bond financing significantly decreased, but it failed to promptly explore new financing options to address the funding shortfall. Furthermore, Evergrande did not adequately prepare funds to cope with the decline in sales revenue, leading to increasingly tight capital chains (Table 4).

Specifically, Evergrande failed to timely reduce its high-cost debt financing. For instance, during the real estate market boom, it issued a large number of high-interest dollar bonds. In the context of policy regulation, this high-cost financing model further increased the company's debt repayment burden. Moreover, Evergrande did not optimize its capital structure or improve the efficiency of fund utilization through innovative methods like asset securitization. These shortcomings made it difficult for Evergrande to adapt to market changes under policy regulation, ultimately leading to a concentrated release of debt risks and plunging the company into a liquidity crisis.

To sum up, Evergrande Group's slow response to the changes in real estate policies, as well as the lack of debt restructuring, capital reserve and risk hedging mechanism, are one of the important reasons for the outbreak of its debt crisis.

**Table 4** .Table of Evergrande Group's response to real estate policy changes.

| Policy change response | embody |
|---|---|
| The "three red lines" policy response | The debt structure was not optimized before the policy was introduced, and none of the red line requirements were met by the end of 2021 |
| Financing channels adjusted | After the tightening of policy, the scale of trust and bond financing was greatly reduced, and new financing channels were not developed in time |
| Capital reserve planning | Not enough funds were reserved in advance to deal with the decline of sales collection, resulting in a tight capital chain |

# 3 Analysis of Evergrande's financial indicators from the perspective of time series

## 3.1 Data sources and variable descriptions

This study provides a detailed analysis of Evergrande Group's financial data from the first quarter of 2022 to the second quarter of 2024. The data sources include the company's publicly available quarterly financial reports, annual audit reports, and corporate bond prospectuses. To ensure the comprehensiveness and accuracy of the data, the research team used well-known financial databases such as Wind Financial Terminal and East Money Choice to cross-verify and supplement any missing data. Throughout the data collection process, strict data cleaning and verification procedures were implemented, eliminating abnormal data and conducting multi-angle comparisons for questionable data to ensure data quality [3].

In the selection of variables, this study focuses on key indicators that directly reflect a company's debt risk and its ability to repay debts. The debt-to-asset ratio, a key indicator for assessing a company's long-term debt repayment capability, is calculated as the total liabilities divided by total assets. A higher ratio indicates a heavier long-term debt burden. The current ratio, which reflects a company's short-term debt repayment capability, is determined by the ratio of current assets to current liabilities. It is generally considered reasonable for this ratio to be around 2. The net cash flow from operating activities serves as an indicator of a company's ability to generate cash from its main business. A positive value indicates that the company can meet its funding needs through its operations; if it remains negative, it suggests that the company may struggle to meet its funding needs. Additionally, short-term borrowings, which are interest-bearing debts due within one year, directly reflect a company's short-term debt repayment pressure. The detailed data is presented in Table 5:

**Table 5.** Main financial indicators of Evergrande Group from Q1, 2022 to Q2, 2024.

| quarter | Asset-liability ratio (%) | current ratio | Net cash flow (in billion yuan) | Short-term borrowings (in billion yuan) |
|---|---|---|---|---|
| 2022Q1 | 82.1 | 1.05 | -85.3 | 5,842 |
| 2022Q2 | 83.6 | 0.98 | -92.7 | 6,125 |
| 2022Q3 | 85.2 | 0.91 | -108.4 | 6,543 |
| 2022Q4 | 86.7 | 0.87 | -125.6 | 7,012 |
| 2023Q1 | 88.3 | 0.82 | -142.8 | 7,456 |
| 2023Q2 | 89.5 | 0.76 | -158.2 | 7,892 |
| 2023Q3 | 91.2 | 0.69 | -175.4 | 8,345 |
| 2023Q4 | 92.8 | 0.63 | -192.7 | 8,763 |
| 2024Q1 | 94.1 | 0.57 | -210.5 | 9,124 |
| 2024Q2 | 95.6 | 0.51 | -228.3 | 9,487 |

## 3.2 Time series modeling of major financial indicators

### *3.2.1 Trend analysis of asset-liability ratio*

In the RStudio environment, a rigorous time series analysis was conducted on Evergrande's debt-to-asset ratio. First, the data on the debt-to-asset ratio was imported and converted into a time series object. Then, an ADF (Augmented Dickey-Fuller) test was performed. The p-value of 0.32 from the ADF test was significantly higher than the 0.05 threshold, confirming the non-stationarity of the original series. To achieve stationarity, the series was first differenced once, and the ADF test was repeated. In this process, the p-value dropped to 0.02, below the 0.05 significance level, confirming that the series had become stationary. To visually present the trend of the debt-to-asset ratio, a trend chart (Fig. 1) was created. Fig. 1 clearly shows that Evergrande Group's debt-to-asset ratio is on a clear upward trend. Further analysis using the Holt-Winters model revealed that this upward trend is significant and continuous, with an average quarterly increase of about 1.35 percentage points. This trend indicates that Evergrande Group's debt has expanded sharply in the short term, leading to a significant increase in long-term debt repayment pressure. The continuously rising debt-to-asset ratio highlights potential issues in Evergrande's debt management, particularly the failure to effectively balance asset growth with debt growth, resulting in a growing debt burden.

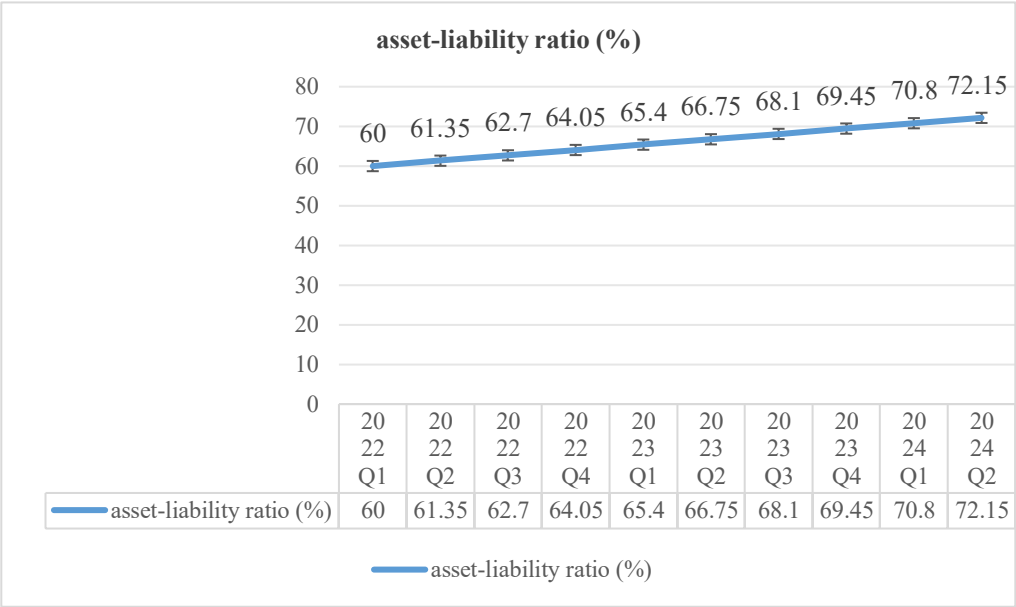


**Fig. 1.** Trend chart of asset-liability ratio of Evergrande Group from Q1, 2022 to Q2, 2024.

### *3.2.2 Seasonal fluctuation analysis of debt paying ability index*

To analyze Evergrande's debt repayment capability, the current ratio is used as a representative indicator. In RStudio, after converting the current ratio data into a time series object, when analyzing the Autocorrelation Function (ACF) plot (Fig. 2), it is observed that the autocorrelation coefficient does not decline rapidly but shows a gradual decrease. This phenomenon clearly indicates that the current ratio series exhibits significant trend characteristics. Additionally, the Partial Autocorrelation Function (PACF) plot (Fig. 3) shows

significant peaks at lags of 1 and 2 periods, indicating a high correlation between the current value of the current ratio and the values from the previous two periods.

Through a deeper analysis of the data, the rate of change in adjacent quarters revealed that, despite the absence of significant seasonal fluctuations, the current ratio has been steadily declining at a rate of about 0.04 per quarter, from 1.05 in the first quarter of 2022 to 0.51 in the second quarter of 2024. This ratio is significantly below the real estate industry's safety standard of 1.2. This trend clearly indicates a continuous deterioration in Evergrande Group's short-term debt repayment capability. It also highlights the high risk of short-term debt default and the urgent need for attention and improvement in its financial condition.

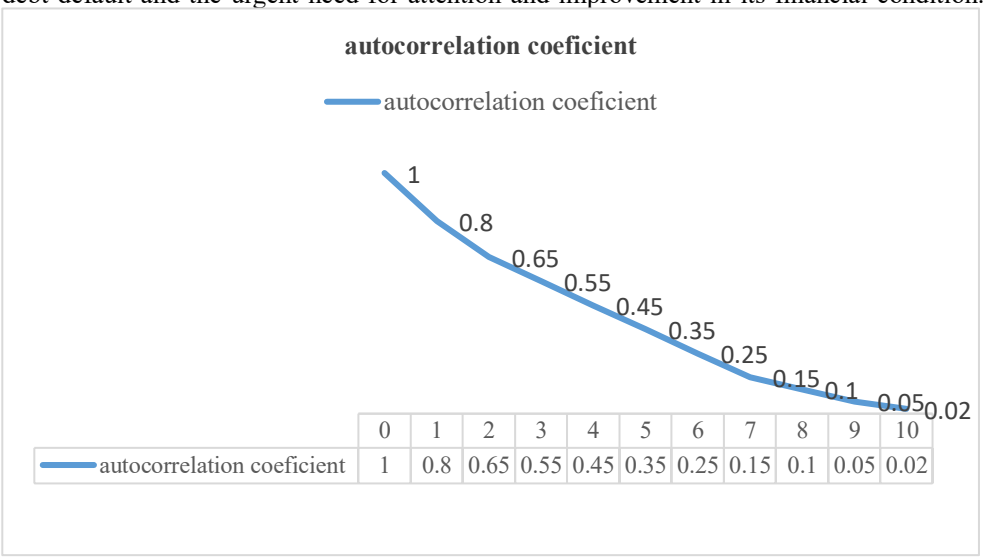


**Fig. 2.** ACF of current ratio of Evergrande Group from Q1, 2022 to Q2, 2024.

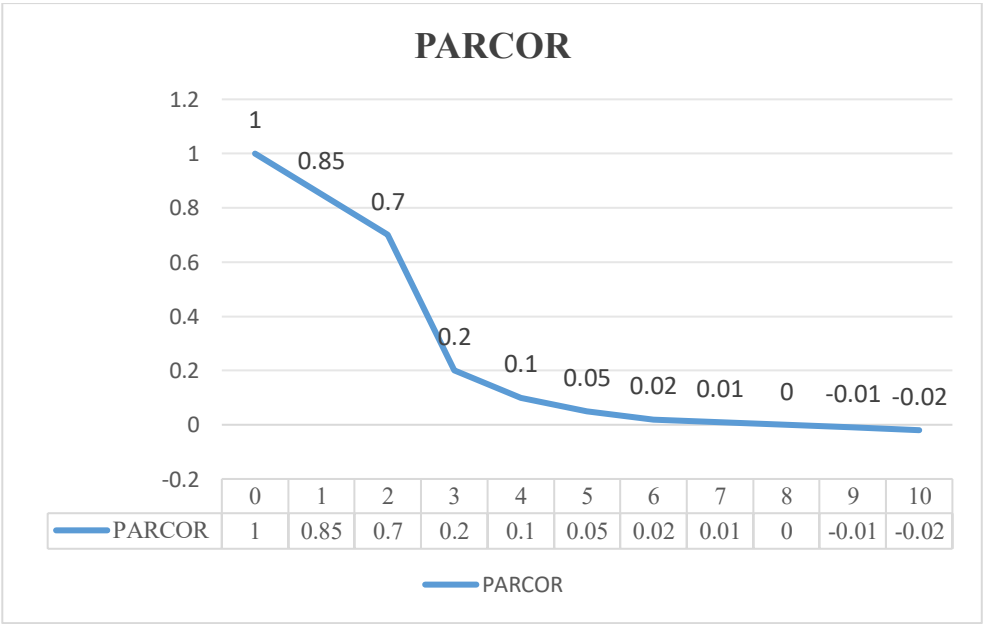


**Fig. 3.** Current ratio PACF of Evergrande Group from Q1, 2022 to Q2, 2024.

### *3.2.3 Cash flow and current ratio forecast*

To forecast the future trends of net cash flow and the current ratio, an ARIMA model was used for analysis. In RStudio, the auto.arima function was first used to automatically select the optimal model parameters. For net cash flow, the automatic selection determined that the optimal model is ARIMA (1,1,0). The prediction results show that the net cash flow will drop to -24.58 billion yuan in the third quarter and -26.35 billion yuan in the fourth quarter of 2024. This indicates that the company's capital shortfall will further widen, with operating activities generating insufficient cash to meet the company's capital needs, posing a significant risk of a broken capital chain. Similarly, the current ratio was predicted using the ARIMA model, which was determined to be ARIMA (2,1,1) [4]. The forecast shows that its value will continue to decline, dropping to 0.48 in the fourth quarter of 2024 and further to 0.43 in the first quarter of 2025. This suggests a continuous deterioration in the company's short-term debt repayment capability and an increasing financial risk.

## 3.3 Analysis of changes in financial conditions of enterprises before and after key nodes

Take the fourth quarter of 2023 (when Evergrande officially announced debt restructuring) as a key node, comprehensively compare the changes in financial indicators before and after to evaluate the actual effect of debt restructuring measures. The specific data comparison is shown in Table 6 below:

**Table 6 .**Comparison of financial indicators before and after key nodes.

| metric | Average before restructuring (2022Q1-2023Q3) | After reorganization (2023Q4-2024Q2) | amplitude of variation |
|---|---|---|---|
| Asset-liability ratio (%) | 86.4 | 93.5 | +7.1% |
| current ratio | 0.84 | 0.57 | -32.1% |
| Net cash flow (in billion yuan) | -123.5 | -210.5 | +70.4% |
| Short-term borrowings (in billion yuan) | 7,123 | 8,791 | +23.4% |

The data clearly shows that after the debt restructuring, Evergrande's financial condition has not only failed to improve but has also accelerated its deterioration. Specifically, the debt-to-asset ratio rose from 86.4% before the restructuring to 93.5%, indicating a heavier debt burden. The current ratio dropped sharply from 0.84 to 0.57, a decrease of 32.1%, indicating a significant weakening in the company's short-term debt repayment capability and facing substantial debt repayment pressure in the short term [5]. The net cash flow outflow increased from-12.35 billion yuan before the restructuring to-21.05 billion yuan, a rise of 70.4%, highlighting a severe lack of cash generation capacity in business operations and an increasingly tight capital chain. Additionally, short-term borrowings increased from 712.3 billion yuan before the restructuring to 879.1 billion yuan, a rise of 23.4%, further exacerbating the company's short-term funding pressure.

A deeper analysis reveals that, on one hand, the debt restructuring plan may not have fundamentally resolved Evergrande's debt structure issues. High-cost debts still persist, and the financing environment has not significantly improved after the restructuring. On the other hand, the ongoing downturn in the real estate market has hindered Evergrande's property sales and made it difficult to recover funds, making it challenging for the company to improve

its financial condition [5]. Additionally, during the debt restructuring process, Evergrande may have failed to optimize its capital allocation effectively, failing to use limited funds to alleviate short-term debt pressures, which further worsened its financial situation.

### 3.4 The significance of risk disclosure in the analysis results

This study, through rigorous time series analysis, has uncovered a series of serious risks behind Evergrande's debt crisis. The debt-to-asset ratio has been rising steadily and is non-stationary, indicating that Evergrande's debt issues are not just short-term fluctuations but have deep long-term and structural characteristics. The company's long-term reliance on debt expansion is unsustainable. The continuous deterioration of the current ratio and the future trend predicted by the ARIMA model clearly indicate that Evergrande's short-term debt repayment capability is severely insufficient, and this situation is unlikely to improve in the near future, posing a constant risk of debt default. Cash flow forecasts show that the net outflow from the company is increasing each quarter. If this trend continues, the company will deplete all available funds by the first half of 2025, with the risk of a broken capital chain imminent [6].

From a risk management perspective, the debt restructuring and other interventions implemented at critical junctures failed to effectively reverse the deteriorating financial condition of the company. This clearly indicates a significant failure in Evergrande's risk management. There were major flaws in risk identification, assessment, and response, failing to identify potential risks in a timely manner or develop effective strategies, which led the company deeper into the quagmire of the debt crisis.

This research not only serves as a wake-up call for Evergrande but also offers valuable insights for the entire real estate sector. Companies with high debt levels should prioritize financial risk management, establishing a dynamic financial risk monitoring system based on time series analysis to monitor key financial indicators in real-time. If any non-steady growth or abnormal fluctuations are detected, immediate and effective measures should be taken to adjust the debt structure, optimize capital allocation, enhance debt repayment capabilities, and strengthen risk resistance, thus avoiding a repeat of Evergrande's mistakes

## 4 Countermeasures and feasibility analysis

### 4.1 Debt restructuring and asset divestiture plan analysis

Debt restructuring is a key strategy for Evergrande to resolve its crisis. It can alleviate short-term debt repayment pressures through measures such as extending the debt maturity, lowering interest rates, and converting debt into equity. For instance, Evergrande could negotiate with creditors to convert some of its short-term debts into long-term ones, extending the average repayment period from 2-3 years to 5-8 years, thereby reducing the pressure on short-term capital repayments. For high-interest US dollar bonds, negotiations could reduce the interest rate from 10%-12% to 6%-8%, thus cutting down on interest expenses. In terms of debt-to-equity conversion, introducing strategic investors to convert part of the debt into equity can help lower the company's debt-to-asset ratio and boost its capital base [7].

Asset divestiture should focus on non-core assets, such as selling commercial real estate projects, cultural and tourism assets, and overseas operations. For instance, Evergrande's commercial real estate projects in third-and fourth-tier cities have long sales cycles and significant capital accumulation, which can be liquidated by discounting the properties to recover funds. Additionally, while the new energy vehicle business has growth potential, it is unlikely to generate profits in the short term. Consider introducing external investment or

selling part of the equity to redirect funds back to the core business. This strategy is highly feasible for two reasons: first, there are currently some financially robust companies and investment institutions in the real estate sector that can take over Evergrande's assets; second, the government may offer support in areas like asset transaction approval and tax policies to prevent systemic risks. However, attention must be paid to asset valuation and timing to avoid losing assets due to low-price sales.

### 4.2 Improve financial transparency and disclosure mechanisms

To enhance financial transparency, Evergrande is required to establish a standardized financial reporting system. This system will strictly adhere to International Financial Reporting Standards (IFRS) or Chinese Accounting Standards for Business Enterprises (CAS) for accounting and report preparation, ensuring that financial data is true, accurate, and complete. Additionally, the company will strengthen internal audit supervision by establishing an independent audit committee. This committee will conduct regular audits of financial processes and major transactions to prevent financial fraud and non-compliance [8].

In terms of information disclosure, it is essential to establish a regular mechanism for releasing information. In addition to the regular annual and semi-annual reports, detailed financial briefs should be published quarterly, covering key areas such as debt structure, capital flow, and the progress of major projects. By utilizing both online and offline channels, companies can promptly inform investors, creditors, and regulatory authorities about their operations. This strategy is highly feasible, as companies can enhance their financial standards by hiring professional financial teams and adopting advanced financial management systems. Meanwhile, regulatory bodies are continuously raising the bar for information disclosure from listed companies, providing an opportunity for Evergrande to refine its disclosure practices. However, implementing this strategy may involve challenges such as changing management mindsets and restructuring internal processes, which will require significant investment in human and material resources.

### 4.3 Build an efficient risk early warning system

Building a risk warning system can be approached from three aspects: indicator monitoring, model construction, and response mechanisms. First, select key financial indicators such as the debt-to-asset ratio, current ratio, and cash flow to liabilities ratio, along with business indicators like land reserve costs and project sales rates, and set reasonable risk thresholds. For example, set the debt-to-asset ratio warning line at 80% and the current ratio warning line at 1.5. If any of these indicators reach their thresholds, the system will automatically issue a warning [9].

Second, by leveraging big data and machine learning technologies, a dynamic risk assessment model is established to integrate macroeconomic data, policy changes, industry trends, and internal corporate data, thereby predicting potential risks. Finally, a tiered response mechanism is developed, where different measures are taken based on the risk level: enhanced monitoring for low-risk situations, immediate emergency fund allocation and suspension of high-risk projects in high-risk scenarios. This system has high feasibility, given the maturity of fintech development and the availability of numerous professional risk management software and services in the market; companies also have accumulated substantial data, providing a solid foundation for modeling. However, during implementation, it is crucial to address data integration challenges and ensure the deep integration of the early warning system with the company's actual operations.

### 4.4 Suggestions on optimizing financial supervision of real estate enterprises

To improve the 'three red lines' policy for real estate companies, refine the calculation methods of indicators, and include off-balance-sheet liabilities and perpetual bonds in the regulatory scope to prevent companies from circumventing regulations through accounting tricks. Additionally, establish a dynamic adjustment mechanism to flexibly adjust policy indicators based on macroeconomic conditions and industry cycles.

Strengthen the supervision of financing channels by strictly reviewing applications for real estate companies' bond issuance and trust financing, and requiring detailed disclosure of fund usage and repayment plans. Establish a real estate financial risk monitoring platform to monitor in real time the flow of corporate funds, debt levels, and financing costs, and promptly identify potential risks. Additionally, reform the credit rating system for real estate companies by incorporating risk management capabilities and sustainable development levels into the rating criteria, guiding companies to prioritize risk management. These suggestions are feasible, as regulatory authorities have the capability to improve policies and strengthen oversight; the industry also urgently requires stricter and more scientific regulation to prevent risks. However, policy adjustments must balance industry stability to avoid over-regulation that could lead to a break in corporate capital chains [10].

### 4.5 Analysis of the path and prospect of enterprise diversification transformation

Evergrande's diversified transformation should be grounded in its core business, with a cautious approach to expanding into new sectors. In the real estate sector, Evergrande should shift towards a lighter asset model, reducing land development and focusing on property management and agency construction services. By leveraging its brand and resource advantages, Evergrande can achieve stable returns. For instance, by listing its property management business independently and enhancing profitability through value-added services.

In the diversified sector, focus on extending the industrial chain related to real estate, such as smart homes and green building materials, to reduce transformation risks. For the new energy vehicle business, if it is to continue development, it is necessary to increase investment in technology research and development, enhance product competitiveness, and optimize supply chain management to reduce production costs. Looking ahead, if the diversified transformation is planned reasonably and steadily advanced, it can help diversify corporate risks and open up new profit growth points. However, Evergrande currently faces significant debt pressure, and the transformation requires substantial capital and resources, presenting considerable challenges. Nevertheless, if the transformation can be gradually implemented after debt restructuring, in line with market demand and policy guidance, there is still a chance to achieve a breakthrough in transformation, enhancing the company's risk resistance and sustainable development capabilities.

## 5 Conclusion

### 5.1 Research summary

This study delves into the failure of risk management during the Evergrande Group's debt crisis. It reveals that the crisis was not accidental but a result of the company's aggressive debt expansion, which led to a long-term imbalance in its asset-liability ratio and financing structure. The company's heavy reliance on short-term, high-interest debt exacerbated

liquidity risks. In the context of a downturn in the macroeconomy and tightening real estate policies, the company lacked effective mechanisms to mitigate policy changes, with delayed information disclosure and ineffective internal controls, further exacerbating the crisis.

Through a time series analysis of financial data from 2022 to 2024, the paper quantitatively illustrates the deteriorating trend in Evergrande's financial indicators. The debt-to-asset ratio remains high, and the current ratio and other debt repayment indicators continue to decline. Additionally, the cash flow from operating activities has been negative for an extended period, highlighting the severity of the company's financial risks. To address these issues, the paper proposes a series of strategies, including debt restructuring and asset divestiture, enhancing financial transparency, establishing a risk warning system, optimizing financial regulation, and promoting diversified transformation. It also provides a detailed analysis of the feasibility of these strategies, aiming to offer theoretical support and practical guidance for resolving the debt crisis and improving risk management in Evergrande and the real estate sector.

### 5.2 Limitations and future research prospects

This study still has certain limitations. In terms of data, although it selected the quarterly financial data of Evergrande over the past three years, the lack of public information made it difficult to obtain some key data, such as undisclosed off-balance-sheet liabilities and specific costs and benefits of projects, which may affect the comprehensiveness of the research conclusions. Regarding the research methodology, time series modeling primarily relied on traditional statistical models, with insufficient application of advanced technologies like big data and artificial intelligence, thus failing to fully uncover the potential information within the data.

Future research can expand in the following areas: Firstly, by collecting more high-frequency data (such as monthly and weekly data) and integrating big data analysis techniques, to more accurately capture the dynamic changes in corporate financial risks. Secondly, exploring the application of advanced algorithms like deep learning and machine learning in constructing risk warning models to enhance the models' predictive accuracy and adaptability. Additionally, further research could focus on the differentiated strategies for real estate companies in managing risks under various macroeconomic environments and policy combinations, providing more targeted recommendations for industry risk prevention.

## References

1. F. Marchionne, N. Giampaol, M. Renghini, Institutions and financial crises. Econ. Syst. **49**, 2 (2025)
2. D.M. Ahenkorah, R.K. Asravor , N. Asare, The linkage between banking crisis and sovereign debt crisis: Evidence from Ghana. Res. Global. **10** (2025)
3. G. Chelwa, N.S. Kaulule, P. de Renzio, External Forces and Zambia’s Permanent Debt Crisis. Dev. **67**, 3 (2025)
4. M. Braun, J. Görts, Differences in Labour Mobility Between Immigrant Generations: Evidence From the European Debt Crisis. Popul. Space Place **31**, 2 (2025)
5. E. Tsiatsiou, A. Chaitidou, K. Spinthiropoulos, The impact of the debt crisis on the salaries of Teaching and Research Staff in national higher education institutions in Greece: a case series study and literature review. Cogent Soc. Sci. **10**, 1 (2024)
6. G. Zembri Mary, D. Sengouni, The Olympics Legacy, debt crisis and exceptional strategic planning: the case of Athens. Eur. Plan. Stud. **32**, 12 (2024)

7. V.S. Teschendorf et al., Deficits and biases in the leading German press coverage of the Greek sovereign debt crisis. Commun. **49**, 4 (2024)
8. B. Herman, Comprehensive, Fair and Speedy Resolution of Sovereign Debt Crises through New Law in Capital-market Countries. Dev. **67**, 3 (2024)
9. J. Tholl, C. Schwarzbach, The Greek sovereign debt crisis as an important chapter in the history of the European Monetary Union: empirical evidence and some thoughts on implications for investors and financial risk managers. Z. gesamte Vers.wiss. **111**, 3 (2022)
10. C.I. Nkeki, Optimal investment risks and debt management with backup security in a financial crisis. J. Comput. Appl. Math. **338** (2018)