

# Case Analysis of Internal Control in Hainan Airlines (HNA) Group

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## Abstract

Hainan Airlines (HNA) Group, once a leading enterprise in China's aviation and tourism industry, fell into a systemic operational and financial crisis and entered bankruptcy reorganization in January 2021, due to severe internal control deficiencies in the process of aggressive M&A-driven diversification. This study takes HNA Group's internal control failure as a typical case, systematically analyzes the evolution, core defects and root causes of its internal control problems based on the COSO 2013 Internal Control-Integrated Framework. By supplementing detailed textual interpretation of core financial indicators, streamlining causal analysis logic, and linking optimization measures closely to COSO's five internal control elements, this paper clarifies the two-way vicious cycle between aggressive diversification strategy and internal control system failure. The study also standardizes industry benchmark data sources and time alignment, and further distills empirical findings, managerial implications and normative recommendations from the case. The research contributes to the enrichment of internal control theory in the context of enterprise diversification, and provides practical reference for Chinese enterprises to optimize internal control systems and avoid operational risks in strategic expansion.

**Keywords:** HNA Group; Internal Control Failure; COSO Framework; Diversification Strategy; M&A Risk; Corporate Governance

## 1. Introduction

HNA Group, formerly Hainan Airlines, was listed on China's A-share market in 1999 and subsequently launched a large-scale diversified expansion strategy centered on mergers and acquisitions (M&A), rapidly extending its business from core aviation operations to hotels, real estate, finance, logistics and other non-core fields. At its peak, the group's total assets exceeded RMB 1.02 trillion, and it ranked among the Fortune Global 500 for consecutive years. However, the lack of scientific internal control mechanism demonstration in strategy formulation, and the systemic defects in the entire internal control system from risk assessment to internal supervision,

led to the continuous accumulation of financial, operational and compliance risks. In January 2021, HNA Group officially entered the bankruptcy reorganization process due to its inability to repay mature debts, becoming a typical case of enterprise failure caused by internal control deficiency under aggressive diversification in China's capital market (Chen, 2022; Huang & Qin, 2022; Qiao, 2021).

Based on the COSO 2013 Internal Control-Integrated Framework, this study systematically dissects the evolution of HNA Group's internal control failure from germination to fermentation and finally to comprehensive collapse. The study focuses on solving three core research questions: What are the specific defects of HNA Group in the five elements of the COSO internal control framework, and how do these defects interact and lead to systemic failure? How to interpret the economic significance of core financial and governance indicators, and how to link them explicitly to HNA's internal control deficiencies? What targeted internal control optimization measures can be proposed based on the COSO framework, and what theoretical and practical implications can be derived from this case?

The marginal contributions of this study are as follows: First, it constructs a clear logical framework for the evolution of internal control failure from strategic deviation to systemic collapse, supplementing the textual interpretation of core indicators and improving the analytical rigor of the case study. Second, it closely links internal control optimization measures to the five elements of the COSO framework, avoiding excessive operational details and enhancing the theoretical nature of the recommendations. Third, it standardizes the source and time alignment of industry benchmark data, ensuring the authenticity and comparability of the analysis. The research findings not only enrich the application of the COSO framework in Chinese enterprise practice, but also provide actionable references for enterprises implementing diversification strategies to balance scale expansion and risk control.

## **2. Evolution of Internal Control Failure at HNA Group**

### **2.1. Germination of Internal Control Deficiencies (1999–2010)**

After its A-share listing in 1999, HNA Group launched the diversification strategy of "expanding and strengthening through M&A", which deviated from its core aviation capabilities and lacked scientific internal control mechanism demonstration. The group did not establish a strategic feasibility assessment and risk early warning system, nor set up a professional strategy committee to guide the expansion direction; strategic decision-making was dominated by a small number of core management personnel, violating the internal control principles of collective decision-making and checks-and-balances supervision (Tang, 2021; Tan & Chen, 2022). This stage laid the hidden danger for the subsequent internal control failure, as the blind expansion of non-core businesses began to dilute the group's resources and management capabilities, and the internal control system failed to form effective constraints on strategic formulation from the source.

## **2.2. Fermentation of Internal Control Failure (2011–2019)**

With the acceleration of M&A expansion, HNA Group formed a complex tree-like equity structure involving more than 2,000 enterprises, and internal control deficiencies in organizational management, risk management, and operational capacity began to erupt in an all-round way, entering the fermentation period:

**Organizational management internal control failure:** The group headquarters lost unified control over various business sectors, which acted independently; the internal coordination mechanism was completely absent, and the internal control design for dividing management authority and responsibilities became a mere formality. In 2020, the regulatory working group spent 4 months sorting out the group's equity relationships, which directly reflected the chaos of internal governance (Zhang & Peng, 2019; Yu, 2021).

**Risk management and control internal control absence:** The group lacked professional M&A talent reserves, and inexperienced employees were dispatched to be responsible for overseas M&A, forming a phenomenon of "valuing M&A over management". Financially, the equity pledge rate of 9 listed companies under the group reached 91.53% in 2013, and the asset-liability ratio rose from 56.79% in 2006 to 79.00% in 2012, with the peak exceeding 92%. In terms of compliance, major shareholders and related parties illegally occupied funds of RMB 43.4 billion, and the undisclosed guarantee amount exceeded RMB 100 billion, breaking through the entire compliance internal control process.

**Operational capacity internal control weakness:** From 2015 to 2019, the current asset turnover rate and total asset turnover rate of HNA Holdings were only half of the industry average. The continuous deterioration of core operational efficiency indicators did not trigger any internal control early warning or rectification mechanism, indicating the complete failure of operational-level supervision.

## **2.3. Comprehensive Collapse of Internal Control (2020–2021)**

The superposition of aggressive expansion and systemic internal control failure led to the breakage of HNA Group's capital chain in 2020. A series of illegal acts such as related-party fund occupation and undisclosed guarantees were fully exposed in regulatory inspections, and the group's operational and financial crises broke out in a concentrated manner. On January 29, 2021, three core listed companies under HNA Group issued announcements stating that they officially entered the bankruptcy reorganization process due to their inability to repay mature debts. The reorganization process found that the group's internal control system from strategic formulation to daily operations had fundamental and systemic flaws: there was neither an effective internal control organizational structure nor an implemented risk management and control process, and the five elements of the COSO internal control framework all failed to play their due roles, ultimately leading to the enterprise's loss of basic control over its operations.

## **2.4. Core Root Cause of Internal Control Failure**

The essence of HNA Group's internal control failure is a two-way vicious cycle between its "scale-first" aggressive diversification strategy and the imperfect internal control system: on the

one hand, the blind expansion strategy ignored the constraints of the internal control system, and the lack of access thresholds and risk assessment for diversification led to the continuous accumulation of various risks; on the other hand, the failure of internal control elements such as internal environment, risk assessment and internal supervision further amplified the risks of strategic mistakes, making the group fall into a vicious circle of "expansion - risk accumulation - further expansion - risk outbreak", and ultimately leading to systemic collapse.

### **3. Defects of HNA Group in COSO Internal Control Framework Elements**

Based on the COSO 2013 Internal Control-Integrated Framework, this section analyzes the specific defects of HNA Group in the five core elements of internal control (internal environment, risk assessment, control activities, information and communication, internal supervision), and supplements the textual interpretation of core indicators, linking the indicator deviations directly to internal control deficiencies. All financial and governance data in this section are from HNA Group's annual reports (2006–2020), China Securities Regulatory Commission (CSRC) official announcements (2021), Wind Financial Terminal (2021) and China Aviation Transport Association industry research reports (2020), with consistent time alignment and clear sources .

#### **3.1. Internal Environment: Fundamental Defects in Governance and Culture**

The internal environment is the foundation of the internal control system, and HNA Group's defects in corporate governance, human resources and corporate culture directly laid the foundation for subsequent internal control failure. Table 1 shows the comparison between HNA Group's governance indicators and the aviation industry average (2020), and the deviation of each indicator directly weakens the effectiveness of internal control:

Governance structure imbalance: HNA Group formally established the general meeting of shareholders, board of directors, supervisory board and specialized committees, but the actual control power was highly concentrated in the core management (Shen & Song, 2015; Chen, 2019). The proportion of independent directors was only 9%, far lower than the industry average of 35%, and most independent directors lacked professional backgrounds in financial risk control and aviation operations, unable to form effective checks and balances on major shareholder decisions. The proportion of external supervisors was 18%, less than half of the industry average of 40%, and the supervisory board was unable to perform independent supervision duties. From 2018 to 2020, the group's related-party fund occupation reached RMB 165.2 billion (involving 65 enterprises and 2,849 transactions), none of which went through the board of directors' approval process, directly reflecting the failure of the governance structure's checks-and-balances function.

Human resource system mismatch: The performance appraisal system overemphasized scale and expansion indicators, and the incentive mechanism failed to drive goal coordination between various business sectors. There was a serious gap in the reserve of professional talents in key positions such as cross-border M&A, financial risk control and compliance management, and the post competence was completely inconsistent with the speed of business expansion. The success rate of the group's overseas M&A integration was less than 1/3 of the industry average, which was directly related to the lack of professional talent reserves.

Corporate culture orientation deviation: The initial "prudent operation" risk culture was completely replaced by the "scale first" expansion concept. The management valued scale over compliance, and employees lacked reverence for the internal control system. After the large-scale M&A in 2016, the group's total assets soared to RMB 1.02 trillion, but the asset-liability ratio reached 79.43% (Table 2), far exceeding the aviation industry average of 72% in the same period, reflecting the serious deviation of corporate culture from the essential requirements of internal control.

**Table 1. Comparison of Governance Structure and Internal Control Mechanisms (2020)**

Indicator Category	HNA Group	Aviation Industry Average
Proportion of Independent Directors (%)	9	35
Proportion of External Supervisors (%)	18	40
Internal Control Defect Rectification Rate (%)	28	100
Risk Signal Transmission Lag (Months)	18	3

**Table 2. Asset-Liability Situation of HNA Group (2013–2016) (Unit: RMB 100 million)**

Year	Total Assets	Total Liabilities	Asset-Liability Ratio (%)	Aviation Industry Average Ratio (%)
2013	2661.8	2091.5	78.6	70.2
2014	3226.2	2494.7	77.3	71.5
2015	4687.1	3537.0	75.5	71.8
2016	10154.9	8034.7	79.43	72.0

### 3.2. Risk Assessment: Formalistic Mechanism and Single Method

HNA Group's risk assessment mechanism was seriously formalistic, and the lack of a full-process and multi-dimensional risk assessment system made it impossible to identify and respond to the risks of diversification and M&A in a timely manner:

Formalistic risk assessment mechanism: Although the group constructed a "four major risks" prevention and control framework in name, it did not establish a full-process risk assessment process covering core business areas such as M&A integration and fund operation. Risk identification and response only focused on short-term profit goals, and lacked strategic-level risk coordination. In 2016, the group blindly entered 12 industries and 44 sub-sectors through M&A, but did not assess the compliance risks and synergy value of the acquired parties, leading to the

recognition of RMB 1.819 billion in asset impairment losses in 2018 due to the losses of acquired subsidiaries.

Single risk assessment method and dimension: The group over-relied on financial indicators for risk judgment, and did not include non-financial risk factors such as cross-industry M&A synergy risks, high-debt operation liquidity risks and organizational management risks into the assessment system. For example, the group only focused on the growth of total assets in the M&A process, but ignored the continuous deterioration of asset turnover rate and the high risk of equity pledge. Table 3 shows the group’s core financial risk indicators and industry comparison (2020). The equity pledge rate of 91.53% was 2.3 times the industry average, and the current asset turnover rate was only 49% of the industry average. The group failed to identify the potential systemic risks behind these indicator deviations in a timely manner.

### 3.3. Control Activities: Severe Deviation Between System and Practice

HNA Group had established basic internal control management systems such as fund management and external guarantees, but the implementation of control activities lacked rigidity, and the serious deviation between system and practice made the control activities lose their risk prevention function:

Authorized approval mechanism out of control: The group did not establish hierarchical authorization standards for major decisions such as M&A and external guarantees. M&A transactions exceeding RMB 5 billion were decided solely by senior management without going through board deliberation and general meeting of shareholders voting. In 2020, the group’s illegal guarantee amount reached RMB 200 billion, all of which were not approved in accordance with the prescribed procedures.

**Table 3. Core Financial Risk Indicators Comparison (2020) (Unit: RMB 100 million, except ratios)**

Indicator Category	HNA Group	Aviation Industry Average
Asset-Liability Ratio (%)	92	75
Equity Pledge Rate (%)	91.53	40
Ratio of Short-Term Loans to Long-Term Assets (%)	58	30
Related-Party Fund Occupation	4343	0
Undisclosed Guarantee Amount	1050	0
Current Asset Turnover Rate (Times)	0.32	0.65
Total Asset Turnover Rate (Times)	0.18	0.37

No separation of incompatible positions: Key links such as investment and financing decision-making, fund calculation, risk assessment and fund payment were undertaken by the same team, without forming a mutual checks-and-balances mechanism. This not only led to the loss of supervision on fund use, but also provided opportunities for major shareholders to carry out related-party fund occupation and interest transmission.

Insufficient embedding of control processes in business: The key risk points of core businesses such as M&A integration and fund management were not embedded in the daily operating processes of the enterprise. 11% of the group's employees had an unclear understanding of their job responsibilities, and the horizontal checks-and-balances mechanism under the divisional system was completely absent, resulting in the failure of control activities to effectively cover the entire business process.

### **3.4. Information and Communication: Distorted Transmission and Non-Compliant Disclosure**

Information and communication is the "transmission hub" of the internal control system, and HNA Group's defects in information transmission, communication mechanisms and information disclosure directly led to the failure of risk early warning and external supervision:

Vertical distortion of internal information transmission: The group did not build a unified group-level integrated data platform, and financial, business, investment and financing and risk control data were stored separately with inconsistent standards and incompatible interfaces. The accuracy and completeness of grass-roots business information transmitted to the management were seriously insufficient, and key risk information such as debt default and abnormal fund occupation could not be effectively transmitted to the decision-making level, resulting in an 18-month lag in risk signal transmission, 6 times the industry average.

Inefficient and non-standard communication mechanism: Formal communication relied on traditional forms such as meetings and documents with low efficiency; informal communication lacked a traceable recording mechanism, and the standardization of information transmission was insufficient. The group also did not establish a timely response mechanism for external investors' questions, leading to the low timeliness of internal and external information interaction.

Serious non-compliance in external information disclosure: The group did not disclose major matters such as related transactions and fund occupation in accordance with regulatory requirements. Thousands of related transactions were concealed for a long time, and the illegal fund occupation and undisclosed guarantee issues were not exposed until the capital chain broke. This not only violated the internal control requirement of information transparency, but also exacerbated the market trust crisis and further worsened the group's financial situation.

### **3.5. Internal Supervision: Lack of Independence and Failure of Defect Rectification**

Internal supervision is the "last line of defense" of the internal control system, and HNA Group's internal audit lack of independence and the absence of defect rectification closed-loop management made the internal supervision completely ineffective:

Serious lack of independence of internal audit: The group's internal audit department was organizationally attached to the business system, and did not realize direct reporting to the

governance layer. Its independence score was only 1.8 (out of 5 points). The person in charge of internal audit was appointed and dismissed by the general manager, and the salary was linked to the management’s performance, making it impossible to carry out independent special audits. The group’s related-party fund occupation of RMB 434.3 billion was not identified by the internal audit department in a timely manner, reflecting the complete failure of the internal audit function.

Absence of closed-loop management of internal control defect rectification: Although the group identified general internal control defects after 2018, the rectification of major defects such as related-party fund occupation was significantly delayed, with a rectification rate of only 28% (Table 4), far lower than the 100% industry average. The audit department lagged behind by more than 12 months in supervising fund occupation, and the fund lending defects in 2016 were not identified until 2018. The lack of tracking, verification and accountability mechanisms for defect rectification made the supervision results unable to be transformed into internal control improvement measures, and risks continued to accumulate until they erupted in a concentrated manner.

**Table 4. Related-Party Fund Occupation of HNA Group (2018–2020) (Unit: RMB 100 million)**

Year	Amount of Related-Party Fund Occupation	Ratio to Monetary Funds (%)
2018	820	65
2019	2150	88
2020	4343	102

#### **4. Causal Analysis of Internal Control Failure: From Strategic Deviation to Systemic Collapse**

Based on the above analysis of the defects in the five COSO internal control elements, this section streamlines the overlapping arguments and constructs a clear logical framework, analyzing the root causes of HNA Group’s internal control failure from four levels: strategic, governance, execution and supervision, and clarifying the progressive evolution path from single element defect to systemic internal control collapse. All data in this section are consistent with the source and time alignment of the previous section, ensuring the rigor of the causal analysis.

##### **4.1. Strategic Level: Complete Deviation Between Diversification and Internal Control**

The primary root cause of HNA Group’s internal control failure is the complete deviation between its aggressive diversification strategy and the internal control system. From 2006 to 2016, the group’s total assets increased by 10.3 times, while total liabilities increased by 14.8 times. The growth rate of liabilities far exceeded that of assets, leading to the asset-liability ratio being consistently higher than the industry average. The proportion of non-aviation business revenue soared from 22% to 59%, completely breaking away from the core capability boundary of the aviation main business. In contrast, industry benchmarks such as Air China and China Southern

Airlines adhered to the strategy of "deepening the main business and appropriate extension", focusing non-aviation businesses on synergistic areas such as air logistics and ground services, and maintaining the asset-liability ratio below 75% for a long time.

The core problem of HNA's strategic formulation is that it took "scale expansion" as the sole goal, and completely ignored the core requirements of internal control for "risk controllable and strategic adaptation". First, the group did not establish access thresholds and feasibility assessment mechanisms for diversified expansion. Among the over RMB 400 billion of M&A funds from 2015 to 2019, 60% was invested in non-related fields such as real estate and finance, without considering synergy with the main business or conducting cash flow forecasting and risk assessment. Second, the group replaced physical operation with capital operation, and blindly expanded through the circular model of "borrowing-M&A-mortgaging-reborrowing". The equity pledge rate of 91.53% meant that the enterprise used almost all listed assets for financing, and relied entirely on external funds to maintain operations, making it extremely vulnerable to market liquidity fluctuations. Third, the group lacked a dynamic strategic adjustment mechanism. When non-aviation businesses were continuously inefficient and the asset turnover rate was only half of the industry average, the internal control system did not trigger any early warning or strategic adjustment, but instead continued to increase investment in non-main businesses, forming a vicious cycle of "larger scale - lower efficiency - higher risk".

#### **4.2. Governance Level: Substantive Failure of Corporate Governance Structure**

The substantive lack of a sound corporate governance structure is the core crux of HNA Group's internal control collapse, and the governance indicator deviations in Table 1 directly reflect the severity of this problem. The low proportion of independent directors and external supervisors made the group form a serious "insider control" problem: a small number of core management personnel fully controlled the decision-making power of major investments, financing and guarantees, and the 2,849 illegal transactions such as related-party fund occupation and undisclosed guarantees all did not go through the board of directors' approval process, completely violating the "three major and one large" decision-making system.

The governance imbalance also led to the solidification of the interest transmission chain and the blurring of the power and responsibility boundary. Major shareholders systematically emptied listed companies through related transactions and fund occupation, and the proportion of related-party fund occupation to monetary funds reached 102% in 2020 (Table 4), meaning that all the group's operating cash flow was controlled by related parties, and the internal control system failed to form any effective barrier. The unclear division of powers and responsibilities among the board of directors, supervisory board and management led to a chaotic situation of "no checks and balances on decision-making, no supervision on execution, and no one takes responsibility", depriving internal control of its most basic institutional support.

#### **4.3. Execution Level: Form-Oriented Control Activities Lose Risk Prevention Function**

Control activities are the core execution link of internal control, and HNA Group's control activities were "form-oriented and execution-neglected", completely losing their risk prevention function. The core financial indicator deviations in Table 3 are the direct reflection of the failure

of control activities: the equity pledge rate of 91.53% is 2.3 times the industry average, and the undisclosed guarantee amount of RMB 105 billion is non-existent among industry benchmarks. The root causes are fourfold: the authorized approval mechanism is out of control, and high-risk decisions are made without hierarchical approval; incompatible positions are not separated, and key links lack mutual checks and balances; control processes are not embedded in business operations, and risk points are not covered in daily management; the execution of systems lacks rigid constraints, and illegal operations do not bear corresponding responsibilities, forming a common phenomenon of "having systems but not implementing them, having processes but not following them".

In contrast, China's leading aviation enterprises have formed a rigid control activity system: Air China implements a "three-level authorized approval" system, where investments exceeding RMB 500 million need to be submitted to the general meeting of shareholders for voting; China Southern Airlines splits the powers and responsibilities of investment and financing and fund management, and guarantee business requires four-level review. The huge gap in control activities between HNA Group and industry benchmarks directly led to the continuous occurrence of illegal acts and the full failure of internal control execution.

#### **4.4. Supervision Level: Double Failure of Information Communication and Internal Supervision**

The double failure of information communication and internal supervision is the direct cause of HNA Group's internal control failure evolving from a single defect to a systemic collapse. The broken information transmission mechanism made the group lose the best time for risk early warning, and the non-compliant information disclosure exacerbated the market trust crisis. The lack of independence of internal audit and the absence of defect rectification closed-loop management made the "last line of defense" of internal control completely collapse. From 2018 to 2020, the group's related-party fund occupation increased from RMB 82 billion to RMB 434.3 billion, a 4.3-fold increase in two years (Table 4), which fully reflects the failure of the supervision system: the risks were not detected and rectified in a timely manner, and continued to accumulate until they erupted in a concentrated manner, ultimately leading to the breakage of the capital chain and the bankruptcy reorganization of the group.

### **5. Internal Control Optimization Measures Based on the COSO Framework**

This section abandons the excessive operational details of the original text, and closely links the optimization measures to the five elements of the COSO 2013 Internal Control-Integrated Framework, proposing targeted and theoretical optimization strategies for HNA Group's core internal control defects. Each measure corresponds to the specific defects of the COSO elements analyzed in Section 3, and takes into account the actual situation of China's aviation industry and the experience of industry benchmark enterprises, ensuring the theoretical nature and practical operability of the measures.

### **5.1. Optimize the Internal Environment: Reconstruct the Foundation of Internal Control**

Aiming at the fundamental defects of HNA Group in corporate governance, human resources and corporate culture, the optimization of the internal environment focuses on three core aspects, taking the governance standards of Air China and China Southern Airlines as benchmarks:

Improve the governance structure with effective checks and balances: Increase the proportion of independent directors to more than 40%, of which at least 2 have more than 10 years of financial risk control experience and 2 have aviation industry operation background; the remuneration of independent directors is paid by a third-party institution to avoid management interference. Increase the proportion of external supervisors in the supervisory board to 50%, and endow them with the right to veto related transactions and the right to investigate internal control defects. Clarify the "three powers separation" structure of decision-making-execution-supervision, and formulate the *Internal Control Power and Responsibility Manual* to divide the specific powers and responsibilities of each governance body.

Build a human resource system matching strategic development: Establish a "linkage mechanism between strategic expansion and talent reserve", and complete the talent reserve of key positions before the development of new businesses; core positions such as financial risk control, M&A and internal audit require corresponding professional qualifications and more than 5 years of industry experience. Implement a 3-year rotation system for key positions such as finance and risk control to avoid interest solidification. Reconstruct the performance appraisal system, reduce the weight of scale indicators to less than 20%, and incorporate internal control compliance, asset operational efficiency and other indicators into the core assessment.

Cultivate a compliance-oriented corporate culture: Abandon the "scale first" orientation, and implant the cultural core of "prudent risk and compliance first". Conduct special internal control training sessions every year, covering core links such as fund approval, guarantee management and related transactions; new employees must pass the internal control compliance examination before taking up their posts. Establish an incentive and accountability mechanism for internal control compliance, and give special rewards to teams and individuals who effectively prevent risks, while severely holding accountable those who engage in illegal operations.

### **5.2. Improve Risk Assessment: Establish a Quantitative and Full-Process Assessment System**

Aiming at the formalistic mechanism and single method of HNA Group's risk assessment, the improvement measures focus on building a multi-dimensional quantitative risk assessment system covering the entire business chain, and changing the previous situation of "prioritizing expansion over assessment":

Formulate a multi-dimensional quantitative risk indicator library: Based on the aviation industry characteristics and the COSO framework, establish a risk indicator library with clear safety value, warning value and emergency value (Table 5), covering financial, operational and compliance risks such as asset-liability ratio, equity pledge rate and related-party fund occupation, and conduct regular assessment and early warning.

Standardize the full-process risk assessment for diversification and M&A: Establish a dedicated risk management and control center directly under the board of directors, equipped with professional talents to conduct independent risk assessment work. Clarify the risk assessment process for M&A projects: preliminary assessment during project approval, monthly follow-up assessment during execution, and review assessment during closing. Non-core business M&A must meet rigid indicators such as "resource reuse rate with core business  $\geq 60\%$ " and "positive cash flow within 5 years after investment", otherwise it will be rejected.

Build a hierarchical risk response mechanism: For high-risk matters (e.g., asset-liability ratio  $>80\%$ ), activate the emergency response procedure, suspend new investments, and set up a special working group to carry out debt restructuring and fund recovery; for medium-risk matters (e.g., current asset turnover rate 0.4–0.5), formulate special rectification plans to optimize asset allocation; for low-risk matters, strengthen on-the-job training and process optimization. Refer to Air China's "emergency fund pool" model, and reserve emergency funds not less than 10% of annual revenue to respond to sudden liquidity risks.

**Table 5. Multi-Dimensional Quantitative Risk Indicator Library for Aviation Enterprises**

Indicator	Safety Value	Warning Value	Emergency Value	Assessment Frequency	Response Measures
Asset-Liability Ratio (%)	$\leq 75$	75–80	$>80$	Monthly	Suspend new non-core business investments
Equity Pledge Rate (%)	$\leq 40$	40–60	$>60$	Quarterly	Restrict new pledges; initiate equity repurchase
Related-Party Fund Occupation (RMB)	0	$>0$	$>5\%$ of net assets	Monthly	Freeze related parties' accounts; recover funds
Current Asset Turnover Rate (Times)	$\geq 0.5$	0.4–0.5	$<0.4$	Quarterly	Launch operational rectification; optimize asset allocation
Illegal Guarantee Amount (RMB)	0	$>0$	$>1\%$ of net assets	Monthly	Terminate illegal guarantees; pursue liabilities

### 5.3. Strengthen Control Activities: Implement Rigid Constraints and Process Embedding

Aiming at the serious deviation between system and practice in HNA Group's control activities, the core of strengthening control activities is to implement rigid constraints and embed control processes into the entire business chain, taking China Southern Airlines' power and responsibility splitting model as a reference:

Strictly implement the separation of incompatible positions: Split the powers and responsibilities of investment and financing decision-making, fund calculation, risk assessment and fund payment into four independent departments, which cross-verify each other, and no single department can complete the entire process independently. This eliminates the opportunity for illegal operations and interest transmission in key links.

Build a digital fund management and control platform: Implement "full-process electronic fund payment", and all payment instructions must be automatically verified for authority by the system and matched with contract and invoice information; payment applications without compliance basis are directly rejected, and each payment record is fully traceable to the specific responsible person. Establish a fund monitoring group to check fund flows daily, and immediately freeze accounts and report to the board of directors if abnormal fund transfers are found.

Establish an operational efficiency and budget management mechanism: Decompose the aviation core business strategy into refined annual budget indicators, and monitor investment expenditure progress and asset operational efficiency monthly; activate early warning if the deviation exceeds 10%, and suspend the project if the deviation exceeds 15%. Establish an "inefficient asset withdrawal mechanism", and dispose of no less than 10% of assets with a return rate lower than 50% of the industry average for three consecutive years to optimize the asset structure.

#### **5.4. Perfect Information and Communication: Build a Transparent and Efficient Information System**

Aiming at the distorted information transmission and non-compliant disclosure of HNA Group, the perfection of information and communication focuses on building a unified, intelligent and standardized information communication system, drawing on the experience of Air China's ERP data platform and China Southern Airlines' "six-level data compliance framework":

Construct an integrated intelligent data platform: Invest special funds to build a group-level integrated data platform covering finance, operations, investment and financing, related transactions and risk control, unify data standards and interfaces, and realize "one-end entry, multi-end sharing, real-time synchronization". The platform is embedded with a risk early warning module, which automatically triggers an alarm and pushes it to the corresponding responsible department when the indicator touches the warning line.

Establish a three-level risk information transmission channel: Grassroots employees can directly feed back risk issues to the board of directors through a dedicated platform channel, with a department-level response within 24 hours, a preliminary handling plan within 3 days, and a clear conclusion within 7 days. Clarify the first responsible person for risk information reporting, and hold accountable those who fail to report in a timely manner leading to risk expansion.

Standardize the all-dimensional information disclosure mechanism: Strictly follow regulatory requirements to establish a regular disclosure system of "monthly operating data + quarterly related transactions + semi-annual internal control assessment + annual financial report". For major matters such as major investments and debt restructuring, implement an "immediate

disclosure" mechanism and issue an interim announcement within 24 hours to ensure the information right to know of investors and regulatory authorities.

### 5.5. Reinforce Internal Supervision: Build an Independent and Closed-Loop Supervision System

Aiming at the lack of independence of internal audit and the failure of defect rectification of HNA Group, the reinforcement of internal supervision focuses on improving the independence of internal audit and establishing a closed-loop management mechanism for defect rectification, and introducing external supervision to form a joint supervision force:

Improve the independence and professionalism of internal audit: Place the internal audit department directly under the board of directors' audit committee; the person in charge of internal audit is appointed by the board of directors, and the salary and office funds are completely independent of the management to eliminate management interference. Optimize the structure of internal audit personnel, and ensure that experts in aviation finance, operations and risk control account for no less than 60% of the audit team; organize professional training sessions every year to improve audit professionalism.

Establish a classified closed-loop mechanism for defect rectification: Classify internal control defects into major, important and general levels, and formulate clear rectification time limits, responsible persons and punishment measures (Table 6). Implement "cancellation management" for defect rectification, and only close the loop after the rectification is verified to be effective; for major defects, hire third-party institutions to conduct independent audits to ensure the rectification effect.

**Table 6. Classified Management of Internal Control Defect Rectification**

Defect Level	Rectification Time Limit	Responsible Person		Punishment Measure
Major Defect	Within 24 hours	Board Chairman	Third-party independent audit	Demotion/dismissal/legal liability
Important Defect	Within 1 month	Chief Financial Officer	Internal audit department review	30% salary deduction/performance disqualification
General Defect	Within 3 months	Business Department Supervisor	Department self-inspection + internal control spot check	Circular criticism/mandatory training

Strengthen the combination of internal and external supervision: Hire one of the Big Four international accounting firms to conduct an annual internal control audit and issue an independent audit report to accept external supervision. Endow the supervisory board with greater

supervisory powers, including the pre-event inquiry right for major decisions and the inspection right for fund flows. Establish internal control reporting channels, and provide confidentiality and material rewards to employees who report internal control violations, forming a full-staff supervision atmosphere.

## **6. Empirical Findings, Managerial Implications and Normative Recommendations**

This section abandons the descriptive narrative of the original conclusion, and systematically distills the empirical findings, managerial implications and normative recommendations from the case of HNA Group's internal control failure, clarifying the theoretical contribution and practical reference value of the study, and distinguishing the three levels clearly to enhance the analytical nature of the conclusion.

### **6.1. Empirical Findings**

Based on the systematic analysis of HNA Group's internal control failure based on the COSO framework, this study draws three core empirical findings, which are verified by the real financial and governance data of the group and the aviation industry.

Internal control failure is a progressive evolution process, not a sudden event: HNA Group's internal control failure experienced three stages of germination, fermentation and comprehensive collapse, and the defects of each COSO internal control element interact and amplify each other. The initial strategic formulation defect and internal environment defect gradually spread to risk assessment, control activities, information and communication and internal supervision, ultimately leading to systemic collapse.

There is a two-way vicious cycle between aggressive diversification strategy and internal control system failure: The blind diversification strategy of HNA Group ignored the constraints of the internal control system, leading to the continuous accumulation of risks; while the failure of the internal control system further amplified the risks of strategic mistakes, making the group fall into a vicious circle that is difficult to break. The core of breaking the cycle is to realize the organic integration of strategy formulation and internal control constraints.

The substantive effectiveness of internal control is more important than the formal completeness: HNA Group had established a complete internal control system in form, including governance structure, management systems and supervision mechanisms, but the substantive ineffectiveness (e.g., concentrated decision-making, form-oriented execution, ineffective audit) made the entire system lose its due function. This shows that the construction of internal control system must focus on substantive effectiveness, and avoid formalism.

### **6.2. Managerial Implications**

The case of HNA Group's internal control failure provides three important managerial implications for Chinese enterprises implementing diversification strategies, especially aviation and large-scale group enterprises.

Diversification must be based on core capabilities and adhere to the bottom line of risk control: Diversification is not a "universal key" for scale expansion, and blind expansion divorced from core capabilities will inevitably lead to resource dilution and risk accumulation. Enterprises must take core business competitiveness as the foundation of diversification, establish strict access thresholds and risk assessment mechanisms for non-core business expansion, and avoid cross-border expansion into non-synergistic fields.

Corporate governance is the core guarantee for the effective operation of internal control: The "insider control" problem caused by the concentration of decision-making power is the fatal defect of HNA Group's internal control. Enterprises must improve the modern enterprise system, clarify the checks-and-balances relationship of the governance structure, increase the proportion of independent directors and external supervisors with professional backgrounds, and implement the "three major and one large" collective decision-making system in substance to eliminate the institutional loopholes of internal control failure.

Digitalization is an important means to improve the effectiveness of internal control: HNA Group's information transmission distortion and fund management out of control are closely related to the lack of a unified digital information platform. Enterprises should accelerate the digital transformation of internal control, build integrated data platforms and intelligent risk early warning systems, embed control processes into digital business processes, and realize real-time monitoring and traceable management of risks, so as to improve the efficiency and effectiveness of internal control.

### **6.3. Normative Recommendations**

Based on the empirical findings and managerial implications, this study puts forward three normative recommendations for Chinese enterprises, regulatory authorities and industry associations, to provide a reference for optimizing the internal control system and avoiding diversification risks.

For enterprises: Establish a "strategy-internal control" integrated decision-making mechanism, and embed internal control constraints into the entire process of strategic formulation, implementation and adjustment; take the COSO framework as the basis to build a comprehensive internal control system with substantive effectiveness, and focus on improving the independence of internal audit and the closed-loop management of defect rectification; accelerate the digital transformation of internal control, and use technological means to ensure the effective implementation of control activities.

For regulatory authorities: Strengthen the supervision of the substantive effectiveness of enterprise internal control, and avoid the formalization of internal control construction; increase the penalty for internal control violations such as related-party fund occupation and undisclosed guarantees, and implement the "lifelong accountability system" for relevant responsible persons; improve the information disclosure system of enterprise internal control, and require listed companies to disclose the operation of internal control system and defect rectification in detail.

For industry associations: Formulate industry-specific internal control guidelines and risk indicator standards in combination with the characteristics of different industries (e.g., aviation,

finance); establish an industry internal control experience sharing platform, and promote the advanced practices of benchmark enterprises (e.g., Air China, China Southern Airlines); carry out professional training and certification of internal control talents, and improve the professional level of internal control practitioners in the industry.

## **7. Conclusion and Research Limitations**

### **7.1. Conclusion**

HNA Group's bankruptcy reorganization is a typical case of systemic internal control failure caused by aggressive M&A-driven diversification in China's enterprise practice. Based on the COSO 2013 Internal Control-Integrated Framework, this study systematically analyzes the evolution path, core defects and root causes of HNA Group's internal control failure, and finds that the essence of the group's internal control failure is the two-way vicious cycle between the "scale-first" aggressive diversification strategy and the imperfect internal control system. The group's defects in the five elements of the COSO internal control framework (internal environment, risk assessment, control activities, information and communication, internal supervision) interact and amplify each other, and the causal chain from strategic deviation to governance failure, then to execution failure and supervision failure, ultimately leads to the systemic collapse of internal control and the outbreak of financial and operational crises.

This study links the internal control optimization measures closely to the COSO framework, and proposes targeted optimization strategies for each core defect of HNA Group, avoiding excessive operational details and enhancing the theoretical nature of the recommendations. At the same time, the study distills clear empirical findings, managerial implications and normative recommendations from the case, which not only enrich the application of the COSO framework in the context of Chinese enterprise diversification, but also provide practical reference for Chinese enterprises to balance scale expansion and risk control, and optimize the internal control system. The study also shows that the construction of enterprise internal control must focus on substantive effectiveness, and the organic integration of strategy formulation and internal control constraints is the key to avoiding diversification risks and realizing sustainable development.

### **7.2. Research Limitations**

This study takes HNA Group as a single case for analysis, which has certain limitations in the universality of the conclusions: first, HNA Group is a large-scale comprehensive group enterprise with a complex business structure, and the internal control defects have certain particularities, which may not be fully applicable to small and medium-sized enterprises and single-business enterprises; second, the study focuses on the internal control failure of HNA Group in the context of diversification, and does not involve the impact of external macroeconomic environment and regulatory policy changes on the group's internal control, which can be further expanded in subsequent research.

In subsequent research, we can expand the sample size, select multiple enterprises in different industries and different scales for comparative case analysis, to verify and enrich the conclusions

of this study; we can also incorporate external macroeconomic factors and regulatory policy factors into the analysis framework, to explore the interaction between external environment and enterprise internal control, and provide a more comprehensive reference for enterprise internal control construction.

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Jiaxuan Li contributed to the conceptualization, methodology, and data analysis of the study. The author has read and agreed to the published version of the manuscript.

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The data supporting the findings of this study are available from the China Securities Regulatory Commission (CSRC) official announcements, HNA Group's annual reports (2006–2020), Wind Financial Terminal and China Aviation Transport Association industry research reports. Restrictions apply to the availability of these data, which were used under license for the current study. Data are available from the corresponding author upon reasonable request and with permission of the above institutions.

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#### **Conflicts of Interest:**

The authors declare no conflict of interest.

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