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A Case Analysis of Internal Control of Zhangzidao Group

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Abstract

To identify the inherent operational defects of internal control within the aquaculture industry, this paper takes Zhangzidao Group as the research sample and conducts a comprehensive case analysis under the five-component framework issued by COSO, covering control environment, risk assessment, control activities, information and communication, and internal supervision. The research finds that Zhangzidao suffers from multiple severe internal control flaws: unbalanced corporate governance structure, inadequate identification and evaluation of fraud risks, ineffective control over biological assets, distorted internal information transmission, and nominal internal supervision mechanisms, which together trigger successive financial fraud incidents. Targeted countermeasures are proposed from four dimensions: digital technology empowerment, corporate governance restructuring, diversified risk hedging, and multi-stakeholder supervision. The research conclusions can provide practical references for listed aquaculture firms to improve internal control systems and mitigate financial manipulation risks.

Keywords: Zhangzidao Group; Internal Control; COSO Five Components; Financial Fraud; Biological Assets

1. Introduction

With the continuous refinement of China's capital market supervision framework, internal control construction has become a core compliance guarantee for listed enterprises to prevent financial risks and standardize daily operations (Ministry of Finance et al., 2008). Compared with traditional manufacturing and service industries, the aquaculture sector features consumable biological assets that are hard to conduct physical stocktaking, frequent natural disasters, and volatile asset values, which greatly raise the implementation difficulty of internal control (Liang et al., 2015). As a leading listed marine aquaculture enterprise, Zhangzidao Group has sparked constant market disputes due to abnormal inventory impairment and deliberate financial misstatement, serving as a typical research case of total internal control failure (Zhang, 2015).

Domestic and foreign scholars have accumulated abundant research outcomes on internal control theories and corporate financial fraud. COSO (2013) defined the five core components of internal control in Internal Control—Integrated Framework, which has become the universal theoretical foundation for enterprises worldwide to build internal control systems (COSO, 2013). Domestic research: Wu et al. (2000) systematically sorted the evolution of internal control theories and verified the restraining effect of sound internal control on corporate fraud (Wu et al., 2000). Zhang (2015) and Liang et al. (2015) analyzed internal control loopholes of aquaculture enterprises respectively from the perspective of biological asset measurement and governance defects. Foreign scholars further supplemented studies on management override and fraud risk identification, pointing out that flawed governance environment is the primary inducement of listed firms' financial manipulation (Beasley, 1996; Rezaee, 2005).

Existing literature has laid a solid theoretical foundation, yet systematic case studies focusing on three core pain points of aquaculture enterprises—control loopholes of biological assets, the formation path of management override, and digital empowerment of internal control—remain insufficient. Against this background, this paper follows the research logic of "Current Situation Analysis → Internal Control Defect Diagnosis → Optimization Scheme Design", analyzes the root causes of Zhangzidao's internal control collapse based on the COSO framework, and puts forward targeted improvement measures matching industrial characteristics. This research can supply operable references for special-industry listed companies to reconstruct internal control systems (Zhang et al., 2011; Doyle et al., 2007).

2. Analysis of the Five Components of Internal Control

Zhangzidao Group Co., Ltd. (hereinafter referred to as Zhangzidao) gets its name from Zhangzidao Island in Dalian, Liaoning Province. Its predecessor Dalian Zhangzidao Fishery Group Co., Ltd. was founded in September 1992, listed on the Shenzhen Stock Exchange in September 2006, and renamed Zhangzidao Group Co., Ltd. in October 2012, a name retained to date. At present, it operates as a large integrated marine food conglomerate centered on marine aquaculture, integrating fry breeding, marine cultivation, seafood processing, domestic and foreign trade, cold chain logistics, and fishery equipment manufacturing. It has a registered capital of 710 million RMB, nearly 3,000 employees, and more than 30 branches, wholly-owned subsidiaries and Sino-foreign joint ventures under its jurisdiction.

In Zhangzidao's financial fraud case, the enterprise was confirmed to have material internal control deficiencies and intentional financial misstatement: it overstated profits by 131 million RMB in 2016 and understated profits by 279 million RMB in 2017; the Announcement on Sampling Inspection Results of Bottom-Sown Scallops in Autumn 2017 released by the firm contained materially false records. Besides, the enterprise suffered a monthly loss of over 10 million RMB with an expected full-year loss of 5.28 million RMB, yet it failed to disclose such material operational risks in a timely manner.

Given the huge amount of fraudulent amount involved, the case was transferred to judicial organs for criminal investigation. The China Securities Regulatory Commission issued a warning

and imposed a fine of 600,000 RMB on Zhangzidao Group; Wu Hougang, Liang Jun, Sun Fujun and Gou Rong received formal warnings and individual fines of 300,000 RMB each. Wu Hougang was subject to a lifelong securities market ban, while the other three executives received 5–10 year market bans. A total of 20 mid-level managers including Cheng Jia were warned and fined between 30,000 RMB and 200,000 RMB.

2.1. Control Environment

2.1.1. Organizational Structure

Zhangzidao has established a standardized corporate governance framework with clear division of responsibilities for special committees under the board of directors. After state-owned capital acquired controlling equity, the group obtained policy and resource support. However, internal directors accounted for 40% of the board seats in 2024, independent directors lacked sufficient supervisory capacity, and the board of supervisors operated in formalism, failing to detect long-term financial manipulation in advance (Tang, 2019). Moreover, ambiguous responsibility allocation between departments and subsidiaries triggered operational barriers: the marketing department could not coordinate efficiently with sales subsidiaries, and information transmission lag existed between R&D and production departments, jointly reducing corporate decision-making and execution efficiency.

2.1.2. Development Strategy

Currently, Zhangzidao sticks to a three-in-one transformation strategic positioning: “Marine Food Supplier + Intelligent Fishery Equipment Manufacturer + Marine Cultural Tourism Operator”. In the short run, marine product sales are boosted through cultural tourism marketing; in the medium term, large-scale industrialization of intelligent fishery equipment is promoted; in the long run, high value-added businesses such as yacht operation are expanded to build a “1+N” diversified industrial layout. This three-dimensional strategic layout conforms to the general development trend of the marine economy and generates strong industrial synergy among its three core business segments.

2.1.3. Human Resource Management

Zhangzidao has formulated comprehensive human resource policies covering recruitment, professional training, compensation management and job rotation, with the recruitment standard of “valuing both integrity and professional competence”. The group targets specialized marine industry talents to optimize workforce structure. Targeted recruitment of technical professionals facilitates industrial upgrading; the three-system reform streamlines administrative levels and optimizes workflows to lift operational efficiency. The stable provision of local employment on Zhangzidao Island in 2022 also reflects the enterprise’s social responsibility.

2.2. Risk Assessment

2.2.1. Objective Setting

Zhangzidao takes “premier marine food service provider” as its core strategic orientation. Supported by state-owned capital, it adopts a dual-driven development model combining

traditional aquaculture core business and emerging growth tracks including fishery equipment and marine cultural tourism. Its medium-and-long-term operational objectives include realizing operating revenue of 1.9 billion RMB and net profit of 20 million RMB by 2025, while advancing cost reduction, cultivation structure optimization and debt restructuring. Internal control objectives cover compliant operation, asset safety, and true and complete financial reporting, complying with the requirements of national internal control norms (Ministry of Finance et al., 2008).

2.2.2. Risk Identification

Zhangzidao sorts out four core risk categories: natural disaster risks, operational risks, financial risks, and internal control & compliance risks. Specific risk points are summarized via cross-departmental investigations and expert research judgment.

2.2.3. Risk Analysis

Zhangzidao adopts a mixed qualitative-quantitative risk analysis framework. Qualitative evaluation judges risk severity through expert interviews and business process sorting; quantitative evaluation estimates potential loss magnitude based on financial and aquaculture production data. Core analysis conclusions show that natural disasters constitute fatal risks with accumulated asset impairment losses exceeding 2 billion RMB; financial risks are survival risks due to weak short-term solvency; operational and compliance risks will further amplify the negative impacts of natural and financial risks.

2.2.4. Risk Response Tactics

Zhangzidao implements four types of risk response tactics: risk avoidance, risk reduction, risk transfer and risk acceptance. Specific measures include reducing scallop seeding areas to avoid natural disaster risks; deploying intelligent aquaculture equipment and optimizing cultivation technologies to lower operational risks; purchasing exclusive fishery insurance and carrying out debt restructuring to transfer financial risks; accepting minor market fluctuation risks with limited impact, while reinforcing internal control construction to cope with compliance risks.

2.3. Control Activities

2.3.1. Segregation of Incompatible Duties

From institutional design perspective, Zhangzidao mandates job segregation across aquaculture seeding, physical inventory counting, financial accounting and internal audit supervision. For instance, marine field operation positions are separated from data recording positions to prevent single staff from dominating the whole business process.

2.3.2. Authorization and Approval Control

The group issued Group Management and Authorization Specification Manual and Fund Expenditure Approval Operating Guidelines, distinguishing approval authority thresholds for major material matters and daily routine operations, and solidifying standardized approval workflows through information management systems.

2.3.3. Asset Safeguard Control

For its 940 square kilometers of marine ranch and biological assets, Zhangzidao designed a three-dimensional monitoring system integrating satellite remote sensing, ship patrol inspection and underwater sensor monitoring, and formulated standardized operating procedures (SOPs) for inventory counting and quantitative trigger thresholds for asset impairment recognition.

2.3.4. Budgeting and Performance Evaluation Control

Zhangzidao decomposes annual revenue and net profit targets into subdivided indicators including aquaculture output, unit production cost and account collection rate, and links individual and management performance appraisal results to salary remuneration.

2.3.5. Accounting and Compliance Control

The enterprise established standardized financial accounting and information disclosure systems, requiring all biological asset impairment provisions to be recognized in accordance with accounting standards, and organizing regular internal control self-evaluation work.

2.4. Information and Communication

2.4.1. Internal Information Transmission

Zhangzidao formulated formal systems regulating internal information circulation and regular meeting communication. After state-owned capital acquired control, redundant information transmission links were simplified, a standardized operation mechanism of “daily monitoring, weekly reporting, monthly review” was implemented, and a unified enterprise data center was constructed.

2.4.2. External Information Communication

The group standardized communication specifications for regulatory information disclosure and investor relations management. Post state-owned capital injection, a dedicated investor relations team was set up, third-party independent verification mechanisms were introduced, and the enterprise data platform was connected to industry-wide public data systems.

2.4.3. Information System Construction

Zhangzidao released formal information system management and data security policies, and formulated overall informatization construction plans. After state-owned capital participation, massive intelligent monitoring equipment was added, cross-business system interconnection was promoted, and quantitative coverage targets for monitoring systems were set.

2.5. Internal Supervision

2.5.1. Supervision Institutions and Responsibility Division

Zhangzidao built a three-tier supervision framework consisting of the board of supervisors, the audit committee of the board of directors, and the internal audit department. The internal audit department reports directly to the audit committee, undertaking internal control evaluation and financial audit work. After state-owned capital gained control, the independence of the internal

audit department was strengthened, and dedicated posts for major risk special supervision were added.

2.5.2. Standardized Supervision Procedures

The enterprise issued institutional documents including Internal Audit Management System, defining a full closed-loop supervision workflow: plan formulation → audit project implementation → internal control defect identification → rectification follow-up → audit report feedback → process optimization review. After state-owned capital intervention, normalized supervision procedures of "monthly self-inspection, quarterly spot check, annual comprehensive audit" were supplemented.

2.5.3. Supervision Technical Methods

Zhangzidao adopts traditional supervision tools such as on-site inspections and sampling audit. After state-owned capital injection, third-party independent verification mechanisms were introduced, the enterprise data center was used for cross-data comparative analysis, and composite supervision methods combining on-site biological asset counting and satellite remote sensing monitoring were added.

3. Internal Control Deficiencies and Root Cause Diagnosis

Zhangzidao's internal control failure is not an isolated flaw in a single business link, but a systemic collapse covering all five COSO components. The core root cause lies in management override by controlling shareholders and senior executives, compounded by the inherent audit difficulty of aquaculture biological assets. This combination rendered control activities nominal, internal information severely distorted, and both internal and external supervision mechanisms ineffective. This paper mainly analyzes core defects from two dimensions: control environment and risk assessment.

3.1. Control Environment: Unbalanced Governance and Missing Corporate Integrity Culture

From organizational structure perspective, Zhangzidao's board of directors set up specialized committees for audit, strategy, compensation assessment and nomination, while the management tier established functional departments including production & harvesting, internal audit and finance. However, daily operation fell into severe insider control: senior executives issued work instructions overriding formal internal control systems, leading to functional distortion of core departments. The finance department generated distorted cost accounting data, the production department's operation records deviated from on-site reality, and the internal audit department existed in name only (Tang, 2019). Meanwhile, all special committees under the board of directors failed to perform supervisory duties, jointly causing distorted information transmission and delayed feedback of material risk signals.

The control environment acts as the cornerstone of the entire internal control system, determining the enterprise's overall risk preference and compliance tone. Flaws in this dimension

at Zhangzidao are fundamental. Wu Hougang, the actual controller and chairman, held absolute decision-making authority for a long time, forming a typical insider control governance structure. The board of directors, board of supervisors and audit committee lost independence and could not form effective power checks and balances. During the whole financial fraud decision chain, the governance layer ignored supervision obligations and became the initiator and executor of fraudulent acts, completely invalidating the top-level design of internal control. This case fully reflects the most serious internal control deficiency: management override of internal control procedures, which renders all subordinate control rules ineffective at the source (Rezaee, 2005; Dechow et al., 1996).

3.2. Risk Assessment: Selective Neglect of Industrial Inherent Risks and Insufficient Fraud Risk Prevention Mechanisms

From 2016 to 2019, Zhangzidao's total inventory declined continuously from 1.751 billion RMB to 704.8 million RMB, with a cumulative drop of 59%. Sharp inventory declines always appeared at financial reporting nodes. Taking advantage of the difficulty of physical inspection for underwater seafood assets, the enterprise manipulated profits artificially: it under-recorded asset impairment or even overstated inventory values when inflating profits, and made massive write-down provisions to cover operational losses under performance pressure, resulting in severely distorted financial statements (Zhang, 2015).

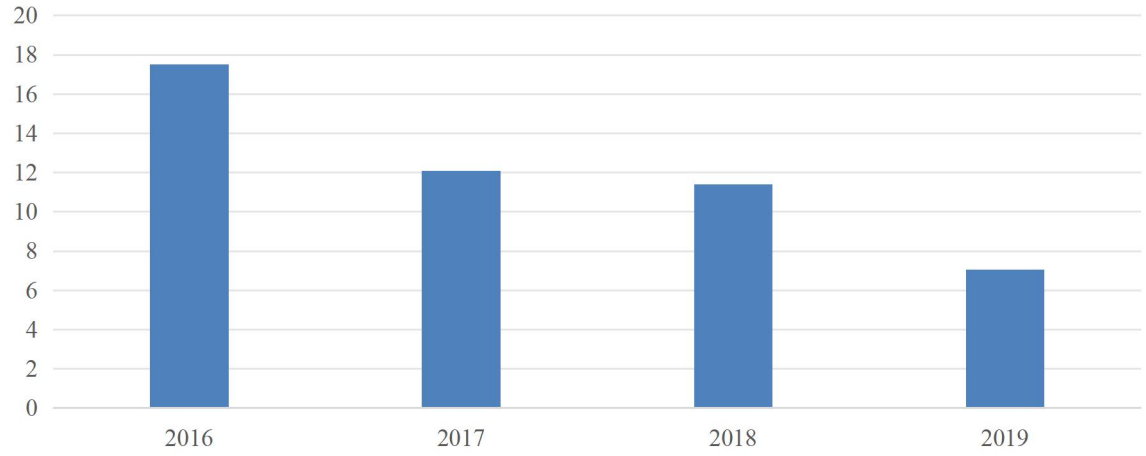

Figure 1. Inventory Changes of Zhangzidao from 2016 to 2019

3.2.1. Superficial Assessment of Inherent Operational Risks

As an aquaculture enterprise, its core consumable biological assets carry two prominent features: the quantity and value of underwater assets cannot be measured accurately, and asset survival is highly sensitive to natural environmental changes. Nevertheless, the enterprise failed to design and implement rigorous, transparent procedures for inventory monitoring and asset value evaluation targeting this high-risk link. Its annual autumn sampling inspection scheme contained massive subjective discretionary space that could be manipulated artificially, hiding risks of arbitrary cost carry-forward and profit adjustment. This phenomenon proves that the enterprise's risk assessment results were not transformed into binding executable control measures.

3.2.2. Lack of Systematic Identification and Response Mechanisms for Fraud Risks

The COSO framework clearly requires enterprises to identify and assess fraud risks covering all business links. The Zhangzidao case proves that the governance layer itself became the source of fraudulent acts, rendering all anti-fraud procedures and control measures completely ineffective. The enterprise failed to build institutional arrangements restricting management override, such as independent verification channels for mandatory anonymous reporting and special approval procedures for abnormal non-recurring transactions. It also lacked targeted prevention mechanisms against profit manipulation by taking advantage of biological asset audit difficulties (Zhang et al., 2011; Beasley, 1996).

4. Internal Control Optimization Schemes and Supporting Safeguard Mechanisms

The optimization schemes and supporting safeguard measures aim to realize systematic reconstruction of Zhangzidao's internal control system. Centered on corporate governance restructuring and digital technology empowerment, the group shall establish an independent, authoritative risk management committee and implement substantive separation of decision-making power and supervision power, so as to restrict arbitrary manipulation by core executives. Meanwhile, an integrated sea-land-air intelligent asset monitoring network shall be built to realize the transformation from human-dependent governance to data-driven governance. To guarantee full implementation of reform measures, multi-layer supporting mechanisms are formulated: issuing quantitative implementation rules to eliminate subjective discretionary space, cooperating with insurance institutions to hedge natural disaster risks, adding special internal control effectiveness disclosure chapters in annual reports, and actively accepting penetrating supervision assisted by professional equipment from regulatory and audit authorities. The ultimate goal is to build a rigid closed-loop control ecosystem that eliminates the motive, opportunity and rationalization for financial fraud, fundamentally transforming aquaculture asset operation from an opaque black box to a fully traceable transparent system, and constructing a credible, sustainable internal control system matching special industrial attributes (Li & He, 2012).

4.1. Fundamental Optimization Schemes: Parallel Institutional Restructuring and Digital Technology Empowerment

4.1.1. Construct Integrated Sea-Land-Air Three-Dimensional Intelligent Monitoring System

The core starting point of fundamental reform lies in digital technology management, breaking through the limitations of traditional manual patrol inspection and empirical judgment. The enterprise shall build a full-coverage integrated sea-land-air intelligent monitoring system: deploy underwater sonar arrays and IoT sensor networks to collect real-time dynamic data on aquaculture organism density and activity status; adopt Beidou satellite and remote sensing technology to macro-monitor marine environmental changes and vessel operation trajectories; organize regular UAV cruise inspections to form a multi-dimensional uninterrupted data collection network.

Multi-source technical equipment converts unobservable underwater biological assets into visual, quantifiable and analyzable data streams. Algorithm early-warning models can

automatically send risk alerts upon detecting abnormal indicators such as sudden water temperature fluctuation or abnormal biological activity, shifting risk response from post-loss remediation to real-time intervention and pre-event prevention. The core value of digital governance lies in data objectivity and tamper resistance: blockchain technology is adopted to store all key operation logs and environmental monitoring data, fundamentally compressing the space for artificial data modification and providing solid technical support for internal control execution (Doyle et al., 2007).

4.1.2. Restructure the Board of Directors and Strengthen Independent Supervisory Capacity

At corporate governance level, optimizing the composition and operation mechanism of the board of directors is essential, transforming the board from a formal deliberative institution into a core body with substantive decision-making and supervisory authority. The enterprise shall significantly raise the proportion and professional competence of independent directors, especially recruiting experts with aquaculture industry background, financial audit expertise and information technology capabilities for the audit committee and risk management committee.

The core of governance reform lies in clear power authorization and lifelong accountability: grant the risk management committee pre-approval power and veto power over all major material decisions, and require all important decision documents to be signed and filed with lifelong accountability clauses. Meanwhile, the board of directors shall build a dedicated governance data cockpit directly connected to the intelligent monitoring system, enabling directors to access real-time core production and operation data without intermediate filtering, ensuring all strategic decisions are based on authentic, comprehensive business information rather than selectively edited subordinate reports. The design of direct data access to the governance layer is the core measure to break internal information monopoly and balance management power (Dechow et al., 1996).

4.1.3. Optimize Real-Time Data Transmission and Regular Disclosure Mechanisms

A critical pillar of effective governance is enhancing data timeliness through mandatory high-frequency internal sharing and partial public disclosure. All environmental monitoring data, production operation data and preliminary asset valuation data collected by intelligent equipment shall be automatically verified and synchronized to the board supervision port and internal audit platform within one working day. Once the system identifies abnormal data indicators, early warning reports shall be generated and pushed to the risk management committee and corresponding senior executives within 2 hours. In addition, the enterprise shall release quarterly monitoring data reports to investors and the public, replacing vague descriptive text with verifiable raw operational data. Real-time data transmission converts internal control from periodic static review to continuous dynamic supervision.

4.1.4. Formulate Quantified and Operable Supporting Implementation Rules

To guarantee landing of digital management and governance reform concepts, detailed, operable institutional implementation rules must be formulated. These rules translate abstract internal control principles into standardized business operating specifications. For example,

Detailed Rules for Biological Asset Measurement and Physical Inventory Counting shall clearly define classification standards for scallop mass mortality scenarios, standardized on-site evidence collection procedures, and quantitative trigger thresholds for asset impairment testing. The rules shall clarify strict confidentiality requirements for all data collection, transmission and storage links, and divide hierarchical data access permissions for frontline operators, technical specialists and audit staff. Frontline operators, technical experts and external auditors shall jointly participate in rule drafting. The core objective is to eliminate subjective discretionary space in business execution, ensure all control activities have clear institutional basis and traceable evidence, and embed internal control requirements into every daily business link.

4.2. Multi-Layer Supporting Safeguard Mechanisms: Dual Safety Net of Risk Hedging and Multi-Party Supervision

4.2.1. Cooperate with Insurance Institutions to Hedge Natural Disaster Risks

To mitigate inherent natural risks of aquaculture, the enterprise shall cooperate with insurance companies to customize exclusive marine aquaculture disaster insurance products, which is not a one-time insurance purchase, but data-driven financial risk innovation. The enterprise can share desensitized hydrological, meteorological and biological monitoring data with insurance providers to jointly build refined risk pricing models. Insurance clauses shall clearly define quantitative trigger standards and compensation scope for different disaster grades, enabling natural disaster asset losses to be reflected objectively and timely in financial statements. Meanwhile, the enterprise shall establish an internal risk reserve fund system, extracting a fixed proportion of annual profits into special-purpose accounts, forming a dual financial risk hedging framework combining external insurance transfer and internal capital reserve.

4.2.2. Add Independent Chapter on Internal Control Effectiveness in Annual Reports

To improve the credibility of the reconstructed internal control system, the enterprise shall add an independent detailed chapter on internal control effectiveness in annual financial reports. This chapter shall not adopt templated formal statements, but serve as a full annual internal control operation report, covering third-party verification results of intelligent monitoring system coverage, data accuracy and early warning efficiency, detailed disclosure of full execution process of key control activities including inventory counting and impairment testing, and complete tracking records of identified internal control defects and rectification progress. The report shall be compiled by the board audit committee and independently reviewed by external audit firms. Through transparent in-depth information disclosure, the enterprise delivers its determination and practical achievements in internal control reconstruction to the capital market, transforming internal control from passive compliance cost into an active management tool to lift corporate reputation and market valuation.

4.2.3. Voluntarily Accept On-Site Supervision Supported by Professional Equipment from Regulators and Auditors

Introducing powerful external supervision is the key to maintaining long-term internal control effectiveness. The enterprise shall voluntarily invite securities regulatory authorities and external audit institutions to conduct on-site supervision and audit supported by professional testing

equipment. During annual mandatory inventory counting and key audit procedures, the enterprise shall fully open financial account books, IoT data platforms, satellite remote sensing images and real-time monitoring system backends. Regulators can remotely access the enterprise monitoring system without advance notice to obtain real-time operational data. Furthermore, a joint audit team composed of regulatory officials, external auditors and independent technical experts shall be established to conduct cross-verification of underwater biological asset authenticity. This open inspection mechanism greatly improves audit supervision depth and independence, forming strong external deterrence against internal financial fraud (Yang et al., 2015).

4.3. Core Reform Objectives: Dual Transformation of Governance Logic and Operational Transparency

4.3.1. Shift from Human-Dependent Governance to Data-Driven Governance

The core objective of the whole optimization scheme is to realize fundamental transformation of enterprise governance logic from human-dependent management to data-driven management. This transformation is not simple online digitalization of offline workflows, but profound reform of decision-making logic: all major business decisions shall rely on real-time data dashboards and algorithm analysis reports rather than senior executives' subjective experience and verbal reports; supervision rules are embedded into information systems to realize automatic data verification and abnormal interception; employee performance appraisal shifts from single result-oriented evaluation to dual assessment of process compliance and data authenticity. The essence of data governance is to use institutional certainty and procedural rigidity to constrain human subjective arbitrariness, fundamentally reducing operational risks induced by personal interest drive or human error.

4.3.2. Shift from Opaque Asset Operation to Fully Traceable Transparent Operation

Complementary to governance transformation is full transparency of aquaculture asset operation. Under traditional operation modes, underwater marine ranch assets form an opaque black box, providing natural space for financial manipulation. Full transparency means converting this black box into a traceable system that continuously transmits key data to governance bodies, regulatory authorities and investors. Real-time environmental indicators, dynamic asset valuation, seeding procurement and fishing sales data are stored in a queryable, traceable and tamper-proof system. Full transparency builds market trust based on verifiable evidence chains, making corporate operating performance natural outcomes of cross-validated data rather than self-declared figures, and rebuilding the enterprise's credibility in the capital market.

5. Conclusion

Zhangzidao Group's financial fraud case is a typical sample of fully failed internal control among listed special-industry enterprises. Its repeated profit manipulation and false information disclosure under the excuse of scallop mass death have seriously damaged investors' legitimate rights and interests and disrupted capital market order, exposing systemic defects covering the whole chain of internal control construction, execution and supervision. This case provides

profound warnings and practical references for internal control research and industrial practice. Reflecting on this case, internal control construction for special industries cannot copy the standard models of traditional industries and must match industrial characteristics. On the one hand, enterprises shall optimize corporate governance structure, raise the independence and professionalism of the board of directors and audit committee, and integrate compliance and risk control indicators into management performance appraisal to consolidate the foundation of the control environment. On the other hand, enterprises shall focus on core industrial risks, introduce digital monitoring technology for biological assets, establish third-party independent verification mechanisms, and realize full traceability and supervision of inventory management. Meanwhile, enterprises shall break internal information barriers, build integrated business-finance data platforms, standardize disclosure procedures for material events and clarify information disclosure accountability. Furthermore, a multi-layer supervision system combining internal audit, third-party external audit and regulatory review shall be constructed, with strict accountability for internal control failures to form a closed-loop anti-fraud mechanism. The Zhangzidao case proves that internal control is a systematic project deeply integrated with business workflows, governance structures and industrial characteristics, rather than simple accumulation of institutional documents; its effectiveness directly determines enterprises' compliance bottom line and sustainable development capacity. This case also promotes the optimization of internal control standards for special industries and the upgrade of regulatory accountability intensity, providing important practical samples for capital market risk prevention and valuable research materials for internal control theoretical research.

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Conceptualization, Ai Deng; methodology, Ai Deng; software, Ai Deng; validation, Ai Deng; formal analysis, Ai Deng; investigation, Ai Deng; resources, Ai Deng; data curation, Ai Deng; writing—original draft preparation, Ai Deng; writing—review and editing, Ai Deng. All authors have read and agreed to the published version of the manuscript.

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References

Beasley, M. S. (1996). An empirical analysis of the relation between the board of director composition and financial statement fraud. The Accounting Review, 71(4), 443–465.

COSO. (2013). Internal control—integrated framework. AICPA, New York.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1996). Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. Contemporary Accounting Research, 13(1), 1–36.

Doyle, J., Ge, W., & McVay, S. (2007). Determinants of weaknesses in internal control over financial reporting. Journal of Accounting and Economics, 44(1–2), 193–223.

Liang, X., Chen, Y. N., & Shan, Y. N. (2015). Causes and improvement suggestions for internal control failure of Zhangzidao. Economist, 1, 116–119.

Li, X. H., & He, Y. R. (2012). Internal control and risk management: Theory, practice and cases. China Renmin University Press, Beijing.

Ministry of Finance of China, CSRC, National Audit Office et al. (2008). Basic norms for enterprise internal control. Ministry of Finance, Beijing.

Rezaee, Z. (2005). Causes, consequences, and deterrence of financial statement fraud. Journal of Forensic Accounting, 6(1), 3–26.

Tang, K. (2019). Analysis of listed companies based on five elements of internal control—A case study of Zhangzidao. Modern Business Industry, 2, 50–51.

Wang, M. H. (2023). Research on audit difficulties and digital solutions of biological assets. The Chinese Certified Public Accountant, 8, 78–82.

Wu, S. P., Chen, H. W., & Shao, X. D. (2000). Development and enlightenment of enterprise internal control theory. Accounting Research, 5, 2–8.

Yang, X. Z., Xu, J. B., & Li, B. (2015). Comprehensive analysis of Zhangzidao incident. Finance and Accounting, 4, 32–34.

Zhang, G. X. (2015). Case analysis of internal control of Zhangzidao. Chinese Market, 22, 41.

Zhang, L. (2015). Research on internal control of consumable biological assets in aquaculture industry—A case study of Zhangzidao. Monthly Journal of Finance and Accounting, 9, 63–65.

Zhang, T. S., Lin, Z. G., & Qin, N. (2011). Can effective internal control restrain financial fraud? Journal of Nanjing Audit University, 8(4), 39–45.