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# Tax Risks and Preventive Measures for Coal Enterprises in the Context of Data-Driven Tax Governance

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**Abstract:** For coal enterprises, tax risk management is particularly important, as it directly affects their healthy operation and long-term development. As China advances law-based tax administration, data-driven tax governance, and strict tax enforcement in an integrated manner, the tax risks faced by coal enterprises are also constantly changing. How to effectively manage corporate tax risks has become a key concern for coal enterprises. To this end, this paper examines the common tax risk points of coal enterprises in the context of data-driven tax governance, analyzes these tax risks, and proposes corresponding preventive measures, so as to help coal enterprises reduce tax risks arising from tax non-compliance and ensure the legality and compliance of their economic and business activities.

**Keywords:** Data-Driven Tax Governance; Coal Enterprises; Tax Risks

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## 1. Introduction

Sanford (1995) was the first to define the concept of tax risk, arguing that the core of tax risk is "compliance-related financial loss," namely the additional costs and expenses that an enterprise must bear when it fails to properly comply with tax laws and regulations. With the launch of the fourth phase of the Golden Tax System, tax administration has been upgraded from "managing taxes by invoices" to "managing taxes by data." Tax authorities have established information-sharing channels with banks, natural resources bureaus, and other departments to comprehensively share and monitor various tax-related information. Corporate tax violations will be fully investigated and dealt with, and tax risks will increase [1]. If enterprises lack awareness of tax risk prevention, tax loopholes are likely to emerge [2]. In some enterprises, there is insufficient coordination and interaction between internal information technology departments and tax management departments, making it difficult to achieve real-time interconnection and sharing of tax-related data, which prevents the formation of a normalized mechanism for corporate tax risk management and control [3]. Against the backdrop of the full implementation of the fourth phase of the Golden Tax System, tax authorities are continuously strengthening their supervision and investigation of tax-related violations and illegal acts. Audit methods are gradually transitioning toward digitalization and intelligentization, significantly increasing the tax audit pressure faced by enterprises and intensifying tax-related risks accordingly [4]. Enterprises should establish and continuously improve their internal tax risk control and management systems, proactively cooperate with tax authorities in carrying out various verification tasks, maintain efficient and unimpeded communication channels between tax authorities and enterprises, and achieve upfront prevention and control of tax risks [5]. The higher the transparency of corporate tax

information, the less enterprises engage in tax avoidance. Improving information transparency can enable more effective tax risk management [6]. This study aims to explore the tax risks faced by coal enterprises in the context of managing taxes by data and to propose corresponding preventive measures.

## 2. The Core Connotation of Data-Driven Tax Governance and the Challenges Faced by Coal Enterprises

Data-driven tax governance is the core strategy of the digital upgrade of China's tax collection and administration system. It promotes the transformation of the tax governance system by building a smart tax system. Under this strategy, tax authorities comprehensively promote fully digitalized electronic invoices and establish a unified national electronic invoice service platform, making the invoice collection process simpler for taxpayers, making invoice issuance and use more convenient, and integrating accounting and archiving. At the same time, they build a multi-department information exchange platform, actively promote the establishment of normalized linkage mechanisms with departments such as finance bureaus and natural resources bureaus, obtain tax-related information by level and category, and implement more precise monitoring of tax sources. A dynamic supervision model of "credit + risk" has been formed. Based on taxpayers' credit ratings and risk levels, tax authorities implement classified and precise supervision, focusing on high-risk enterprises and reducing interference with low-risk enterprises. Tax collection and administration are gradually moving from "managing taxes by invoices" to "governing taxes by data." The standardization and precision of tax services and tax law enforcement have continued to improve, and the tax supervision system has been continuously perfected.

Against the backdrop of the full implementation of data-driven tax governance, tax supervision has entered a new stage of digitalization and intelligentization. Coal enterprises are resource-based entities and key tax source subjects, with long business chains, complex operating scenarios, and huge volumes of tax-related data. In the process of adapting to the digital tax supervision model, they face multiple practical challenges. The first is the challenge at the organizational management level. Some coal enterprises have not yet established a sound tax internal control structure, the degree of integration between business departments and tax departments is relatively low, and the management of tax-related matters mostly remains at the financial accounting stage, making it difficult to incorporate tax risk management and control requirements at the front end of business operations. The second is the challenge at the business model level. Coal mining, transportation, and bulk purchase and sale businesses have their own industry characteristics, and transaction scenarios vary greatly. Mixed operations, cross-regional transportation, and resource integration increase the difficulty of identifying tax-related matters. Once there is a deviation in determining the substance of a business, potential tax risks can easily arise. The final challenge is at the tax-enterprise coordination level. Under the digital supervision model, tax authorities have more channels for obtaining information. The traditional post-event communication model of enterprises can hardly adapt to new audit methods. If normalized communication channels are not established, enterprises cannot promptly grasp the direction of tax policy updates, and their initiative in responding to risks will be insufficient.

## 3. Main Risk Points Faced by Coal Enterprises in the Context of Data-Driven Tax Governance

In the context of data-driven tax governance, coal enterprises face various tax risks. The first is the risk of revenue recognition and capital flow. Bulk coal transactions involve relatively large amounts. Some enterprises collect payment for goods through personal accounts in order to conceal sales revenue. Tax authorities will adopt various means to compare internal information within their systems with information obtained externally, such as logistics and transportation information versus enterprise-declared revenue, and actual water discharge obtained from natural resources bureaus versus enterprise-declared information. Through internal and external comparison and mutual verification, once obvious discrepancies appear, system warnings will be triggered, bringing risks related to tax evasion. The second is the risk of cost and expense deduction and invoice management. The cost structure of the coal mining stage is complex, with numerous items such as underground engineering, support materials, and labor costs. Enterprises are prone to inflating mining costs or obtaining invoices in violation of regulations, and there are hidden dangers of false invoice issuance. The fourth phase of the Golden Tax System

can conduct upstream and downstream verification along the invoice chain. If business authenticity is insufficient, risks will arise in enterprise value-added tax and corporate income tax. The third is the risk of related-party transactions and resource-related tax and fee declarations. Many coal groups have internal related-party sales. If the pricing of related-party transactions deviates from fair market prices, it is easy to cause profit transfer. Coal enterprises also need to declare taxes and fees such as resource tax and environmental protection tax. Determining the tax basis for by-products such as coal gangue is prone to problems. Tax authorities can compare, through big data, the recent product selling prices in similar regions, or even the product selling prices of enterprises under similar development conditions. Once the data declared by an enterprise is unreasonable, tax-related risks will be triggered, leading tax authorities to conduct key verification. The fourth is the risk of tax-related determination in cross-regional business. Coal enterprises often have production and sales locations in different regions, with many cross-regional transportation businesses and relatively many out-of-region sales businesses. However, tax collection and administration standards may differ across regions, and enterprises may easily misjudge the tax payment location. Tax authorities will link logistics and capital information in the regions involved through big data. Choosing the wrong tax payment location will require enterprises to pay additional taxes and late fees, triggering tax risks. The fifth is the tax-related risk of asset disposal and restructuring business. Coal enterprises often experience mine shutdowns, asset transfers, or mergers and reorganizations. Such businesses involve huge transaction amounts and many tax-related matters. If enterprises fail to calculate tax payable before asset disposal and restructuring business occurs, they may easily underestimate asset disposal income or incorrectly apply tax preferences related to enterprise restructuring, thereby generating large tax risks.

# 4. Tax Risk Preventive Measures for Coal Enterprises in the Context of Data-Driven Tax Governance

## 4.1 Improve the Tax Internal Control Management System and Build a Normalized Risk Management and Control System

The tax internal control system is the foundational institutional arrangement for enterprise tax-related risk prevention and control, and its degree of perfection directly affects whether tax risks can be effectively identified. A well-functioning internal control mechanism should have multiple functions, including pre-event prevention, in-process intervention, and post-event correction, thereby institutionally regulating and constraining the tax-related behavior of all employees. However, management in the coal industry places more emphasis on production and operations. Some enterprises have not established a separate tax department, but instead assign tax work to the finance department and have finance personnel take on concurrent roles. Personnel in business departments lack a clear understanding of the tax consequences that their actions may cause, and institutionalized processes and standards have long been absent. Enterprises often rely on post-event remediation to respond to tax risks. Under the precise supervision pattern of data-driven tax governance, this passive model can no longer effectively respond to tax risks. Therefore, it is necessary for enterprises to rebuild an internal control framework adapted to the digital supervision environment from three directions: institutional system, division of responsibilities, and execution mechanism.

From the perspective of institutional architecture, tax management in coal enterprises should not remain at the level of routine tax declaration, but should be deeply integrated into their unique business chains. Coal operations involve multiple links such as mineral mining and underground construction, and each link corresponds to different tax-related nodes and hidden risks. Enterprises should systematically sort out the risk characteristics of various business activities, change the past “one-size-fits-all” management approach, and formulate specialized operating rules by category for typical high-frequency risk points, clarifying tax calculation standards, declaration specifications, and compliance bottom lines. More importantly, after the launch of the fourth phase of the Golden Tax System, tax supervision has shown new features of big data comparison and full-chain traceability. Internal control systems cannot remain unchanged and must be adjusted in a timely manner according to policy updates and regulatory dynamics, ensuring that institutional design always remains compatible with the external environment.

At the level of responsibility allocation, tax risk management should not be only the work of the finance department, but should involve all members in joint risk prevention. Tax compliance is not a matter that the finance department can undertake

independently. Problems in any part of production and sales may ultimately trigger tax risks. Coal enterprises need to refine tax-related responsibilities to specific positions, clarify responsibility attribution, and establish corresponding accountability mechanisms, so that tax-related behavior in each link can be traced and responsibilities can be investigated, reducing management blind spots caused by ambiguous rights and responsibilities from the source.

At the level of execution mechanisms, improve normalized self-inspection, internal audit, and ledger management mechanisms. Under the data-driven tax governance model, the frequency and precision of tax warnings have increased significantly. If enterprises remain only at the stage of post-event explanation, it is difficult to keep up with the pace of supervision. Enterprises may consider establishing a tiered self-inspection system: monthly self-inspections focus on basic matters such as invoice issuance and tax declaration data; quarterly special verifications target key areas such as related-party transactions, cost aggregation, and by-product tax calculation; at the annual level, third-party institutions are introduced to conduct comprehensive audits, using external perspectives to assess compliance levels. Enterprises can rely on standardized tax risk ledgers as a supporting management tool to improve the full-cycle control mechanism for tax-related risks, systematically collecting and dynamically recording problems found in daily tax-related self-inspections, risk warnings pushed by digital tax supervision, changes in industry tax policies, and the progress of rectification of various risk issues. Through the ledger, the responsible entities and rectification deadlines for each risk matter should be refined, position-based compliance management responsibilities should be consolidated, shortcomings in enterprise tax internal control management should be continuously addressed, the normalized improvement and standardized upgrading of the tax risk prevention and control system should be promoted, and the institutional foundation for enterprise tax-related compliance management should be strengthened.

## 4.2 Promote Deep Integration of Business, Finance, and Tax Data and Comprehensively Improve the Quality of Tax-Related Data

Under the supervision model of data-driven tax governance, tax authorities use big data to achieve cross-verification of multi-source information. They no longer limit review to a single declaration form and invoice materials, but connect multi-dimensional information sources such as enterprise business operations, tax-related declarations, and goods circulation, identifying potential tax risk points through multi-dimensional data comparison. Therefore, whether various types of enterprise data are authentic, complete, and mutually matching becomes a foundational condition for judging whether tax-related behavior is compliant. In a digital supervision environment, the fragmentation and lag of data itself leads to the accumulation of compliance risks. Therefore, promoting deep integration of business, finance, and tax data and improving the quality of tax-related data are important measures for coal enterprises to adapt to the new supervision pattern.

First, internal information barriers must be removed. The production, procurement, logistics, and sales systems of coal enterprises operate independently, and the phenomenon of data silos is prominent. Capacity and outbound information is difficult to transmit to the finance and tax ends. There is a disconnect between transaction and payment data and the tax calculation process. Freight documents and invoice information may also fail to correspond effectively, and the continuity of the tax-related data chain is insufficient. To solve this problem, coal enterprises need to accelerate internal system integration and build a unified business-finance-tax data sharing platform, so that key information such as capacity and output, material consumption, logistics and transportation, transaction settlement, and tax and fee declarations can be synchronized in real time and automatically aggregated, eliminating data fragmentation at the technical level and ensuring the internal consistency of operating data and tax-related data.

Second, the data extraction standards for tax-related data must be unified. Different departments may use different statistical dimensions for the same matter for various reasons. For example, the mining cost calculated by the production department may include auxiliary consumables and labor expenditures, while the cost aggregation scope of the finance department does not include the above items. There is also a lack of correspondence between output statistics and tax calculation standards, ultimately leading to deviations among book records, declared data, and actual operating conditions. Because coal enterprises have complex business scenarios and diverse cost structures, unifying data accounting standards is particularly urgent. Clear operating specifications should be formulated around basic matters such as revenue recognition, cost aggregation, and tax and fee accrual. At the same time, clear provisions should be issued on accounting cycles and cross-period adjustment methods to

ensure data consistency at the rule level.

Finally, strengthen the control of entry and updating of tax-related data. Coal enterprises have huge volumes of tax-related data, and a large amount of original information collection relies on manual operations. Problems such as entry errors, missing documents, and time lags are difficult to completely avoid, and the continuous accumulation of these problems can easily trigger chain reactions in the comparison process. Enterprises need to establish a dual-person verification mechanism that separates entry and review, and recheck original materials such as procurement contracts, transportation documents, sales invoices, and settlement vouchers item by item to reduce entry errors as much as possible. Enterprises also need to establish a dynamic data update mechanism for production and operations adapted to themselves, transmit real-time data on operating indicators such as coal production capacity output and product sales to the tax-related accounting port in a timely manner, effectively avoiding logical differences in fiscal and tax data caused by information lag and data disconnection, and ensuring that tax-related data is highly consistent with the true operating status of the enterprise. Only when tax-related data can continuously and truthfully reflect the overall picture of enterprise operations can enterprises control data-related compliance risks within a reasonable limit in the digital supervision environment.

### 4.3 Enhance Tax Digital Management Capabilities and Adapt to the Intelligent Tax Supervision Pattern

Against the backdrop of data-driven tax governance advancing toward greater intelligence, the data collection and algorithmic analysis capabilities of tax authorities continue to upgrade. It is difficult for enterprises to meet the expectations of tax supervision by relying on traditional compliant declaration alone. Enterprises must improve the digital level of their own tax management and enhance their initiative in responding to risks.

Coal enterprises can set up appropriate early-warning indicator systems according to their own operating characteristics and the tax-related risk points in the industry that easily trigger tax risks, incorporating key indicators such as the matching degree between capacity and revenue, cost fluctuation range, and abnormal invoice issuance into the monitoring scope. Through big data tools, the above indicators are dynamically tracked. Once data deviates from the preset reasonable range, the system will trigger an early warning, and relevant personnel can quickly locate the problematic link accordingly, identify the reasons for the deviation from the reasonable range, and rapidly carry out rectification. Compared with passively responding to tax risks after the event, this front-end early-warning mechanism helps move the risk disposal node forward and reduce potential losses.

At the same time, enterprises should also attach importance to systematic review of historical tax-related data and risk cases. By analyzing the causes of previous abnormal situations, they can extract typical patterns and common characteristics of risk occurrence, and continuously revise the parameter settings and judgment logic of the early-warning model accordingly, making the model more accurate in operation.

### 4.4 Improve the Tax-Enterprise Coordination Mechanism and Optimize Cross-Regional and Major Tax-Related Business Control

In the context of data-driven tax governance, tax policies update quickly, and supervision standards for major tax-related businesses are increasingly strict. It is difficult to completely avoid tax-related risks by relying solely on enterprise self-management. Coal enterprises have many cross-regional business operations, and major tax-related matters such as asset restructuring and related-party transactions occur frequently, making them highly prone to tax-related risks due to deviations in policy understanding, inaccurate grasp of collection and administration standards, and non-standard response processes. Therefore, enterprises need to build a normalized tax-enterprise communication mechanism, promptly follow the latest tax policies, standardize the handling of cross-regional tax-related business, conduct risk assessments on major tax-related matters in advance, and address shortcomings in risk management and control.

First, establish a normalized tax-enterprise communication mechanism. Enterprises need to change the traditional mindset of passively accepting supervision, actively establish normalized communication channels with competent tax authorities, communicate regularly with tax departments, and promptly understand the latest tax policies, industry collection and administration requirements, and other updates. For tax-related issues in daily operations where policies are ambiguous or collection and administration standards are unclear, enterprises should actively consult in advance to avoid declaration errors caused by deviations in policy understanding and thereby trigger tax risks. At the same time, they should actively cooperate

with tax authorities in daily verification, special audits, and other work, proactively provide authentic and complete operating materials and tax-related data, build a harmonious tax-enterprise relationship, and reduce the occurrence of tax risks.

Second, dynamically follow tax policies and establish a policy ledger management system. Coal enterprises involve many tax types and many industry-specific policies. Minor changes in policies such as resource tax and environmental protection tax will directly affect enterprise tax-related accounting. Enterprises need to assign dedicated personnel to be responsible for collecting, sorting, and interpreting tax policies, follow updates to national and local tax policies in real time, screen suitable policies in combination with enterprise business operations, and establish a policy update ledger. They should regularly organize internal policy training for all employees to ensure that finance, tax, and business personnel accurately grasp the latest policy requirements, timely adjust tax calculation methods and declaration processes, ensure that enterprise tax-related operations always comply with policy norms, and eliminate tax risks caused by policy lags.

Third, standardize the management of cross-regional tax-related business. In response to normalized businesses such as cross-regional transportation and out-of-region sales, coal enterprises need to focus on differences in tax collection and administration standards among different regions. Before carrying out cross-regional business operations, they should investigate in advance the tax payment regulations and declaration and collection requirements of the operating location, and handle tax-related procedures in strict accordance with local policies. Relying on the characteristics of big data supervision, they should completely retain data materials such as cross-regional logistics trajectories, capital flows, and transaction contracts, ensure that tax-related operations of cross-regional business are compliant and lawful, and effectively avoid risks such as additional tax payments, late fees, and administrative penalties caused by differences in collection and administration standards and misjudgment of tax payment locations

## 5. Conclusion

In summary, in the context of data-driven tax governance, coal enterprises face multiple tax risks. Tax risk prevention and control for coal enterprises is no longer a single tax declaration management task, but a systematic project covering institutional development, data management, digital upgrading, and tax-enterprise coordination. Only by actively adapting to the trend of digital tax supervision, facing up to the shortcomings in their own tax management, and improving the risk prevention system from multiple dimensions can coal enterprises effectively resolve various tax risks, improve the level of compliant operation, and build a solid tax security foundation for high-quality and sustainable development.

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