

The impact of internal audit on supply chain risk control in Vietnamese textile and garment enterprises

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Abstract: In the context of a constantly fluctuating global supply chain, Vietnamese textile and garment businesses face numerous risks related to raw material supply, production schedules, product quality, logistics, delivery, traceability, and compliance with international standards. This paper analyzes the impact of internal auditing on supply chain risk control in Vietnamese textile and garment businesses. Based on theoretical approaches to internal auditing, enterprise risk management, and supply chain risk management, the study examines aspects of internal auditing including independence, the professional competence of internal auditors, the scope of risk-oriented auditing, the quality of the audit process, the level of management support, and the role of advising on improvement. The research results show that all factors related to internal auditing have a positive impact on supply chain risk control, with the scope of risk-oriented auditing and the level of management support being the most prominent influencing factors. This result confirms that internal auditing is not only a compliance check tool, but also a crucial mechanism for businesses to identify, assess, monitor, and improve their supply chain risk control systems. The article proposes several governance implications to enhance the independence, professional competence, process quality, and advisory role of internal auditing, thereby contributing to strengthening risk control capabilities and improving the competitiveness of Vietnamese textile and garment businesses.

Keywords: Internal audit; Risk control; Supply chain; Textile and garment industry; Vietnam

1. INTRODUCTION

In the context of globalization, supply chain shifts, and increasing uncertainty in international trade, supply chain risk management has become a vital issue for businesses. Shocks from epidemics, geopolitical conflicts, fluctuations in logistics costs, disruptions in the supply of raw materials, changes in trade policies, traceability requirements, and sustainable development standards have made business supply chains increasingly complex. For the Vietnamese textile and garment industry, this is particularly important due to its high level of international integration, heavy reliance on export orders, raw materials, delivery schedules, and compliance with quality and standards from importing markets.

The Vietnamese textile and garment industry is one of the key export sectors, making a significant contribution to export revenue, creating jobs, and participating deeply in the global production network. However, the characteristics of processing, dependence on imported raw materials and components, pressure on delivery times, order fluctuations, and increasingly high demands from international brands expose textile and garment businesses to numerous risks in the supply chain. These risks can arise in various stages such as purchasing, supplier selection, inventory management, production, quality control, transportation, delivery, and compliance with labor, environmental, and social responsibility standards. Therefore, controlling supply chain risks is not only an operational



requirement but also a condition for businesses to maintain competitiveness, market reputation, and sustainable development.

In their research on supply chain risk management, Jüttner et al. argued that supply chain risk arises from uncertainty in the flow of materials, information, and finances between entities in the chain. As the supply chain expands and becomes more interdependent, the likelihood of disruption increases, and the impact of risk can spread from one link to the entire system (Jüttner et al., 2003). This perspective is consistent with the textile industry practice, where a small change in the supply of fabrics, materials, transportation costs, or delivery schedules can directly affect production progress, order quality, costs, and customer relationships.

Tang emphasized that supply chain risk management needs to be approached proactively, through identifying, assessing, monitoring, and designing risk mitigation measures before risks translate into actual losses (Tang, 2006). For textile and garment businesses, this means that the risk control system cannot simply handle incidents after they occur, but needs to be established in advance through processes such as supplier selection, supply capacity assessment, contract control, raw material quality management, production schedule control, and the development of scenarios to respond to market fluctuations. When supply chain risks are well controlled, businesses can minimize incurred costs, reduce delivery delays, ensure product quality, and enhance credibility with international customers.

In corporate governance systems, internal auditing plays a crucial role in providing independent assurance and advice to improve governance, control, and risk management effectiveness. According to the Institute of Internal Auditors, internal auditing is an independent, objective assurance and advisory activity that helps organizations achieve their goals by evaluating and improving the effectiveness of governance, risk management, and control (The Institute of Internal Auditors, 2024). Thus, internal auditing is not limited to checking accounting and financial compliance, but extends to evaluating operational processes, strategic risks, operational risks, and supply chain risks.

Theoretically, the relationship between internal auditing and supply chain risk control can be explained through the corporate risk management framework. COSO argues that corporate risk management needs to be integrated with strategy, operational efficiency, information, communication, monitoring, and risk management culture (COSO, 2017). According to this approach, internal auditing is a crucial mechanism for assessing the adequacy and effectiveness of control systems, thereby assisting management in identifying weaknesses in risk management. For the textile supply chain, internal auditing can contribute to evaluating the effectiveness of purchasing processes, supplier management, inventory control, quality control, production schedule control, compliance with labor and environmental standards, and the ability to respond to supply chain disruptions.

The unique characteristics of Vietnam's textile and garment industry make the role of internal auditing even more essential. Many businesses in the industry participate in global supply chains as manufacturers, processors, or suppliers for international brands. This requires businesses to simultaneously meet requirements regarding price, quality, delivery time, traceability, labor standards, product safety, and sustainable development. If the internal control and internal audit systems are not effectively organized, businesses may face risks such as delayed orders, quality defects, violations of customer standards, increased remediation costs, damage to reputation, and reduced ability to maintain long-term orders.

Manuj and Mentzer argue that global supply chain risk management requires businesses to identify risk sources, assess their impact, select response strategies, and coordinate between departments within the organization as well as among members of the supply chain (Manuj & Mentzer, 2008). In this context, internal auditing can serve as an independent assessment tool to detect control gaps, warn of potential risks, and recommend process improvements. Through risk-oriented audits, internal auditing helps businesses shift from a passive to a proactive approach in supply chain risk control.

Studies on the effectiveness of internal auditing also show that the internal audit function only plays its role when it has sufficient independence, professional competence, support from management, and coordination with risk management departments. Arena and Azzone argue that the effectiveness of internal auditing is influenced by audit

resources, the competence of internal auditors, the relationship with the audit committee, and the level of internal audit involvement in the organization's risk management system (Arena & Azzone, 2009). This is of significant importance to Vietnamese textile and garment businesses, because supply chain risk control depends not only on production or purchasing processes, but also on the quality of independent monitoring and the ability to detect risks early throughout the entire value chain.

Although internal auditing is increasingly recognized as an important tool in risk management, its implementation in many Vietnamese textile and garment businesses still has certain limitations. In some businesses, internal auditing mainly focuses on examining finances, documents, process compliance, and detecting errors after transactions have occurred, while the role of assessing supply chain risk, supplier risk, quality risk, schedule risk, compliance risk, and sustainability risk has not received sufficient attention. This reduces the ability to provide early warning and limits the advisory role of internal auditing to management in supply chain management.

Furthermore, the competitive landscape of the textile and garment industry is rapidly changing. Importing markets are increasingly demanding higher standards regarding traceability, social responsibility, carbon emissions, sustainable labor, and supply chain transparency. These requirements mean that supply chain risk is no longer just a technical or operational issue, but a strategic one affecting market access and maintaining relationships with international customers. In this context, internal audits need to be designed with a risk-based approach, expanding the scope of assessment to critical stages of the supply chain and strengthening the role of advising on improvements to control systems.

Although numerous studies have been conducted on internal auditing, enterprise risk management, and supply chain management, research directly focusing on the impact of internal auditing on supply chain risk control in the Vietnamese textile and garment industry remains limited. Most existing studies approach internal auditing within the context of internal control, corporate governance, or the quality of financial information; however, the relationship between internal auditing and supply chain risk control, particularly in a highly globalized industry like textiles and garments, has not been fully analyzed. This represents a research gap that needs further clarification, both theoretically and practically.

Stemming from the aforementioned gap, this paper aims to analyze the impact of internal auditing on supply chain risk control in Vietnamese textile and garment enterprises. Specifically, the study focuses on clarifying the role of internal auditing in risk identification, risk assessment, monitoring and control, advising on process improvement, and enhancing the capacity to respond to supply chain risks. Based on this, the paper proposes management implications to improve the effectiveness of internal auditing, refine the supply chain risk control system, and enhance the adaptability of Vietnamese textile and garment enterprises in the context of a volatile global supply chain.

2. THEORETICAL FOUNDATION

Internal audit

Internal auditing is an independent and objective assurance and advisory activity aimed at helping businesses assess and improve the effectiveness of governance, control, and risk management. In modern businesses, internal auditing focuses not only on examining documents, financial reports, or process compliance, but also extends to assessing operational risks, strategic risks, compliance risks, and supply chain risks. According to The Institute of Internal Auditors, internal auditing plays a supportive role in helping organizations achieve their goals through a systematic assessment of governance, risk management, and control.

For textile and garment businesses, internal auditing can involve evaluating many stages in the supply chain, such as supplier selection, raw material procurement, inventory control, production schedule management, quality control, delivery, and compliance with labor, environmental, and social responsibility standards. When the internal audit function is effectively organized, businesses can detect weaknesses in processes early, warn of risks, and make recommendations to improve control efficiency.

Supply chain risks

Supply chain risk refers to the possibility of adverse events disrupting or impairing the operational efficiency of a supply chain. These risks can arise from raw material supply, supplier capabilities, input price fluctuations, logistics costs, product quality, delivery schedules, market demand changes, financial risks, policy risks, and compliance risks. In a volatile global supply chain environment, these risks can spread rapidly between stages and significantly impact a business's costs, revenue, reputation, and competitiveness.

The Vietnamese textile and garment industry is highly dependent on raw materials, export orders, and the requirements of international customers. Therefore, supply chain risks in the industry are not only related to material shortages or delayed deliveries, but also include risks concerning quality standards, traceability, labor, the environment, and sustainable development. This necessitates that businesses have a robust, flexible, and early warning supply chain risk control system.

Supply chain risk control

Supply chain risk control is the process of identifying, assessing, monitoring, and implementing measures to mitigate the negative impact of risks on supply, production, and distribution operations. Supply chain risk control includes supplier evaluation, establishing purchasing standards, controlling the quality of raw materials and components, managing inventory, monitoring production progress, controlling deliveries, developing contingency plans, and monitoring compliance with customer standards.

In the textile and garment industry, supply chain risk control is crucial because production depends on order schedules, raw material sources, and stringent quality requirements. If risks are not well managed, businesses may face delays in delivery, increased production costs, product defects, lost orders, damaged reputation, and reduced ability to participate in global supply chains.

The relationship between internal audit and supply chain risk control.

Internal auditing impacts supply chain risk control through its role in evaluating, monitoring, and advising on improvements to control systems. First and foremost, internal auditing helps businesses identify key risks in the supply chain, from supplier selection and contract signing to raw material procurement, production, quality control, and delivery. Accurate risk identification forms the basis for businesses to develop appropriate control measures.

Furthermore, internal auditing helps assess the effectiveness of existing control processes. Through risk-oriented audits, businesses can identify weaknesses in authorization, purchase approval, quality control, inventory management, progress monitoring, and customer standard compliance. Based on this, internal auditors can make recommendations to improve processes and enhance risk response capabilities.

In addition to its assurance function, internal auditing also plays an advisory role. Recommendations from internal auditors help businesses improve their control systems, enhance coordination between departments, and increase transparency in the supply chain. For Vietnamese textile and garment businesses, this is especially necessary given the increasingly high demands from export markets regarding quality, delivery times, traceability, and sustainable development.

Theoretical framework of the research

Based on theories of internal auditing, enterprise risk management, and supply chain risk management, this study examines internal auditing as a factor influencing supply chain risk control in Vietnamese textile and garment enterprises. Internal auditing is approached through aspects such as the independence of internal auditors, the competence of internal auditors, the scope of risk-oriented auditing, the quality of the audit process, the level of management support, and the role of advising on improvement.

Supply chain risk control is reflected through the ability to identify risks, assess risks, control suppliers, control quality, control delivery schedules, control inventory, comply with customer standards, and develop response plans

for supply chain disruptions. The theoretical framework of the study suggests that the more independent, competent, and risk-oriented the internal audit is, the better the textile and garment enterprise's ability to control supply chain risks.

3. RESEARCH METHODOLOGY

approach

This study employs a quantitative approach combined with a literature review to develop a research model and hypothesis framework regarding the impact of internal auditing on supply chain risk control in Vietnamese textile and garment enterprises. This approach aligns with the objective of clarifying the relationship between the internal audit function and the ability to control risks arising during the supply chain, production, quality control, delivery, and customer compliance processes.

Based on the theories of internal auditing, enterprise risk management, and supply chain risk management, this study identifies internal auditing as a factor capable of positively influencing supply chain risk control. Internal auditing is considered not only in its role of compliance verification but also in its role of independent assessment, risk monitoring, detection of control weaknesses, and advising on improvements to management processes. In the context of Vietnam's textile and garment industry's deep involvement in the global supply chain, this role is even more significant as businesses face numerous risks related to raw materials, suppliers, production schedules, product quality, logistics, labor standards, the environment, and social responsibility.

Research model

The research model is built on the assumption that internal auditing has a positive impact on supply chain risk control in Vietnamese textile and garment enterprises. In this model, internal auditing is the independent variable, and supply chain risk control is the dependent variable.

Internal auditing is approached through fundamental aspects such as the independence of internal auditors, the professional competence of internal auditors, the scope of risk-oriented auditing, the quality of the audit process, the level of management support, and the role of advising on improvement. These factors reflect the ability of internal auditors to identify, assess, and recommend solutions to material risks in the supply chain.

Supply chain risk control refers to a company's ability to identify, assess, monitor, and manage risks arising within its supply chain. This includes supplier control, raw material quality control, inventory management, production schedule control, delivery control, customer standard compliance, and the development of contingency plans for supply chain disruptions.

The proposed general research model is as follows:

Internal audit → Supply chain risk control

Building upon the general model, the study further examines the impact of each aspect of internal audit on supply chain risk control. This approach helps clarify which elements of internal audit play a more prominent role in enhancing the risk control capabilities of textile and garment businesses.

Research hypothesis system

Based on the research model and theoretical framework presented, the study proposes the following hypotheses:

Hypothesis 1: The independence of internal audit has a positive impact on supply chain risk control in Vietnamese textile and garment enterprises.

Hypothesis 2: The professional competence of internal auditors has a positive impact on supply chain risk control in Vietnamese textile and garment enterprises.

Hypothesis 3: Risk-oriented audit scope has a positive impact on supply chain risk control in Vietnamese textile and garment enterprises.

Hypothesis 4: The quality of internal audit processes has a positive impact on supply chain risk control in Vietnamese textile and garment enterprises.

Hypothesis 5: The level of management support for internal auditing has a positive impact on supply chain risk control in Vietnamese textile and garment businesses.

Hypothesis 6: The advisory role of internal audit in improving supply chain management has a positive impact on supply chain risk control in Vietnamese textile and garment enterprises.

The above hypotheses reflect the research logic that the more independent, competent, risk-oriented, and supported by management an internal audit is, the greater its ability to contribute to improving the effectiveness of supply chain risk control. For textile and garment businesses, this is demonstrated through early identification of supplier risks, control of input quality, monitoring of production progress, mitigation of delivery risks, and enhanced compliance with international customer standards.

Analytical methods

The study employs appropriate quantitative analytical methods to test the model and research hypotheses. First, descriptive statistics are used to generalize the characteristics of the survey sample and to preliminarily assess the level of internal audit application as well as the level of supply chain risk control in textile and garment enterprises.

Next, the reliability of the variable groups is tested to ensure the consistency of the factors in the model. Then, exploratory factor analysis is used to assess the structure of the factors, determining the suitability of the factor groups related to internal audit and supply chain risk control. This is a necessary step to ensure that the factors in the model have a statistical basis before performing impact testing.

Finally, the study uses multiple regression to assess the extent and direction of the impact of internal audit factors on supply chain risk control.

4. RESEARCH RESULTS AND DISCUSSION

Characteristics of the survey sample

Before conducting quantitative analyses, the study performed descriptive statistics to characterize the survey sample and assess the suitability of the data for the research objectives. Since the study focuses on analyzing the impact of internal auditing on supply chain risk control in Vietnamese textile and garment enterprises, the survey sample needed to encompass groups of enterprises involved in key stages of the textile and garment supply chain, such as raw material procurement, production, quality control, delivery, customer compliance, and risk management.

The study distributed 350 survey questionnaires to Vietnamese textile and garment businesses. After checking, cleaning the data, and removing invalid questionnaires due to incomplete or inappropriate responses, 308 valid questionnaires were used in the analysis, representing a rate of 88.0%. This sample size is suitable for performing descriptive statistics, scale reliability testing, exploratory factor analysis, and multiple regression.

Table 1. Characteristics of the survey sample

Criteria	Survey team	Quantity	Percentage (%)
Type of business	Garment export businesses	116	37.7
	Textile, dyeing, and finishing businesses	62	20.1

	Raw material manufacturing businesses	43	14.0
	General textile and garment businesses	58	18.8
	Outsourcing, satellite, and supporting businesses	29	9.4
Job position	Internal audit, internal control	52	16.9
	Accounting, finance, cost management	48	15.6
	Purchasing, supplier management	56	18.2
	Production, production planning	63	20.5
	Quality control, compliance	45	14.6
	Middle management, supply chain management	44	14.3
Work experience	Under 5 years	51	16.6
	From 5 to under 10 years	112	36.4
	From 10 to under 15 years	91	29.5
	15 years or more	54	17.5
Total		308	100

(Source: Results of data analysis on SPSS 26.0, 2026)

The survey sample shows a distribution that is relatively consistent with the characteristics of Vietnam's textile and garment industry. In terms of business type, export garment businesses account for the highest percentage at 37.7%. This group of businesses is directly affected by international customer requirements regarding product quality, delivery schedules, traceability, labor standards, environmental standards, and social responsibility. Therefore, the prominent presence of this group helps the data better reflect the role of internal auditing in controlling supply chain risks.

The group of textile, dyeing, and finishing businesses accounts for 20.1%, the group of general textile and garment businesses accounts for 18.8%, while the group of raw material and accessory manufacturers accounts for 14.0%. These groups are directly involved in the input and intermediate stages of the textile and garment supply chain, where risks often arise regarding raw materials, quality, production costs, environmental standards, and the ability to meet order deadlines. The group of processing, satellite, and supporting businesses accounts for 9.4%, a lower percentage but still contributing to reflecting the stratified characteristics of the textile and garment supply chain.

In terms of job positions, the production and production planning group accounted for the highest percentage at 20.5%, followed by the purchasing and supplier management group at 18.2%, and the internal audit and internal control group at 16.9%. These are personnel groups directly involved in the process of identifying, assessing, and controlling risks in the supply chain. The participation of the accounting, finance, and cost management group; the quality control and compliance group; and the middle management and supply chain management group helps the survey sample to be multi-dimensional, reflecting perspectives from internal control, operations, finance, and management.

Regarding work experience, the group with 5 to under 10 years of experience accounted for the highest percentage at 36.4%, followed by the group with 10 to under 15 years of experience at 29.5%. This indicates that the majority of respondents have relatively good practical experience, sufficient to assess the role of internal audit in supply chain risk control. The group with less than 5 years of experience accounts for 16.6%, reflecting the perspective of younger personnel, while the group with 15 years or more of experience accounts for 17.5%, supplementing their experience in management and long-term risk identification.

Overall, the survey sample structure is diverse in terms of business type, job position, and work experience. This provides a suitable basis for further analysis of the impact of internal audit factors on supply chain risk control in Vietnamese textile and garment enterprises.

Descriptive statistics of research variables

After evaluating the characteristics of the survey sample, the study conducted descriptive statistics on the research variables to identify the level of respondents' assessment of internal audit and supply chain risk control factors in Vietnamese textile and garment enterprises. The variables were measured using a 5-point Likert scale, where a higher mean value reflects a greater degree of agreement with the survey content.

Table 2. Descriptive statistics of the research variables

Symbol	Factor	Minimum value	The greatest value	Medium	Standard deviation
DL	Independence of internal audit	1.90	5.00	3.52	0.74
NLCM	Professional competence of internal auditors	2.00	5.00	3.61	0.69
DHRR	Scope of risk-oriented audit	2.10	5.00	3.78	0.64
QTKT	Quality of internal audit processes	2.00	5.00	3.67	0.68
HTLD	Level of leadership support	2.10	5.00	3.74	0.66
TVCT	The role of internal audit in advising on improvements.	1.90	5.00	3.49	0.76
KSRRCCU	Supply chain risk control	2.00	5.00	3.70	0.65

(Source: Results of data analysis on SPSS 26.0, 2026)

Based on the data presented in Table 2, it can be seen that all factors have average values above 3.4, reflecting that Vietnamese textile and garment businesses have shown a relatively clear interest in internal auditing and supply chain risk control. Among them, the scope of risk-oriented auditing has the highest average value, reaching 3.78. This result is consistent with the characteristics of the textile and garment industry, where risks can arise in many stages such as supplier selection, raw material procurement, inventory management, production, quality control, delivery, and compliance with international customer standards. This shows that businesses have begun to recognize that internal auditing needs to expand its scope from financial and documentary examination to assessing key risks in the supply chain.

The average level of leadership support reached 3.74, indicating that the role of corporate leadership is highly valued in facilitating internal audits to perform their oversight and advisory functions. This is a reasonable result because internal audits can only be effective when they are guaranteed access to information, resources, coordination from various departments, and mechanisms for monitoring the implementation of post-audit recommendations.

The supply chain risk control variable has an average value of 3.70, reflecting a relatively positive level of risk control among textile and garment businesses. However, the independence of internal audit and the role of advising on improvement have lower average values, at 3.52 and 3.49 respectively. This indicates that in some businesses, internal audit still leans towards traditional inspection and monitoring functions, while the role of advising on process improvement and early warning of supply chain risks has not been fully utilized.

Scale reliability testing

This study uses Cronbach's Alpha coefficient to test the reliability of the scales before incorporating them into exploratory factor analysis. This test aims to assess the degree of internal consistency between the observed variables within each factor, thereby ensuring that the scales have sufficient reliability for use in subsequent analysis steps.

Table 3. Results of scale reliability test.

Symbol	Factor	Initial number of observed variables	Number of retained observed variables	Cronbach's Alpha
DL	Independence of internal audit	4	4	0.821
NLCM	Professional competence of internal auditors	4	4	0.836
DHRR	Scope of risk-oriented audit	5	5	0.872
QTKT	Quality of internal audit processes	4	4	0.844
HTLD	Level of leadership support	4	4	0.858
TVCT	The role of internal audit in advising on improvements.	4	4	0.827
KSRCCU	Supply chain risk control	6	6	0.884

(Source: Results of data analysis on SPSS 26.0, 2026)

Considering the results shown in Table 3, all scales have Cronbach's Alpha coefficients greater than 0.8, indicating good reliability. The supply chain risk control scale has the highest coefficient, reaching 0.884. This shows that the observed variables related to risk identification, risk assessment, supplier control, quality control, schedule control, and supply chain disruption response have high consistency in reflecting the dependent variable.

Among the factors related to internal audit, the scope of risk-oriented auditing has the highest Cronbach's Alpha coefficient of 0.872 among the independent variables. This result shows that the contents related to supplier risk auditing, raw material risk, production risk, quality risk, delivery risk, and compliance risk are closely linked in reflecting the role of internal audit in the supply chain. The remaining factors such as the level of management support, quality of the audit process, professional competence, the role of advising on improvement, and the independence of

internal audit all achieved good reliability. Therefore, all observed variables are retained for the exploratory factor analysis step.

Exploratory Factor Analysis

After validating the scale's reliability, the study conducted exploratory factor analysis to assess the structure of the factors in the model. This analysis helped determine whether the observed variables converged appropriately into the six groups of internal audit factors and one factor reflecting supply chain risk control.

Table 4. Results of exploratory factor analysis

Target	Value
KMO coefficient	0.895
Bartlett Test	Sig. = 0.000
Number of factors extracted	7
Total Variance Extraction	69.21%
Minimum factor loading coefficient	0.612
Maximum factor loading coefficient	0.874

(Source: Results of data analysis on SPSS 26.0, 2026)

From the indicators presented in Table 4, it can be seen that the KMO coefficient reaches 0.895, reflecting a high degree of suitability of the data for exploratory factor analysis. The Bartlett test has a significance level of 0.000, demonstrating that the observed variables are correlated with each other overall and are eligible for factor extraction. This is an important statistical basis for confirming that the survey data meets the requirements for structural analysis of the scale.

The analysis extracted seven factors, corresponding to six groups of internal audit factors and one supply chain risk control factor. The total extracted variance reached 69.21%, indicating that the extracted factors explain most of the data's variability. Factor loadings ranged from 0.612 to 0.874, both exceeding the generally acceptable threshold, demonstrating that the observed variables are capable of representing the factors in the model well. Thus, the scale structure is suitable for the proposed research model and can be further used in multivariate regression analysis.

Regression analysis and hypothesis testing

Based on factors validated through reliability testing and exploratory factor analysis, this study uses multiple regression to assess the impact of internal audit factors on supply chain risk control in Vietnamese textile and garment enterprises. The dependent variable is supply chain risk control. The independent variables include the independence of internal audit, the professional competence of internal auditors, the scope of risk-oriented audit, the quality of the internal audit process, the level of management support, and the advisory role of internal audit for improvement.

Table 5. Regression results and hypothesis testing.

Hypothesis	Hypothesis content	Standardized Beta coefficient	Significance level	Conclude
H1	The independence of internal audits positively impacts supply chain risk control.	0.148	0.021	Accept
H2	The professional competence of internal auditors	0.186	0.006	Accept

	positively impacts supply chain risk control.			
H3	Risk-oriented audit scope positively impacts supply chain risk control.	0.271	0.000	Accept
H4	The quality of internal audit processes positively impacts supply chain risk control.	0.203	0.002	Accept
H5	The level of leadership support positively impacts supply chain risk control.	0.232	0.001	Accept
H6	The advisory role of internal auditors in improving supply chain management positively impacts risk control.	0.164	0.013	Accept
	Corrected R-squared	0.627		
	F	86,315	0.000	Suitable model
	VIF	1,186 - 1,742		No serious multicollinearity

(Source: Results of data analysis on SPSS 26.0, 2026)

Observing the results in Table 5, it is evident that the regression model is statistically significant with an F value of 86.315 and a significance level of 0.000. The adjusted R-squared is 0.627, meaning that internal audit factors explain 62.7% of the variation in supply chain risk control. This is a relatively good explanatory level in the study of internal audit and risk management, indicating that the model is capable of appropriately reflecting the impact of internal audit on supply chain risk control in Vietnamese textile and garment enterprises. The VIF values range from 1.186 to 1.742, showing no serious multicollinearity between the independent variables.

Hypothesis 1: “The independence of internal audit positively impacts supply chain risk control.” The regression results show a standardized Beta coefficient of 0.148 with a significance level of 0.021. This demonstrates that the independence of internal audit has a positive and statistically significant impact on supply chain risk control. When the internal audit department is independent, has access to information, and can report objectively, findings related to supplier risk, inventory, quality, and delivery will be more reliable. Therefore, Hypothesis 1 is accepted.

Hypothesis 2: “The professional competence of internal auditors positively influences supply chain risk control,” with a standardized Beta coefficient of 0.186 and a significance level of 0.006. This result indicates that the professional competence of internal auditors positively influences supply chain risk control. In textile and garment businesses, auditors need not only an understanding of internal auditing and control but also a thorough understanding of purchasing processes, production, quality control, logistics, customer standards, and risk management. As professional competence improves, internal auditors can more accurately identify weaknesses in the supply chain. Therefore, Hypothesis 2 is accepted.

Hypothesis 3: “Risk-oriented audit scope positively impacts supply chain risk control.” The results show a standardized Beta coefficient of 0.271 with a significance level of 0.000. This is the factor with the strongest impact in the model. This result reflects the reality that supply chain risks in the textile and garment industry often occur at multiple stages and have the potential to spread rapidly. When internal audits focus on key risks such as supplier risk, raw materials, quality, schedule, delivery, and compliance, businesses are able to detect problems early and develop more appropriate control measures. Therefore, Hypothesis 3 is accepted.

Hypothesis 4: “The quality of the internal audit process positively impacts supply chain risk control,” with a standardized Beta coefficient of 0.203 and a significance level of 0.002. This result indicates that the more rigorous the internal audit process, the higher the ability to control supply chain risks. Appropriate audit planning, sufficient evidence gathering, clear reporting of findings, and monitoring of recommendations help businesses better control weaknesses in the supply, production, and delivery processes. Therefore, Hypothesis 4 is accepted.

Hypothesis 5: “The level of leadership support positively influences supply chain risk control,” with a standardized Beta coefficient of 0.232 and a significance level of 0.001. This is the second strongest influencing factor in the model. This result suggests that internal auditing is unlikely to be effective without commitment and support from corporate leadership. This support is demonstrated through resource allocation, ensuring access to information, requiring departmental cooperation, and using audit results to improve processes. In the textile and garment industry, where the supply chain involves many departments and partners, the role of leadership is even more crucial. Therefore, Hypothesis 5 is accepted.

Hypothesis 6: “The advisory role of internal audit positively impacts supply chain risk control,” with a standardized Beta coefficient of 0.164 and a significance level of 0.013. This result indicates that the advisory role of internal audit has a positive impact on supply chain risk control. When internal audit goes beyond simply identifying errors and proposes solutions for process improvement, supports interdepartmental coordination, and recommends risk response strategies, businesses can enhance their ability to prevent supply chain disruptions. Overall, the test results show that all six research hypotheses are accepted.

5. CONCLUSION AND POLICY IMPLICATIONS

This study aims to analyze the impact of internal auditing on supply chain risk control in Vietnamese textile and garment enterprises. Based on theoretical approaches to internal auditing, enterprise risk management, and supply chain risk management, the study examines six factors related to internal auditing, including the independence of internal auditors, the professional competence of internal auditors, the scope of risk-oriented auditing, the quality of the internal audit process, the level of management support, and the advisory role of internal auditors in improving the system.

The research results show that all internal audit elements have a positive impact on supply chain risk control in Vietnamese textile and garment enterprises. This confirms that internal auditing is not only a tool for checking compliance or detecting errors after transactions have occurred, but also an important mechanism to help businesses identify risks, assess control weaknesses, monitor processes, and propose improvement measures to enhance risk control throughout the entire supply chain.

Among the factors examined, the scope of risk-oriented auditing had the strongest impact on supply chain risk control. This result is consistent with the characteristics of the Vietnamese textile and garment industry, where risks can arise in many stages such as supplier selection, raw material procurement, inventory management, production, quality control, delivery, logistics, and compliance with international customer standards. When internal audits expand their scope to include key supply chain risks, businesses are able to detect weaknesses early and develop more appropriate control measures.

The level of leadership support is the second most influential factor. This indicates that internal audits can only be effective when business leaders ensure appropriate positions, allocate resources, facilitate access to information, and require departments to seriously implement post-audit recommendations. In addition, the quality of the internal

audit process, the professional competence of auditors, the role of advising on improvements, and the independence of internal audits are all significant in enhancing the effectiveness of supply chain risk control.

Based on the research findings, the following managerial implications are proposed:

Firstly, Vietnamese textile and garment businesses need to organize risk-oriented internal audits. Instead of focusing solely on document verification, financial compliance, or detecting errors in internal processes, internal audits need to expand their scope to include key risks in the supply chain. Areas such as supplier evaluation, raw material control, inventory management, production schedule control, quality control, delivery, and customer standard compliance should be included in regular audit plans. This approach helps businesses shift from passive to proactive control, thereby minimizing the risk of supply chain disruptions.

Secondly, it is necessary to strengthen leadership support for internal audit activities. Business leaders need to recognize internal audit as a crucial component of the risk management system, not just a final inspection tool. This support should be demonstrated through ensuring access to information, allocating appropriate human resources, and facilitating coordination between internal audit and the purchasing, production, quality, logistics, finance, and compliance departments. Simultaneously, recommendations from internal audits must be monitored and implemented rigorously to bring about substantive changes in supply chain risk control.

Thirdly, businesses need to improve the quality of their internal audit processes. The audit process should be rigorously structured, from planning and identifying key risks to selecting audit content, gathering evidence, preparing reports, and monitoring the implementation of recommendations. For the textile supply chain, the audit process should focus on areas prone to risk, such as assessing supplier capabilities, verifying the origin of raw materials and components, controlling consumption norms, controlling product defects, monitoring order progress, and evaluating the ability to meet international customer standards.

Fourth, it is necessary to develop the professional capacity of the internal auditors. Internal auditors in textile and garment enterprises not only need to understand auditing, internal control, and risk management, but also must grasp the operational characteristics of the textile and garment industry. Knowledge of purchasing processes, supplier management, production, quality control, logistics, traceability, labor standards, environmental standards, and social responsibility should be included in training programs. When auditors have sufficient professional competence, audit findings and recommendations will be more practical and applicable.

Fifth, the advisory role of internal audit in improving the supply chain needs to be strengthened. In the context of a rapidly changing textile supply chain, internal audit should not be limited to detecting errors or assessing compliance. This department needs to participate in advising on process improvements, proposing risk prevention measures, supporting the development of early warning mechanisms, and recommending solutions to enhance the ability to respond to supply chain disruptions. This advisory role must be carried out independently, objectively, and should not replace the management responsibilities of the operational departments.

Sixth, the independence and objectivity of internal audit must be ensured. Although research shows that independence has a lower impact than other factors, it remains a fundamental condition for internal audit to effectively perform its assurance and advisory functions. Businesses need to establish a suitable organizational position for internal audit, limiting excessive dependence on audited departments, while ensuring that internal audit has the right to report material findings directly to senior management or the board of directors. This helps to improve the reliability of audit results and increase the ability to promptly address supply chain risks.

Seventh, textile and garment businesses need to strengthen the link between internal audit and supply chain risk management systems. Internal audit should coordinate with risk management, purchasing, production, quality control, logistics, and compliance departments to build a supply chain risk map, identify critical control points, and establish a mechanism for regular monitoring. This linkage helps businesses control risks in a systemic way, rather than dealing with them piecemeal by department or by individual incident.

Eighth, regulatory agencies, industry associations, and business support organizations should encourage the enhancement of internal audit capacity within the textile and garment industry. Training programs, practical guidance, experience sharing, and the development of risk-oriented internal audit models will support businesses, especially small and medium-sized enterprises (SMEs), in improving their supply chain risk control capabilities. In the context of increasingly demanding export markets, improving the quality of internal audits will not only help businesses minimize risks but also contribute to strengthening the reputation and competitiveness of Vietnam's textile and garment industry.

Overall, the research results confirm that internal auditing plays a crucial role in controlling supply chain risks in Vietnamese textile and garment enterprises. Developing internal auditing towards independence, professionalism, risk-based practices, with leadership support and linked to improvement consulting, will help businesses identify risks early, improve control processes, minimize supply chain disruptions, and enhance their ability to meet international customer requirements. This is a vital condition for Vietnamese textile and garment enterprises to maintain their position in the global supply chain and achieve sustainable development in a volatile economic environment.

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