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THE NEXUS BETWEEN FIRM RESOURCES AND INNOVATION: NEW EMPIRICAL EVIDENCE AT VIETNAMESE LISTED TEXTILE FIRM

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ABSTRACT

In order to comply with origin regulations and benefit from signed free trade agreements, Vietnam's textile and apparel sector will grow by creating and expanding domestic supply chains. This will raise the country's value-added content and progressively boost worker productivity and business operations. In order to adapt to changing consumer trends, textile and apparel companies will also boost their investments in business models and technology innovation. The aim of this study is to learn about the nexus between firm resources and innovation in new empirical evidence at Vietnamese listed textile firms. We used secondary data referenced from articles, research articles, websites and financial reports of Vietnamese-listed textile companies on the stock market. The study provides empirical evidence from a sample of 270 observations by evaluating the measurement model and testing via the Stata software, including descriptive statistics, FEM and REM models, and the final Logit regression model. The results of empirical research show that the impact of capital structure, ROA, firm size, quick liquidity, and the ratio of investment and development funds to profit after tax on the probability of innovation of Vietnam's listed textile companies is random. The study offered policy suggestions for enhancing the financial performance of textile and apparel companies that are listed in Vietnam.

Keywords: economics, human resource management, firm resources, innovation, labour

JEL Classification: L1, O3, Q5, M12, E64, P46

INTRODUCTION

Innovation plays an increasingly essential role in future growth, which is the premise to create competitive advantages but also pave the way for the future for businesses, helping businesses compete with other competitors in the market and expanding into new sectors, increasing market share and monopoly profits (Filatotchev & Piesse, 2009; Jiménez-Jiménez & Sanz-Valle, 2011). More generally, innovation is the systematic ability to create new knowledge and apply it to the wide range of activities that businesses engage in (Antonelli, Crespi, & Scellato, 2013).

The COVID-19 pandemic and climate change have been starting to make the area more economically vulnerable, emphasizing the urgent demand to adopt new production methods in the region. Four Southeast Asian countries—Malaysia, the Philippines, Thailand, and Vietnam—are listed in the top 10 countries most adversely affected by climate change and extreme weather events between 1999 and 2018, according to the Global Climate Risk Index 2020 (Eckstein, Künzel, Schäfer, & Winges, 2019). Furthermore, the Vietnam Textile and Apparel Association predicts that textile enterprises will gradually recover in 2025, following five years of significant damage from the global COVID-19 pandemic. Vietnam's textile and apparel industries are now experiencing a poor pace of product innovation; manufacturers are facing numerous obstacles on the path to product innovation in terms of financial resources, human resources, and government policies (Nguyen Van Nghi, 2022). Vietnam's innovation is still developing at an early stage; the report of the Organization for Economic Co-operation and Development (OECD) shows that although Vietnam has issued a number of laws related to innovation, they need to be adjusted, in particular for the textile and garment industry, and effectively

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enforced these laws. In addition, the spending on R&D of enterprises in Vietnam is still lower than in ASEAN countries, and the link for innovation is also limited (OECD, 2021).

Therefore, in this article, we explore the influence of firm resources on the innovation of textile and garment enterprises, these resources come from various sources. Finally, pointing out the limitations and thereby giving some recommendations for businesses in general.

LITERATURE REVIEW

A theoretical framework for innovation

Innovation is defined by the OECD (2018) as a new or enhanced (or combined) product or process that differs significantly from the entity's prior products or processes and is offered to potential users (for the product) or used by the entity (for with process). In the production and business sector, the OECD introduces the concept of business innovation: a new business product/process or improved (or a combination) that was released onto the market or utilized by the corporation and differs greatly from its predecessors, other products, or business procedures.

A variety of activities that are part of the innovation process facilitate the production of new products and services in novel ways. In practice, the introduction of new goods, services, or production methods into commercial use for the first time necessitates the need for fresh distribution routes and aftermarket support (P. Hall & Hall, 1994). This opens up new markets and supports newly articulated user needs in the new functions it provides (Abernathy & Clark, 1985). According to PAVITT (1989), three elements are necessary for an innovation to be successfully implemented: strong horizontal relationships (internally as well as externally to the company), the qualities of the "business innovator" who produced the innovation, and flexibility and speed in decision-making.

In many studies, documents, and regulations of current Vietnamese law, innovation is considered a key weapon in business development and national economic growth. Recent studies have emphasized the critical role that innovation plays in emerging East Asian nation's ability to sustain or increase productivity growth in the context of the rapidly shifting and very uncertain global economy (Mason & Shetty, 2019); (DRC, 2019).

Effect of financial resources on firm innovation

Kraft's (1989) study of the drivers and determinants of product innovation by West German companies in the metal industry states that these companies' attributes include internal finance, worker skill level, and ownership structure. The findings show that compared to owner-managed businesses, hired managers typically innovate less. Three types of firms were identified by Shah, Etienne, Siadat, and Vernadat (2012), who then compared these firms with the full sample of firms and firms involved in R&D activities. The study included information on founder demographics, firm characteristics, and trends in revenue growth, job creation, R&D investment, and intellectual property creation. According to the study's findings, in the US, users founded 10.7% of all firms and 46.6% of creative startups that lasted until the age of five. Using information from 105 companies in the Malaysian construction sector, Kamal, E.M. et al. (2016) investigated the connection between innovation adoption, innovation creation, and company characteristics. The results showed that age and company size had a substantial impact on construction firms' innovation orientation.

Large organizations have an edge in innovation, according to conventional literature, which demonstrates the crucial impact that firm size plays, which means enterprises have higher sales volume, which indicates that the fixed expenses of innovation can be dispersed over a wider customer base. The theory is that licensing techniques are either unavailable or ineffective, and it prioritizes process modification over product innovations (Cohen and Klepper, 1996). Large organizations have more access to knowledge and human capital capabilities as compared to small firms, which may enable higher rates of innovation. According to Rogers (2004), larger businesses have more robust cash flows to support innovation. Similarly, bigger businesses could have more valuable assets to put up as loan collateral. The fundamental premise of each of these situations is that outside financial markets might be hesitant to provide funding for innovation (either due to a high level of risk or an inability to comprehend technical nuances). The findings of Pavitt et al. (1987) also imply that larger organizations spend a greater proportion of their innovative effort on process innovation. This conclusion is also supported by Freeman's (1982) observation that process innovation in the chemical industries during the late 19th and early 20th centuries was typically driven by larger businesses.

There is strong theoretical and empirical evidence of the direct correlation that exists between innovation activity and company size, and that has changed as innovation indicators have become available. According to Damanpour and

Wischnevsky (2006), one can tell the difference between construction firms that innovate and those that embrace innovation based on organizational characteristics including size and age, innovation characteristics, and assessment of innovation. Dansoh, Oteng, and Frimpong (2017) investigated the small construction companies in Ghana and listed 12 requirements for innovation acceptance and creation by the companies. The key firm-level aspects that affect innovation generation and adoption are culture and resource availability within the organization (Laguir & Den Besten, 2016).

Effect of human resources on firm innovation

In their study, Damanpour and Schneider (2009) examine the correlation between manager's characteristics and the adoption of innovation in public organizations. The findings indicated that both innovation characteristics and manager characteristics have an impact on innovation behaviours. However, there isn't much evidence to support the idea that manager traits significantly moderate the association between innovation traits and company innovation type.

According to Lipovka, Islamgaleyev, and Badjanova (2021), both male and female managers exhibit a positive attitude toward innovations in their workplaces, but the former surpasses the latter in terms of adopting innovations and motivating staff members to innovate. Women managers are still perceived as being less innovative than males, despite recent studies showing a favourable effect of gender on an organization's innovativeness (Díaz-García, González-Moreno, & Jose Sáez-Martínez, 2013) (Colovic & Williams, 2020)((Nählinder, Tillmar, & Wigren, 2015). Researched are the relationships between gender and managers' capacity for invention (TM & Joseph, 2021), as well as the contributions of innovators and male and female managers to innovations (Agnete Alsos, Ljunggren, & Hytti, 2013).

Males practice innovations more broadly and deeply than their female counterparts, according to Strohmeyer, Tonoyan, and Jennings (2017), with the exception of industries with lower levels of innovation, when both sexes exhibit an equal level of innovative output. Men are more innovative than women, according to Link and van Hasselt (2020)), and women-owned businesses do worse when it comes to patenting than their male counterparts. Instead, Farooq, Satt, and Ramid (2019) explain how women entrepreneurs influence innovations in businesses in a beneficial way. Women engage in informal competition to promote innovations within their businesses. Additionally, the diversity of research and development teams positively influenced the intensity of inventions (Xie, Zhou, Zong, & Lu, 2020).

In Vietnam, Nha and Quan (2013) studied the innovation of Vietnamese enterprises through measures such as awareness and culture of innovation, innovation results, innovation form creation, and capacity of human resources for innovation. The results indicate that Vietnamese enterprises have a clear understanding of the concept and benefits of innovation, but few enterprises have implemented policies to foster this approach. Another empirical study by Pham Ngoc Viet et al (2021) on "the role of the CEO in the growth of the enterprise." The results show a positive correlation between the CEO's age and growth ability; in contrast, the ownership ratio of the CEO and the chairmanship of the board of directors are negatively related to the growth potential.

Impact of investment in R&D, and science & technology development funds on firm innovation

Research and development (R&D) spending generally produces innovations. At the firm level, R&D increased more than proportionately to firm size up to a threshold point, at which point a direct relationship developed. This was the first time that R&D was utilized in research as a stand-in for innovation (Scherer, 1965). This has been explained by the size advantages of large corporations in terms of internal expertise, money for innovation, sales base, and market dominance (Cohen & Klepper, 1996)**.** Financial resources are necessary for R&D activities, just like any other investment. This includes loans, stock, retained earnings, and other things. So far, R&D activities in particular have considerable sunk costs, and it is expensive to change the level of R&D spending. This is mostly because a large portion of R&D spending is made up of the salaries of the personnel who work in the field, who are typically highly skilled workers. Hiring and training these individuals is very expensive, which results in minimal volatility in R&D spending over time (Bronwyn H. Hall, 2002).

According to Demirel and Mazzucato (2012), a number of business-specific factors, including firm size, patenting, and patent persistence, strongly influence the favourable impact of R&D on firm growth. R&D only accelerates growth for a select group of small businesses, namely those that consistently file patents for at least five years. However, because large pharmaceutical companies have been experiencing low R&D productivity since the mid-1990s, R&D may have a negative impact on their growth. Álvarez (2016) investigated how R&D expenditures and information and communication technology (ICT) affect innovation and productivity in Chilean companies, especially those in the services industry. The findings demonstrate that ICT fosters creativity and productivity in both the services sector and the sample as a whole. Additionally, they demonstrate that ICT investment boosts productivity directly, rather than just through innovation, indicating that this investment would have additional productivity-boosting consequences. According to Zhu, Zhang, Huang, and Mao (2021),

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R&D significantly contributes to firm growth. Across all quantiles, private company R&D outperforms state-owned enterprise R&D in this regard. Additionally, they discovered that non-small and medium-sized firms have much higher R&D effectiveness than SMEs.

The Science and Technology Development Funds of the enterprise are used to invest in enhancing the scientific and technological potential of enterprises, industries, and manufacturing sectors and contributing to improving efficiency and competitiveness. The fund is also used to equip facilities, engineer; purchase machinery, equipment, and more advanced technology transfer objects. Enterprises view this as a crucial policy that fosters scientific and technological research and development. In the past, Congress and the Government have enacted a number of mechanisms and policies to promote scientific and technological development in enterprises. One of them is the Corporate Income Tax Law No. 14/2008/QH12 of 2008; the Law amending and supplementing certain articles of the Law on Corporate Revenue Tax No. 32/2013/Qh13 of 2013, Law on Science and Technology No. 29/2013/ QH13 of 2013; Decree No. 95/2014/ND-CP, Joint Circular No. 12/2016/TTLT-BKHCN-BTC of 2016 of the Inter-Department of Science and Technologies and the Ministry of Finance guiding the contents and management of the Foundation for the development of science and technology of enterprises; Law on Technology Transfer No. 07/2017/Q H14 of 2017; Government Decree No. 76/2018/ ND-CP of 2018 detailing and guiding implementation of certain provisions of the Technology Transfer Law in Article 8, Article 10, Article 13, Article 14, Article 27 and Article 28 guiding specific contents of expenditure and support of the Science Development and Technology Fund for enterprise technology transfer activities. The Government on Scientific and Technological Firms issued Decree No. 13/2019/ND-CP on February 1, 2019, which permits the commercialization of scientific and technological findings through the use of the Science and Technology Development Fund of firms (Article 16). The Ministry of Finance issued Circular No. 45/2019/TT-BTC on July 19, 2019, which governs the financial management of the implementation of the "Supporting the National Innovative Startup Ecosystem by 2025" scheme. This circular permits the enterprise to use its Science and Technology Development Fund to finance and support the financial performance of the tasks under the scheme. Thus, the contents of the establishment and use of the Fund have been fully regulated in the above-mentioned laws, decrees, and guidelines. The advocacy and policy that encourages enterprises to set up tax-free funds to encourage enterprise investments in technology science and creative innovation is an important policy to attract enterprise resources to invest in science, and technology innovation, improve productivity and commodity product quality, promote enterprise innovation, and support resources for science and technology-based start-ups.

Moreover, significant studies around the world have provided convincing arguments about the importance of an innovation-based growth model, demonstrating a strong correlation between productivity and innovation at the macro and microeconomic levels (Cirera & Maloney, 2017); (Comin & Hobijn, 2010); (Griliches, 2007); (Bronwyn H Hall, 2011); (Mohnen & Hall, 2013); (Solow, 1957).

AIMS AND OBJECTIVES

The aim of this study is to learn about the nexus between firm resources and innovation in new empirical evidence at Vietnamese listed textile firms. Firm resources, including capital structure, return on total assets (ROA), firm size, quick liquidity, and the ratio of investment and development funds to profit after tax, etc. Innovation: = 1 if introducing a new product, = 0 otherwise.

The following are the objectives of this study:

1. Analysis and measurement of firm innovation in Vietnam's garment and textile industry.
2. Assessments and measurement influence of firm resources on innovation in new empirical evidence at Vietnamese listed textile firms.

METHODS

Measurement

Using secondary data referenced from articles, research articles, websites (cafef.vn, vietstock.com), for instance, and financial reports of Vietnamese listed textile companies on the stock market. Also, 34 companies which operate in the textile, garment & apparel industry, including 5 on HOSE, 4 on HNX, and 25 on UPCOM, were among the samples collected on Vietnam's stock exchange (Table 1).

Table 1. Main variable measurement.

Variable	Measurement	Source
Dependent variable Innovation	= 1 if introducing a new product = 0 otherwise	Annual report
Independent variable		
Financial effectiveness	ROA: Return on asset; ROE: Return on equity	Financial statement
IPO	The first year of a company's shares to the public	Annual report
Firm SIZE	Ln(asset)	Financial statement
Firm AGE	Survey year – foundation	Annual report
Capital structure	The debt-to-equity ratio	Financial statement, Annual report
Tang	Tangible fixed assets to total assets	Financial statement
Quick Liquidity	Short term to debt	Financial statement
SciTech	Investment and development funds on profit after income tax	Financial statement

Research model

The article uses regression methods to estimate regression coefficients with unbalanced panel data. Specifically, includes pooled OLS estimates, random effects (RE), fixed effects (FE), and generalized least squares (GLS) The paper then compares the results of the study, combining the accreditations to select a suitable model.

Logistic with panel data is a model that studies the dependence of a binary variable on independent variables. In firm innovation studies, the Logit model could estimate the probability of a firm's product innovation occurring directly from the sample.

The dependent variable Y in innovation research can take either 0 or 1, Y = 1 if the company introduces a new product/process to the market; Y = 0 otherwise.

The Logit model is based on the logistic distribution function, which is an S-shaped curve between 0 and 1, used to convert a linear combination of predictor variables into a value for the probability of an event occurring.

Let Pi = P (Yi = 1|Xi)

When $X\beta$ takes the value from $-\infty$ to $+\infty$, then p takes the value from 0 to 1. To estimate β, we use the maximum likelihood estimation.

RESULTS AND DISCUSSIONS

An overview of firm innovation in Vietnam's garment and textile industry

Firms' perceptions of the benefit of innovation

As can be seen from Pie Figure 1, there are 3 benefits to innovation, of which the biggest advantage is launching a new product quickly (just over 40%), and then a third of surveyors confirmed that innovation helps businesses to apply new production technologies, and finally, the benefit from innovation is that it makes R&D investment more efficient.

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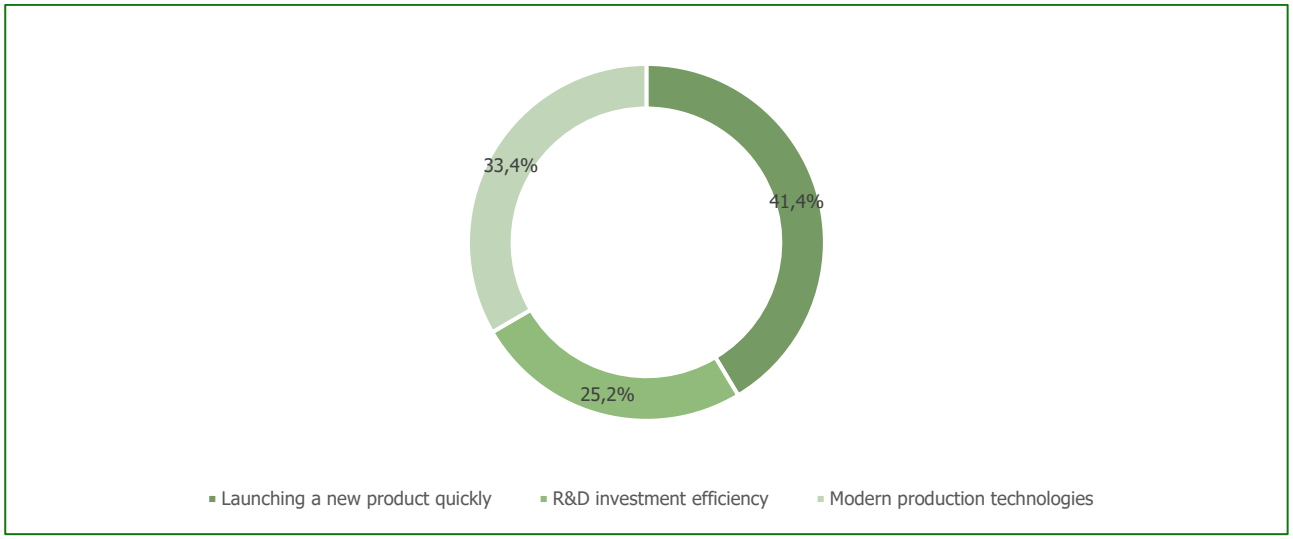

Figure 1. Firm's perception of the benefit of innovation.

Firms' perceptions of barriers to innovation

There have been several main barriers to firm innovation, using Likert 5 points with 1: incompletely impact and completely. As can be seen from Figure 2 and Table 1b, budget is the biggest barrier to firm innovation (mean = 4.38, maximum), and the market comes in second at an average point of 3.64. Many Vietnamese textile and garment firms are afraid of the output market in performing innovation activities. The specialist shortage is also an important barrier to innovation, getting 3.53 points.

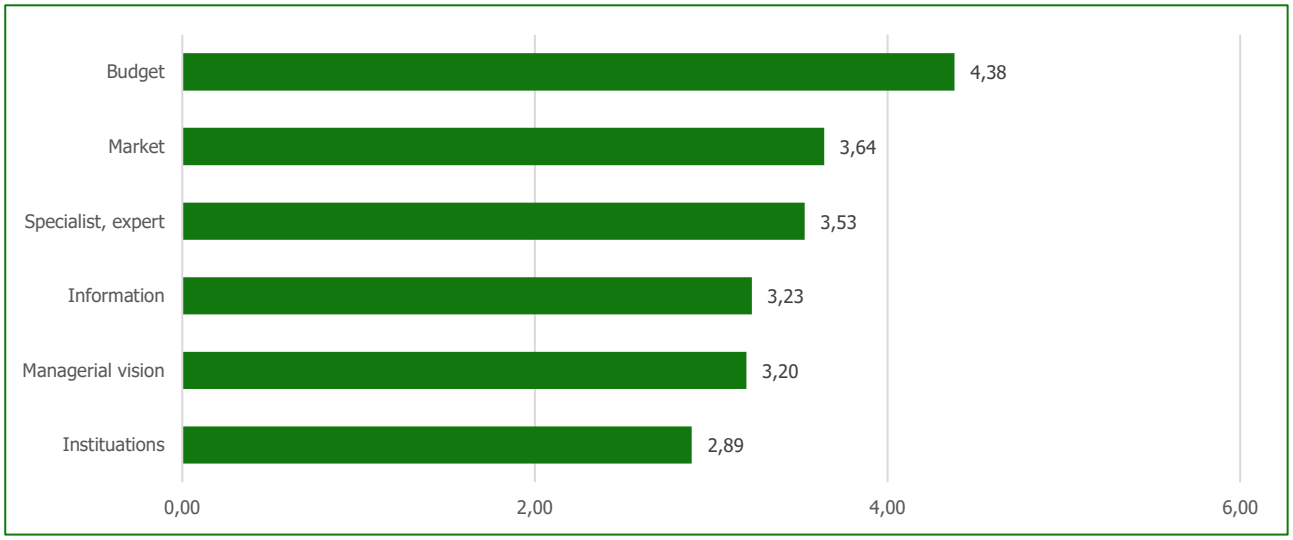

Figure 2. Main obstacles to innovation in Vietnamese textile and garment companies.

Table 1b. Main obstacles to innovation.

Description	Mean
Budget	4.38
Market	3.64
Specialist, expert	3.53
Information	3.23
Managerial vision	3.2
Institutions	2.89

An internal resource to firm innovation

Science and technology development funds within Vietnam textile and garment companies are modest. As can be seen in Figure 3, the science and technology development funds positively relate to firm innovation. Specifically, firms possess the fund that innovation activities are three times more than no possess funds.

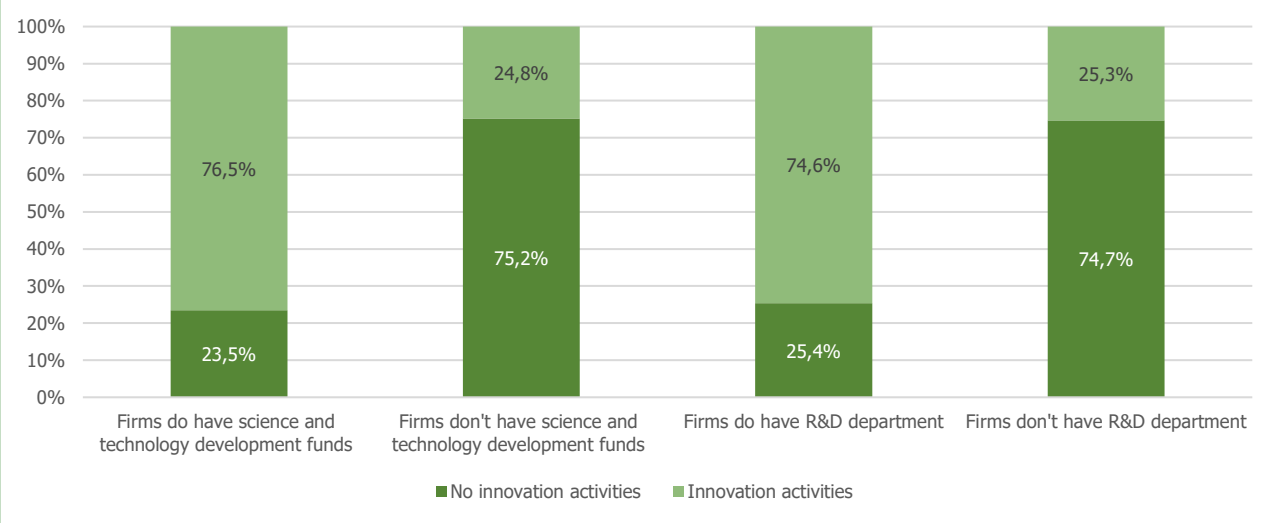

Figure 3. The relationship between science and technology development funds, R&D department and innovation activities.

Econometric model estimation

The results in Table 2 showed that in the period 2016-2023, the listed textile enterprise group had a total debt almost 1.7 times the share capital (cap index-capital structure), in which enterprises reached this ratio highest of 7.11. This shows that these enterprises use a fairly high capital structure. In terms of operating time, by the end of 2023, the oldest enterprise is 77 years old; the average age of the enterprise operating is 35 years. In terms of the business situation, the profit after tax on total assets (ROA) of listed textile enterprises reached only 0.012 (1.2%) with a standard deviation of 0.443, of which the enterprises achieved the highest of 32.2%. Meanwhile, profit after ownership tax (ROE) averages around 13.8%, with enterprises achieving the highest score of 169%. Furthermore, investment and development money is essential to the enterprise's growth process; on average, during this period, the listed textile companies set a 17.4% ratio of after-tax profits.

Table 2. Characteristic statistics for the primary variables.

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	270	.001	.443	-6.105	.322
ROE	270	.138	.214	-1.192	1.689
Firm size	270	27.04	1.672	21.498	30.717
Cap	270	1.693	1.56	-2.438	7.11
Fixed asset	267	.2	.125	.002	.743
Quick liquidity	270	1.814	2.366	.062	17.982
Firm age	270	35.122	16.485	0	77
IPO duration	219	5.616	4.894	0	21
SciTech	249	.174	.157	-.497	.564

Quick liquidity is a favourable liquidity capability that enables DN to mobilize funds for business operations, increasing MSP opportunities. The average fast-payment capacity of the listed textile industry groups during this period was 1.81 times.

The rank of the differenced variance matrix does not equal the number of coefficients being tested; be sure this is what the study expects, or there may be problems computing the test. Examine the output of the study estimators for anything unexpected and possibly consider scaling the study variables so that the coefficients are on a similar scale.

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Table 3. The result of the Hausman test in the panel regression model.

	Coefficients			
	(b)	(B)	(b-B)	Sqrt (diag (V_b-V_B))
	FEM	REM	difference	S. E
ROA	17.32298	15.15487	2.168112	3.467146
Firm size	-.2456328	.424237	-.6698698	.8785117
CAP	-.5510775	-.419935	-.1311425	.2886916
TTKN	-.1189539	-.2073774	.0884235	.0770043
Development investment fund ratio	6.344426	7.04286	-.698434	2.099659

The result given by the Stata software in Table 3 is as follows:

Chi2(4) = (b-B)'[(V_b-V_B) ^ (-1)] (b-B) = 39.54

Prob>Chi2 = 0.0000

Hausman test results (Table 3) show that Chi2(4) = 39.54 and Prob > Chi2 = 0.0000 < 0.05.

The fixed effects model is therefore appropriate. The logistics model with fixed effects regression results is shown in the following Table 4.

Table 4. The regression results of the logistics model with fixed effects. Note: *** p<.01, ** p<.05, * p<.1.

DMSP_new	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ROA	3816586.2	13702284	4.22	0	3355.031	4.342e+09	***
Firm size	1.528	.222	2.91	.004	1.149	2.033	***
CAP	.657	.09	-3.05	.002	.502	.861	***
TTKN	.813	.073	-2.32	.021	.682	.969	**
Development investment fund ratio	1144.656	1921.52	4.20	0	42.636	30730.967	***
Constant	0	0	-2.94	.003	0	.019	***
lnsig2u	-1.853	1.887	.b	.b	-5.551	1.845	

Mean dependent var	0.598	SD dependent var	0.491
Number of obs	249	Chi-square	41.251
Prob > Chi2	0.000	Akaike crit. (AIC)	249.257

Table 4 shows that the significance of the overall regression coefficients of the explanatory variables of the panel data logit regression model, the factors ROA, firm size, capital, quick liquidity, and the ratio of science and development funds to profit after tax are statistically significant (values in the column P-value are lower than 0.05), so that the hypothesis that all of the model's regression coefficients are equal to 0 may be safely rejected. Thus, the regression coefficients found are significant, and the model is well used. We can write the equation based on these regression coefficients (Table 5):

Table 5. These regression coefficients.

Variable	dy/dx	Std.Err.	z	P>z	[	95%	C.I.]
ROA	15.155	3.590	4.220	0.000	8.118	22.192	-0.005
Firm size	0.424	0.146	2.910	0.004	0.139	0.709	27.012
CAP	-0.420	0.138	3.050	0.002	0.690	0.150	1.756
TTKN	-0.207	0.090	2.320	0.021	0.383	0.032	1.812
Development investment fund ratio	7.043	1.679	4.200	0.000	3.753	10.333	0.174

The results from above Table 5 indicate that both financial efficiency factors, firm size, capital structure, rapid liquidity and the ratio of investment funds developed on profits after tax have a positive correlation to the fact that the textile and garment manufacturers listed on the stock market (through the mark of the regression coefficient, all have a positive sign). Thus, the regression coefficients found are meaningful, and the model of this study is well used, which can explain the significance of the variables affecting the probability of implementation of Vietnam's listed textile enterprises. Specifically, all of the above five factors increase the ability of the enterprise to implement global sustainable product (GSP) activities, in which the impact of the factors on GSP is not the same.

Specifically, results from Table 5 show that ROA factors have a positive correlation with the ability to use derivative tools in risk management. The marginal effect of this variable is 15.2, which means that when the ROA of a textile company listed on the stock market increases by 1%, the probability of the company conducting the MSP will increase by 15.2%, provided the other factors remain unchanged. It can be explained that, when a company is able to make money from its assets effectively, its focus is on improving, changing the code, and designing products that have the potential to directly affect its ability to make profits.

Next, the firm size also positively affects the probability of Vietnam textile and garment companies. Specifically, the larger the firm size, the more the potential for firm innovation, it completely makes sense because a firm budget is essential to succeed in innovation strategies. The specific capital structure, defined as the ratio of debt to equity and the rapid liquidity of the firm, affect negatively on innovation behaviour of Vietnam firms listed on the stock market. The reason for this is that these sectors can utilize their loans for activities beyond the innovative projects, like seeking machining orders, and participating in and promoting trade in export markets, among others.

This study's results are similar to some of the results of previous studies on innovation, such as research results of Vu (2023) that show that labour scale and information technology applications (using the internet, software, and automated systems in production and business activities) positively influence innovation. Furthermore, in parallel with the application of information technology, reducing the scale of labour appropriately will bring higher innovation results. Besides, this result is consistent with the studies of Vaona & Pianta (2008) and Hue (2019). These authors studied in different contexts but all supported the neo-Schumpeterian hypothesis: firm size positively affects innovation. This result is also consistent with the Dynamic Capabilities View; companies that are able to adapt to changing market conditions and technological developments are more likely to achieve sustainable competitive advantages, helping companies respond quickly to changes in the market and develop new products, services and business models (Li et al., 2023; Chen et al., 2015; Bartelsman et al., 2019).

CONCLUSIONS

Logit model results of fixed effects panel data:

Innovation = 0,42*Firm size + 15,12*ROA + (-0,42*Cap) + (-0,2074*QuiLiqu) + 7,043*ScieTech

From the initial set of 9 variables and the final Logit regression model, the remaining 5 variables are Capital structure, ROA, Firm size, Quick liquidity and the ratio of investment and development funds to profit after tax. The topic has tested the selection of fixed effects model (FEM), and random effects model and as a result, fixed effects model has been selected. Thus, the impact of Capital structure, ROA, Firm size, Quick liquidity, and the ratio of investment and development funds to profit after tax on the probability of innovation of Vietnam's listed textile companies is random.

The variables Capital structure, ROA, Firm size, Quick liquidity and the ratio of investment and development funds to profit after tax all increase the probability of firm innovation. Vietnam garment companies with higher financial results (ROA, ROE) are more likely to innovate products, and ultimately, Companies with an increased ratio of investment and development funds to after-tax profits, are more likely to innovate and improve textile and garment products.

Drawing from panel data Logit regression study findings, we suggest the following implementation policies:

Firstly, enhancing the financial performance of textile and apparel companies listed in Vietnam.

For sustainable development and implementing the circular economy model, there are still many problems for the textile and garment industry. In particular, the supply of raw materials and accessories depends heavily on imports (cotton, fibre, fabric, and auxiliary materials). Furthermore, the construction of sizable industrial parks with centralized wastewater treatment during the textile dying stage lacks spatial planning. Many communities continue to hold onto their traditional values and are uninterested in granting licenses for weaving and dyeing initiatives. A major difficulty is that many organizations,

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especially small and medium-sized businesses, are either unprepared or lack the necessary resources due to the rising cost of sustainable development.

On the other hand, most of Vietnam's textile and garment export markets are high-class and fastidious, with very high product safety and hygiene standards.

Given the challenges facing sustainable development, the textile and apparel sector in Vietnam must encourage circular business, particularly in light of the government's resolute pledges to cut net emissions alongside the market. Large exports from the sector have established clear goals and plans for the use of recycled materials. The Vietnam Textile and Apparel Association (VITAS) asserts that companies must first increase their knowledge of circular business in order to hasten the successful use of the circular economy in production and business. Examine the opportunities and difficulties of implementing a circular business strategy. In particular, there are appropriate steps to focus on the stages of businesses that have strengths, such as water circulation, roof voltage, calculation of benefits and costs, and conversion roadmap. Gather documents related to NPL traceability and meet the requirements of recycling rate, product life cycle, clean materials, and high recyclability.

Secondly, establishing an investment and development fund and boosting R&D spending.

In recent years, many of Vietnam's listed textile enterprises have not paid attention to R&D activities. However, major manufacturers in the world have particularly valued this activity, prompting textile and garment enterprises. By making investments in this area, the group of textile and apparel companies that are listed on the stock exchange will be able to take advantage of economies of scale outside the company, which will help the entire industry by utilizing the results of research and development.

Businesses in the textile industry should allocate a portion of their budget to research and development in order to support the acquisition and operation of imported technologies while searching for new and advanced technologies to meet production needs. This is because research and development (R&D) activities like improvement, upgrading, and the development of new technologies are essential for businesses to reach sustainable technologies. The listed textile companies in Vietnam must keep concentrating on investing, creating eco-friendly goods, and making investments to improve the functionality of products, sustainable fashion apparel, and health. Since the post-Covid-19 pandemic, Vietnam's textile companies have gone public in a niche market and a developing area.

Finally, increase the value of manufacturers to meet the requirements to be invested from venture capital funds. Ensuring that companies with technological innovation projects receive funding from venture capital funds is crucial. The listed textile companies have an important advantage in that they have been valued and have transparent, publicly disclosed information about their financial situation, but this is not enough because to be invested in venture capital funds (Dragon Capital, Vina Capital, IFC, Mekong Capital, etc.), it is necessary to demonstrate the production situation of the business, to plan a clear business strategy, to ensure effective corporate governance, and to ensure the high-responsibility role of the board of directors. It is necessary to be able to hire an expert consultant on business strategy planning, development, and diversification of venture capital funds such as the Foreign Venture Fund, the Risk Fund (Government), or the Angel Investment Fund).

Not only can the study model be applied to Vietnamese-listed textile firms, but it can also be tested in other types, such as steel production and construction materials, in order to confirm its generality. In addition, some factors have not been included in this article. These indicate next-generation learning opportunities that can better explain the result of research. Furthermore, the sample size is quite small, and the scope of the study is limited to Vietnamese-listed textile firms. Therefore, it is suggested that follow-up studies can increase the sample size and expand the scope of research in many other industries.

ADDITIONAL INFORMATION

AUTHOR CONTRIBUTIONS

All authors have contributed equally.

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CONFLICT OF INTEREST

The Authors declare that there is no conflict of interest.

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ЗВ'ЯЗОК МІЖ РЕСУРСАМИ ФІРМИ ТА ІННОВАЦІЯМИ: НОВІ ЕМПІРИЧНІ ДОКАЗИ НА ПРИКЛАДІ В'ЄТНАМСЬКОЇ ТЕКСТИЛЬНОЇ КОМПАНІЇ, ЩО КОТИРУЄТЬСЯ НА БІРЖІ

Із метою дотримання правил походження й отримання вигоди від підписаних угод про вільну торгівлю текстильний і швейний сектори В'єтнаму розвиватимуться шляхом створення та розширення внутрішніх ланцюгів поставок. Це сприятиме збільшенню вмісту доданої вартості в країні та поступовому підвищенню продуктивності праці й ділової активності. Щоб адаптуватися до мінливих споживчих тенденцій, текстильні та швейні компанії також збільшать

свої інвестиції в бізнес-моделі й технологічні інновації. Метою цього дослідження є вивчення зв'язку між ресурсами компанії та інноваціями на основі нових емпіричних даних в'єтнамських текстильних компаній, що котируються на біржі. Ми використовували вторинні дані, взяті зі статей, наукових досліджень, вебсайтів і фінансових звітів в'єтнамських текстильних компаній, акції яких котируються на фондовому ринку. Дослідження надає емпіричні дані на основі вибірки з 270 спостережень шляхом оцінки моделі вимірювання й тестування за допомогою програмного забезпечення Stata, включаючи описову статистику, моделі FEM та REM, а також остаточну логіт-регресійну модель. Результати емпіричного дослідження показують, що вплив структури капіталу, рентабельності активів, розміру фірми, швидкої ліквідності та співвідношення фондів інвестицій і розвитку до прибутку після оподаткування на ймовірність інновацій в'єтнамських текстильних компаній, що котируються на біржі, є випадковим. У дослідженні запропоновано практичні рекомендації щодо покращення фінансових показників текстильних і швейних компаній, які котируються на біржі В'єтнаму.

Ключові слова: економіка, управління людськими ресурсами, ресурси фірми, інновації, праця

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