

Data-Driven Financial Strategy Transformation: The Impact of Corporate Data Capital Utilization on The Level of Financial Asset Allocation

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Abstract. This paper empirically investigates the impact of corporate data capital utilization on the level of financial asset allocation and its underlying mechanisms, based on a sample of listed companies on the Shanghai and Shenzhen stock exchanges from 2010 to 2021. The study finds that the level of corporate data capital utilization has a significant positive effect on the level of financial asset allocation, a conclusion that remains robust after conducting various methods of robustness checks. Mechanism analysis indicates that operational acumen positively moderate the relationship between data capital utilization and the level of financial asset allocation. Heterogeneity analysis reveals that the positive impact of corporate data capital utilization on financial asset allocation is more significant in companies located in central regions, non-state-owned enterprises, and companies with high ESG ratings. This research provides insights for promoting the transformation of corporate financial strategies and optimizing the structure of asset allocation.

Keywords: Corporate Data Capital Utilization; Financial Asset Allocation; Operating Profit Margin; ESG rating.

1. Introduction

Under the wave of the digital economy, digital technologies have accelerated the penetration of all areas of the social economy, profoundly changing the way of human production and life, and the digital economy with data as the key element continues to grow at a high rate and has become the new engine of high-quality development. At present, the scale of China's banking assets ranks first in the world, and the scale of stocks, bonds, and insurance ranks second in the world [1], and the scale of foreign exchange reserves ranks first in the world, but with the continued advancement of financialization, the financialized capital continues to accumulate, gradually breaking through the industrial capital. However, as financialization continues to advance, financialized capital continues to accumulate, gradually breaking through the constraints of the industrial capital cycle and expanding rapidly in non-productive areas, allowing the formation and development of a purely virtual economy, leading to the existence of the problem of the economy's "deconcentration of the real to the virtual" [2]. At this stage, more and more real enterprises will invest resources in the financial field and give up the original business, resulting in a significant decline in corporate profitability, and enterprises will use data as a kind of capital to invest in business operations, is the use of digital technology to reshape the corporate strategy and business process is an important initiative, is the trend of the enterprise "from the virtual to the real," which will help optimize the allocation of corporate financial assets and release the financial assets of the enterprise. It is conducive to optimizing the allocation of corporate financial assets and releasing the new kinetic energy of the digital economy. Therefore, whether the level of utilization of corporate data elements can help enterprises carry out data-driven transformation of financial strategies, promote the rational allocation of corporate financial assets, and then promote the healthy and vigorous development of the real economy has become a topic of practical significance that needs to be resolved urgently at the present time.

In the context of the era of digital economy, enterprises are facing the major opportunities and challenges of data element-driven transformation of financial strategies. Regarding the research on the level of data elements on the level of financial asset allocation of enterprises, the majority of scholars in the academic community hold a positive opinion, believing that the improvement of the level of utilization of data capital has a facilitating effect on the level of allocation of financial assets, which is conducive to the enhancement of the enterprise's dynamic capabilities [3] and promote enterprise technological innovation, but there are also a small number of scholars who have doubts about the reliability of the enterprise data capital utilization level enhancement, and believe that the process of enhancing data capital will occur in the process of the production system and management system rigidity conflict, which in turn produces the opposite effect. At present, the academic research on the relationship between the utilization of enterprise data capital and the level of enterprise financial asset allocation has not yet reached a unified conclusion. On the one hand, enhancing the level of data capital utilization can improve production efficiency, stimulate enterprise innovation, alleviate financing constraints [4], and enhance the profitability of the entity; on the other hand, from the increased level of data capital utilization disadvantages, it is argued that there is a problem of high cost in the utilization of enterprise data capital [5], and there is a problem of information asymmetry in the transaction process [6], sacrificing long-term productive investments [7], which is not conducive to the expansion and long-term development of the business of the entity. Existing literature has mainly investigated the transmission paths and influence mechanisms of the level of corporate data capital utilization on the degree of promotion of corporate financialization, but there is little literature on what factors, especially the internal factors of firms, further promote or inhibit the relationship between the level of corporate data capital utilization and corporate financialization. So, what is the relationship between the level of corporate data capital utilization and corporate financialization? What factors play a moderating role in the mechanism of action? These are all questions worth studying.

This paper selects Chinese A-share listed enterprises in Shanghai and Shenzhen from 2010 to 2021 as the empirical research object, introduces the moderating variables of business acumen, and tests and analyzes the relationship between the utilization of corporate data capital and the level of financial asset allocation. The possible innovations and contributions of this paper are reflected in: (1) Enriching the relationship between data capital and the theory in the field of financial strategy: this study enriches the theoretical foundation in the field of data capital by proposing and validating the hypothesis of the moderating role of business acumen, especially in explaining how digital transformation affects the trend of corporate financialization, providing new ideas and frameworks for subsequent theoretical development and empirical research (2) Heterogeneity analysis reveals that the level of data capital utilization of non-state-owned firms in central China has a positive and significant effect on the level of financial asset allocation level has a positive and significant effect, while high corporate ESG ratings have a positive and significant effect. These findings provide important references for corporate managers when formulating and implementing digital transformation strategies.

2. Theoretical analysis and research hypotheses

Effective utilization of enterprise data capital is increasingly becoming a key factor in driving sustained growth and competitiveness, serving as a tool for managers to gain deeper insights into the existing situation and predict future trends, and helping enterprises to better understand market trends, customer needs, and internal operational efficiency. Existing literature mainly explores the impact of digital transformation on enterprise innovativeness or over-financialization, and much of the literature focuses on the adverse effects of over-financialization, arguing that over-financialization of non-financial enterprises hinders enterprise progress, deviates from the main business and tends to be hollow, and inhibits productivity, but the effect of financial asset allocation, as a core financial decision, has not yet reached a consensus among academics. From the negative effect, the

employment effect of enterprise financial asset allocation level is too high, it may block the transformation of enterprise financial strategy, the study found that the enterprise financial asset allocation level is too high will exacerbate the systematic financial risk, that the enterprise financialization significantly inhibit the efficiency of resource allocation; From the positive effect, the entity enterprise to improve the level of financial asset allocation to help improve the next period of business performance, increase the short-term enterprise In terms of positive effects, real enterprises increase the level of financial asset allocation to help improve the next period's operating performance, increase the enterprise's short-term financial asset investment, and supplement the "reservoir" function of enterprise liquidity. At the same time, the in-depth mining and analysis of data capital can provide enterprise managers with more accurate market forecasts, risk assessment, and help enterprises return to the real economy from the virtual economy and broaden financing channels. Help enterprises in digital transformation. In summary, the efficient utilization of enterprise data capital provides data-driven decision support for financial asset allocation, enabling enterprises to respond more flexibly and accurately to the complex and changing market environment. Accordingly, the following hypotheses are proposed:

H1: Corporate data capital utilization has a significant positive effect on the level of financial asset allocation

This paper uses operating acumen as a measure of operating profitability. Operational acumen reflects a firm's dynamic capabilities in market positioning, strategy execution, cost control, and profit generation, which play a pivotal role in planning and adjusting financial strategies to maintain long-term profitability [3]. Based on the understanding of the relationship between a firm's internal profitability and external capital demand, if a high OPR value weakens the positive relationship between the two or strengthens the negative relationship between the two, a firm with a high OPR implies that it has been able to efficiently generate a stable cash flow through its core business activities, which reduces its reliance on external financing, and that such firms may be able to support investments and expansions through endogenous sources of capital without overly relying on the activities of the financial market. financial market activities, which reduces its tendency to financialize to some extent. On the other hand, the efficient use of data elements can accelerate the decision-making process, optimize asset allocation, and enhance market competitiveness, which typically raises a firm's need for external funding to support its data-driven growth strategy, and thus its level of financial asset allocation. However, for firms that already have high OPR, the incremental benefits of data factor utilization may be relatively small, as these firms have already achieved higher efficiency and profitability in their existing operating models. As a result, even if the level of data factor utilization increases, its positive driving effect on firms' financialization may be offset by high OPR; conversely, if low OPR strengthens the positive relationship between the two or weakens the negative relationship between the two, the financialization effect of data factor utilization is amplified among firms with lower operating acumen, due to the greater need for data insights to drive their financial decisions, such as capital structure optimization, financial instrument selection, and risk management. Further financialization can provide firms with the necessary financial support to help them overcome financial challenges caused by operational shortfalls, such as by increasing external financing to fund new projects or pay off high-cost debt. Based on this, this paper proposes the following hypotheses:

H2: Business acumen positively moderates the relationship between the level of firms' data capital utilization and the level of firms' financial asset allocation

3. Research design

3.1. Sample selection and data sources

In this paper, all listed companies in Shanghai and Shenzhen A-shares from 2010 to 2021 are selected as research samples, and the data used are from the Cathay Pacific CSMAR database, respectively, in order to explore the impact of the level of corporate data capital on the level of

financial asset allocation, and to ensure the validity of the data, the samples are screened according to certain conditions: (1) exclude the financial category, real estate industry, real estate development and operation industry listed companies; (2) excluding companies with ST, *ST, PT during the sample period, as well as listed companies that do not disclose relevant indicators and have missing data. After screening, 27647 observations are finally obtained.

3.2. Variable Definition

3.2.1 Explained variables

Financial asset allocation level. In this paper, we use the ratio of financial assets to total assets to define the financial asset allocation level [8], which refers to the ratio of the sum of derivative financial assets, loans and advances, available-for-sale financial assets, held-to-maturity investments, investment real estate, and transactional financial assets to total assets. Although investment real estate is regarded as a non-financial asset because it is a physical asset according to traditional corporate accounting standards, given the many challenges facing the real estate industry at present, its investment purpose, the rental income it generates, and its potential for capital appreciation make investment real estate functionally show similar characteristics to financial assets, and are therefore included in this study, with specific reference to Table 1.

3.2.2 Explanatory variables

This paper takes the utilization level of data elements as a proxy indicator for "data capital", and subdivides data elements into the level of AI technology, blockchain technology, cloud computing technology, big data technology, and big data application, which represent the ability of the enterprise to collect, store, clean, analyze, and utilize data elements. Based on the statistical records of the frequency of reporting of the five key indicators and their sub-indicators in the annual reports of enterprises and summing them up, the calculation of proxy indicators is done by taking the value of 1 above the median, and taking the value of 0 below the median, and constructing the measurement indicators of data capital, with specific reference to Table 1.

3.2.3 Control variables

Following the existing studies, this paper selects Intangible, TobinQ, AssetGrowth, Liquid, Cashflow, FIXED, PB, INST, REC, Board, Dual, and ATO, setting industry and year fixed effects, as shown in Table 1.

3.2.4 Moderating variables

The paper selects operating profit margin (ratio of operating profit to operating revenue) [9] as a moderating variable to measure the level of profit achieved by an enterprise in its operations, reflecting the proportion of profit to sales revenue that an enterprise earns after deducting its direct operating costs and operating expenses from the sale of its products or provision of its services. A high operating margin indicates that an enterprise has achieved a high level of profitability in its operations, while a low operating margin may imply that the enterprise is operating less efficiently or is facing certain operational challenges, as shown in Table 1.

Table.1. Variables and specific definitions

Variable type	Variable Name	Variable Symbol
explanatory variable	Data Capital	DUL
explanatory variable	Level of financial asset allocation	FINRATIO
control variable	Intangible assets as a percentage	Intangible
	current ratio	Liquid
	Cash flow ratio	Cashflow
	Fixed assets as a percentage	FIXED
	market capitalization ratio	PB
	Percentage of shares held by institutional investors	INST
	Accounts receivable ratio	REC
	Board size	Board
	CEO Duality	Dual
	Total asset turnover	ATO
	Tobin's Q	TobinQ
	Total asset growth rate	AssetGrowth
moderator variable	operating profit margin	OPR

3.3. Model Construction

In order to explore the impact of enterprise data capital level on enterprise financial asset allocation level, the following model is constructed:

$$FINRATIO_{it} = \beta_0 + \beta_1 DUL_{it} + \beta_2 Controls_{it} + \sum Year + \sum Industry + \varepsilon_{it} \quad (1)$$

In order to explore the impact of business acuity on the level of enterprise data capital and the level of enterprise financial asset allocation, the following model is constructed:

$$FINRATIO_{it} = \beta_0 + \beta_1 DUL_{it} + \beta_2 OPR_{it} + \beta_3 (DUL_{it} \times OPR_{it}) + \beta_4 Controls_{it} + \sum Year + \sum Industry + \varepsilon_{it} \quad (2)$$

4. Analysis of experimental results

4.1. Descriptive Statistics

According to the results in Table 2, where FINRATIO as an explanatory variable, finratio as an explanatory variable replacement variable, DUL as the core explanatory variable in this paper, operating profit margin OPR as the moderating variables in this paper, and the other variables as the control variables, in terms of the mean value, most of the enterprises' factor utilization level value in the 0.0794, indicating that, most of the enterprises have lower utilization of factor utilization level, as shown in Table.2.

Table.2. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max.
FINRATIO	27,647	0.0438	0.0802	0	0.468
finratio	27,647	0.785	0.411	0	1
DUL	27,647	0.0794	0.156	0	1
OPR	27,647	0.0828	0.0116	0.0627	0.0978
Intangible	27,647	0.0462	0.0494	0	0.343
TobinQ	27,647	2.056	1.368	0.802	15.61
AssetGrowth	27,647	0.182	0.375	-0.383	5.116
Liquid	27,647	2.471	2.668	0.268	35.50
Cashflow	27,647	0.0479	0.0684	-0.222	0.257
FIXED	27,647	0.216	0.158	0.00164	0.736
PB	27,647	3.546	3.184	0.413	44.50
INST	27,647	45.30	25.30	0.101	121.8
REC	27,647	0.120	0.102	2.26e-05	0.506
Board	27,647	2.129	0.196	1.609	2.708
Dual	27,647	0.272	0.445	0	1
ATO	27,647	0.661	0.446	0.0568	3.087

4.2. Correlation Test

In this paper, the relationship between the variables is examined through Pearson correlation analysis. From the results, it can be seen that the explanatory variable FINRATIO has a positive correlation significant relationship with the explanatory variable DUL, and initially it can be judged that the improvement of the enterprise data capital DUL can enhance FINRATIO, which is in line with the expected assumptions, and from the point of view of the control variables, the correlation coefficients of the selected control variables with the explanatory variables are relatively large, and the significance level of which is higher are higher. Specifically, Intangible, AssetGrowth, FIXED, INST, REC, BOPRrd and ATO all have significant negative correlation with the explanatory variable FINRATIO, and TobinQ, Liquid, Cashflow, PB and Dual all have significant Positive correlation, that is, the selected variables can be well explained FINRATIO, the selected variables are more reasonable, from the correlation coefficient between the variables, the correlation coefficient of all the variables is less than 0.4, so the possibility of the existence of covariance is low, in order to further verify whether there is covariance between the variables, the following covariance test. Due to the space constraints, the table is omitted.

4.3. Base Regression Analysis

From the test results, the F-test rejects the original hypothesis at 1% significance level, and the Hausmann test also rejects the original hypothesis at 1% significance level, indicating that the fixed effect model is better than the mixed effect model, and the fixed effect model is better than the random effect model, and should be selected to carry out the regression analysis of the panel fixed effect model, and secondly, from the point of view of the goodness of fit and the adjusted goodness of fit, the model 2's Adjusted fit value of 0.145, indicating that the model selected in this paper can explain at least 14.5% of the sample data, although the explanatory strength is not high, but the number of samples is as high as 27,647, so the sample data that can be interpreted is still larger, and there is a certain degree of illustrative, and lastly, from the regression results of model 1, the enterprise data capital DUL has a positive and correlative significant effect on the FINRATIO at the 1% significance level. correlation significance effect, the regression coefficient is (0.0196***), in line with the expected hypothesis, model 2 regression results, enterprise factor utilization level at 1% significance level has a positive correlation significance effect on FINRATIO, the regression coefficient is (0.0156***), in line with the expected hypothesis, and all the control variables have a significant

impact on FINRATIO, which shows that The improvement of enterprise data capital level DUL can promote the improvement of FINRATIO, as shown in Table.3.

Table.3. Benchmark regression analysis

	(1)	(2)
	FINRATIO	FINRATIO
DUL	0.0196***	0.0156***
	(3.60)	(2.95)
Constant	0.0244**	0.0865***
	(2.23)	(5.82)
Control Variable	Yes	Yes
Industry Fixed	Yes	Yes
Year fixed	Yes	Yes
N	27647	27647
R2	0.122	0.148
F test	10.57 ***	9.05***
Hausman test	14.93***	588.46***

4.4. Analysis of Moderating Effects

Referring to the research of Andoko [10], when only the adjusting variable operating profit margin is added, it is found that the level of enterprise factor utilization has a positive correlation and significant impact on FINRATIO. The interaction term between operating profit margin and enterprise factor utilization level is added on the original basis, and the result of the interaction term has a positive correlation and significant impact on FINRATIO at the significance level of 1%. It shows that operating profit rate has a positive regulating effect on the influence of factor utilization level on FINRATIO, which is in line with the expected hypothesis,as shown in Table.4.

Table.4. Analysis of moderating effects

	(1)	(2)
	FINRATIO	FINRATIO
DUL	0.0156***	-0.0958***
	(2.95)	(-3.70)
OPR	-18.20***	-18.12***
	(-14.95)	(-14.88)
DUL*OPR		1.277***
		(4.12)
Constant	1.775***	1.767***
	(15.93)	(15.86)
Control Variable	Yes	Yes
Industry Fixed	Yes	Yes
Year fixed	Yes	Yes
N	27647	27647
R2	0.148	0.150

4.5. Robustness Check

In this paper, the regression analysis is conducted again by replacing the model, replacing the explanatory variables and by controlling for industry effects and year effects, the regression results are as follows.

(1) Model 1 indicates the use of panel mixed effects to conduct regression analysis; (2) Model 2 indicates replacing the explanatory variable as finratio again to conduct regression analysis; (3) Model 3 changes the sample structure of the sample data selected from 2014 to 2021 to conduct the

regression, the results of the regression of the model 1, the level of factor utilization of the enterprise has a positive at the 1% significance level on FINRATIO correlation significance effect, the regression coefficient is (0.00849**), which is in line with the expected hypothesis, model 2 regression results, the level of enterprise factor utilization at 1% significance level has a positive correlation significance effect on finratio, the regression coefficient is (0.140***), model 3 regression results, the level of enterprise factor utilization at 5% significance level has a positive correlation significant impact, the regression coefficient is (0.0115**), all the results show that the level of enterprise factor utilization has a positive correlation significant impact on FINRATIO, which is completely consistent with the benchmark regression results, and the results are robust, as shown in Table.5.

Table.5. Robustness test

	(1)	(2)	(3)
	FINRATIO	finratio	FINRATIO
DUL	0.00849**	0.140***	0.0115**
	(2.13)	(4.18)	(2.05)
Constant	0.106***	0.384***	0.0856***
	(12.40)	(2.87)	(4.97)
Control Variable	Yes	Yes	Yes
Industry Fixed	Yes	Yes	Yes
Year fixed	Yes	Yes	Yes
N	27647	27647	20797
R2	0.224	0.224	0.113

5. Heterogeneity Analysis

5.1. Regional Heterogeneity

Referring to Martin Beraja's research [11], the results of model 1 show that the level of enterprise factor utilization in the eastern region and the level of enterprise factor utilization in the western region in does not have a significant effect on FINRATIO, and the regression coefficient of the level of enterprise factor utilization in the central region is (0.0166***), which can be seen only in the central region of the level of enterprise factor utilization, as shown in Table.6.

Table.6. Regional heterogeneity

	(1)	(2)	(3)
	landlord	center	west
DUL	0.0200	0.0166***	-0.00230
	(1.56)	(2.65)	(-0.23)
Constant	0.0632*	0.0955***	0.0317
	(1.82)	(5.18)	(0.95)
Control Variable	Yes	Yes	Yes
Industry Fixed	Yes	Yes	Yes
Year fixed	Yes	Yes	Yes
N	4415	19496	3733
R2	0.230	0.157	0.160

5.2. Heterogeneity in the Nature of Shareholdings

As can be seen from the regression results , the results of model 1 show that the level of factor utilization of enterprises in the state-owned sample does not have a significant effect on FINRATIO, and the level of factor utilization of enterprises in the non-state-owned sample has a positively correlated and significant effect on FINRATIO under the 1% significance level, with a regression

coefficient of (0.0127***), which shows that the level of factor utilization of enterprises in the non-state-owned sample only has a positively correlated and significant effect on FINRATIO under the 1% significance level. The regression coefficient is (0.0127***), which shows that only in the non-state sample the level of factor utilization of enterprises has a positive and significant effect on FINRATIO at 1% significance level, as shown in Table.7.

Table.7. Heterogeneity in the nature of equity

	(1)	(2)
	government owned	non-municipal
DUL	0.0137	0.0127**
	(1.46)	(2.09)
Constant	0.0597***	0.0818***
	(3.32)	(3.60)
Control Variable	Yes	Yes
Industry Fixed	Yes	Yes
Year fixed	Yes	Yes
N	10275	17372
R2	0.131	0.181

5.3. ESG Rating Heterogeneity

As can be seen from the regression results, the results show that the level of enterprise factor utilization of enterprises with lower ESG ratings has no significant effect on FINRATIO, the level of enterprise factor utilization of enterprises with medium ESG ratings has a positively correlated and significant effect on FINRATIO at the 1% significance level, with a regression coefficient of (0.0166***), and that the level of enterprise factor utilization of enterprises with higher ESG ratings has a positive and significant effect on FINRATIO at the 10% significance level, with a regression coefficient of (0.0170***), which indicates that the higher the ESG ratings of enterprises are, the higher the promotional effect of the enterprise factor utilization level on FINRATIO is, but the enterprises with medium ratings have the most significant effect of their enterprise factor utilization level on FINRATIO. The most significant effect on FINRATIO is found in enterprises with medium ESG ratings, as shown in Table.8.

Table.8. ESG rating heterogeneity

	(1)	(2)	(3)
	low	medium	high
DUL	0.00269	0.0166**	0.0170*
	(0.20)	(2.16)	(1.91)
Constant	0.0721***	0.0848***	0.0279
	(2.95)	(3.53)	(1.01)
Control Variable	Yes	Yes	Yes
Industry Fixed	Yes	Yes	Yes
Year fixed	Yes	Yes	Yes
N	5970	12554	9123
R2	0.171	0.148	0.184

The second column is the group with low ESG rating, the third column is the group with medium ESG rating, the fourth column is the group with high ESG rating, and the last three columns are the significant differences in the mean value of variables between different groups, which can be seen that most variables have significant differences between different groups, as shown in Table.9.

Table.9. Test for differences between groups

	mean value			mean difference		
	low	medium	high	low&medium	low&high	medium&high
FINRATIO	0.042	0.042	0.048	0.001	0.006***	0.005***
DUL	0.074	0.07	0.093	0.004*	0.023***	0.019***
Intangible	0.046	0.05	0.044	-0.003***	-0.006***	-0.003***
TobinQ	2.067	2.246	1.918	-0.179***	-0.328***	-0.150***
AssetGrowth	0.191	0.168	0.178	0.023***	0.011*	-0.013***
Liquid	2.58	2.099	2.566	0.481***	0.467***	-0.014
Cashflow	0.047	0.04	0.054	0.007***	0.014***	0.007***
FIXED	0.218	0.229	0.204	-0.010***	-0.025***	-0.014***
PB	3.554	4.158	3.136	-0.604***	-1.022***	-0.418***
INST	44.25	43.69	47.81	0.562	4.120***	3.558***
REC	0.122	0.126	0.113	-0.003**	-0.013***	-0.010***
Board	2.13	2.124	2.13	0.006*	0.006*	0
Dual	0.282	0.271	0.258	0.011	-0.013*	-0.024***
ATO	0.667	0.639	0.667	0.028***	0.027***	-0.001

6. Conclusions and policy recommendations

In the era of digital economy, the level of enterprise data capital utilization becomes more and more a measure of enterprise market competitiveness, and at the same time, it is an important index for enterprises to change financial decision-making and optimize the level of financial asset allocation. This paper selects all listed companies in Shanghai and Shenzhen A-shares from 2010 to 2021 as research samples, and empirically examines the impact of the level of enterprise data capital utilization on the level of enterprise financial asset allocation and the internal mechanism. The main conclusions are as follows: (1) There is a significant positive relationship between the level of corporate data capital utilization and the level of corporate financial asset allocation, which still holds after considering the potential endogeneity problem and conducting a series of robustness tests. (2) The results of the mechanism test based on the moderating effect model show the business acumen positively regulates the relationship between the utilization of corporate data capital and the level of corporate financial asset allocation, the larger the business acumen is, the stronger the effect of data capital to increase the financial assets is. (3) Heterogeneity analysis shows that corporate data capital has a significant effect on the increase of financial assets of central, non-state and enterprises with higher ESG rating divergence.

The following policy implications can be drawn from the findings of this paper:

Firstly, national governments should formulate a comprehensive strategy for the development of the digital economy and increase investment in research and development of data management technologies, data security and innovative financial products related to the utilization of data capital. Through policy guidance and financial support, the government can optimize the investment structure of enterprises in the use of data capital and the allocation of financial assets to ensure that resources flow to projects and enterprises that can maximize the utility of data capital. At the same time, relevant laws and regulations should be formulated to reduce the financing constraints faced by enterprises.

Secondly, enterprises should actively adopt and utilize advanced data analysis technologies and artificial intelligence algorithms based on their own specific conditions in order to enhance the efficiency of data capital utilization. In addition, enterprises should develop and utilize new types of financial tools and products based on data analysis to reduce their reliance on traditional financial asset allocation models. The establishment of a data-centered green production and operation system can effectively enhance resource utilization efficiency and reduce operational risks.

Finally, the general public and business stakeholders should improve their understanding of corporate data capital and its role in financial asset allocation by receiving training in modern digital

economy knowledge, and public participation can guide businesses to prioritize environmentally friendly and socially responsible ways of utilizing data capital through social monitoring and consumer choices, and encourage the public and private investors to prioritize investment in those businesses that excel in data capital utilization and financial asset allocation in order to promote the sustainable development of society as a whole.

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