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Asset-Light Model, Supply Chain Resilience, and Corporate Performance

-- An Empirical Study Based on China's A-Share Listed Companies

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Abstract: The emergence of the asset-light operational model provides a new direction for corporate transformation, enabling companies to improve market adaptability and overall operational flexibility by controlling the input of fixed and other heavy assets. This model has garnered considerable attention from enterprises; however, research on the impact and transmission mechanisms of this model on corporate development remains insufficient. In light of this, this paper uses A-share listed companies in China from 2012 to 2022 as the sample and empirically examines the impact of the asset-light operational model on corporate performance, while identifying the transmission mechanism through the lens of supply chain resilience. The study finds a significant positive correlation between the asset-light model and corporate performance. The mechanism test shows that the asset-light model promotes corporate performance growth by enhancing supply chain resilience, establishing a deduction pathway where the asset-light model drives corporate performance improvement. This paper enriches the research on the impact mechanisms of the asset-light model on corporate performance from a new perspective and provides a fresh direction for enterprises to improve performance through transformation in asset operation models.

Keywords: Asset-light model, supply chain resilience, corporate performance.

1. Introduction

A good operational model is crucial for the development of an enterprise. As early as the 1980s, McKinsey, the world's most renowned management consulting firm, first proposed the asset-light model, suggesting that its implementation allows companies to "focus their efforts on major tasks" and achieve the goals of reducing costs and increasing efficiency. Currently, scholars have explored the relationship between the asset-light model and corporate performance from various perspectives such as corporate risk-taking, R&D investment, and corporate growth [1-3], though empirical studies have yet to reach a consensus. Most scholars believe that the asset-light model positively impacts corporate performance, as it leads to an increase in total factor productivity [4], which in turn enhances corporate performance. Accordingly, foreign scholars have conducted empirical analyses on U.S. retail power manufacturers, telecommunications companies, and hotel chains, finding a

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significant improvement in corporate performance following the adoption of the asset-light model. However, from the perspective of the corporate life cycle, the relationship between the asset-light model and corporate profitability exhibits an inverted U-shape, where profitability first rises and then declines [5]. Meanwhile, a few scholars such as Wang Zhibo argue that there is no relationship between the asset-light model and corporate performance, suggesting that asset-light is merely a financial expression of some successful companies. In addition to the research directions mentioned above, many other studies related to the asset-light model focus on specific cases from real estate and technology companies, such as Wanda Group, Vanke, Xiaomi, and Apple [6-9]. These studies provide detailed analyses of their financial models, discovering that the asset-light model improves corporate profitability. Although existing literature has reasonably demonstrated the impact of the asset-light model on corporate development, there are still gaps. Scholars have mainly studied the derived effects of the asset-light model on corporate performance without considering its direct influence on the supply chain, which presents a gap that this paper seeks to fill.

Compared to the existing literature, this paper may offer the following marginal contributions: (1) It expands the research on the impact mechanism of the asset-light model on corporate performance by analyzing the mediating role of supply chain resilience between the asset-light model and corporate performance. This not only broadens the research boundaries of supply chain resilience but also enriches the research on the asset-light model. (2) It provides direct research findings and references for relevant companies, helping them further develop operational strategies to improve corporate performance.

2. Theoretical Foundation and Research Hypotheses

2.1. Asset-Light Model and Corporate Performance

The competitive advantage of a company lies in its ability to build core competencies. The possession of unique, non-replicable core competencies helps enterprises establish a foothold in fiercely competitive industries [10]. From a financial perspective, companies can only achieve their ultimate goal of value creation through appropriate resource allocation [11]. An increasing number of companies have recognized the importance of resource allocation and shifted their focus to the asset-light operational model. The primary characteristic of the asset-light model is its “light” aspect, which advocates reducing the proportion of fixed assets and outsourcing or transferring the production processes with the smallest profit margins. The “heavy” aspect focuses on the two ends of the smile curve, emphasizing the creation of high-value intangible assets such as knowledge and technology [12]. The adoption of the asset-light operational model offers several direct benefits: First, reducing fixed capital in production saves significant costs, such as those related to plant, land, and labor, substantially improving the company’s overall liquidity. Second, the saved funds can be directly reinvested in other high-value-added processes to optimize resource allocation, concentrate efforts on key tasks, and strengthen the company’s core competencies and profitability. Third, improved liquidity enhances a company’s ability to withstand risks and respond to an increasingly complex and uncertain market environment, allowing it to recover and restructure during crises, thereby promoting continuous value creation. Thus, the hypothesis is proposed:

H1: The asset-light model can improve corporate performance.

2.2. The Mechanism of the Asset-Light Model’s Impact on Corporate Performance

From the perspective of supply chain bargaining power, asset-light companies have a certain level of dominance when selecting suppliers and negotiating costs. Companies adopting the asset-light model can focus on building core competencies, such as leading technological innovations and personalized, high-quality services. For the company, these competitive advantages result in increased market share

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and a positive corporate image. For suppliers, partnering with companies that have a good reputation and high market share offers operational performance benefits and "strong endorsement" for their own brand image, making them more inclined to complete transactions. Under such circumstances, asset-light companies have greater bargaining power in supplier selection and control, which helps them reduce costs and increase efficiency.

From the perspective of supply concentration, companies, in pursuit of greater economic efficiency, tend to establish long-term, close partnerships with suppliers. The higher the supply concentration, the fewer subcontracting firms the outsourcing company relies on for production. During the negotiation process, large outsourcing orders become the foundation of the outsourcing company's bargaining power, as the scale effect in negotiations and the desire of subcontractors to secure long-term orders allow the outsourcing company to lower production processing costs. As each subcontractor is typically responsible for only one or a few production steps, they are often forced to make concessions during price negotiations out of a desire to maintain the supply relationship and stable profits. Achieving lower processing costs enables the outsourcing company to further invest the saved funds into building core competencies, thereby enhancing long-term profitability.

From the perspective of supply-demand matching, its optimization primarily stems from the focus of asset-light companies on enhancing core competencies [13]. First, increased R&D investment by asset-light companies allows them to respond quickly to market demand changes, accelerating product iteration and innovation, thereby better matching existing and potential consumer demands and improving corporate performance [14, 15]. Second, asset-light companies can concentrate on product marketing by establishing and improving more efficient market information collection mechanisms. By gathering public sentiment data from social media and using big data analytics to interpret market trends, these companies can adjust their marketing strategies accordingly, leading to significant performance gains through successful marketing campaigns [16, 17]. Finally, asset-light companies can focus on optimizing customer service processes and content, offering personalized service solutions to meet customer needs. By improving customer satisfaction, brand recognition, and loyalty, companies can further enhance corporate performance. Additionally, asset-light companies that outsource production processes have greater flexibility than traditional companies. The rapid response of subcontractors and the sharing of market information enable asset-light companies to quickly adjust production based on market dynamics. Thus, the hypothesis is proposed:

H2: The asset-light model can enhance supply chain resilience, thereby improving corporate performance.

3. Research Design

3.1. Sample Selection and Data Sources

This paper selects A-share listed companies in China's capital market from 2012 to 2022 as the research sample. Due to the unique asset structure and allocation of financial listed companies, we exclude observations from the financial and insurance industries. We also remove companies with missing data, abnormal operations such as ST and *ST firms, and apply a 1% winsorization to all continuous variables. Additionally, we have winsorized all continuous variables at the 1% level at both the upper and lower percentiles. The data used in this study primarily comes from the CSMAR database and the Wind database.

3.2. Model Specification

To test the above theoretical hypotheses, this paper adopts panel data and designs the following model to explore the relationship between the asset-light model and corporate performance:

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$$ROA_{it} = \alpha_0 + \alpha_1 LAD_{it} + \beta_1 controls + \Sigma Firm + \Sigma Year + \Sigma Industry + \varepsilon_{it} \quad (1)$$

Where ROA_{it} represents the corporate performance of firm i in year t; LAD_{it} represents the asset-light level of firm i in year t; and controls represents a series of control variables. ΣFirm, ΣYear, and ΣIndustry represent firm, time, and industry fixed effects, respectively, and ε_{it} is the random disturbance term.

3.3. Variable Definitions

3.3.1. Core Explanatory Variable: Degree of Light Asset Operation

Considering that using intangible asset ratios and goodwill to reflect the degree of light asset operation is not comprehensive enough, this paper adopts the method of Zhou and Li (2020) by selecting five indicators for analysis: non-fixed asset ratio (1 - total fixed assets / total assets), operating cost ratio (end-of-period operating costs / end-of-period operating income), current ratio (total current assets / total current liabilities), cash asset ratio (end-of-period cash and cash equivalents / total assets), and sales expense ratio (end-of-period sales expenses / end-of-period operating income) [1]. The first principal component is calculated as follows: (0.5278 × non-fixed asset ratio + 0.7149 × current ratio + 0.0792 × cash asset ratio - 0.7211 × operating cost ratio + 0.6307 × sales expense ratio). Therefore, this paper uses the first principal component to measure the degree of light asset operation. Additionally, fixed asset ratio, intangible asset ratio, sales expense ratio, and management expense ratio are used as alternative indicators in the robustness check through principal component analysis [18].

3.3.2. Dependent Variable: Corporate Performance

The academic community currently uses three main variables to measure corporate performance: return on assets (ROA), return on equity (ROE), and Tobin's Q. Among these, ROA and ROE more clearly reflect a company's financial efficiency and profitability. Therefore, this paper uses ROA to measure the level of corporate performance and uses ROE as an alternative variable in robustness checks to enhance the credibility of the research results.

3.3.3. Mediating Variable: Supply Chain Resilience

This paper measures changes in supply chain resilience from three aspects: supply chain strength, supply-demand matching, and supply chain concentration. Regarding supply chain strength, supply chain bargaining power reflects a company's dominance in the supply chain, its bargaining ability with upstream and downstream firms, and its ability to replace major customers or suppliers. Therefore, we use supply chain bargaining power (SCC) as a proxy variable. Drawing from Li Ying et al. (2023), we measure it as the average proportion of purchases from the top five suppliers and sales to the top five customers. The higher the SCC value, the stronger the company's supply chain bargaining power.

For supply-demand matching (Resil), we refer to the method of Wang Yage and Hu Zhiqiang (2024), measuring it based on the extent of inventory adjustment between two consecutive periods. The specific calculation is as follows:

$$Resil_{it} = \ln\left[abs\left(\frac{Inventory_{it} - Inventory_{i,t-1}}{Inventory_{i,t-1}}\right)\right] \quad (2)$$

Where $Inventory_{it}$ represents the net inventory value of firm i at the end of period t, and "abs" denotes the absolute value. The smaller the value of this indicator, the smaller the extent of inventory adjustment needed to meet downstream demand, indicating a higher level of supply-demand matching.

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For supply chain concentration (SSC), we calculate the Herfindahl index, which is the sum of the squared shares of the top five suppliers' procurement amounts relative to the total procurement. The larger the value, the higher the concentration.

3.3.4. Control Variables

This paper selects control variables from two aspects: corporate capital characteristics and governance characteristics. At the corporate capital characteristics level, the following are controlled for: ① Firm Size (Size): Measured by the natural logarithm of the company's total assets. ② Leverage (Lev): Calculated as total liabilities at the end of the period divided by total assets at the end of the period. ③ Financing Constraints (FC). ④ Asset Turnover Ratio (ATO): Calculated as operating revenue divided by total assets at the end of the period. ⑤ CAP: Measured by the growth rate of total operating revenue. ⑥ Capital Concentration (RCA): Calculated as the equity for the current year divided by the equity for the previous year, minus 1. ⑦ Book-to-Market Ratio (BM): The ratio of net assets to the market value of the company. ⑧ Cash Flow (Cashflow): The net cash flow generated from operating activities divided by total assets. ⑨ Growth: Measured by the growth rate of total operating revenue. At the corporate governance characteristics level, the following are controlled for: ① Management Shareholding Ratio (Mshare): The number of shares held by directors, supervisors, and senior executives divided by the total number of shares. ② Management Expense Ratio (Mfee): Management expenses divided by operating revenue.

4. Empirical Results and Analysis

4.1. Descriptive Statistics

Table 1 reports the descriptive statistics for the various variables. The maximum value of LAD is 6.903, and the minimum value is -2.747, indicating a significant disparity in the level of asset-light strategies among Chinese companies, with a noticeable polarization. The average value of LAD is -0.081, higher than the median of -0.268, suggesting that more than half of the companies' asset-light levels are below the average. Generally, a return on assets (ROA) between 10% and 20% is considered ideal. Among the sample companies, the maximum ROA value is 0.247, the minimum is -0.358, while the mean and median values are 0.042 and 0.041, respectively. This indicates that few companies fall within the ideal range, reflecting a significant disparity in financial efficiency and profitability across firms, with many deviating from normal values.

Table 1: Descriptive Statistics of Variables

VarName	Obs	Mean	SD	Min	Median	Max
ROA	23604	0.042	0.066	-0.358	0.041	0.247
LAD	23604	-0.081	1.287	-2.747	-0.268	6.903
SSC	23604	32.535	15.668	5.435	30.115	79.485
Resil	23604	-1.793	1.267	-6.147	-1.659	2.190
SCC	23604	32.538	15.668	5.440	30.120	79.490
Size	23604	22.263	1.256	19.876	22.056	26.452
Lev	23604	0.408	0.193	0.035	0.401	0.892
FC	23604	0.486	0.282	0.001	0.513	0.980
ATO	23604	0.649	0.395	0.095	0.563	2.817
CAP	23604	2.258	1.464	0.378	1.883	11.019
RCA	23604	0.153	0.364	-0.559	0.066	3.955

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Table 1: (continued).

BM	23604	0.611	0.247	0.099	0.603	1.229
Cashflow	23604	0.051	0.065	-0.166	0.048	0.267
Growth	23604	0.163	0.352	-0.576	0.109	2.607
Mshare	23604	15.529	19.848	0.000	3.564	70.167
Mfee	23604	0.082	0.058	0.007	0.068	0.413

4.2. Baseline Regression Results and Analysis

Table 2 presents the baseline regression results. This study progressively adds fixed effects and control variables to the model to observe the explanatory power. Column (1) shows the regression results after adding individual fixed effects; Columns (2) and (3) respectively show the results after adding time and industry fixed effects; Column (4) shows the regression results after adding control variables while controlling for individual, time, and industry fixed effects. From the results, it can be seen that the coefficient of asset-light levels remains significantly positive at the 1% level before and after the inclusion of control variables and fixed effects, indicating that asset-light strategies have a significant positive impact on corporate performance, thus supporting hypothesis H1.

Table 2: Baseline Regression Results

Variable	(1) ROA		(2) ROA		(3) ROA		(4) ROA	
LAD	0.028***	(26.048)	0.027***	(24.715)	0.027***	(24.672)	0.013***	(17.787)
Size							0.035***	(20.673)
Lev							-0.063***	(-10.655)
FC							0.106***	(20.492)
ATO							0.036***	(9.158)
CAP							-0.004***	(-4.902)
RCA							0.027***	(18.362)
BM							-0.073***	(-24.729)
Cashflow							0.149***	(19.653)
Growth							0.019***	(14.591)
Mshare							0.000***	(7.914)
Mfee							-0.174***	(-10.379)
Constant	0.045***	(513.790)	0.045***	(28.095)	0.146**	(2.277)	-0.656***	(-11.043)
Firm FE	YES		YES		YES		YES	
Year FE	NO		YES		YES		YES	
Industry FE	NO		NO		YES		YES	
N	23604		23604		23604		23604	
adj. R^2	0.110		0.124		0.137		0.452	

Note: (1) ***, **, * denote significance levels of 1%, 5%, and 10% respectively. (2) The values in parentheses represent firm-level clustered robust standard errors.

4.3. Robustness Checks

The previous analysis demonstrated a positive impact of asset-light strategies on corporate performance. To further strengthen the examination of this relationship and avoid issues such as reverse causality and variable selection bias, this section employs various methods for robustness

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checks, including changing the measures of asset-light degree and corporate performance, shortening the sample period, and considering endogeneity, to further assess the validity of the regression results.

4.3.1. Changing the Measurement of Asset-Light Degree

The study replaces the measurement of asset-light degree with indicators derived from principal component analysis, including the proportion of fixed assets, intangible assets, sales expense ratio, and management expense ratio. According to the results in Column (1) of Table 3, after replacing the variables, the regression coefficients for asset-light degree and corporate performance remain significant, consistent with the results in Table 2.

4.3.2. Changing the Measurement of Corporate Performance

The return on equity (ROE) is used as an alternative measure of corporate performance, similar to ROA in reflecting profitability and financial efficiency. The results in Column (2) of Table 3 show that, apart from a slightly smaller coefficient for LAD compared to the results in Table 2, other findings are broadly consistent. The robustness of the conclusions is maintained across different measurement methods.

4.3.3. Shortening the Regression Sample Period

To test the robustness of the core findings over time, the sample period is shortened from 2012-2022 to 2012-2019. This adjustment aims to exclude anomalies caused by recent global pandemic fluctuations, enhancing the stability of the assessment environment. Column (3) shows the regression results after shortening the sample period to 2012-2019. The results remain consistent even after excluding potential anomalies, further validating the regression findings.

4.3.4. Considering Endogeneity

First, to address potential endogeneity issues due to mutual causality between explanatory and explained variables, lagged explanatory variables (one and two periods) are used in regression analysis. The results are presented in Columns (4) and (5) of Table 3. The signs and significance of the coefficients for asset-light degree and corporate performance are consistent with those in Table 2, indicating minimal interference from mutual causality.

Additionally, compared to traditional panel fixed-effects models, panel interaction fixed-effects models can account for multidimensional economic shocks and the heterogeneous responses of different individuals to these shocks. To reflect the differential impact of common factors on different individuals, interaction effects between individual-time and individual-industry are introduced into the baseline regression model. The results in Columns (6) and (7) of Table 3 show that the regression results for these models are consistent with the baseline results, confirming that the basic conclusion—that asset-light strategies significantly enhance corporate performance—is robust and not affected by potential endogeneity from unaccounted time-varying or industry-specific individual fixed effects.

Table 3: Robustness Check Results

	(1) ROA	(2) ROE	(3) ROE	(4) ROA	(5) ROA	(6) ROA	(7) ROA
LAD2	0.006***						
	(7.454)						
LAD		0.017***	0.015***			0.013***	0.014***

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Table 3: (continued).

		(11.485)	(6.928)			(22.907)	(24.805)
L.LAD				0.009***			
				(11.319)			
L2.LAD					0.003***		
					(4.378)		
_cons	-0.682***	-1.678***	-1.422***			-0.822***	-0.466***
	(-11.461)	(-14.581)	(-8.530)			(-30.385)	(-19.109)
Controls	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES
Firm-Year FE	NO	NO	NO	NO	NO	YES	NO
Firm-Industry FE	NO	NO	NO	NO	NO	NO	YES
N	23604	23604	13629	18464	15243	23131	23131
adj. R^2	0.438	0.398	0.324	0.447	0.427		

Note: (1) ***, **, * denote significance levels of 1%, 5%, and 10% respectively. (2) The values in parentheses represent firm-level clustered robust standard errors.

5. Analysis of the Impact Path of Asset-Light Strategies on Corporate Performance

Based on the theoretical analysis above, this study further explores whether asset-light strategies positively impact corporate performance by enhancing supply chain resilience. The econometric models are constructed as follows:

$$\frac{SSC_{it}}{Resil_{it}}{SCC_{it}} = \alpha_0 + \alpha_1 LAD_{it} + \beta_1 controls + \Sigma Firm + \Sigma Year + \Sigma Industry + \varepsilon_{it} \quad (3)$$

$$ROA_{it} = \alpha_0 + \alpha_1 LAD_{it} + \frac{\alpha_2 SSC_{it}}{Resil_{it}}{SCC_{it}} + \beta_1 controls + \Sigma Firm + \Sigma Year + \Sigma Industry + \varepsilon_{it} \quad (4)$$

The regression results in Table 4 show that Columns (1), (3), and (5) report the regression results for the three mediating variables in Model 3. The coefficients for asset-light strategies in relation to supply chain strength, supply-demand matching, and supply chain concentration are all significant at the 1% level, indicating that asset-light strategies effectively enhance supply chain resilience. Columns (2), (4), and (6) report the regression results for Model 4, with coefficients of 0.013 ($p < 0.01$), suggesting that asset-light strategies can improve corporate performance by enhancing supply chain resilience, which in turn facilitates production empowerment. This supports Hypothesis H2.

Table 4: Path Analysis Results

	(1)	(2)	(3)	(4)	(5)	(6)
	SSC	ROA	Resil	ROA	SCC	ROA
LAD	0.824***	0.013***	0.062***	0.013***	0.824***	0.013***
	(5.184)	(17.592)	(3.815)	(17.718)	(5.184)	(17.592)
SSC		0.000**				

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Table 4: (continued).

		(2.276)				
Resil				0.001**		
				(2.452)		
SCC						0.000**
						(2.276)
_cons	84.429***	-0.667***	-6.320***	-0.652***	84.432***	-0.667***
	(8.160)	(-11.200)	(-7.515)	(-10.944)	(8.160)	(-11.200)
Controls	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
N	23604	23604	23604	23604	23604	23604
adj. R^2	0.071	0.453	0.101	0.453	0.071	0.453

Note: (1) ***, **, * denote significance levels of 1%, 5%, and 10% respectively. (2) The values in parentheses represent firm-level clustered robust standard errors.

6. Conclusions and Recommendations

Based on panel data from A-share listed companies in the Chinese capital market from 2012 to 2022, this study explores the mechanism of how asset-light strategies impact corporate performance and reaches the following conclusions: There is a significant positive correlation between asset-light strategies and performance improvement; asset-light strategies enhance corporate performance by increasing supply chain concentration, supply-demand matching, and supply chain strength. This conclusion remains valid after testing for related endogeneity and robustness.

The findings of this study also provide strategic insights for relevant companies. First, asset-light strategies have a positive impact on corporate development and represent an efficient business strategy. However, companies adopting asset-light strategies should focus more on cultivating core competencies rather than simply becoming "light" without a "heavy" foundation. Second, for asset-light companies with production specialization needs, supply chain management is crucial. Companies should consciously form fewer but more strategic partnerships with contractors to increase supply chain concentration. Additionally, in the collaboration with contractors, companies should strengthen communication and resource sharing to improve supply-demand matching, making production more precise and flexible. Companies should also focus on building long-term, close relationships to enhance supply chain strength.

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