Financial Risks Under the Asset-light Operation Mode of Real Estate Enterprises—Taking Vanke Group as an Example

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Abstract. The real estate market has boomed in recent years, and real estate companies seek profits by hoarding land and building properties through an asset-heavy model. However, with the emergence of national macro-control policies such as "housing is for living in, not for speculation" and "price limit order", the asset-heavy model is no longer suitable for the development of current real estate companies. More and more real estate companies are starting to transform and upgrade to an asset-light model. In order to understand the impact of the asset-light model on the financial risks of real estate companies, this article will use the Vanke Group as an example to construct a financial risk assessment model through the relevant financial ratio analysis and factor analysis to evaluate the financial status of the Vanke Group from 2011 to 2021. The research results show that light assets can resist financial risks to a certain extent. This research hopes to provide some references for other real estate companies.

Keywords: Factor Analysis · Financial Risk · Light Asset · Vanke Group · Financial Ratios

1 Introduction

With the emergence of China's housing reform policy in 1998, China's real estate industry has entered a new stage of rapid development. Numerous real estate companies have emerged, frantically hoarding land for future development. Such an asset-heavy model brought a lot of profits to real estate companies in the early stage with the skyrocketing land prices. But over time, due to the government's macro-control, the rapid rise of land prices, and the fierce competition of the same kind, the form of real estate enterprises is not as good as before [1]. The asset-heavy model that originally relied on land appreciation to obtain profits is no longer applicable, and the asset-light operation model has gradually been favored by more and more real estate companies. The asset-light model mainly relies on the control of key resources and realizes a high-yield operating model by leveraging the effect of financial leverage [2].

This paper hopes to explore the financial risks under the asset-light operation mode of real estate enterprises through the specific case analysis of Vanke Group. This article

will combine the financial statements of Vanke Group from 2011 to 2021, and extract the financial ratios related to solvency, operating ability, profitability, and growth ability to compare before and after the asset-light conversion. In addition, factor analysis will be performed on the extracted financial ratios to determine the company's financial risk situation.

It is hoped that this research can help real estate companies better understand the significance of asset-light and whether they need to carry out related transformation and upgrading.

2   Overview of Vanke Group's Asset-Light Operation Mode

2.1   Introduction of Vanke Group

Vanke Group is an enterprise engaged in real estate development and is currently one of the largest real estate companies in China. Vanke Group is one of the earliest real estate companies in China to transform into an asset-light model and has become a benchmark company in the industry.

2.2   Vanke Group's Asset-Light Implementation Method

Vanke's asset-light model mainly adopts the "small stock trading" model and the "REITs" model. Vanke closely integrates real estate finance and commercial real estate development, and uses financial platforms such as REITs and private funds to complete both rental and sales, and sold after "fertilization", thereby realizing the rolling of income [3]. "Small stock trading" mode means that Vanke takes a small percentage of shares in the entire real estate project, and then the Vanke team is still responsible for the entire project. In this way, housing construction and expansion are carried out, and sales are promoted through the brand effect of Vanke. Such an approach can improve a company's financial security by using operating leverage to replace financial leverage. The "REITs" model, refers to trying real estate securitization through the "REITs" model, raising funds from public investors through public offerings, using them for real estate development and leasing, and distributing dividends to investors.

3   Financial Risk Analysis Based on Financial Ratios

3.1   Data Sources

Based on the financial report of Vanke Group from 2013 to 2021, we selected relevant data and made Table 1 through some mathematical algorithms.

3.2   Solvency Analysis

According to Fig. 1, from the perspective of short-term solvency, the current ratio in these years has generally shown a downward trend. From 2013 to 2019, the current ratio of Vanke Group has dropped significantly, from 1.344 to 1.131. The main reason is that

Table 1. Vanke's 2013–2021 Financial Ratios

Date	Current Ratio	Asset-Liability Ratio	Accounts Receivable Turnover	Inventory Turnover	Total Asset Turnover	Net profit Rate	Operating Profit Margin	Total Asset Growth Rate	Net Profit Growth Rate
2013	1.344	78%	54.54	0.317	0.316	13.51%	31.47%	26.50%	16.86%
2014	1.345	77.20%	58.87	0.316	0.296	13.18%	29.94%	6.09%	5.41%
2015	1.302	77.70%	88.79	0.403	0.349	13.27%	29.35%	20.24%	34.53%
2016	1.244	80.54%	104.9	0.406	0.334	11.79%	29.41%	35.89%	9.25%
2017	1.201	83.98%	138.5	0.3	0.243	15.32%	34.10%	40.24%	31.25%
2018	1.154	84.59%	197	0.276	0.221	16.55%	37.48%	31.24%	32.41%
2019	1.131	84.36%	204.1	0.285	0.226	14.99%	36.25%	13.15%	11.89%
2020	1.174	81.28%	167	0.312	0.233	14.15%	29.25%	8.03%	7.56%
2021	1.22	79.74%	116.5	0.341	0.238	8.41%	21.82%	3.75%	-35.80%

due to the asset-light strategy, the company has gradually increased the ratio of current liabilities, mainly due to the substantial increase in accounts payable. The increase in accounts payable can make the company squeeze the funds of some upstream suppliers and relieve the company's own capital pressure. To a certain extent, this is also an alternative financing channel. As a large group, Vanke has strong negotiating power with upstream suppliers in this regard.

From the perspective of long-term solvency, Vanke's asset-liability ratio declined at the beginning of the asset-light transition. However, after 2016, with the regulation of national macro policies and the expansion of new business channels by Vanke, the company's asset-liability ratio has increased. As of 2021, the company's asset-liability ratio is not much different from 2013. Overall, in the face of the current real estate industry situation, Vanke's ability to maintain the asset-liability ratio is a relatively good performance.

3.3 Profitability Analysis

Through the observation of Vanke's net profit ratio and operating profit ratio, according to Fig. 2, we found that from 2013 to 2019, these two ratios have a slow rise in fluctuations. The main reason is that the growth rate of the company's operating costs is less than the operating profit. The growth rate of light assets has reduced the cost of expenditure to a certain extent. The growth rate of light assets has reduced the cost of expenditure to a certain extent. In 2020 and 2021, due to the impact of covid, the company's profits have been hit hard. Compared with Huafa Real Estate during the same period, according to the financial report, Huafa's operating profit margin in 2013 was 30%, and Vanke's was 31%. With the transformation of Vanke's asset-light model, by 2019, Vanke's operating profit margin fluctuated to 36%, while Huafa's operating profit margin dropped to 29%. It can be seen that during the same period, companies that adopt an asset-light model have stronger profitability.
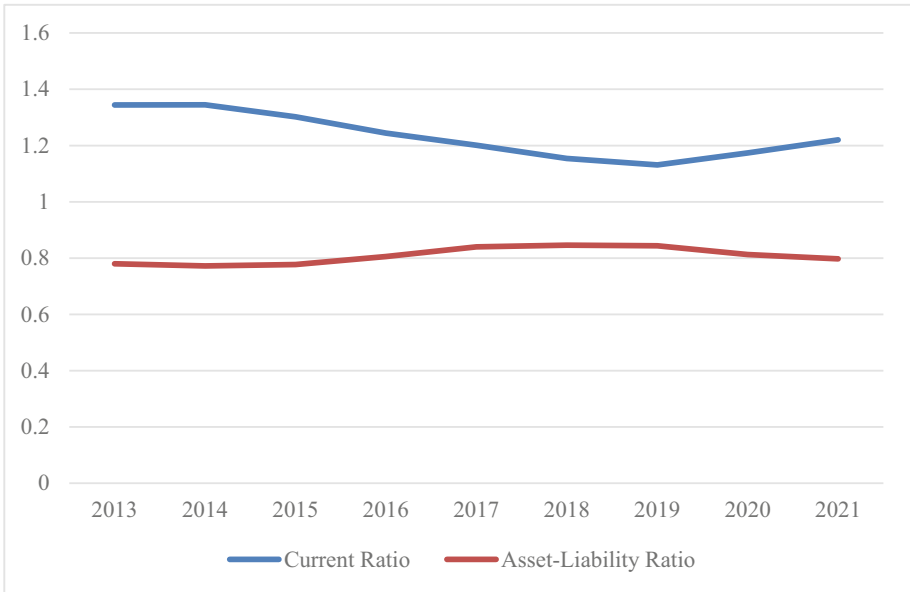
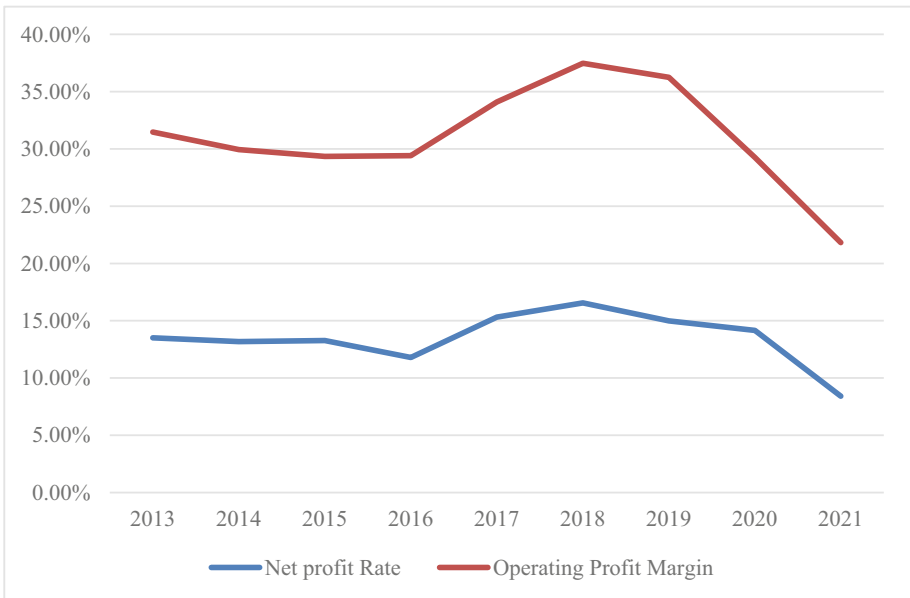**Fig. 1.** Current Ratio and Asset-Liability Ratio

Fig. 2. Net Profit Rate and Operating Profit Margin

Table 2. Accounts Receivable Turnover and Inventory Turnover

Date	Accounts Receivable Turnover	Inventory Turnover
2013	54.54	0.317
2014	58.87	0.316
2015	88.79	0.403
2016	104.9	0.406
2017	138.5	0.3
2018	197	0.276
2019	204.1	0.285
2020	167	0.312
2021	116.5	0.341

3.4 Analysis of Operational Capability

Accounts receivable turnover and inventory turnover are two indicators that can reflect a company's operational capabilities. From Table 2, we can see that Vanke's accounts receivable turnover ratio has shown a rapid upward trend, reaching 204 at the highest. Although Vanke's accounts receivable turnover rate in previous years was below the industry average, it has gradually surpassed the industry average with the implementation of the asset-light model. Compared with Poly Real Estate in the same period in 2018, it has nearly doubled Vanke's inventory turnover ratio has also improved. By 2016, Vanke's inventory turnover ratio rose from 0.31 to 0.406, a significant improvement. From this, it can be seen that the asset-light advantage of Vanke's "small-stock trader" is reflected, which effectively shortens the development cycle of Vanke's projects, and achieves effective inventory turnover by running multiple real estate projects at the same time.

3.5 Analysis of Development Ability

In order to understand the development of enterprises after asset-light conversion, total asset growth rate and net profit growth rate are two important indicators. By Fig. 3, we can see that 2014 is in the early stage of enterprise transformation, which led to a sharp decline in total asset growth rate and net profit growth rate, as low as 6.09% and 5.41%. However, with the gradual upgrading of asset-light transformation, these two indicators have increased rapidly. In 2018, these two indexes increased by 5 times and 6 times respectively compared with 2014. Affected by covid in 2019–2021, the entire real estate industry has been greatly impacted. It is believed that with the improvement of covid, the development of Vanke will be back on track.

3.6 Deficiencies Faced

On the one hand, the growth rate of operating costs has never been suppressed. Although Vanke's net profit and operating profit margin increased from 2013 to 2019, it was only
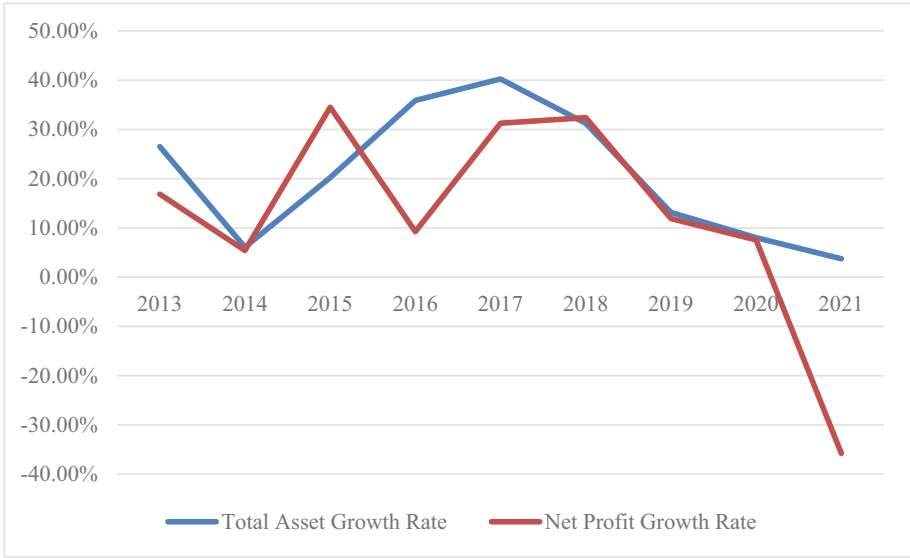
Fig. 3. Total Assets Growth Rate and Net Profit Growth Rate

a slight increase, and there was still a gap between the goals corresponding to the light asset transformation. The main reason is that Vanke, as a large enterprise, has very high staff salary costs, sales costs, and management expenses. Once such a situation occurs in 2020 and 2021, many projects cannot be successfully started due to the covid-19, which will greatly increase the cost and affect the profit. To this end, Vanke should improve its management level, use a new management system, and improve efficiency. On the other hand, asset-light transformation is not thorough enough. Although it can be seen from the reduction in the current ratio that Vanke has initially transformed into an asset-light strategy, the company's asset-liability ratio remains at a relatively high level. From this, it can be seen that Vanke Group's asset-light Transformation and upgrading is only a matter of Did a small part of it, not thorough enough.

4   Financial Risk Prediction Based on Factor Analysis

4.1   The Principle of Factor Analysis

The concept of factor analysis originated from the statistical analysis of intelligence tests by Karl Pearson and Charles Spearmer at the beginning of this century [4]. It is based on the correlation of the original data, and then uses the degree of dependence within the research correlation matrix to reduce many original data to a few representative new variables as factors. Through literature search and reference, it is found that many scholars build models through factor analysis to conduct the evaluation. Li Weiping established the performance evaluation system of real estate companies with a factor analysis method [5], and Kriti et al. used the factor analysis method to model the parameters affecting urban gas distribution departments [6].

4.2 Selection of Samples and Relevant Basic Data

This article will take Vanke as the research object. According to its financial data from 2013 to 2021, it selects and calculates 9 financial ratios that can reflect the solvency, profitability, operating ability and development ability of the enterprise, namely current ratio (X1), asset-liability ratio (X2), which should be Accounts Collection Turnover (X3), Inventory Turnover (X4), Total Assets Turnover (X5), Net Profit Margin (X6), Operating Profit Margin (X7), Total Assets Growth Rate (X8), Net Profit Growth Rate (X9). This paper will also use SPSS to assist the research.

4.3 Correlation Judgment

According to KMO and Bartlett sphericity test, the KMO of these data is calculated to be 0.52, which meets the requirement of greater than 0.5, indicating that these data are suitable for factor analysis.

4.4 Extract Common Factors

One of the conditions for extracting the main factor is that the initial eigenvalue is greater than or close to 1. According to Table 3, it can be seen that there are three main factors, and the % of variance after rotation of these three main factors are 39.8%, 36.1% and 17.9% respectively. The cumulative % of variance reaches 93.8%, which can explain almost most of the original ratio, so it can be used to analyze financial risk.

4.5 Establish a Factor Loading Matrix

After rotation by varimax, the relationship between the main factor and the underlying data is found. According to Table 4, first of all, the absolute value of the factor loading

Table 3. % of Variance table

% of Variance table									
Factor Number	Initial Eigen value			% of Variance(Unrotated)			% of Variance(Rotated)		
	Eigen value	% of Variance	Cumulative % of Variance	Eigen value	% of Variance	Cumulative % of Variance	Eigen value	% of Variance	Cumulative % of Variance
X1	4.902	54.464	54.464	4.902	54.464	54.464	3.582	39.805	39.805
X2	2.548	52.187	106.65	2.548	52.187	106.65	3.246	36.067	75.872
X3	0.991	28.308	134.958	0.991	28.308	134.958	1.612	17.907	93.779
X4	0.424	11.007	145.965	-	-	-	-	-	-
X5	0.1	4.71	150.675	-	-	-	-	-	-
X6	0.029	1.106	151.781	-	-	-	-	-	-
X7	0.005	0.318	152.099	-	-	-	-	-	-
X8	0.003	0.052	152.152	-	-	-	-	-	-
X9	0	0.035	152.187	-	-	-	-	-	-

Table 4. Rotated Factor Loading table

Rotated Factor loading Table

Name	Factor loading			Communality (common factor variance)
	Factor 1	Factor 2	Factor 3	
X1	-0.98	-0.045	0.116	0.976
X2	0.919	0.366	-0.048	0.98
X3	0.925	0.173	-0.227	0.936
X4	-0.39	-0.25	0.842	0.925
X5	-0.777	0.107	0.586	0.958
X6	0.208	0.905	-0.329	0.972
X7	0.314	0.872	-0.301	0.95
X8	0.149	0.724	0.532	0.828
X9	-0.062	0.95	0.098	0.915

factor of the current ratio (X1), the asset-liability ratio (X2) and the accounts receivable turnover ratio (X3) are all greater than 0.9, indicating that it has a strong correlation with the main factor 1. This is why the main factor 1 is named the debt service factor. Secondly, the absolute values of the factor loading coefficients of net profit rate (X6), operating profit rate (X7), total asset growth rate (X8) and net profit growth rate (X9) are all greater than 0.7, indicating that there is a strong relationship between it and the main factor 2. Strong correlation, so named as profit factor. Finally, the absolute value of the factor loading factor of the inventory turnover ratio (X4) and the total asset turnover ratio (X5) is greater than 0.5, indicating that it has a strong correlation with the main factor 3, so it is named the operating factor.

4.6 Establish Factor Score Formula

With the aid of SPSS, using the "factor score coefficient matrix", we obtained the following formula:

$$Main\ factor\ 1 = -0.461X1 - 1.633X2 + 0.959X3 + 0.280X4$$
$$- 0.703X5 - 1.101X6 + 0.66X7 + 0.799X8 - 0.253X9$$

$$Main\ factor\ 2 = -0.010X1 - 2.062X2 + 0.719X3 + 1.016X4$$
$$- 0.312X5 + 0.266X6 + 1.062X7 + 0.719X8 + 0.266X9$$

$$Main\ factor\ 3 = -0.262X1 - 0.727X2 + 0.523X3 + 1.102X4$$
$$- 0.668X5 - 0.666X6 + 0.215X7 + 0.844X8 - 0.019X9$$

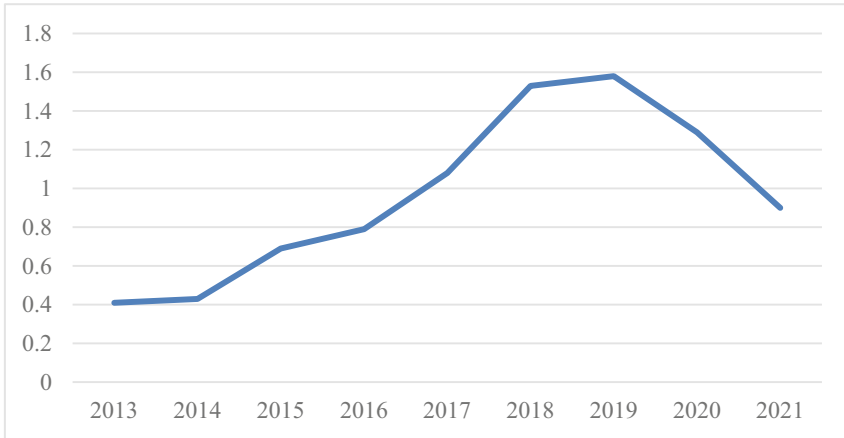$$X = (x1*39.8\% + x2*36.1\% + x3*17.9\%)/93.8\%$$

Fig. 4. Total Factor Score

Figure 4 is calculated according to the factor score formula for 2013–2021 Vanke's financial risk score. Judging from the score results, with the transformation and upgrading of light assets, the financial risk score of Vanke Group has generally improved, from 0.41 in 2013 to close to 1.6 in 2019. It has declined, but it has been enough to prove that the transformation of asset-light is of great help in reducing the company's financial risk.

5   Conclusion

In general, based on the financial report data of Vanke Group from 2013 to 2021, this paper studies the financial risk of Vanke Group after the conversion of light assets, creates a financial risk assessment model through ratio analysis and factor analysis, and concludes that the conversion of light assets to a certain extent, it can help real estate companies improve their ability to resist financial risks, and can help the company's profitability, solvency, operation and development capabilities. In this paper, only the data of recent years are analyzed in the ratio analysis. Due to the loss of some data in the early years, it is impossible to find the information very well. There is a lack of longitudinal comparison with other companies in the factor analysis method, and the data is only 9 years old, and more financial data can be added. Future research will start with the whole industry, and evaluate the average level of the whole bank through factor analysis, so that everyone can compare the advantages brought by a single company after the asset-light transformation.

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