The impact of COVID-19 on Real estate and consumer behavior based on SPSS analysis

Runyu Chen[1, *, †], Sirui Qi[2, †] and Jingyi Yu[3, †]

[1]School of Economics and Management, China University of Petroleum, Beijing, China

[2] Qingdao No. 9 Middle School, Qingdao, China

[3]High School of Shanghai Jiao Tong University, Shanghai, China

*Corresponding author: 2020012127@student.cup.edu.cn[†]

[†]These authors contributed equally.

Abstract. Since the Spring Festival of 2020, the rapid spread of COVID-19 has a serious impact on real estate enterprises. According to the Supreme People's Court, a total of 408 real estate companies filed for bankruptcy in 2020, up 8.2 percent year on year. It is worth mentioning that there are many well-known real estate companies on the bankruptcy list since the COVID-19 pandemic. In this paper, a questionnaire survey was conducted on the willingness of residents to purchase houses and their choice of real estate enterprises since the epidemic. SPSS software was used for data modeling and analysis, and the comparison was made before the epidemic. Meanwhile, a case study is conducted on the financing capacity and earnings of Country Garden, Vanke and Sunny City Real Estate from 2019 to 2021. Overall, residents' choice of real estate enterprises has changed greatly since the outbreak, and the economy of real estate enterprises has been deeply affected. Therefore, based on the repeated situation of COVID-19, the economic choices of real estate enterprises and consumers deserve further study, and relevant policy suggestions are put forward accordingly. These results shed light on guiding further exploration of real estate enterprises risk management and residents investment decisions.

Keywords: COVID-19; Real estate enterprise economy; Consumer choice; SPSS.

1. Introduction

Since 2021, the real estate economy has gradually recovered after the impact of COVID-19. Looking around the world, housing prices are showing a "bubble" phenomenon in some areas. According to the S&P Corelogick Case-Shiller report, U.S. home prices rose 19.2% in January 2022, surpassing the 27-year record. According to the global real estate data of The Bank for International Settlements (BIS), the price index of second-hand housing per square meter in the United States also continued to rise in the volatility [1]. Especially, the real price increase in the Euro zone reached the highest level since 2005. In terms of China's real estate economy, with the higher level of national income, residents demand for comfort living environment constantly upgrade. In this case, it promotes the real estate market, but leads to increasingly prominent problems e.g., building quality, prices, supply and demand. Government intervention is often not from the root to solve the problem, Matthew effect of the real estate market and even intensified [2]. Meanwhile, the cost transfer effect of real estate industry caused by real estate regionalization leads to the continuous rise of housing price.

COVID-19 has rapidly spread to China and other countries around the world since the Spring Festival in 2020, which has become a public health event of international concern. Compared with the SARS outbreak in 2003, it spreads faster and involves more areas and is more difficult to prevent. The resumption of work and production has been difficult, international transportation and trade have been greatly affected, and an internal economic cycle has formed [3]. Economic and social development face serious difficulties to make short-term demand of real estate, real estate market demand postponed, mainstream enterprise sales fell, small and medium-sized enterprise, leverage risk [4], the sales activities of real estate enterprises are classified as risk events, and showing the transactions online in this situation, it is not yet mature, there is credit risk [5]. Meanwhile, the decline in incomes has made survival the most important consideration, dampening demand for high-end properties such as property investment and improved housing. Therefore, the epidemic has put real estate enterprises into hibernation mode [6]. The new round of epidemic in 2022 is mainly sporadic in many places in China, with concentrated impact. Shanghai and Beijing are severely affected by the epidemic, with great internal pressure of prevention and control. Affected by policies of different communities during the period, a large number of real estate transactions after the lockdown are generated from accumulated demand during the lockdown period.

Scholars commented that COVID-19 could be an uncertain indicator that affects the short and medium and long-term operation of the Chinese, and should not be regarded as an external event shock. Since 2020, although the epidemic has been controlled and improved, many developers have faced shutdown of the real estate supply chain, and the economic recession has started but the investment returns have not been completed, which has exacerbated the risk of financial crisis [7]. As stated in the UTM article, to solve these problems, two methods need to be used to analyze the economic recovery scenario to recognize recovery pattern of the whole real estate industry and to mitigate the risks of the whole sector using the legal background [8].

In fact, it is crucial to analyze the impacts of the two rounds of epidemic on large real estate enterprises and residents' new willingness and plans to buy houses. This paper collected the data of residents' willingness to buy a house through questionnaire survey, and used SPSS for modeling and analysis. A comparison of the economic changes of three large real estate companies since the outbreak further proves the negative impact of COVID-19 on real estate companies. The paper is arranged as follows: section 2 data and methods, section 3 empirical analysis, section 4 case comparison, section 5 policy suggestions, section 6 limitations and prospects, section 7 conclusions.

2. Data & Method

This research mainly starts from two main bodies of real estate enterprises and consumers to build COVID-19 outbreak effect evaluation system of the real estate market, collecting the questionnaire data and USES SPSS to standardize processing and related analysis, coupled with Vanke, Country Garden, three real estate sunshine town real estate enterprises were analyzed, and the outbreak of the impact on real estate market. The research objects of this paper are the three real estate enterprises mentioned above, with the sample ranging from 2019 to 2021. The data is obtained from questionnaires and relevant literature. Based on the analysis, nine variables of COVID-19 affecting the real estate market were screened out. Furthermore, questionnaires were conducted based on the Platform "Wenjuanxing" to investigate the impact of the epidemic on intention, plan, and quantity of house purchases from the perspectives of gender, age, occupation, and tendency to real estate enterprises and purchase areas. A total of 225 valid questionnaires were collected.

As the selected indicators are different, the original data are standardized and the SPSS is used for correlation, regression, and factor analysis. To test the reliability of the constructed system, Cronbach's coefficient (α) should be calculated to measure, and the formula is $\alpha = NR/[(n-)R+1]$, where N is the number of evaluated projects and R is the average correlation coefficient of evaluated projects. Generally, Cronbach's α value is between 0 and 1, and $\alpha \in (0, 0.7)$ is considered to have insufficient internal reliability; $\alpha \in [0.7, 0.8)$ indicates that the design has some problems, but has considerable reliability; $\alpha \in [0.9, 1)$ indicates that the reliability of the scale is very good [10]. The reliability test of the evaluation system for the impact of COVID-19 on the real estate market shows that Cronbach's α reliability coefficient is greater than 0.9. Therefore, the results of this study are highly reliable.

This paper makes a data analysis of nine questions in the questionnaire including: Q1: Your current lans for real estate; Q2: Your purchase buget/m; Q3: The trouble that COVID-19 brings to you in buying real estate; Q4: Does COVID-19 affect your plan to buy real estate; Q5: Does COVID-19 affect your choice of real estate enterprises; Q6: What kind of real estate enterprises do you prefer;

Q7: Which real estate enterprises do you prefer; Q8: Does COVID-19 affect the number of houses you buy; Q9: Does COVID-19 affect your purchase budget.

Based on the analysis of the questionnaire, it still needs to continue using the real estate enterprise financial reporting research in 2019-2021 real estate enterprise profitability, operation ability, and the change of the cash flow. In 2021, Vanke's operating margins fell 8% year on year, Country Garden operating margins fell 5% year on year, sunshine town real estate operating profit fell 6% year on year.

3. Empirical analysis

To discuss the impact of COVID-19 on the real estate market through variables, the SPSS platform should be used to analyze the correlation between variables, and the specific correlation form should be studied through regression analysis, and then the influence degree of different variables should be identified according to variance resolution table.

3.1 Correleation analysis

The study further clarified the impact of COVID-19 on the real estate market by studying the correlation between residents' purchase situations and other variables. As shown in Table 1, the parameter result table of the model test includes the correlation coefficient and significance P-value [12]. As can be seen from the table. 1, the correlation coefficients between Question 2 and question 3-9 are 165*,.174**, 0.059, -0.016, -0.1, 0.035 and 0.203**, respectively. It can be concluded that there is a significant correlation between Question 2 and question 3, 4 and 9. The correlation coefficients between Question 3 and question 4-9 are 165*, 0.112, -0.03, -0.066, 0.123 and 0.127, respectively. Therefore, there is a significant correlation between Question 3 and Question 4. The correlation coefficients between Question 4 and question 5-9 are 0.381**, -0.025, -0.041, 0.529**, and 0.305**, respectively. Therefore, there is a significant correlation between Question 4 and question 5, 8, and 9. The correlation coefficients between Question 5 and question 6-9 are -0.069, 0.001, 0.372** and 0.194**, respectively. It can be seen that there is a significant correlation between question 5 and question 8 and 9. The correlation coefficient between Question 8 and Question 9 is 0.335**, indicating significant correlation.

Table 1. Pearson Correlation

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Q1	1	-0.026	-0.038	-0.013	0.03	0.044	0.032	-0.101	-0.013
Q2	-0.026	1	.165*	.174**	0.059	-0.016	-0.1	0.035	.203**
Q3	-0.038	.165*	1	.165*	0.112	-0.03	-0.066	0.123	0.127
Q4	-0.013	.174**	.165*	1	.381**	-0.025	-0.041	.529**	.305**
Q5	0.03	0.059	0.112	.381**	1	-0.069	0.001	.372**	.194**
Q6	0.044	-0.016	-0.03	-0.025	-0.069	1	-0.106	-0.111	-0.123
Q7	0.032	-0.1	-0.066	-0.041	0.001	-0.106	1	-0.108	-0.102
Q8	-0.101	0.035	0.123	.529**	.372**	-0.111	-0.108	1	.335**
Q9	-0.013	.203**	0.127	.305**	.194**	-0.123	-0.102	.335**	1
Note: *P<0.05, ** P<0.01.									

3.2 Regression analysis

After implementation of correlation analysis, regression analysis is conducted to study whether X influences Y, the direction of influence, and the extent of influence [13]. As shown in Table 2, the problems brought by the epidemic to residents are taken as independent variables, and the impact of the epidemic on residents' purchase plans is taken as dependent variables for linear regression analysis. The model formula is as follows: Does the epidemic affect your house purchase plan =1.256 + 0.045* What kind of problems does the epidemic bring to your house purchase? The r-squared value of the model is 0.022, which means that the problems brought to residents by the epidemic can explain 2.2% of the changes in residents' house purchase plans affected by the epidemic.

Table. 2 Parameter Estimates (n=200).

	Unstandardized Coefficients		Standardized Coefficients	t	p	VIF	R^2	Adj R^2	F
	B	Std. Error	$Beta$						
Constant	1.256	0.076	-	16.470	0.000**	-	0.022	0.017	F (1,198)=4.443,p=0.036
The trouble that COVID-19 brings to you in buying real estate	0.045	0.022	0.148	2.108	0.036*	1.000			
Dependent Variable: Does COVID-19 affect your plan to buy real estate									
D-W: 1.923									
* p<0.05 ** p<0.01									

Table. 3 ANOVA

	Sum of Squares	df	Mean Square	F	p value
Regression	1.054	1	1.054	4.443	0.036
Residual	46.946	198	0.237		
Total	48.000	199			

As shown in Table 3, it was found that the model passed the F-test (F=4.443, P =0.036<0.05) during the F-test of the model, which indicated that the model construction was meaningful following the criterion given in previous study [14]. According to the final analysis, the regression coefficient value of the problems brought by the epidemic to residents' house purchase is 0.045(t=2.108, P =0.036<0.05), which means that it will have a significant positive impact on residents' house purchase plan, where Table 4 gives the details of the relevant analysis)

Table. 4 Parameter Estimates (Detail) (n=200)

	Unstandardized Coefficients		Standardized Coefficients	t	p	95% CI	VIF
	B	Std. Error	$Beta$				
Constant	1.256	0.076	-	16.470	0.000**	1.107 ~ 1.406	-
The trouble that COVID-19 brings to you in buying real estate	0.045	0.022	0.148	2.108	0.036*	0.003 ~ 0.088	1.000
Dependent Variable: Does COVID-19 affect your plan to buy real estate							
* p<0.05 ** p<0.01							

Table 5 indicates that the model formula is as follows: Does the epidemic affect your choice of real estate enterprises =0.783 + 0.358* Does the epidemic affect your purchase plan? The r-square value of the model is 0.151, and the final specific analysis shows that: The regression coefficient value is 0.358(t=5.940, P =0.000<0.01), which means that whether the epidemic situation affects the purchase plan has a significant positive impact on whether the epidemic situation affects your choice of real estate enterprises. As listed in Table 6, it was found that the model passed the F-test (F=35.278, P =0.000<0.05), which indicated that the model construction was meaningful.

Table. 5. Parameter Estimates (n=200).

	Unstandardized Coefficients		Standardized Coefficients	t	p	VIF	R^2	Adj R^2	F
	B	Std. Error	$Beta$						
Constant	0.783	0.089	-	8.754	0.000**	-	0.151	0.147	F (1,198)=35.278, p=0.000
Does COVID-19 affect your plan to buy real estate	0.358	0.060	0.389	5.940	0.000**	1.000			
Dependent Variable: Does COVID-19 affect your choice of real estate enterprises									

	Unstandardized Coefficients		Standardized Coefficients	*t*	*p*	VIF	R^2	Adj R^2	*F*
	B	Std. Error	*Beta*						
D-W: 1.954									
* p<0.05 ** p<0.01									

Analysis shows that the outbreak has brought residents income drop, increase the cost of living, increased debt, offline purchase, real estate enterprise to break, and the conduction effects caused by these problems affect people's choice of real estate enterprises. According to table 7, comparing with before the outbreak of the vast majority of people prefer large real estate companies, there is no significant difference between residents' preference for large and small and medium-sized real estate enterprises after the epidemic. Therefore, it is worth studying the economic situation of all kinds of real estate enterprises and the impact of the epidemic on consumers' choice of real estate enterprises.

Table. 6 ANOVA.

	Sum of Squares	*df*	Mean Square	*F*	*p* value
Regression	6.163	1	6.163	35.278	0.000
Residual	34.592	198	0.175		
Total	40.755	199			

Table. 7. What kind of real estate enterprise do you prefer to buy a house at present

Options	SUBTOTAL	Proportation
Large enterprises	118	52.44%
Small & medium enterprises	107	47.56%
Effective filling in	228	

4. Case comparison

Since 2020, the COVID-19 epidemic has spread around the world, thus causing market concerns about business operations, financing, and other issues [15]. To support the epidemic prevention and control work and maintain the stability of the real estate market in the post-epidemic era, this part will analyze the financing capacity, operating income, and profits of Country Garden and Vanke, two large real estate enterprises, and Sunshine City around the epidemic, to put forward policy suggestions.

4.1 Assets and Liabilities

From the general trend of the change in total assets and total liabilities from Figure 8 to Figure 10, Sunshine City is a small and medium-sized enterprise with a small production scale and low assets. Its total amount is nearly ten times lower than the total assets of the other two large enterprises. Although the total assets of all three companies were significantly more than the total liabilities, they have different trends before and after the outbreak. In 2021, several data showed that Country Garden has continued to optimize its balance sheet. Seen from Figs 1-3, Country Garden's volatility is the biggest, and 2020 will be the turning point for Country Garden. Still, both the total assets and total liabilities of the other two enterprises continue to rise. In 2019, Country Garden's total debt was 168,85.444 million yuan, which continued to rise. Until the end of 2020, the real estate market was affected by the epidemic, and the property market of the three enterprises was stagnant, making the sales in the off-season even quieter. It is generally believed in the industry that this has led to increased capital pressure on real estate enterprises. Therefore, the debt value of Country Garden has reached the highest point, 17,5.88.05 million yuan. However, with the arrival of the outbreak era, the real estate industry received the impact greatly reduced, by the end of the 2021 report, Vanke and Sunshine City's total debt is rising, the Sunshine City debt ratio is higher, and Country Garden total debt has fallen to 16477.38 million yuan, the net debt ratio of 45.4%, far lower than the "three red lines" set 100% standard line, far below the average level of Vanke group and Sunshine City. Meanwhile, its debt structure has been continuously optimized during this period, with the proportion of short-term debt falling to 24.9%. It is worth mentioning that Country Garden's total interest-bearing debt and the financing cost of Country Garden are declining year by year.

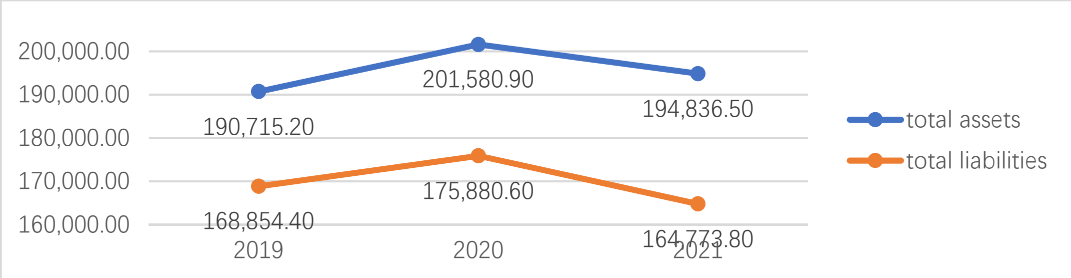

Fig. 1 Change trend of Country Garden's Total assets and Total liabilities from 2019 to 2021

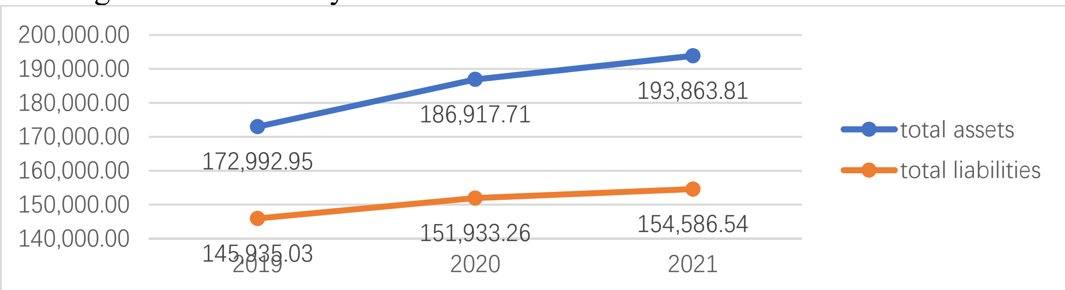

Fig. 2 Change Trend of Vanke's Total Assets and Total Liabilities from 2019 to 2021

On December 31, 2021, the Company's cash balance was about 181.3 billion yuan, with sufficient available cash reserves; the balance of total interest-bearing liabilities decreased by 2.6% year-on-year to 317.92 billion yuan. As a highly leveraged industry, the competition of enterprises is largely a competition of financing ability. As a large real estate company, Country Garden's financial leverage has decreased year by year since 2018. By the end of 2021, its financing costs have hit a record low. Therefore, in terms of financing capacity, Country Garden is higher than Vanke and Sunshine City.

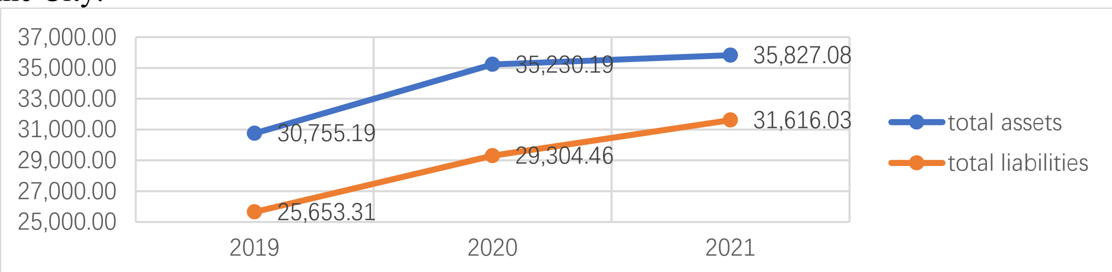

Fig. 3 The Change Trend of Total Assets and Total Liabilities of Sunshine City from 2019 to 2021.

4.2 Regression analysis

Figures 4 to 6 show the total operating income, operating profit, and cash flow of Country Garden, Vanke, and Sunshine City before and after the epidemic. For operating revenue, the three companies vary in total between 2019-2021. Affected by the epidemic, Country Garden suffered greatly in the early stage. Due to the operation restricted by the epidemic, sales fell sharply, and sales could not be collected back, resulting in capital chain risks. According to Figure 4, this has reduced total revenue to 400 billion yuan and operating profit. In the post-epidemic era, the real estate industry gradually recovered. In 2021, Country Garden's revenue was close to 480 billion yuan, up 13% year on year compared with 2020. The impact of the epidemic on Vanke's revenue and profit was not large. By the end of 2021, its revenue and profit were higher than before the epidemic.

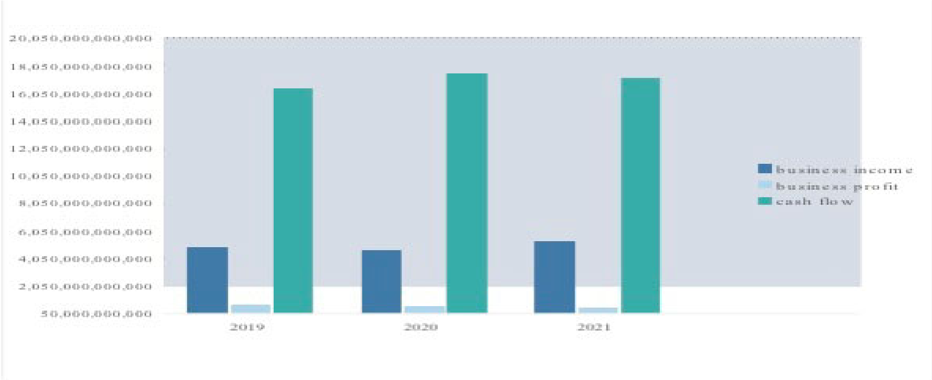

Fig. 4 Cash Flow, Operating Profit and Revenue of Country Garden from 2019 to 2021.

However, Sunshine City, as a small and medium-sized enterprise, has been hit hard, especially as its total revenue fell sharply as the epidemic spread and continued. By the end of 2021, its profits had also plummeted, dropping to 7 billion yuan. Such a large decline in operating profits seems that small and medium-sized businesses are becoming depressed during the pandemic. As for large real estate enterprises, Vanke, though its revenue or profit is not as large as Country Garden, it is the most stable and the obvious company among the three enterprises with a positive development trend.

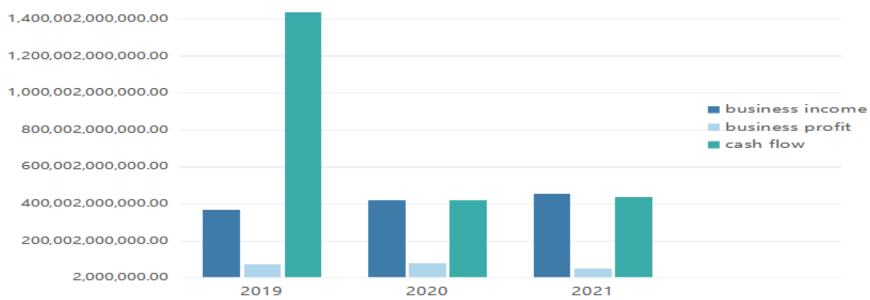

Fig. 5 Cash Flow, Operating Profit and Revenue of Vanke in 2019-2021.

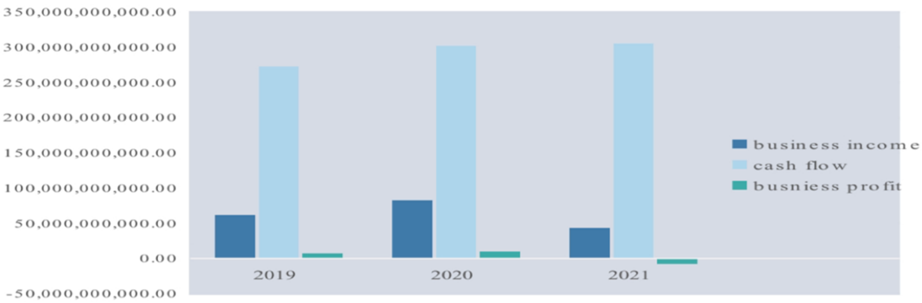

Fig. 6 Cash Flow, Operating Profit and Revenue of Sunshine City from 2019 to 2021

4.3 Earnings Per Share

The income per share often directly reflects the quality of a listed company. Simply put, the higher the earnings per share, the better the quality of the company. As can be seen from Figure 7, from 2019 to 2021, Vanke Group's earnings per share are much higher than those of Country Garden and Sunshine City. Therefore, Vanke has more advantages in terms of company quality.

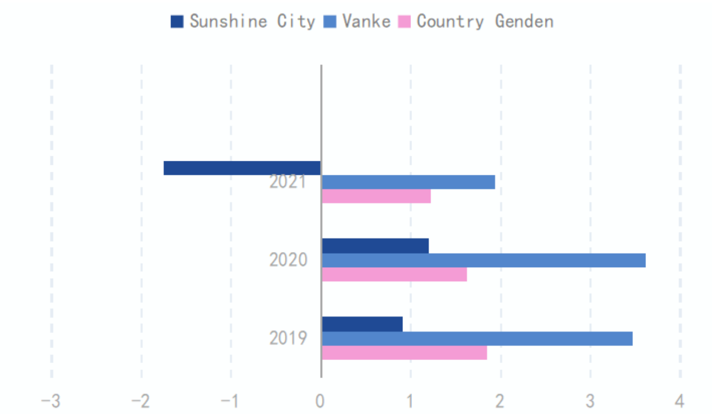

Fig. 7 Earnings Per Share of Country Garden, Vanke and Sunshine City from 2019-2021

5. Policy suggestions

At present, the economic environment of China's real estate industry in China’s real estate industry and its role in China's economic development are very different from the SARS period in 2003. According to the survey, the excessive housing supply in China's third-and fourth-tier cities puts the real estate market at risk, hence the government should continue to encourage the return to buy homes under the premise of no speculation on housing. From the perspective of financing capacity, the proportion of real estate financing in China has recovered to the level of normal years. Therefore, the government should not continue to tighten the restrictions on real estate financing and should allow the real estate enterprises to delay the loan repayment to support the reasonable financing needs of the real estate industry.

6. Limitations and Prospects

In this paper, six subjective factors (cash flow, total liabilities, total assets, operating profit, operating income and earnings per share) of large and small real estate enterprises (Country Garden,Vanke and Sunshine City) are analyzed based on SPSS. Nevertheless, the analysis and research of the paper is not enough in-depth, e.g., in the case analysis to find the data is not perfect enough. Since there are companies in the annual report did not disclose the cost of sales, cost of land, domestic or foreign bonds, land storage, complete information on interest rates. Hence, this article will further detailed study has been carried out five factors. In addition, the number of questionnaires is limited during the questionnaire survey, so the results analyzed by using SPSS data may have limitations. In the future, further studyies need to further discuss the use of financing cases and improve the details of the financing decision-making process of large and small housing enterprises.

In early February 2020, many first-tier and new first-tier cities, e.g., Shenzhen, Hangzhou and Henan, proposed discounted property sales, lower loan interest rates and lower down payments to stimulate and encourage people to buy houses. Therefore, it can be seen from the government's encouragement policies and the data chart above that the economic downturn of the whole real estate industry is extremely serious and the proportion of cash flow fracture is very high. The impact of the epidemic on large and small real estate industries is unfathomable. In the short term,c ompared with small real estate companies, the fluctuation of total assets, total liabilities, operating profit, operating income and earnings per share of large real estate companies (e.g., Country Garden and Vanke is less than 20%), but it is worth mentioning that in 2020 and 2021,Vanke's cash flow plummeted to one third of 2019's cash flow. Instead, for small businesses, the outbreak of strikes is undoubtedly the major blow, analysis from the graph poinyting out that the profit and operating profit per share in the outbreak era. Due to their small size and structure, imperfect regulations or standards, and low visibility, they have poor sales performance and high financing costs compared with large real estate companies. COVID-19 has exacerbated the polarization of large and small enterprises. Pandemic also happens to be the peak of debt repayment of real estate companies, and small real estate companies (e.g., Sunny City Real Estate) are very likely to go bankrupt since they cannot pay off their debts. However,f or a long time, the epidemic will not have a big impact on real estate enterprises. Since the real estate industry involves a wide range of areas which will bring a significant contribution to the national economy [16].

7. Summary

To sum up, the impact of COVID-19 hurts the economy of real estate enterprises and consumers' willingness to choose real estate enterprises in the short term. Based on SPSS data analysis, after the epidemic, consumers' choice of types in real estate enterprises did not fluctuate significantly and was flat. However, in 2020, the revenues and profits of Country Garden and Vanke have declined, and the debt capital of Sunshine City has been soaring. Compared with large real estate enterprises, the performance of small real estate enterprises is very low and fluctuating, and the ability to resist risks is very weak. Under the premise of debt repayment peak in 2020 and 2021, short debt is under great pressure. In order to survive, small housing enterprises have to endure high interest rates to expand their scale and find financing schemes after listing. Therefore, this paper also analyzes the corresponding countermeasures, which hopes that the government can support the financing needs of major real estate enterprises. Finally, the epidemic has had a profound impact on China's real estate economy, but the gradual steady trend of China's real estate economy will not change. In this paper, we study the Vanke real estate relative to the Sunshine City property is stable. Compared with Country Garden, its trend is more obvious. Thus, for consumers, Vanke real estate is the best choice. Nevertheless, there are still limitations in the number of questionnaires and different influencing factors of case analysis, which will be further studied in the future. In the long run, the real estate economy will not change significantly. Overall, these results have certain research significance in the comparative analysis of the size of housing enterprises and suggestions for consumers to choose housing enterprises scientifically.

References

[1] Y. Liu. Low interest rates for the global real estate prices"up".The Financial Times, 202. Vol.8: 09-10.

[2] J. Zhang. Analysis on the Current Situation and Control measures of Real estate in China. Real Estate World, 2022(05):13-15.

[3] Y. Liu. The impact of the epidemic on China's real estate economy and countermeasures of real estate enterprises. Urban housing, 2020, 27(03):39-41.

[4] Y. Liu. Current situation, problems and countermeasures of real estate market in post-epidemic period. Market in China,2 021(8):13-16.

[5] H. P. Ma.The impact of COVID-19 on real estate industry and countermeasures. Journal of hubei university of economics (humanities and social sciences edition), 2020, 17(06): 23-24.

[6] S. X. Chen. Research on real estate market under the impact of COVID-19--taking Zhangjiajie as an example. The circulation economy, 2020(28): 100-102.

[7] W. Zhong. The Impact of COVID-19 on China's real estate Industry. New Financial Review, 2020, 1.

[8] I. Uchehara, M. Hamma-Adama, K. A. Obiri, et al. Impacts and risk management of COVID-19 pandemic on real estate supply chain. International journal of real estate studies, 2020, 14(S1):41-53.

[9] W. Xiang, J. Xie, J. Li. Binary equilibrium under real estate excessive financialization:mechanism,measure and influencing factors of. Journal of Jiang Altar, 2022(01): 57-63.

[10] D. Sun. Selection of the Linear Regression Model According to the Parameter Estimation. Wuhan University Journal of Natural Sciences, 2000, 5(4):400-405.

[11] A. C. Cameron, P. K. Trivedi. Microeconometrics. Methods and Applications, 2005.

[12] H. William Green. Econometric Analysis. Beijing:China Social Sciences Press,1998.

[13] H. Zhang, J. Xu. Modern psychology and educational statistics. 3rd Edition. Beijing Normal University Press, 2009.

[14] T. Jiang. Research on the impact of COVID-19 on corporate financing--empirical evidence from syndicated loan market. International Financial Studies, 2020(4):11.

[15] J. Jin.Under the epidemic situation,China's urbanization Country Garden sales exceeded 100 billion in the first quarter. Xinmin Weekly, 2020(14): 88-88.