The Impact of Unicorns on Urban Economic Development

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Abstract. In recent years, China's unicorn enterprises, as a representative of the new economy, are developing rapidly, and have become an important indicator to measure the urban innovation environment and economic development. This paper selects Beijing, Shanghai, Shenzhen, Guangzhou, Hangzhou and other cities as cases, based on the understanding of unicorn enterprises from, the viewpoint of empirical research, selects the relevant financial data of listed unicorn enterprises from 2017–2021 to explore the impact of the total market value of unicorn enterprises on regional economic development. It is determined that the effect of company market value on local GDP per capita has a strong positive association. This conclusion shows that the total market value of listed unicorns can indeed measure the development degree of a regional economy to some extent, and provides some reference suggestions for the subsequent development of unicorn enterprises according to the conclusion.

Keywords: unicorn enterprises · regional economic development · empirical analysis · GDP · total market value

1 Introduction

Unicorn enterprises have become the leaders of the major industries, the promoters of the economic development of the new economy with their exponential growth and the important support of the national economy. The number and agglomeration degree of urban unicorn enterprises largely reflect the urban innovation ability and the new economic development level. Based on the theoretical model analysis, Tianjiao Chu and Tao Song conducted empirical analysis with 35 cities as research samples, and concluded that the development of local unicorn enterprises is realized by building an urban innovation system and combining new economic development with higher education [1]. Qingsong Xu analyzed the spatial coupling of urban economy, and concluded that both urban logistics and urban economy effectively promoted the development of unicorn enterprises in the logistics industry, and there is consistency between them [2]; Haitao Hou introduced the geographical correlation rate into the model, studied the correlation coupling characteristics of regional logistics and economy in China, and put forward reasonable suggestions for the development of industries in different regions [3]. From

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the actual regional analysis, the agglomeration phenomenon of Beijing-Tianjin-Hebei and Yangtze River Delta is the most obvious, and the agglomeration mode of both is the dual core agglomeration mode. Yufang Shen, Nengzhou Wang, Renfeng Ma, *et al.* takes the evolution characteristics of unicorn enterprises in the Yangtze River Delta, and points out its typical characteristics: the regional industrial corridor effect, the expanding differences between cities, and the strengthening of spatial aggregation effect [4]; Yuzhou Hu studies the inhibitory effect of industry in the Yangtze River Delta from the perspective of establishing coupling model. The development of unicorn enterprises not only depends on geographical advantages, but also the business model innovation is a crucial point for the development of unicorn enterprises [5]. Xiaoyan Zhou, Meiling Hou and Xiaowen Li are based on the internal contact, and the development pattern of "1 + 3 + N" from the perspective of internal connection is presented by the Chinese urban innovation network; the overall diamond structure is the characteristic of Chinese urban innovation network, which is obviously strong and weak in the west, and the network core-edge structure is prominent [6]. Lejing Zhou, Dongqiang Guo and Kunpeng Yu integrated and analyzed relevant literature from the perspective of business model, and concluded that under the background of "Internet+", the development of a new business model is the supporting condition for the development of unicorn enterprises in the market competition, indicating the importance of continuous innovation of business model to the development of unicorn enterprises [7]. Hess and others believe that the unicorn platform serves a crucial function in expanding the way of spreading value, expanding the network effects between internal and external stakeholders and users. It's important for the business strategy of the unicorn, including different company levels, so this platform is the basis for the evolution of the unicorn business model [8]. It was found by Dyer and Hatch in 2006 that the infrastructure of the Internet was gradually improved in the digital economy era. By virtue of the business model advantages of agglomeration and network effect, platform enterprises constantly promote the economic growth of platform enterprises, so platform enterprises are still the main force for investment and incubation of unicorn enterprises [9]. At present, unicorns that have conducted few studies based on cities and their impact on regional development is not highly targeted. The empirical research on the development of unicorn enterprises is relatively insufficient and the existing empirical studies generally tend to examine the process of companies growing into unicorns. And, less attention has been paid to the continued competitiveness of companies that have grown into listed unicorns and their development in their cities. Therefore, this work explores the impact of listed unicorns on the regional economy from the relationship between the total market value of listed unicorns and the urban per capita GDP, aiming to provide the inspiration for the development of growing unicorns and provide improvement countermeasures for listed unicorns in the future.

2 Empirical Analysis

2.1 Source of Data

The National Taian (CSMAR) database provided all the pertinent information for this work. As shown in Table 1, the time of listing (Age), growth rate of operating income (YoY), asset-liability ratio (Lev), asset scale (Size), return on assets (ROA) are used as

Table 1. Related variables

Variable	Name	Explain (all variables are taken as the natural log)
Explained variable γ	GDP	per capita gdp
Core explanatory variables	MC	Data from 2017–2021
controlled variable	Age	(Year year-market year)
	YoY	(Current operating income -previous operating income) / previous operating income
	Lev	Total liabilities / total assets at year-end
	Size	Total assets in the company's financial statements
	ROA	Net profit / total assets at year-end end

the control variables, the market value of enterprises is the core explanatory variable, and the GDP of each province and city is the explanatory variable. To lessen the potential impact of outliers on the regression findings, all continuous variables were decreased by below 1% and above 99% (Winsorize) before to beginning the empirical study. This study simultaneously adjusts the enterprise level clustering (cluster) for the standard error of regression coefficient to remove any sample data clustering patterns that could exist. Processing and analysis of data for the majority of this part of the investigation, Stata17.0 was employed.

2.2 Model Setting

In general, for panel data, there are three different analytic models: mixed effect model, fixed effect model, and random effect model. So, before beginning the empirical regression, we must choose the model that will be used. Then, we ran the F-test on the example data in this work, Table 2's Table A contains the test findings. This demonstrates that the F test's p-value is less than 0.05. Reject the null hypothesis, which states that the fixed effect model rather than the mixed effect model is better appropriate for this paper; then decide whether the random effect model or the fixed effect model is more suited. The Housman test will be used for this (Hausman Test), Table 2's Table B contains the test findings. From this, it can be found that the p-value in the Houseman test (Hausman Test) is greater than 0.05, A random-effects model should be adopted for the regression analysis as the fixed-effects model cannot be used.

Based on the above test results, the following model was used for the analysis:

$$GDP_t = \beta_0 + \beta_1 MC_{i,t} + \sum \Phi_i Controls_{i,t} + \mu_{year} + \varepsilon_{i,t} \quad (1)$$

The subscripts I and t in the model above hold for the enterprise individual and year, respectively, β_0 represents the intercept term, β_1 represents the regression coefficient of the explanatory variable, ϕ_i is the regression coefficient of the control variable; μ_{year} represents the fixed effect at the year level, and μ represents the residual item.

Table 2. Test results for regression model selection

Table A: Results of experiments using either a fixed effect model or a mixed effect model
H_0: all ui = 0: F(40,139) = 5242.36 Prob > F = 0.0000
Table B: Results of tests comparing fixed effect and random effect models
H_0: difference in coefficients not systematic chi2(8) = 8.36 Prob > chi2 = 0.3988

Table 3. Data that describe the key factors.

	N	MEAN	SD	MIN	MEDIAN	MAX
GDP	190	29.4383	0.4606	28.7257	29.3889	30.1517
MC	190	15.9397	1.1646	13.8940	15.8168	19.5832
Age	190	3.3549	0.1299	3.1491	3.3297	3.6958
YoY	190	0.2120	0.3377	-0.5682	0.1618	1.5906
Lev	190	0.4488	0.1976	0.1017	0.4716	0.9043
Size	190	23.0170	1.9436	19.9602	22.6188	29.8852
ROA	190	0.0278	0.0877	-0.3859	0.0313	0.2104

2.3 Descriptive Statistics

In this part, size, mean, standard deviation, minimum, median, and maximum values of each variable are discussed and then provide a general overview of the properties of the variables, as shown in Table 3.

The descriptive statistical findings demonstrate that each variable's statistical features fall within a suitable range; more information are provided in Table 3, so we won't go over them here.

2.4 Research of Correlation

For the correlation of each variable in this section, the Pearson and Spearman coefficients are employed. The test results are displayed in Table 4 with the Spearman correlation coefficient test results in the upper right corner and the Pearson correlation coefficient test results in the lower left corner.

Usually, when the correlation between the variables has an absolute value larger than 0.75, it means a large correlation between variables, and multicollinearity is a more significant issue. And the absolute value of the correlation coefficient between variables is between 0.5 and 0.75, it means the moderate correlation between variables; when the absolute correlation coefficient between variables is between 0.25 and 0.5, and the

Table 4. Results of the factors' correlation study.

	GDP	MC	Age	YoY	Lev	Size	ROA
GDP	1.0000	0.0525	-0.2080***	0.0294	0.1844**	-0.0356	0.0989
MC	-0.0347	1.0000	-0.0044	-0.0090	0.0237	-0.0724	-0.0684
Age	-0.2165***	0.0715	1.0000	-0.0203	0.0352	0.1182	-0.0793
YoY	0.0034	-0.0406	-0.0179	1.0000	0.1943***	0.1861**	0.3633***
Lev	0.1650**	-0.0767	0.0666	0.1514**	1.0000	0.6012***	-0.1815**
Size	0.0015	-0.1261*	0.0573	0.1252*	0.6923***	1.0000	0.0572
ROA	0.1119	-0.2765***	-0.1412*	0.2403***	-0.1368*	0.0819	1.0000

Note: *, **, *** are significant at the significance levels of 10%, 5%, and 1%, respectively (two-tailed test)

absolute value of the correlation coefficient between variables is less than 0.25, it means the weak correlation or correlation between variables.

The results of the factor's correlation study show that there is no multicollinearity issue between the variables and the empirical regression model in this research, since the absolute value of the correlation coefficients of the variables employed in this study did not surpass 0.75.

2.5 Regression Analysis and Hypothesis Testing

From the results of regression in Table 5, we can see that the core explanatory variable MC will have a favorable impact on GDP, and this impact is significantly positive at the 1% level.

3 Conclusion and Countermeasures

The conclusion shows that the market value of unicorns has a positive impact on per capita GDP, indicating that the total market value of listed unicorns can indeed reflect the development level of regional economy. Rising market value is can improve the company's visibility and value to obtain the trust of the public and investment institutions, help enterprises to obtain sustained capital chain support, suction gold, make the unicorn enterprise get sustainable development, improve its production operation environment, improve the production efficiency, thus driving the enterprise value, and the enterprise overall value can drive the new social capital injection, optimize the allocation of social resources, promote the regional resources reasonable use of industrial structure upgrading, thus drive the growth of per capita GDP, promote the development of regional economy. However, the total market value is only one of the factors that unicorn enterprises affect the regional economy. It is far from enough to promote the growth of regional economy only by increasing the market value. Therefore, it is necessary to provide the development impetus for the influence of unicorn enterprises on the region from various aspects and multi-subject perspectives.

Table 5. The results of regression

	(1)
	GDP
MC	0.0331***
	(3.60)
Age	-0.6170***
	(-3.16)
YoY	-0.0039
	(-0.97)
Lev	0.0189
	(1.45)
Size	0.0007
	(0.11)
ROA	0.0135
	(1.36)
_cons	31.3396***
	(47.16)
Year	Yes
N	190
R^2	0.1432

Note: *, ** and *** indicate the significance at 10%, 5% and 1% respectively (two-tailed test); brackets are the cluster (cluster) at the enterprise level.

The government gives full play to the "visible hand" to optimize and integrate resources, promote the optimal allocation of industrial structure and resources, and restructure the assets of the poorly managed companies, so as to obtain new development impetus. On the one hand, relying on government support, constantly carry out mechanism innovation and internal reform, enhance the market share of the main business to expand and strengthen the main business. On the other hand, the government should help foster growing unicorns. Unlisted and growing unicorn enterprises are also the reserve force to promote regional economic development, so they help the growing unicorn enterprises and drive the growth of regional per capita GDP. In terms of cultivation mechanism, potential and selection mechanism can be constructed to select enterprises with development potential. We will introduce internationally renowned incubators, promote industry-university-research cooperation and collaborative innovation mechanisms, encourage the professional management system of science and technology projects, promote the transformation of high-tech achievements, provide r & d investment subsidies, attract talents to settle down, and gather high-end leading talents.

Enterprises should give full play to the advantages of the capital market, carefully study and formulate feasible enterprise development strategies, and use a variety of financing channels to expand the scale of enterprise operation and improve the scientific and technological content of enterprises. Take full advantage of the enterprises, and promote the financing of overseas capital market, to be able to achieve the goal of long-term development. On the other hand, we should create a good ecological environment. We will deepen strategic cooperation with large enterprises and large platforms, and support the incubation of unicorns. We will support large enterprises to carry out internal entrepreneurship, encourage the founders and senior executives of listed companies to start their second business, incubate "unicorns", and support large platform enterprises to incubate unicorns through business separation and foreign investment. Build a unicorn enterprise communication platform. We will establish "unicorn" enterprise alliances and support enterprises in holding various high-end forums.

References

1. Tianjiao Chu, Tao Song. Study on the spatial distribution and influencing factors of unicorn enterprises in China [J]. World Geographic Research, 2017, 26 (06): 101-109.
2. Qingsong Xu, Jian Wu, Rong Wang. Research on the Spatial coupling relationship between logistics unicorn enterprise and urban logistics and Urban economy [J]. Western Economic Management Forum, 2021, 32 (06): 67-76.
3. Haitao Hou. Analysis of coupled space-temporal evolution of regional logistics and economy in China [J]. Business Economics Research, 2016 (24): 130-132.
4. Yufang Shen, Nengzhou Wang, Renfeng Ma, *et al.* Study on the spatial layout and evolution characteristics of logistics in the Yangtze River Delta region [J]. Economic Geography, 2011, 31 (4): 618-623.
5. Yuzhou Hu. Coupling analysis of urban agglomeration logistics and economic dynamics based on the data of the Yangtze River Delta urban agglomeration [J]. Business Research, 2016 (7): 180-186.
6. Xiaoyan Zhou, Meiling Hou, Xiaowen Li. Research on the Cyberspace Structure of Chinese Urban Innovation from the perspective of internal connection of unicorn enterprises [J]. Advances in Geography Science, 2020, 39 (10): 1667-1676
7. Lejing Zhou, Kunpeng Yu. Value valuation analysis of China's emerging unicorns under the background of "Internet+" [J]. Business Economy, 2020(06):75-77. DOI: https://doi.org/10.19905/j.cnki.syjj1982.2020.06.025.
8. Hess T, Matt C, Benlian A, Wiesbock F. Options for Formulating a Digita1 Transformation Strategy [J]. MIS Quarter1y Executive, 2016, 15(2):123–139.
9. Dyer J H, Hatch N W. Relation specific capabilities and barriers to know1edge transfers: creating ad- vantage through network relationships [J]. Strategic Management Journa1, 2006, 27(8):701–719.