# Research on withdrawal behavior of foreign venture capital under the industry development and changes-- Take SoftBank Group as an example

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**Abstract.** In recent years, due to SoftBank Group's adjustment of strategic layout, the actual proportion of investment in China has decreased. As a leader in the investment industry, SoftBank Group has helped a large number of budding Chinese enterprises such as Alibaba and Didi Chuxing expand rapidly and achieve extremely high market shares, making an important contribution to the development of China's modern service industry. Therefore, this paper intends to explore the reasons for "SoftBank's withdrawal from China" event, which will help better utilize foreign investment to promote the development of the tertiary industry and improve the contribution of the tertiary industry to China's economic progress.

**Keywords:** Investment Preference, Industry Maturity, Anti-monopoly, Policy Supervision.

## 1. Introduction

Since the reform and opening up drive, the scale of China's utilization of foreign capital has been constantly expanding, with the actual utilization of foreign capital rising from US $2.26 billion in 1983 to US $144.37 billion in 2020. The number of foreign-invested enterprises increased from 236,000 in 1997 to 657,000 in 2020. The inflow of foreign capital has grown up to become a major boost to China's economic growth. However, in recent years, some foreign investors have begun to withdraw from the domestic market. For example, in 2021, SoftBank Group, which has long been pleased to invest in tertiary industry enterprises in China, suddenly announced a moratorium on investment in China. The investment data of the third quarter of 2021 can be pointed out that the actual investment amount of SoftBank has dropped by 84.6%. SoftBank Vision Fund data show that about a third of its initial investment was in China, which it has now scaled back, to 23 percent of the total so far. Since April 2021, the proportion of new investments in China by SoftBank's Vision II Fund has fallen to around 11 percent, with 90 percent of investments outside China. In addition, take SoftBank's investment in Alibaba as an example. After SoftBank's first investment in Alibaba, its equity accounted for more than half of its portfolio, but the stock fell to 43% by the end of March 2021.

For a long time, because of the dividend of population and policy, the foreign investment and withdrawal behavior in manufacturing industry has been the main field of academic research; But at present, the domestic research on the withdrawal of foreign investment service industry is very limited. It is urgent to consider whether this incident will lead to international misunderstanding of China's investment environment and create unnecessary concerns.

## 2. Research review

At present, domestic literatures on overseas investment withdrawal are relatively limited, and is usually discussed from the perspective of location choice and business strategy of multinational companies, and the industries are mostly focused on manufacturing. By both reading and sorting out relevant research literature, this paper carries out analysis from three perspectives: exchange rate fluctuation, capital regulation and labor cost.

First, from the perspective of exchange rate fluctuations, Yao Wenkuan et al. (2018) argued that variables such as domestic interest rate, RMB dollar exchange rate, corporate debt and exchange rate

fluctuations have real impacts on corporate investment, as well as the cross-impact effect of interest rate fluctuations and debt on corporate investment. A country's capital flow is a function of exchange rate fluctuations, interest rate differences, economic development, investment environment, people's expectations, inflation and other factors [1]. Wu Hui (2019) and others have studied and analyzed that foreign trade enterprises in China are facing increasingly prominent exchange rate risks and increasingly difficult management. Therefore, how to prevent risks caused by exchange rate fluctuations becomes more and more important. Transnational construction enterprises must seriously face and properly deal with the exchange rate problem. Exchange rate fluctuations have an "average impact" on the financial performance of listed transnational enterprises [2]. Chen Lin et al. (2020) explained that the increase of RMB exchange rate volatility remained stable after considering a series of issues such as endogenous, sample selectivity bias and different exchange rate volatility indicators [3].

Secondly, from the perspective of capital regulation, Su Yang et al. (2014) proposed, based on the analysis of the optimal capital regulation model, to promote interest rate liberalization reform and create a looser financial credit environment, so as to better strengthen the healthy development of the market [4]. Wen Laicheng (2015) believes that the regulatory authorities take the improvement of capital adequacy ratio as the core of the supervisory behavior [5].

From the perspective of labor cost, Zhang Jing (2021) et al. conducted research from the perspective of minimum wage standard and found that the rise of minimum wage standard could effectively reduce the dispersion of enterprise markup rate, improve the efficiency of resource allocation, and inhibit the establishment of new enterprises. Promote cross-regional capital allocation and exit of enterprises, while labor market segmentation will inhibit the improvement of the efficiency of resource allocation caused by the increase of minimum wage standard. Manufacturing enterprises are facing serious survival pressure, and the rapid rise of labor cost is liable to be an important factor leading to the high exit rate of manufacturing enterprises [6]. Xiong Ruixiang et al. (2021) believe that "cost-oriented" foreign-funded enterprises are more likely to withdraw from the market due to the increase of minimum wage: enterprises in industries with high labor intensity, larger scale, lower average wage, higher proportion of low-skilled labor in the industry, higher degree of industrial competition, and poor industrial supporting conditions are more likely to be adversely affected by the increase of minimum wage [7].

To sum up, on the one hand, exchange rate fluctuations will directly affect the cost of overseas investment, the price competitiveness of products in the global market and the income of enterprises, thus triggering the withdrawal of foreign investment. On the other hand, the manufacturing industry is mostly labor-intensive enterprises, and the increase of the labor cost of enterprises is also the direct motive for the withdrawal of foreign investors. At the same time, the change of capital regulatory environment will be also given a significant influence on the market adjustment.

## 3. Data description and empirical analysis

### 3.1. Data description

Drawing on the achievements and experience of predecessors and based on the principles of scientifically, operability, systematization and simplicity, this paper constructs five indexes, including the number of employees in the industry, the number of legal entity in the industry, the listing rate of enterprises in the industry, the educational level of personnel in the industry (the proportion of people with bachelor's degree or above), and the profitability of representative enterprises in the industry. Three industries including finance, e-commerce and artificial intelligence were selected for data analysis.

The data of this study were obtained and collated from China Statistical Yearbook 2020 and Flush IFinD data platform.

**Table 1.** Original Index System of Maturity of Finance from 2015 to 2020

| Year | Number of employees in the industry/Number at the end of the year (thousands) | Number of legal entities in the industry (10thousands) | The listing rate of enterprises in the industry | Education level of personnel in the industry (proportion of people with bachelor's degree or above) | Profitability of representative enterprises in the industry (operating revenue of China Construction Bank / 100 million Yuan) |
|---|---|---|---|---|---|
| 2015 | 6068 | 10.9711 | 2.3767% | 38.70% | 6051.97 |
| 2016 | 6652 | 12.2516 | 2.1032% | 38.40% | 6050.9 |
| 2017 | 6888 | 13.5068 | 1.8848% | 38.50% | 6216.59 |
| 2018 | 6993 | 13.7934 | 1.77% | 40.60% | 6588.91 |
| 2019 | 7362 | 15.6259 | 0.96% | 43% | 4706.91 |
| 2020 | 7664 | 16.8729 | 0.11% | 44.82% | 5442.92 |

**Table 2.** Original Index System of Maturity of E-commerce from 2015 to 2020

| Year | Number of employees in the industry/Number at the end of the year (thousands) | Number of legal entities in the industry (10thousands) | The listing rate of enterprises in the industry | Education level of personnel in the industry (proportion of people with bachelor's degree or above) | Profitability of representative enterprises in the industry (operating revenue of Aihua Group / 100 million Yuan) |
|---|---|---|---|---|---|
| 2015 | 3499 | 38.7842 | 1.2648% | 37% | 1,30850003328 |
| 2016 | 3641 | 50.7674 | 1.1253% | 36.70% | 1,5536471399 |
| 2017 | 3954 | 71.9150 | 1.0362% | 38.70% | 1,79250298537 |
| 2018 | 4243 | 91.9879 | 0.9589% | 40.10% | 2,16557391778 |
| 2019 | 4638 | 86.4338 | 0.32% | 43% | 21.01778008 |
| 2020 | 4939 | 95.9261 | 0.07% | 46.81% | 22.63946355 |

**Table 3.** Original Index System of Maturity of Artificial Intelligence from 2015 to 2020

| Year | Number of employees in the industry/Number at the end of the year (thousands) | Number of legal entities in the industry (10thousands) | The listing rate of enterprises in the industry | Education level of personnel in the industry (proportion of people with bachelor's degree or above) | Profitability of representative enterprises in the industry (operating revenue of Anshuo Information/RMB 100 million) |
|---|---|---|---|---|---|
| 2015 | 4106 | 66.1022 | 2.5597% | 41.40% | 3.0325187117 |
| 2016 | 4196 | 81.3251 | 1.8316% | 47.50% | 4.100551336 |
| 2017 | 4204 | 103.5170 | 1.3756% | 45.50% | 5.1357096938 |
| 2018 | 4115 | 127.5579 | 1.4656% | 45.80% | 5.4713645674 |
| 2019 | 4625 | 125.3764 | 1.11% | 47.08% | 5.811944913 |
| 2020 | 4798 | 137.8946 | 1.28% | 48.22% | 6.398459304 |

### 3.2. Data inspection

SPSS was utilized to standardize the original data of finance, e-commerce and artificial intelligence, and extract the corresponding characteristic value, contribution rate, factor load matrix of each factor and the coefficient of each component. Before factor analysis, KMO and Bartlett methods were utilized to test test the suitability of 5 maturity index variables in five industries for factor analysis. It can be observed in the test results that KMO values are all greater than 0.5,

indicating that the selected indicators are suitable for factor analysis. The test results and total variance interpretation are shown in the following table:

**Table 4.** KMO and Bartlett Test of Maturity Indicators of Financial Industry

| KMO Measure of Sampling Adequacy | | 0.737 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx. Chi-Square | 78.457 |
| | Df. | 10 |
| | Sig. | 0.000 |

**Table 5.** Explanation of Total Variance of Financial Industry

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 4.711 | 94.226 | 94.226 | 4.711 | 94.226 | 94.226 |
| 2 | 0.194 | 3.886 | 98.111 | 0.194 | 3.886 | 98.111 |
| 3 | 0.088 | 1.752 | 99.863 | | | |
| 4 | 0.005 | 0.107 | 99.970 | | | |
| 5 | 0.001 | 0.030 | 100.000 | | | |

**Table 6.** Test of KMO and Bartlett of Maturity Indexes of E-commerce Industry

| KMO Measure of Sampling Adequacy | | 0.656 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx. Chi-Square | 56.066 |
| | Df. | 10 |
| | Sig. | 0.000 |

**Table 7.** Explanation of Total Variance of E-commerce Industry

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 4.277 | 85.544 | 85.544 | 4.277 | 85.544 | 85.544 |
| 2 | 0.450 | 9.009 | 94.553 | 0.450 | 9.009 | 94.553 |
| 3 | 0.238 | 4.763 | 99.315 | | | |
| 4 | 0.032 | 0.633 | 99.948 | | | |
| 5 | 0.003 | 0.052 | 100.000 | | | |

**Table 8.** KMO and Bartlett Test of Maturity Indexes of Artificial Intelligence Industry

| KMO Measure of Sampling Adequacy | | 0.725 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx. Chi-Square | 55.715 |
| | Df. | 10 |
| | Sig. | 0.000 |

**Table 9.** Explanation of Total Variance of Artificial Intelligence Industry

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 4.274 | 85.489 | 85.489 | 4.274 | 85.489 | 85.489 |
| 2 | 0.511 | 10.217 | 95.707 | 0.511 | 10.217 | 95.707 |
| 3 | 0.193 | 3.868 | 99.575 | | | |
| 4 | 0.015 | 0.299 | 99.874 | | | |
| 5 | 0.006 | 0.126 | 100.000 | | | |

As can be seen from the above industry total variance interpretation results, the cumulative contribution rate of the two principal component eigenvalues extracted from each industry conforms to the rules of principal component selection (≥85%), indicating that the two principal components extracted from each industry can well reflect the overall characteristics of the data. Therefore, this

paper selects the first two principal components to construct the comprehensive index as the new characteristic values, as shown in the following table:

**Table 10.** Selection of New Characteristic Values in The Financial Industry

| | % of Variance | % of Contribution Rate | Eigenvalue | Square Root of Eigenvalue |
|---|---|---|---|---|
| Eigenvalue 1 | 94.23% | 96.04% | 4.711 | 2.17 |
| Eigenvalue 2 | 3.89% | 3.96% | 0.194 | 0.44 |
| Total | 98.11% | 100.000% | | |

**Table 11.** Selection of New Eigenvalues in E-commerce Industry

| | % of Variance | % of Contribution Rate | Eigenvalue | Square Root of Eigenvalue |
|---|---|---|---|---|
| Eigenvalue 1 | 85.54% | 90.47% | 4.277 | 2.068 |
| Eigenvalue 2 | 9.01% | 9.53% | 0.450 | 0.671 |
| Total | 94.55% | 100.00% | | |

**Table 12.** Selection of New Eigenvalues in Artificial Intelligence Industry

| | % of Variance | % of Contribution Rate | Eigenvalue | Square Root of Eigenvalue |
|---|---|---|---|---|
| Eigenvalue 1 | 85.49% | 89.32% | 4.274 | 2.067 |
| Eigenvalue 2 | 10.22% | 10.68% | 0.511 | 0.715 |
| Total | 95.71% | 100.00% | | |

Then, by dividing the data in the factor load matrix by the square root of the corresponding eigenvalues of the principal components, the corresponding coefficients (denoted by the symbols C1 and C2) of each index variable in the two principal components can be achieved. Then C1 and C2 are utilized to calculate calculate the total coefficient of maturity index (denoted by symbol TC). The details are as following:

**Table 13.** Factor Load Matrix and Adjusted Principal Component Coefficient -- Finance

| Index | Factor Loading Matrix | | Principal Component Coefficient After Adjustment | | |
|---|---|---|---|---|---|
| | C1 | C2 | C1 | C2 | TC |
| Number of employees in the industry: x1 | 0.976 | 0.025 | 0.450 | 0.056 | 0.434 |
| Number of legal entities in the industry: x2 | 0.995 | -0.001 | 0.458 | -0.003 | 0.440 |
| The listing rate of enterprises in the industry: x3 | -0.982 | 0.141 | -0.452 | 0.320 | -0.422 |
| Education level of personnel in the industry (proportion of people with bachelor's degree or above): x4 | 0.928 | 0.354 | 0.428 | 0.804 | 0.443 |
| Profitability of representative enterprises in the industry (operating income of China Construction Bank): x5 | 0.971 | -0.220 | 0.447 | -0.498 | 0.410 |

**Table 14.** Factor Load Matrix and Adjusted Principal Component Coefficient -- E-commerce

| Index | Factor Loading Matrix | | Principal Component Coefficient After Adjustment | | |
|---|---|---|---|---|---|
| | C1 | C2 | C1 | C2 | TC |
| Number of employees in the industry: x1 | 0.947 | -0.291 | 0.458 | -0.433 | 0.373 |
| Number of legal entities in the industry: x2 | 0.940 | 0.174 | 0.455 | 0.260 | 0.436 |
| The listing rate of enterprises in the industry: x3 | -0.911 | 0.362 | -0.441 | 0.540 | -0.347 |
| Education level of personnel in the industry (proportion of people with bachelor's degree or above): x4 | 0.841 | 0.447 | 0.407 | 0.666 | 0.431 |
| Profitability of representative enterprises in the industry (bank operating income of Aihua Group): x4 | 0.979 | 0.067 | 0.473 | 0.100 | 0.438 |

**Table 15.** Shows The Factor Load Matrix and The Adjusted Principal Component Coefficient -- Artificial Intelligence

| Index | Factor Loading Matrix | | Principal Component Coefficient After Adjustment | | |
|---|---|---|---|---|---|
| | C1 | C2 | C1 | C2 | TC |
| Number of employees in the industry: x1 | 0.892 | -0.414 | 0.432 | -0.579 | 0.324 |
| Number of legal entities in the industry: x2 | 0.962 | 0.107 | 0.465 | 0.149 | 0.432 |
| The listing rate of enterprises in the industry: x3 | -0.959 | 0.267 | -0.464 | 0.374 | -0.375 |
| Education level of personnel in the industry (proportion of people with bachelor's degree or above): x4 | 0.829 | 0.493 | 0.401 | 0.689 | 0.432 |
| Profitability of representative enterprises in the industry (operating income of Anshuo Information): x5 | 0.972 | 0.118 | 0.470 | 0.165 | 0.437 |

### 3.3. Industry maturity

The maturity data of three major industries from 2015 to 2020 are calculated. In order to ensure that the data easy to compare, taking 2015 as the base period, the financial maturity is now processed as unit "1".

**Table 16.** Maturity of The Three Industries

| Year | Finance ($10^{11}$) | E-commerce ($10^{8}$) | Artificial Intelligence ($10^{8}$) |
|---|---|---|---|
| 2015 | 2.48 | 5.73 | 1.329 |
| 2016 | 2.479 | 6.803 | 1.797 |
| 2017 | 2.547 | 7.85 | 2.251 |
| 2018 | 2.7 | 9.484 | 2.399 |
| 2019 | 2.983 | 9.204 | 2.548 |
| 2020 | 3.147 | 9.915 | 2.805 |

According to the calculation results, the maturity and development of the three fundamental investment industries of SoftBank in China are generally good, and all show an upward trend. In the past five years, the maturity of artificial intelligence has tripled, e-commerce has increased by 1.73 times, and the financial sector has seen less significant growth.

Through the above maturity analysis of the three industries from 2015 to 2020 and the use of SPSS regression fitting, the maturity progress of each industry can be predicted more accurately in the future. The greater the slope of the fitting curve, the greater the future development potential. We perform curve fitting for three industries:

**Table 17.** Maturity Curve Fitting of Each Industry

| R2 | Finance | E-commerce | Artificial Intelligence |
|---|---|---|---|
| Log Function | 0.962 | 0.916 | 0.938 |
| Exp function | 0.883 | 0.865 | 0.988 |
| Note: $R^2$ can represent the accuracy of the fitting curve. | | | |

Logarithmic function and exponential function have the highest similarity. Logarithmic function fitting consequences of finance and e-commerce are more accurate, while artificial intelligence exponential function fitting results are more accurate. This shows that the growth of finance, e-commerce and other industries is low; On the other hand, industries such as artificial intelligence are showing extraordinarily high-growth.

In order to increase the accuracy of fitting, we set the year 2000 as the base year. This is maturity, and Y is the number of years that have gone by since 2000.

Finance:

E-commerce:

Artificial Intelligence:

### 3.4. Conduct correlation analysis with e-commerce as the standard

This paper selects 20 enterprises in the field of e-commerce for analysis. Below is the e-commerce turnover, market value, net assets and net profit of these companies. SPSS was used for data correlation analysis, and the results were as follows:

**Table 18.** Correlation Analysis of E-commerce Turnover, Market Value, Net Assets and Net Profit

| Correlation | E-commerce Revenue | Market Value | Net Assets | Net Profit |
|---|---|---|---|---|
| E-commerce Revenue | 1 | 0.662** | 0.712** | 0.734** |
| Market Value | 0.662** | 1 | 0.983** | 0.959** |
| Net Assets | 0.712** | 0.983** | 1 | 0.983** |
| Net Profit | 0.734** | 0.959** | 0.983** | 1 |
| Note: **indicates that P is at level 0.01 (Double-tailed), and the correlation is very significant. | | | | |

In Pearson correlation analysis, correlation coefficient greater than 0.7 represents significant correlation, while the Pearson correlation coefficient of the four indicators of revenue, market value, net assets and net profit is greater than 0.7 except for 0.662, which represents the positive correlation between these indicators.

Summarily, in the next few years, the AI industry has huge market development potential, while the traditional financial industry and e-commerce industry are quite mature, and the market opportunities are relatively small. SoftBank commits to investing in excellent high growth and high-tech enterprises in China. However, with the progress of the industry maturity, the development of enterprises in the industry is gradually stable. Compared with the immature stage, the financing difficulty is reduced, the dependence on foreign capital is weakened, and it even has the capacity to help other enterprises with financing. This is one of the factors the Panel believes that industry maturity is holding back SoftBank's investment in China. The reason SoftBank is suspending some investments in promising industries such as healthcare and artificial intelligence is likely to become closely related to the tightening regulatory environment in China.

## 4. Summary and Suggestions

### 4.1. Summary

SoftBank Group's exit from China is composed of many factors. First, a large short-term loss, the average stock price of enterprises down as much as 49%, is one of the direct causes SoftBank Group will suspend investment in China. Second, due to SoftBank's own investment style and mistakes in investment direction, it mainly invested funds in the relatively saturated e-commerce industry,

resulting in a substantial loss. Third, the maturity of the industry has improved. Over the past 40 years of reform and opening up policy, compared with 20 years ago, the investment opportunities and difficulties in the Chinese market have increased. Fourth, the country's anti-monopoly policy, as well as complex international relations, led to SoftBank Group investment enterprises caused a certain loss.

Through the analysis of the e-commerce industry, the following conclusions are drawn: First, the market size in the e-commerce field is relatively saturated, and the growth rate of the market size gradually decreases; Second, the market has become more mature and its market share is relatively fixed, making it difficult for new enterprises to enter and make profits. Third, e-commerce industry can produce scale effect, the bigger the scale, the more profit; Fourth, SoftBank's investment mode is to enable the target enterprise to obtain sufficient cash flow, so as to have greater ability to subsidize users, attract more user groups, generate user stickiness through long-term accumulation, and finally obtain a larger market share. Meanwhile, through mergers and acquisitions, SoftBank continues to expand its market share, and finally obtain a virtual monopoly in the market. As a result, SoftBank Group in recent years to spend on the enterprise can rarely find a profit model.

### 4.2. Suggestions

First, domestic venture capital companies should be encouraged to create a good entrepreneurial environment for domestic startups, provide appropriate financial support, improve the market competitiveness of startups, and reduce market risks and losses by exploring the development potential behind startups, so as to achieve optimal resource allocation.

Second, it is proposed that major domestic banks construct a unique credit evaluation mechanism for each startup company. When the startup company with good credit faces the capital shortage in its initial stage, it should provide appropriate financial support, including lower loan interest rate and larger loan limit, and improve the mortgage mechanism, allowing the startup company to mortgage some movable and immovable property. Have a steady and sufficient flow of capital.

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