

# Market Reflections on Digital Transformation of Enterprises -- A Case Study Based on Haier Smart Home

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**Abstract.** According to the current stage of research, enterprise digital transformation is advanced and makes enterprises strongly competitive, but the current research on the specific impact of its stock market is still insufficient. Therefore, this paper specifically explores the market reaction to enterprise digital transformation, taking the digital era as the background and the enterprise market as the object of research, to explore the impact of enterprise digital transformation on its market, applying the event study method, using the least squares OLS regression model to estimate the normal rate of return, then using the market model to calculate the abnormal rate of return, and then summing up the abnormal rate to get the cumulative abnormal rate of return, and taking Shanghai Smart Home's "Three-Winged Bird" brand transformation as an example to observe the impact of its stock market. Shanghai Smart Home's "Three-Winged Bird" brand transformation is used as an example to observe its market impact and draw conclusions. Finally, it will provide help and suggestions for subsequent digital development enterprises, and it is also expected that subsequent scholars will carry out more in-depth research.

**Keywords:** Digital transformation; event study method; market model; Three-Winged Bird

## 1. Introduction

According to China's State Council issued the "14th Five-Year Plan" for the development of the digital economy in 2022, the digital economy has become the main economic form of the era, and the study of enterprise digital transformation is a necessary way to ensure that enterprises are still competitive in today's era. Its essence lies in the explicit integration of digital technology and algorithms into the enterprise business flow, forming an intelligent closed loop. In the past five years since 2018, the digitalization of Chinese enterprises has made steady progress, and to further explore the response of enterprise digital transformation to the market, this paper takes Haier Smart Home as an example to clarify the market response status of digital transformation and puts forward relevant bases and suggestions for enterprise digital transformation.

## 2. The Development Process of Digital Transformation in Haier Smart Enterprises

### 2.1. Haier Smart Home and its General Directorate of Strategy

Founded in 1984, Haier Smart Home is the largest subsidiary of Haier Group, mainly through the Internet of Things and other media, accurately grasping the personalized needs of customers, to create intelligent full-scene solutions for users of clothing, food, housing, and entertainment [1]. Nowadays, Haier actively implements the digital transformation strategy and has become a large-scale

comprehensive group enterprise with a diversified business scope, in the manufacturing industry, Haier is the leader in the high-end advanced manufacturing industry and has had several practical achievements since the formal transformation in 2012 [2, 3].

## **2.2. Haier Digital Transformation Positive Initiatives**

### **2.2.1. Building a "win-win model of people-to-people integration"**

Haier put forward the "human-single-win model" in 2005, and implemented the Internet transformation strategy in 2012. Through technological reforms to deeply influence enterprise management and operational efficiency, until 2017, Haier Group has formed a "people-single" mechanism-driven Internet of Things platform and gradually realized the integration of large-scale and personalized customization [4-6].

### **2.2.2. Building an industrial internet platform**

During the construction period from 2017-2019, Haier officially launched the world's first industrial Internet platform that introduces users to participate in the whole process of experience – COSMO Plat. Its smart manufacturing ecosystem will have a strong influence by 2022 [7]. Through multiple platforms to bring together talents in different fields to form a value chain and realize value co-creation, the internal efficiency of the enterprise is not only improved, but the digital transformation model has become a source of vitality for the enterprise [8, 9].

### **2.2.3. Landing scene brand "Three-Winged Bird"**

Digital transformation can effectively enhance the resilience of the industrial chain supply chain, at the same time, digital intelligence empowerment for the scene of value creation has a role in promoting the timely detection of user demands, timely adjustment of product solutions, reducing the information asymmetry between stakeholders in the scene of value creation [10-12]. Therefore, to realize the individual needs of customers, supply, and demand and maximize the value of both parties as the goal, in 2020 Haier landed the smart home experience cloud strategy, released the world's first smart home scene brand "Three-Winged Bird", to promote Haier to achieve the user side, the service side, the manufacturing side, the channel side - the "four ends" of the reengineering, to build a digital + ecological Haier of the new era [13, 14]. The core concept of "Three-Winged Bird", "product gives way to the scene, industry gives way to ecology", may become a "tornado" sweeping the digital reform of China's home appliance industry [15]. Therefore, based on the significant influence of "Three-Winged Bird" on the new era, this paper will take "Three-Winged Bird" as an example and use the event study method to further explore the market response to the digital transformation of Haier Home Automation.

## **3. Market Reflection Study on Digital Transformation of Haier Smart Home**

### **3.1. Sample Selection and Source**

The data of Haier Smart Home's A-share listing on the Shanghai Stock Exchange is selected as the research sample for this study. The data of the closing price of the company's stock and the closing index of SHSE A-shares are from Juchao Information Network.

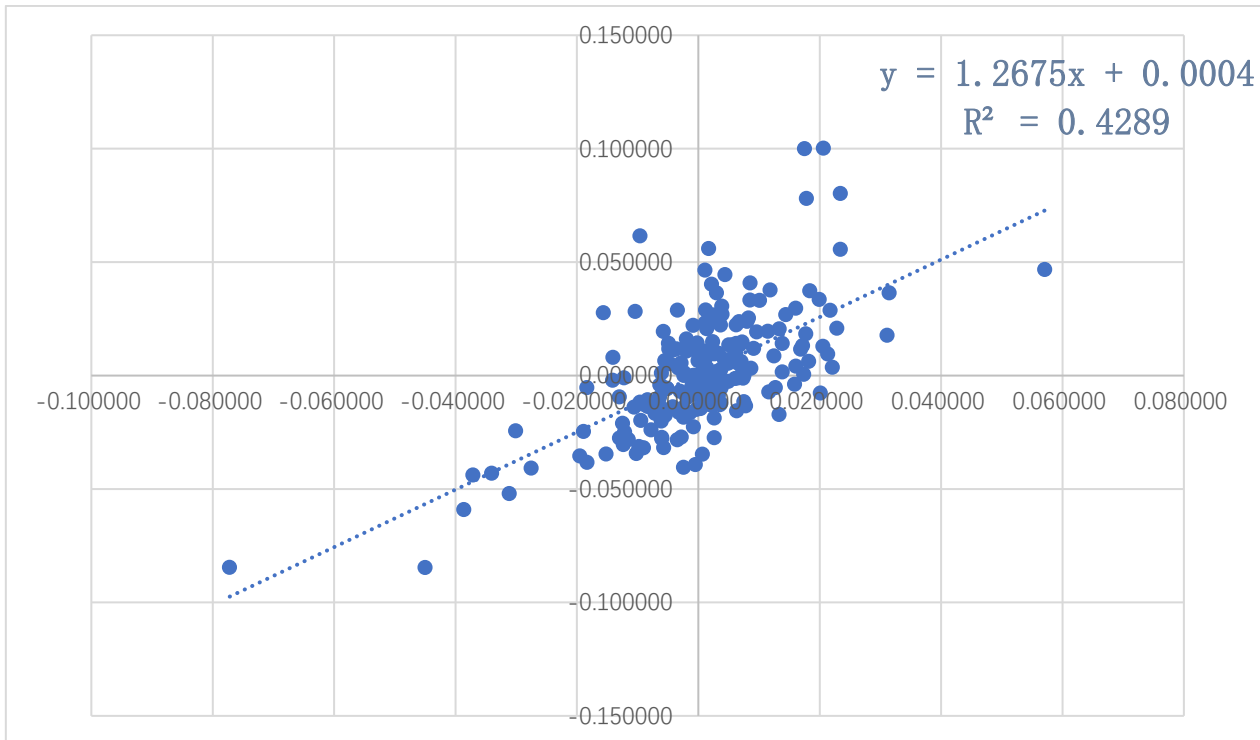
### **3.2. Explained Variables**

Cumulative Abnormal Return (CAR). In this study, the CAR of the day before and after the listing of the "Three-winged Bird" scenario brand is taken as the explanatory variable. Firstly, Haier Smart Home launched the scenario brand "Three-winged Bird" on September 11, 2020, as the event day. Secondly, the estimation window (-210, -11) and the event window (-5, 5) are determined. Then, the market modeling method is used to estimate the Abnormal Returns ( $AR_{i,t}$ ); and finally, the  $AR_{i,t}$  is calculated for all the obtained  $AR_{i,t}$  during the event window period.  $AR_{i,t}$  during the event window is summed to obtain the cumulative abnormal return  $CAR_{i,t}$ .

### 3.3. Estimating Normal Returns

Using the estimated window company and market stock returns to estimate normal returns through the market modeling method, here  $R_{i,t}$  is the return of Haier Smart Home in the estimation window (-210, -11),  $R_{m,t}$  is the same, to construct the least squares OLS regression (see Fig. 1):

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \tag{1}$$



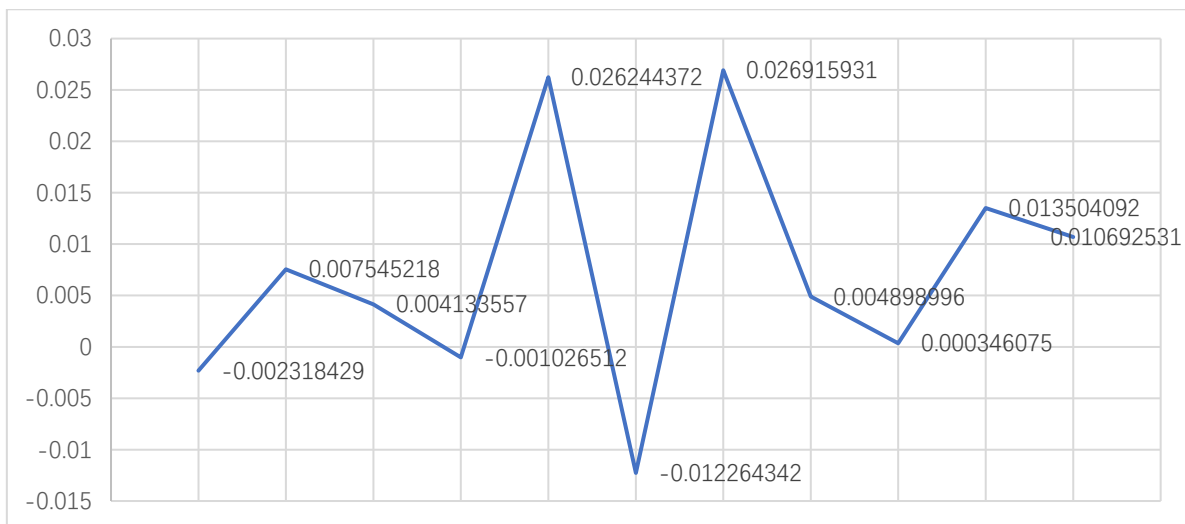
**Fig. 1** OLS regression analysis of Haier Smart Home and Shanghai A-share stock returns (Picture credit: original)

Then,  $R_{i,t} = 1.2675 R_{m,t} + 0.0004$ ,  $\alpha_i = 0.0004$ ,  $\beta_i = 1.2675$

### 3.4. Calculation of Abnormal Returns

After obtaining the estimated coefficients  $\alpha_i$  and  $\beta_i$ , the event window company and market stock returns are utilized to calculate the abnormal return based on the following formula (see Fig. 2):

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i R_{m,t}) \tag{2}$$



**Fig. 2** 2020.9.6-2020.9.16 Haier Smart Home's  $AR_{i,t}$  (Picture credit: original)

### 3.5. Aggregate Abnormal Rate of Return

As shown in Table 1, according to the formula:  $CAR_{i,t} = \sum AR_{i,t}$ , the sum of abnormal returns of Haier Smart Home 2020.9.6-2020.9.16 is 7.867149%.

**Table 1.** The sum of abnormal returns of Haier Smart Home

Time	R <sub>i,t</sub>	Estimate normal returns	AR	CAR
2020.9.6	0.024335	0.026654	-0.00232	
2020.9.7	0.002711	-0.00483	0.007545	
2020.9.8	0	-0.00413	0.004134	
2020.9.9	0.005909	0.006936	-0.00103	
2020.9.10	0.033835	0.00759	0.026244	
2020.9.11	-0.00188	0.010388	-0.01226	
2020.9.12	0.019608	-0.00731	0.026916	
2020.9.13	-0.01831	-0.02321	0.004899	
2020.9.14	0.009957	0.009611	0.000346	
2020.9.15	-0.00986	-0.02336	0.013504	
2020.9.16	0	-0.01069	0.010693	7.867149%

### 3.6. Summary

Based on the above experimental research, it can be observed that before and after the digital transformation of the “Three-Winged Bird” brand launched by Haier Smart Home on September 11, 2020, its market abnormal return fluctuated significantly, and its cumulative abnormal return from September 6, 2020, to September 16, 2020, reached 7.867149%, which is to a certain extent a positive response for the stock market, its positive response in the stock market. Therefore, according to the Haier Group's digital transformation strategy, this paper hopes to provide appropriate help and advice for the subsequent preparation of the digital transformation of enterprises, to help China's enterprise digital development.

## 4. Conclusion

### 4.1. Gathering Consensus and Determining Digital Transformation

In the development stage of digital transformation, it often involves the relevant interests of individuals, teams, and even enterprises, especially in the primary stage of digital transformation, it is particularly important to coordinate the internal relationship of enterprises. Therefore, a high degree of consensus should be reached within the top management of the enterprise to firmly establish the enterprise's digital transformation goals, promote the implementation of digital transformation projects, and facilitate the enterprise's digital development.

### 4.2. Taking the Lead with the Help of External Forces

Hire consultants to help complete digital transformation projects, hiring experienced personnel can objectively judge the positioning of the enterprise from a third-party perspective, which is less likely to give rise to "localism", and can calmly and objectively make decisions to help implement the project. However, at the same time, enterprises should have independent thinking, firmly grasp their dominant power, not just listen to "empiricism", but also combine with their reality, humbly listen to the advice of external consultants and think about the argument, and then implement the digital transformation strategy through full discussion.

### 4.3. Introducing Talents, Autonomous and Controllable Core System

In the digital era, the key to the competitiveness of enterprises to survive forever is to be able to independently control the core system, therefore, vigorously introduce technical personnel, pay

attention to talent training, reduce the phenomenon of outsourcing, increase the participation of internal personnel, in the true sense of the core lifeblood grasping the hands of their own, to achieve the autonomy of the core system control, to better promote the digital transformation of the enterprise.

## Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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