

The positive analysis about the condition of Chinese technology gain

FDI

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1. The agent analysis about technology gain FDI.

There has been 20 years history about Chinese FDI. Although the investment scale is small, the “go-out” step is growing rapidly. China use its own superiority to develop FDI, which can divided into tow kinds: the Trade window and the Manufacture base.

1.1 Trade window investment

The trade window investment (establish overseas marketing channel) means the goal of the enterprise’s foreign investment. It’s not to establish production base or R&D center, but to establish its own international marketing organization to establish overseas marketing channel and the network. So far , this is the major model for Chinese enterprise in foreign investment.

Sanjiu group, which is the biggest drugs manufacture, basically belong to this kind of model. Its manufacture bases and R&D center both in China, the overseas company mainly is marketing organization. Since 1992, Sanjiu group establish its marketing branch in more than ten countries, such as Hongkong, Russian, Malaysian, German, American, South African, Singapore, Japanese, Middle East and so on. As the windows in abroad, these branches bear the responsibility to make the local consumers understand Sanjiu’s products and open up overseas market.

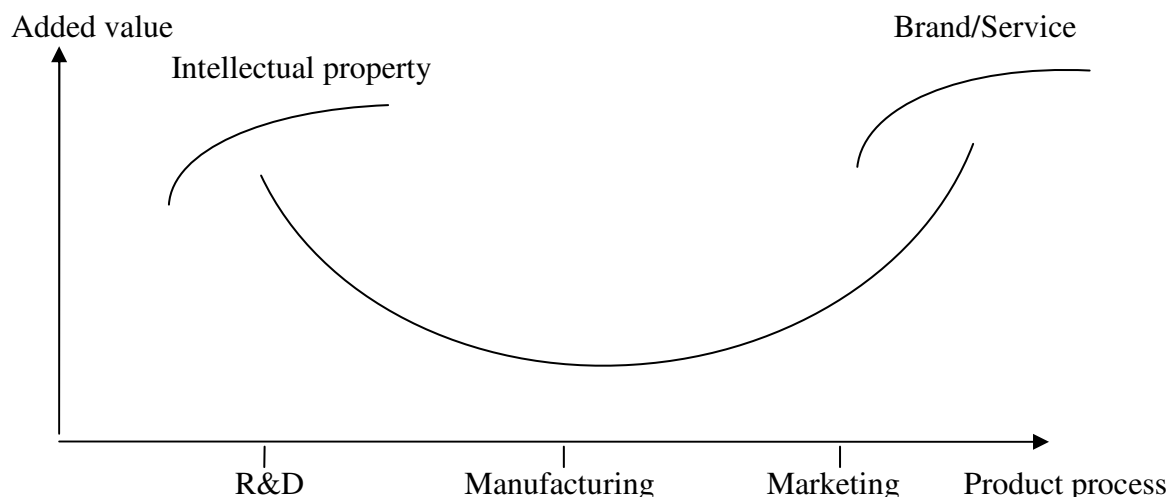
1.2 Manufacture base investment

It is primarily taking advantage of its own equipment, technology, raw material, spare parts, and the cheap labor, land, transport cost etc. in host country to establish production base and to develop processing assembly service. Then they sell or export the finished products to other country and areas, which can expand domestic equipment, technology, raw material, spare parts exportation. For example, Haier group’s electrical appliances have been invested in Pakistan and Bangladesh, but establish its production base in Iran and Nigeria. Hisence has some joint or own TV production factory in South Africa, Brazil and Indonesia too. Other enterprise, such as Konka, TCL, Kelong and so on, they also established production bases in developing countries, on the one hand they sell products in local market, on the other hand they export to the peripheral countries. The most important advantage is that it may reduce the production cost, increase both sides of exportation, evade and break each kind of

trade barrier, and effectively open up the overseas market.

1.3 Above two kinds models defect and the necessary analysis about technology gain investment

The major of above two kinds of models is obvious at present. But its defect is also prominent: first, the enterprises in our country has blindly established its own overseas marketing channel, which can't enhance its own brand's competitive power and fundamentally change our country's subordinate status in international division of labor; second, manufacture base investment mainly use the cheap factors of production in the Association of South Asian Nation or Africa, which can't improve Chinese company's technical level. At present, our company's technical level is low, although many of them has been joint into the global production chain, because of the low technical level it only can produce low added value product. According to the value chain theory, in a multitudinous value activity, not each link can creates the value; the real activities that can create the value is "Strategic link" in the value chain, namely high added value link. Who can hold the high added value, who will control the whole value chain. The relation between a company's management activity and the added value can be expressed by 1-1chart, which is called "Smile curve".



Chat 1-1 "smile"curve

As chart 1-1 shows, R&D belongs to the high added value link, it is in a "Strategic link" in the value chain. Who hold this link, who will access the high end in the global value chain and promote its position. At present, most Chinese enterprises stand in low position in the global value chain because of the huge gap in the technology. The overseas multinational corporations depends on "dumb bells" (R&D and marketing are large, but produces link is small) structure to gain huge profit. But domestic enterprises are exhausted in "Chinese olive" (production link is large, but R&D and marketing are small) structure, it only can receive meager "processing charge". But develop the technology gain FDI to gain overseas advanced technology, in this foundation, to carry on the technical innovation and the technical accumulation, then they can gradually form the technical innovation system that has the independent intellectual property rights, it will reduce the gap between Chinese

enterprises and big transnational corporations, the Chinese enterprise can gradually get rid of the “periphery status” in the global value chain, then our country can fundamentally change the subordinate status in international division of labor.

2. The positive analysis about the condition of technology gain FDI

The technology gain FDI is a kind of study application investment for the developing country. In the short run, the main goal of this kind of FDI is to obtain the technology, therefore it is possible to have deficit in this period. But in the long run, if the enterprise have learned successfully and gain the key technology, it can compete with the technical leading Transnational corporation in the world market, which will compensate the former loss. Please look at the following positive research.

Assumption: ① Only one developed country has the advanced technology which is necessary for product Y.

② The enterprises in the developed country didn't carry on the direct investment to the developing countries. Perhaps this is because there has not good infrastructure in the developing countries or because of the high transnational cost, such as the transnational cost and the high technical interior shift cost. Moreover, the enterprises in the developed country also fear drew out the potential competitor and give up the investment in the developing countries.

③ The transaction cost of this kind of advanced technology (T) is very high, therefore the enterprises in the developed country has not used the permit system to authorize the enterprises in the developing country to produce the product (M).

④ Because of the customs duty or the non-tariff barrier, the export trade about product M between both countries is extremely non-existent, so it is profitable for the developing country to produce product Y.

The developing country can carry on the technology gain FDI to the developed country in order to obtain this kind of advanced technology T. They can establish R&D center or the science and technology companies, hire engineers, collect information, design and develop technology T^1 in the locality. It is necessary to point out that T^1 and T are different, this is because it is impossible to develop the entirely alike technology, but which can infinitely approach T. We may divide the technology gain FDI into two stages, respectively be $[0, t_1)$ and $(t_1, +\infty]$. The companies study and gain technology during $[0, t_1]$, and $[t_1, +\infty)$ is the application time. In here, we may express T and T^1 as the time function, namely $T(t)$ and $T^1(t)$. This express that the technology in developed country and the technology learned by the developing country change along with the time, in other words the technology is a process which

gradually accumulates. At the beginning:

$$T(t) > T^1(t) \geq 0 \quad t \in [0, t_1]$$

The study process can smoothly complete is as follows:

$$\frac{dT}{dt} > \frac{dT^1}{dt} \geq 0 \quad t \in [0, t_1)$$

This formula express that the accumulation degree of the enterprises in the developing country is quicker than the enterprises in the developed country. Because of the limitation of formula ①, the technical disparity between the developing country and the developed country can gradually reduce when satisfying the formula ②. The technical disparity may be expressed as:

$$G(t) = T(t) - T^1(t) \quad t \in [0, +\infty)$$

In order to applying the achievement learning at the first stage, as well as we can product the similar productions and competitive with the developing country's enterprises in the world market, so after t_1 at some point in time, should have:

$$G(t) = T(t) - T^1(t) \quad t \in [t_1, +\infty)$$

G^1 express some full small technical disparity. If formula can be satisfied, the technical disparity between the developing country and the developed country didn't constitute the barrier. The enterprises in the developing countries can product Y and compete with the transnational corporations in the developed country.

Supposes the interest rate is r , if continuously calculates, then it has:

$$\lim_{x \rightarrow \infty} \left(1 + \frac{r}{x}\right)^x = \lim_{x \rightarrow \infty} \left(1 + \frac{1}{\frac{x}{r}}\right)^r = e$$

Then the discount factor is e^{-rt} . The technology gain FDI causes the enterprise in the developing country to suffer loss in the short run, namely $[0, t)$, the cost function is:

$$C = C(t, G(t)), \quad t \in [0, t_1)$$

$$\frac{\partial C(t)}{\partial G(t)} > 0 \quad t \in [0, t_1)$$

This express the cost means the function of time and technical disparity $G(t)$, the bigger the technical disparity is, the bigger the cost is, then the loss in the entire time is:

$$C = \int_0^{t_1} C(t, G(t)) e^{-rt} dt$$

In the long run, $t \in [0, +\infty)$, after the learning of the first stage, if formula can be

satisfied, the enterprises in the developing country may obtain the profit, the profit function is:

$$\pi_i = \pi_i(t, G^1) \quad t [t_1, +\infty)$$

$i=(1, 2 \dots n)$, i express one country, indicates the multinational corporations in the developing country's foreign investment. Its profit is the function of time and technical disparity G . The total profit of the enterprises in the entire time is:

$$\pi = \sum_{i=1}^n \int_{t_1}^{+\infty} \pi_i(t, G^1) e^{-rt} dt$$

If $\pi > C$, it means the enterprise's profit can compensate the loss suffered at the beginning, also means it will appear that the multinational corporation in the developing country carry on the technology gain FDI to the developed country.

3. Positive case: the technology gain FDI of HuaLi and HuaWei corporation.

3.1.HuaLi corporation is a trans-regional, multiplex, export-oriented enterprise. In 2005, the sales income reached to 11 billion Yuan, and its total property surpass 8 billion Yuan, its staff more than 11000. The business of HuaLi corporation involves many domains, such as measuring appliance and system, drugs manufacture, information electron and real estate. Meanwhile, HuaLi establish its factory and R&D center in Hongkong, Thailand, Argentina, US, Canada. On the basis of independent research, HuaLi has the opening-up mind about developing the new areas of technology and strengthening its technical power.

3.1.1 Establish international technical alliance. HuaLi establish strategy corporation union in the area of electric power automation industry with Larson Group, which is a famous automation technology group in North America. HuaLi introduce leading technology and product in the electric power automation domain, so the company's superior technology and product can be sold to the North America market continually. HuaLi devote to become the partner and the supplier of leading product and service trusted by the electric power users.

3.1.2. Acquisition. In 2000, HuaLi established share-holding limited company in US. In March, because new economic bubble is broken and the Nasdaq is depression, HuaLi controled two companies in Nasdaq with extremely low cost - One company is (Pacific System Control Technology Inc.) PFSY, which is a animation software company, the other one is (Pacifinet.com Inc.) PACT. Later, HuaLi purchased the later company. After controlling PFSY, HuaLi can handily expand its business in the overseas capital market. Through increased new shares of PFSY, HuaLi raised capital. Using these capital and the capital owned by HuaLi, it announced the acquisition of CDMA mobile communication design department of setting up US HuaLi corporation

group company. Through this acquisition, HuaLi only spent several ten million dollars to obtain all the IP equipments, staff and technical achievement that Philips invested more than 200 million US dollars before. Meanwhile, by virtue of the strategy partner relations with Philips, HuaLi professionally design and develop the chip software of CDMA and technical solution. HuaLi directly face the Chinese market and provide core chips and entire technical solution for Chinese handset manufacture, therefore, HuaLi become the first enterprise to completely have the core IT technology, which make HuaLi step into the ranks of international advanced technology level and have the embryonic form of TNC.

3.2. HuaWei technical limited company is the biggest privately operated high technology exportation enterprise. The staff are more than 24000, that include more than 3400 foreign staff. In 2005, HuaWei realize the turnover of 66.7 billion Yuan, among which, overseas sales is 4.76 billion US dollars, accounting for 58% of total sales. HuaWei is engaged in correspondence network technology and the product research development, production and sale. HuaWei is one of main suppliers of Chinese telecommunication market and successfully enter the global telecommunication market.

HuaWei's success derives from its continuous investment in R&D and its internationalized research team. HuaWei's investment in R&D surpass 10% of its turnover every year. On the basis of independent development, HuaWei's has cooperated with TI, Motorola, Intel, AT&T, ALTEA, Microsoft in the areas of technology and marketing. Through foreign R&D investment, HuaWei established five research institutes in the American silicon valley, the American Dallas, Sweden, India and Russia. According to the statistics from national monopoly bureau: HuaWei has 6500 patents in all, the growth of patent application is higher than 100% and the number of patent application break through 1000 every year, depended upon more and more core technology, HuaWei initially has the strength to competitive with the transnational corporations in the developed country.

From the condition and the cases above, we can see that the domestic enterprises with certain strength can make full use of the geographical superiority in developed countries, develop technology gain investment, monitor and get feedback of the newest technical and commercial technical in the world market. Taking the advanced technology and the high tech talented person as foundation, domestic enterprises should carry on the investment, research and development to increase the product technical content, which will promote the core competitive ability and the status in the global value chain.

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