

How Tsinghua Manages its Companies

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I. What are companies established by Tsinghua University?

Tsinghua University takes equity in new startup companies in exchange of cash investment, technology (patents or IP in general), and other forms of capital investment (equipment, facility leasing). Tsinghua Holdings Co. Ltd., or Tsinghua Holdings hereafter, is the sole management and investment company of the equity owned by Tsinghua University.

Tsinghua Holdings has a registered capital of \$240 million. It was restructured in 2003 after a major reorganization and transformation from the former Tsinghua University Enterprise Group. Its establishment was approved by the State-Owned Assets Supervision and Administration Commission of the State Council. Tsinghua Holdings is a fully state-owned enterprise, solely invested by Tsinghua University.

Tsinghua University invests in its subsidiary companies by taking either equity controlling position or equity participating position. In the former case, Tsinghua University owns dominating shares, namely 50% or above equity in the company, or it is the largest single shareholder among all investors. In the latter case Tsinghua University is a shareholder but not necessarily the largest.

As of the end of 2003, Tsinghua Holdings' portfolio includes 38 companies that Tsinghua has controlling equity position and 48 companies with participating equity

position. The total annual revenue was \$1.8 billion, total asset of \$2.5 billion, and net income of \$45 million. Tsinghua Holdings was ranked No. 118 among Top 500 large companies according to the National Bureau of Statistics of China. It is among the top two in all university-owned enterprises in China. Through its portfolio companies, Tsinghua Holdings business covers extensive areas in information technology, bio-technology, energy and environment, as well as the service sector of science and technology.

II. Who runs the companies?

Usually, the founders of Tsinghua-backed companies are professors of Tsinghua University. These companies are built upon scientific and technological advances of university research through technology transfer. They are incubated from university laboratories and typically managed by university research team leaders who have played key roles in the research and development of the companies' major IP. This is especially true during the initial stage of the companies' development that most of the CEOs and CTOs are professors. Professor-turned-manager inevitably approaches enterprise management with a technology-centric perspective. They can be valuable in the initial stages of the start-ups to transfer technology into a domestic or an international market with an emphasis on the transition from laboratory samples to product prototypes, to meet product specifications.

As companies grow and products approach maturity, the management team has to be more diversified and specialized. The weaknesses of professor-turned-managers become apparent due to their lack of training in enterprise management, experience in marketing and other business operations. As a result, professor-turned-managers may hinder the growth of the company. Tsinghua Holdings in this case provides guidance to its portfolio companies and helps establish their professional management teams. On one hand, we give the opportunity to some qualified professors to grow into professional managers; on the other hand, we search and recruit Tsinghua University alumni with strong business background to join the top

executive team of Tsinghua University's spin-offs.

Bringing professors up to professional managers.

This approach gives a professor an opportunity to learn from managing a real company and professional training. Once involved in the company's operation, the faculty member's focus usually shifts to company management and development. They no longer teach or supervise graduate students in the academic setting, but they may still continue their research and development for the companies and the university. Until now, 60% of CEOs are professors. For instance, Professor Zhicheng Lu is the CEO of Tsinghua Tongfang Corp., which is a large company with \$1.2 billion market value. Professor Lu has been fully dedicated to Tongfang's operation as its president. Professor Lu was named one of the Top 10 Outstanding Entrepreneurs of the Year by Zhongguancun Science Park in 2001.

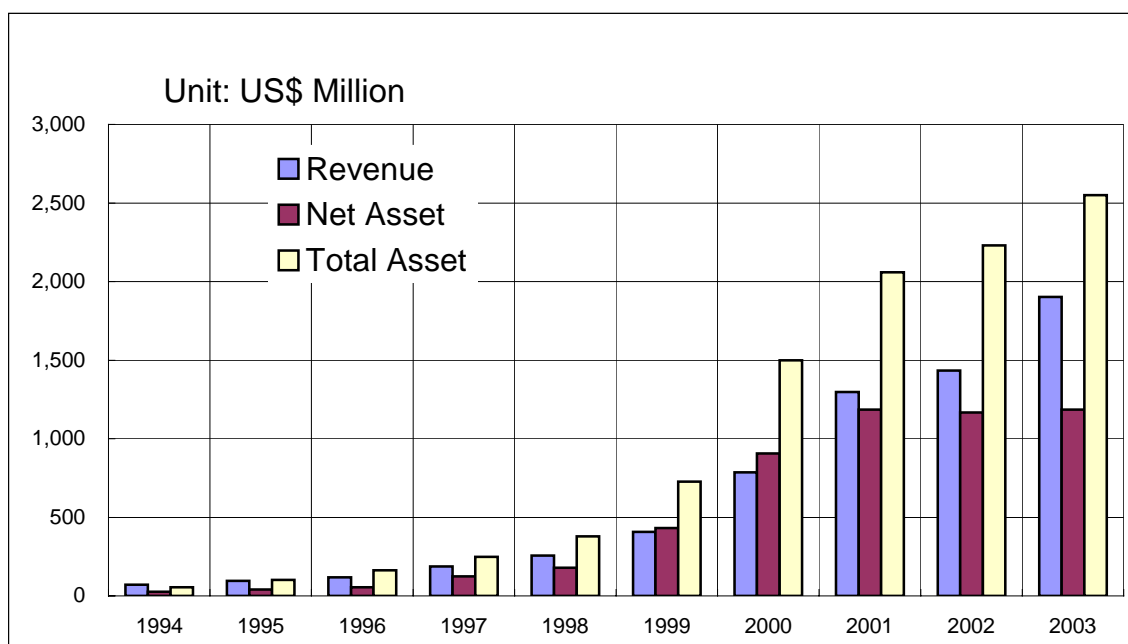
Recruiting top professionals to strengthen the management team.

We recently started searching and recruiting executives from outside for top management positions in our companies. As of now, 30% of CEOs of our major companies are recruited from outside. For example, Mr. Yufeng Chi is a young alumnus of Tsinghua who founded Jing Hong En Computer Software Corp. which had since been developed into the most successful software company in computer based education. Mr. Chi was named one of the Top 10 Entrepreneurs of the Year in the initial start-up category by Zhongguancun Science Park in 2001. Jing Hong En successfully completed a merger into Tsinghua Holdings and Mr. Chi became the Executive Vice President of Tsinghua Unisplendour Corp.

III. Achievements

A. Rapid development in the past 10 years

The following figure summarizes the revenue, net asset, and total asset of Tsinghua Holdings' through its portfolio companies in the past 10 years.



B. Tsinghua Cluster in public stock market

After a successful period of incubation and operation, Tsinghua Holdings opts for IPO to raise the next round of funding for its successful companies. This is to expand operation, enhance competitiveness in its core technology and product areas, and to increase the return of the original investment. Since Tsinghua Tongfang Co. Ltd., the first public company, was offered in the A Share (symbol: SH600100) in 1997, Tsinghua Unisplendour Corp. Ltd. (SZ000938), Chengzhi Shareholding Co. Ltd. (SZ000990), and Taihao Science and Technology Ltd. (SH600590) went public in 1999, 2000, and 2003 respectively in China.

As of 2003, seven companies of Tsinghua Holdings went public in the A Share, which has formed a “Tsinghua Cluster” in the A Share. Among the 1,250 A Share companies in China, “Tsinghua Cluster” represents about 1% of the entire A Share market value.

As part of the 29 A share companies which formed the “University Cluster”, “Tsinghua Cluster” represents 40% of the total “University Cluster” revenue, or equivalently about \$1.4 billion, while the total market value of “Tsinghua Cluster” is about \$2.0 billion, which is about 29% of the market value of the “University

Cluster”.

C. Investment structure, capital gain and return

Tsinghua University has invested in its portfolio companies a total of \$50 million, which includes \$20 million cash, patents and IP of \$17 million, other capitals (equipment, facility leasing etc.) of \$13 million.

After years of successful operation, Tsinghua Holdings now has a net asset of \$380 million, its invested companies have a net asset of \$1.1 billion, and a total asset of \$2.6 billion, which has generated a gain of 7.6, 22, and 52 times of the original investment by the university, respectively.

Tsinghua University has received a cash return of \$96 million, which is 4.8 times of its original cash investment. In 2003 alone, Tsinghua University received \$16 million from Tsinghua Holdings.

D. Cooperation between Tsinghua-backed companies and the university on research and patent application

Tsinghua Holdings provides research funding to university through technology transfer and joint R&D programs. Each year Holdings provides about 25% of the total “lateral” funding (funds from contracts with industrial sources) to the university. This amounts to a total of \$64 million research funding for the university. In 2003 alone, Holdings contributed \$8 million research funding to the university.

Tsinghua Holdings’ portfolio companies have licensed and completed commercialization of 72 patents of the university, or 4% of the total patents. Joint applications of patents amount to 177, which is about 10% of the total patent applications from the University.

IV. Tsinghua Science Park

Tsinghua Science Park was founded in 1994. It is located in the southeast corner of the university campus, with a land area of about 25 hectares.

The Science Park is positioned to be a base for incubating startups, a base for fostering innovation and a base for commercializing intellectual properties from scientific research.

Tsinghua Pioneer Park is a park within the Science Park. It is tailored to meet the needs of Tsinghua faculty, students, overseas professionals and start-ups. The park provides business service, financial management, legal consulting, and other services to facilitate technology innovation, and improve the success rate of start-up companies. As of now, 38 start-up companies have been incubated in the park.

Tsinghua Science Park has also attracted research and development institutions of large multi-national corporations such as Sun Microsystems Inc., Schlumberger Ltd., Procter & Gamble Corporation, and Nippon Electric Corporation. These companies have emerged as one type of international innovation platforms and they have played a positive role in the scientific exchange between the university and leading multi-national companies.

Tsinghua Science Park has now developed a building complex of 350,000 square meters within ten years. It has attracted more than 300 companies and was named by the Ministry of Science and Technology and the Ministry of Education as the one and only Level A National Science Park developed by universities.

V. Challenges and Strategies

Constraints in Chinese stock trading practice and lack of Venture Capital

The Chinese stock market is strictly regulated. As such, even though we have taken many companies to successful IPOs, Tsinghua can not cash out its shares from the stock market.

Another major challenge is the lack of VC funding. The Chinese VC market is still in its infant stage. Due to the fact that there is a major lack in quantity and variety of VC funds, lots of the new technologies developed by the University have not chance to be commercialized. We have only transferred or incubated about 5% of the total

Tsinghua owned IP.

Strategies

Continue the use of international leverages

Attracting professionals with international experiences, collaboration with large international companies, attracting overseas funds to incubate projects and develop successful enterprises.

Continue the practice of technology transfer and incubation

Maintaining a productive life cycle of technology incubation to complete technology transfer: Developing IP – incubating start-up company – going for IPO – increasing valuation – cashing out – reinvesting in R&D.

Continue our approach with flexible policies and collaboration models

Strengthen the collaboration with domestic and international corporations and universities, and explore win-win opportunities.

VI. Conclusions

- Tsinghua-backed companies have been highly successful. Tsinghua Holdings – a high impact enterprise group, has been formed and rapid development has been made in the past 10 years.
- Mutually beneficial model between university-backed companies and university research institutes has been created. We are exploring the new Chinese model that integrates and optimizes the trajectory of technology transfer, namely the “university – research institute – and industry” model.
- Employing Professor-turned-CEOs has been a successful practice.
- The one and only Level A Science Park developed by Tsinghua University has been founded and built in China.

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