



Hynix Semiconductor: The Largest and Most Successful Asian Corporate Restructuring Ever

Columbia Business School, September 23, 2008

In 2002 Hynix Semiconductor was written off for dead after its board rejected a takeover offer from Micron Technology; the offer aimed to alleviate the company's massive debt. Hynix's lead bank and chief creditor, Korea Exchange Bank (KEB), was faced with two choices: liquidate the company or try to resurrect it through a wholesale creditor-led restructuring. KEB chose the latter, more difficult option and orchestrated a complex restructuring of the company that took almost four years to effect. By 2007, Hynix had emerged from the crisis successfully, and was poised to issue new equity to finance its investment in additional state-of-the-art chip fabrication plants and maintain its position as the second-largest manufacturer of DRAMs and third-largest manufacturer of NAND flash memory chips in the world.

On September 23, 2008, the two people most integrally involved with Hynix's restructuring reunited for a panel discussion at Columbia Business School: Eui-Jei Woo, chairman of Hisem Corporation, adjunct professor at Inha University and former CEO of Hynix Semiconductor, and Robert E. Fallon, adjunct professor at Columbia Business School (CBS) and former chairman and CEO of Korea Exchange Bank. Professor Woo represented the managerial perspective, while Professor Fallon spoke from the creditors' viewpoint. In addition, Uichol Kim, IFP Distinguished Professor at Inha University, was on hand to answer questions. Hugh Patrick, R. D. Calkins Professor of International Business Emeritus at CBS and co-director of Columbia University's Asia-Pacific Economic Cooperation (APEC) Study Center, moderated the talk.

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From left to right: Hugh Patrick, Robert E. Fallon, Eui-Jei Woo, and Uichol Kim

Professor Fallon spent his career in banking, largely in Asia. After retiring from JPMorgan Chase, he was hired in 2002 to teach at CBS, where he had become a professional fellow. In 2003, as he was preparing to teach a course on Asian capital markets, Lone Star Funds—a U.S. private equity firm that was in the process of acquiring Korea Exchange Bank (KEB)—recruited him to be chairman and CEO of the struggling bank. He accepted the position, and under his leadership KEB ultimately achieved a very successful turnaround. In the process, since KEB was Hynix’s largest shareholder (13 percent) and largest creditor, Fallon became deeply involved in Hynix’s restructuring.

Professor Eui-Jei Woo joined KEB at the beginning of his career in 1967. KEB was Korea’s lead international bank specializing in foreign exchange and corporate banking. Professor Woo rose to become acting president of KEB in 2000—a difficult time for Korea’s economy in the wake of the Asian financial crisis and subsequent regulatory reforms. After Hynix’s board had spurned the takeover offer from Micron Technology, KEB sought to replace the senior management of Hynix and installed Woo as Hynix’s new CEO. From 2002 to 2007 Woo served as CEO of Hynix—a fact that underscores the close relationship between KEB and Hynix.

Commentator Professor Uichol Kim is a social psychologist. Professor Patrick described Kim as “an expert on the cultural

context that makes Korean global family-owned business conglomerates, such as Samsung, LG, and Hynix, so distinctive.” Kim’s writings describe the combination of Confucianism, filial piety, and the nature of trust as very strong factors in Korean family business management.

As KEB’s former chairman and CEO, Professor Fallon spoke about Hynix from the creditors’ point of view, describing the nature of the company’s financial condition in 2002 as “virtually bankrupt.” When Hynix’s board of directors spurned the firm’s sale to the U.S. company Micron Technology in 2001, Hynix’s financial situation became unsustainable. This development, along with serious structural deficiencies related to the Korean financial crisis, was the catalyst for KEB, leading a group of over 130 creditor institutions, to assume management control of Hynix.

Professor Fallon went on to give more details behind the restructuring of Hynix. The events took place at a time when South Korean President Kim Dae-jung had called for Korean companies to be more competitive. Essentially this meant shedding peripheral businesses, as well as general consolidation across industries. At that time, KEB was the main bank for the Hyundai group companies, including Hyundai Electronics, a major semiconductor manufacturer. Hyundai Electronics was encouraged by the government to take over the weaker LG Semiconductor. The combined companies would later be renamed Hynix Semiconductor.

Problems arose when the fair value of LG Semiconductor was taken into account. The company was worth only 1.3 trillion won, and yet Hyundai Electronics paid 6.1 trillion won; the cash component alone was twice the book value of LG Semiconductor. In principle, according to Fallon, Hyundai should have protested the considerable debt burden it had to assume from LG, but the political pressure to merge was too intense.

As a consequence of the merger with LG Semiconductor, in 1999 Hyundai Electronics had a debt of almost \$14 billion and a debt-equity ratio of 160 percent—far too high for a semiconductor company, which must constantly reinvest capital to build newer technology fabrication facilities and expand R&D. In the year 2000, the dot-com bubble burst, and DRAM prices started to plunge. Revenues quickly followed suit.

By 2001 the newly renamed Hynix found itself with a net loss of almost \$2.5 billion. This would have been a serious problem in any industry, but it was particularly untenable given the company's huge forward capital expenditure requirements. As a result, the government and the creditors—led by KEB—pushed to sell Hynix to Micron.

By late 2001 Micron and Hynix had reached an agreement in which Micron would acquire Hynix in an all-stock transaction, negotiated by the then-president of Hynix, Park Chong-sup. KEB was in favor of the merger, as was the Korean government, but Hynix's board of directors unanimously voted against it even though there was no viable option for Hynix to continue as a going concern. This rejection of the Micron deal prompted the creditors to assert their ownership control of Hynix and institute a change of management.

From there, the strategy through which KEB and the creditors worked to save Hynix culminated with a write-off and debt-equity swap amounting to \$7 billion in capital. That reduced Hynix's debt-equity ratio from 206 percent to 138 percent. However, the company was still facing a net loss, and wasn't generating sufficient cash flow to build new capacity, which was imperative in the rapidly changing semiconductor industry.

To improve the company's debt position and ensure its survival, KEB itself wrote off \$1 billion of Hynix's debt. Overall, creditors then owned 82 percent of the company, with almost 14 percent owned by KEB. It was at this point, in 2003, that Professor Fallon went to Korea to assume the roles of chairman and CEO of KEB.

As lead creditor, Korea Exchange Bank's primary responsibility was to solve the problem of Hynix's nonperforming loans. To do that, the bank embarked on an ambitious restructuring pro-

TABLE 1	
Restructuring Plan	
6 Key Milestones	
1	STMicroelectronics Alliance
2	Sale of Non-Memory Chip Business
3	China Fab Investment (Hynix 67%, STMicro 33%)
4	CRPA Debt Refinancing
5	Creditors' Equity Monetization
6	New Capital for Hynix

gram under the Korean Corporate Restructuring Promotion Act (CRPA). This process was not part of Korea's formal legal bankruptcy process, but of Korea's national program aiming to resurrect several troubled companies from financial crisis.

Acting through the CRPA gave the creditors the right to appoint management. They formed a creditors' council that made all of the key decisions for Hynix. They installed a treasury management team inside of Hynix, which oversaw cash receipts and disbursements, and elected a new slate of directors. This is how Professor Woo, one of KEB's senior officers, was appointed CEO of Hynix.

Professor Fallon remembered Professor Woo describing the day he was asked to take this position as "the worst day of his life." At the time, Woo was finishing an illustrious career as one of KEB's most celebrated international bankers. But he accepted the job, and working with Fallon, embarked on a process that would ultimately bring Hynix back to industry-leader status.

Professor Fallon explained how the restructuring program changed the way the company was run. Accounts were reviewed quarterly. All business was planned from a financial performance perspective, with less emphasis on the product lineup. KEB, with the help of financial advisors from Deutsche Bank, was placed in charge of all of the creditors, and helped draft a step-by-step recovery plan. The next steps soon became obvious—the group needed financial projections to determine how much capital was needed to stay competitive, as well as a plan to shed non-core assets. Everything but the memory chip business was thus put up for sale. In addition, key operating partnerships with other global partners were solicited in order to strengthen Hynix's core operations.



Robert E. Fallon

Professor Fallon outlined some key strategic alliances that kept Hynix at the forefront of memory chip development. One was with the Swiss-Italian company ST Microelectronics in the area of NAND flash chips, a type of chip that stores memory when there is no electric current. ST Micro was strong in proprietary design, but not in the manufacturing of semiconductors. Hynix's strength was in manufacturing, but it didn't have the capital to build new capacity. So they signed a joint venture to produce NAND flash chips together. ST Micro would provide design and equipment, while Hynix would contribute its manufacturing expertise and process technology.

The joint venture involved building a new factory in Wuxi, China. Hynix had been considering manufacturing in China for several reasons. China was a huge market where the demand for DRAMs was exploding. Also, since China was keen to foster higher technology manufacturing, it offered very attractive concessionary terms to lure foreign investment. Lastly, the cost of operating in China was cheaper than operating in Korea. The entire project cost \$2 billion, yet Hynix's commitment was only \$500 million: \$250 million in-kind in equipment and \$250 million in cash. Hynix also negotiated very favorable terms for the deal: they secured two-thirds of the production for just a quarter of the outlay, with ST Micro getting the remaining third.

In sum, Hynix realized a \$2 billion, state-of-the-art 300mm wafer fabrication facility for only \$250 million in cash. Local financing from the city of Wuxi was absolutely essential, as the city was trying to promote itself as China's Silicon Valley. At the time, the Hynix/ST Micro joint venture was the largest foreign direct investment in technology ever made in China.

TABLE 2

Hynix Wuxi

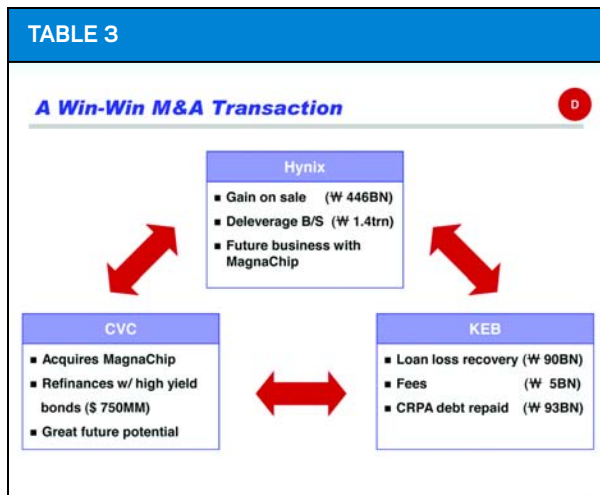


In addition to the ST Micro partnership, Hynix entered into a strategic alliance with the Taiwanese company ProMOS in Taichung, Taiwan. At the time, ProMOS was searching for a new partner to provide process technology in DRAM production, which was something Hynix could provide. Together, the companies began producing chips in ProMOS' fabrication foundry, a type of factory used to imitate the production process of another company. This alliance allowed Hynix to minimize risk by diversifying production, while at the same time achieving a higher yield for its capital expenditure.

Another milestone was the sale of Hynix's non-memory chip division, the System IC Division, to Citigroup Venture Capital (CVC), for almost \$1 billion in a very complicated transaction. The sale, which began in November of 2002, took two years to complete. Hynix refused the original offer of a half trillion won (\$500 million), which led to direct negotiations with CVC chairman William Comfort. After several days of intense talks in Korea hosted by KEB, Comfort increased the offer from \$526 million to \$954 million.

This figure represented about twice the book value of the non-memory chip division, making the offer almost impossible to refuse. Hynix agreed to sell the division and realized a reduction of more than \$1 billion of Hynix's debt when CVC bought this debt on the market at 60 to 70 cents on the dollar, which Hynix then retired at par. Hynix was also able to obtain some cash and shed its System IC Division, which CVC renamed MagnaChip.

After CVC took MagnaChip to the international bond market and raised \$750 million through an issue of high-yield Yankee bonds, Professors Woo and Fallon realized that the high yield market might offer Hynix the opportunity to issue similar high-

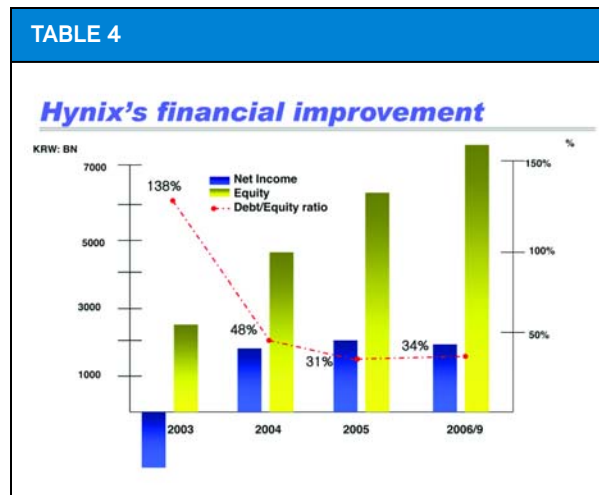


yield bonds to refinance its existing debt. Hynix set out to raise \$1.8 billion in a series of transactions in the market.

Professor Fallon recalled that the seven-year notes that Hynix wanted to offer were particularly difficult to negotiate with the underwriters because Hynix had suffered through fourteen consecutive quarters without making a profit. The company had enjoyed some profitability following this period, but its performance was still not good enough to satisfy investors at a yield that Professor Woo, as Hynix CEO, was willing to accept. After a particularly tough round of all-night negotiations in New York, Hynix and its underwriters agreed to a yield of over 10 percent, allowing Hynix to reestablish itself with bond market investors.

This transaction was very important, since it allowed Hynix to repay the \$1.2 billion debt financed by the CPRA program—debt that was already classified as nonperforming by creditors. Repayment gave Hynix great market credibility because it was able to pay creditors 100 cents on the dollar, despite the debt having already been marked down to 70 or even 40 cents on the dollar.

The corollary to paying down the CRPA debt was the dissolution of the creditors' council led by KEB and its replacement with the share management council. In other words, creditors were no longer running the bank; they were just shareholders. KEB pulled out its treasury team, gave Hynix responsibility to write its own checks, and vested Hynix with more management autonomy. Hynix also decided to monetize the equity holdings of the creditors. Financial improvement followed: in 2003 the company had a net loss, but by 2006, as the NAND flash business took off, Hynix's production capacity was ready and the company earned a record net profit of over \$2 billion.



The alliance with ST Micro had provided Hynix the necessary technology to sustain production, while the new factory in Wuxi gave Hynix the ability to expand. In addition to providing immediate financial benefits, the company's capacity improved, and by the end of 2006 Hynix's debt-equity ratio was down to 36 percent.

Through 2006, Professors Kim and Fallon had steered Hynix through a very successful restructuring: the core business of memory semiconductors was intact, and the creditors were repaid.

To capitalize on its high stock price, Hynix then embarked on an equity offering in order to sell some of the creditors' equity. It was the second-largest Asian technology issue that year, and the fourth-largest equity offering in Korea ever. In the end, independent investors bought 23.5 percent of the company from creditors, 63 percent of whom were international, including many Asian funds. Hynix's stock price continued to rise. Hynix then made a second equity offering, and this proved to be very attractive to long-haul investors. As Professor Fallon remarked, "This is what you want if you're a corporate treasurer. You want long-haul investors—Fidelity, Boston Company, the Capital Group in Los Angeles—basically huge mutual funds that buy and hold. They are value investors, and they stand for the long run." After the second offering, Hynix managed to sell another 12 percent of the company held by creditors to private investors. Through the equity offerings, the number of creditors with ownership in the company was reduced from 137 to 44.

All this piqued the interest of the domestic market. By September 2006 the equity market was still hot, so Hynix's man-

TABLE 5

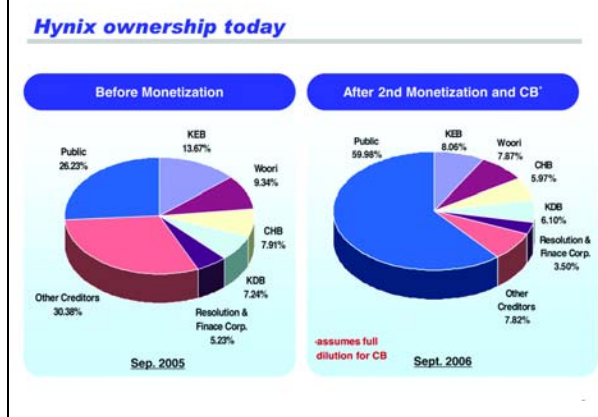


TABLE 6

Summary **hynix**

- Hynix 2006
- # 2 DRAM Manufacturer
- # 3 NAND Flash Manufacturer
- Cost-efficient process technology
- Strong financial profile (2006) (KRW : BN)

• Sales :	7,693	• D/E ratio :	25%
• Operating Income :	2,057	• ROE :	27%
• EBITDA :	3,569	• Operating margin :	27%

agement decided to raise new capital by issuing \$500 million in convertible bonds—the largest offering of its kind in Korea. The issuing price was 36,000 won per share, a price set to ensure the high yield necessary for the large size of the conversion.

Professor Fallon recalled that the offering was launched, priced, and closed in five hours, and was oversubscribed five times. At that point, 60 percent of the company was publicly owned, with KEB as the largest shareholder and Woori Bank and the Korea Development Bank (KDB) as the second- and third-largest shareholders. As of December 2006, the stock price was around 37,000 won per share.

Professor Fallon then pushed the remaining bank creditors to go back to the market and sell the rest of the creditors’ equity. He quoted several investment bankers saying, “We’ll take it to market.” Yet he couldn’t convince the Korean bank creditors—particularly KDB—to relinquish their control of the company. In hindsight, this was a strategic mistake. The government banks, KDB and Woori, preferred a sale of the remaining 33 percent creditor ownership block to a strategic Korean investor. They felt this was in Hynix’s and Korea’s long-term interest. But no Korean corporations were prepared to pay the bank creditors \$5 billion to purchase the banks’ 33 percent of Hynix. Hynix was stymied, unable to raise any more equity capital while the creditor banks sought to find a buyer through 2007. Raising more equity capital would have been the final step to ensure Hynix had sufficient funds to finance capital expenditure and withstand a downturn in the cyclical DRAM market.

Up through 2007, Hynix’s restructuring was Asia’s most successful: it was the largest restructuring ever; the core company survived intact; and creditors were ultimately repaid at

recovery rates favorable to the creditors. Even using a September 2008 market price of 20,000 won/share, the creditors could have sold their shares and realized value that would repay the remainder of the company’s original debt with a few hundred million dollars left over. Moreover, Hynix still enjoyed a strong debt-equity ratio at the time of this symposium, but the storm clouds were on the horizon: the price for DRAM and NAND flash chips had dramatically declined due to the global financial crisis.

Professor Fallon concluded by recounting a meeting with a young man who had led the Hynix restructuring team. He told Fallon, “I couldn’t believe how much I learned in the three years that we worked on the Hynix restructuring.” Indeed, Fallon observed, the restructuring had encompassed mergers and acquisitions, global bond issues, syndicated loans, revolving facilities, global IPOs, and a convertible bond.

Professor Patrick then introduced Professor Woo, who told the story of Hynix’s restructuring from an internal perspective. Woo thanked Fallon for his dedication to Hynix, and proceeded to give background on the crisis and recount his experience with the restructuring.

Professor Woo first spoke about the great diversity of the Hyundai Electronics Company. Established in 1983, by 1999 it had more than 200,000 employees in five business divisions, including memory chips. In total, according to Woo, Hyundai Electronics was worth about \$11 billion. However, as Professor Fallon had mentioned, Korea’s financial crisis began in 1997, the government began forcing consolidations, and Hyundai Electronics and LG Semiconductor merged. Later, however, Hynix was forced to sell off LG Semiconductor.



Eui-Jei Woo



Hugh Patrick

Professor Woo said that the Korean government tried to broker deals to promote competitiveness through economies of scale, and also to prevent investment overlap among the chaebols. At that time in Korea, competition for merger partners was fierce; as a result, the takeover expense was enormous. However, no one wanted to merge with Hynix due to its \$1.3 billion debt, coupled with a lack of financial transparency and a subsequent market downturn for DRAMs. Woo remembered that any attempt at working out a viable repayment schedule proved unsuccessful.

This led the creditors, government, and media to conclude that Hynix could not recover financially, and they pushed for its sale to Micron. The board rejected this option because Micron set Hynix's stock conversion price extremely low and refused to indemnify Hynix shareholders against adverse movements in Micron's stock price. The Hynix board felt Micron's offer undervalued Hynix's world-class products, facilities, and clients. In addition, they felt that because Hynix was such an important global supplier, the sale might severely hurt related industries.

Professor Woo pointed out that even though Hynix was in the midst of a financial crisis, customers such as IBM, Apple, and Hewlett-Packard were still placing orders at the same pace as in past years. Woo said he believed that Hynix "had employed the finest engineers in the world, along with 20,000 dedicated employees." With these considerations, Woo estimated Hynix's value to be about 3 trillion won.

After Hynix's board rejected Micron's takeover offer, outside entities were very hostile to Hynix's stand-alone recovery plan. Creditors tried to sell the company several times and lambasted the lack of capital injection possibilities.

Professor Woo then reiterated the events described by Professor Fallon, beginning with the sale of all businesses in the company, except the core business of memory chips. Then, to reassure creditors, Hynix presented a plan to use only cash from revenues for operations. Hynix completed the sale of its non-core businesses rapidly and completely under a hostile environment. This included selling all of its equipment and real estate, including its headquarters in downtown Seoul. The company was left with just its fabrication facilities. These non-core companies were sold both inside and outside of Korea.

With only the core memory business intact, Professor Woo described how the company was able to overcome their haunting "vicious cycle." R&D lacked funding, and therefore was unable to incorporate new technology and improve production. This led to fewer new products and lower quality. Since the company was operating on a cash-flow basis only, new funds weren't available to increase R&D. Moreover, since output was low, sales had decreased, thereby putting further downward pressure on cash flow.

Professor Woo stated that the most important profitability factor is product time to market. For example, even if a breakthrough is made, it might take six months to get the new product to market with the given resources—too long to turn a profit. Woo remembered that every division had complaints and blamed other divisions, with no one taking responsibility for the falling revenues—"a by-product of the vicious circle," he said. This culture affected the employees' morale.

The best way to end this vicious cycle was capital injection from outside. But due to the circumstances, creditors were afraid to take on any debt, so the capital injection had to come from internal sources.

TABLE 7

The Vicious Circle was an immediate threat



Hynix needed to find a breakthrough

In order to raise this capital, Professor Woo launched the “blue chip” project. Hynix lacked financing for capital expenditure, so it was forced to use old equipment and its current generation of 200mm technology. Typically, with the development of new technology, the manufacturing process for DRAM chips needs to be modified anywhere from 30 to 50 percent. This requires significant resources that Hynix did not have. Under the “blue chip” project, three or four technologies were designed on a standard, static platform. This put considerable pressure on Hynix’s engineers, but they delivered.

Hynix’s competitors were skeptical, Professor Woo recalls: “Most of the Japanese engineers laughed at our project.” But with capital expenditure 40 percent below its rivals’—400 billion won as opposed to 750 billion won—Hynix managed to prevail in terms of capital expenditure efficiency. By a standard measure, according to Professor Woo, Hynix was nearly twice as efficient. This higher yield resulted in a return to operating profit for two quarters of 2003.

Professor Woo remembered giving a speech to employees at the beginning of 2003 with the purpose of setting business goals and articulating his vision for the future. This proved to be a watershed moment for the company; later that year, Hynix posted its first operating profit in several years.

Professor Woo discussed the process of selling off Hynix’s non-core components and forming joint ventures with ST Micro in Wuxi and with the Taiwanese manufacturer ProMOS—essentially the process by which Hynix expanded market share, lowered its debt-to-equity ratio, and increased its production capacity.

Professor Woo gave some more detail about the joint venture with ProMOS. Most manufacturers in Taiwan don’t own their

TABLE 8

Blue Chip Project: A Great Success



Hynix enjoyed the most competitive 8" wafer cost structure. This gave Hynix strategic advantage over its peers.

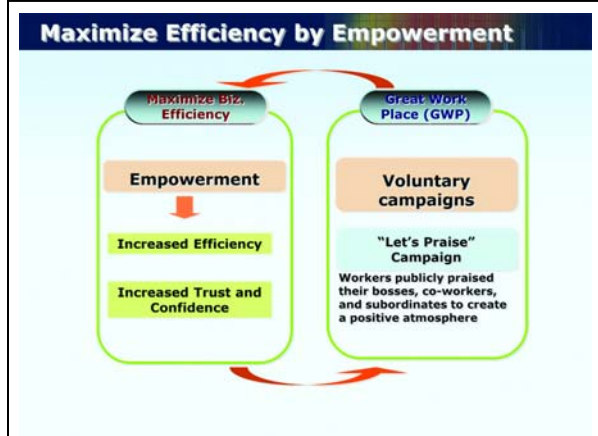
technology; rather, they produce chips using other companies’ R&D. So Hynix fostered a relationship with ProMOS, which established a new fabrication facility, producing memory chips with Hynix technology.

Previously, Hynix had just one fabrication facility. Expanding its production capacity was difficult because the creditors and the Korean government could not agree on the best way to move forward. Ultimately, due to a lack of funds, the creditors had no option but to go ahead with the joint project in Wuxi. The government of China made this partnership quite attractive, providing the capital along with an additional partnership from an outside supplier of capacity. As Professor Woo said, it was “a fundamentally beneficial relationship”: Hynix obtained a new facility, and the Chinese government gained the semiconductor investment that they desired.

Because Hynix’s memory chips were manufactured on Chinese soil, they were subject to duties imposed by the United States and the European Union—almost 45 percent in the U.S. and 34 percent in the EU. These tariffs were clearly too high to keep Hynix’s prices competitive, yet there were several large corporations that wanted—and needed—Hynix chips. So IBM and Hewlett-Packard, as well as other big conglomerates, agreed to buy the chips through an intermediary country rather than directly from the factory in China, thereby eliminating the high tariffs. Although it was inconvenient to ship chips to separate destinations, this process essentially reduced the tariffs to nearly zero.

However, Hynix did pay some duties, because several high-end products for IBM or Hewlett-Packard were shipped directly to the U.S. But these costs were offset by the gains made in the

TABLE 9



Chinese market. China was growing rapidly, and having a production facility there was a great advantage; it allowed Hynix to more easily penetrate the Chinese market, as well as reduce taxes because the rates in China were low.

Professor Woo said that the terms of the agreement with ST Micro were also favorable, echoing the sentiments of Professor Fallon. ST Micro retained some rights to refuse a major change in stakes, like the selling of equity capital. Woo described the China fabrication facility as “the major production facility of Hynix,” and by 2005 he was confident that the facility was secure and prosperous. This allowed the company to focus more on long-term growth.

Professor Woo then focused on claiming a larger market share for Hynix, which was stuck in second or third position for most of its products. Up until this point, Hynix’s ability to increase its market position had been constrained by downsizing and restructuring. Woo charged each employee with creating his or her own business model and being responsible for establishing the annual budget for each project. Woo speculated that although his employees had high aspirations, he told them, “We cannot accomplish first place. We cannot exceed Samsung. They have, maybe, a double capacity in manufacturing facilities.”

In most areas, Samsung’s technological development was faster than that of Hynix. Professor Woo developed an ambitious plan in which the department heads brainstormed about how they could catch up with the industry leaders in two hundred different areas. They found twenty-seven areas in which Hynix could conceivably become the world leader with its existing resources. The most important determinant in these calculations was

production cost. Therefore, Woo targeted the areas where Hynix could claim the highest market share with minimal additional expenditure.

Aside from production, Professor Woo said that more attention was paid to systems, reorganization, and increasing overall transparency, using IT as well as the accounting system. This knowledge was used in order to empower a group head or division head to achieve greater efficiency.

Part of Hynix’s transformation to world-class status was due to the empowerment that Professor Woo gave to his subordinates and division heads. This philosophy also stressed accountability. The division heads declared what the monthly and annual final performance would be, and were responsible for reporting twice a month. Woo cooperated with and supported them, but did not intervene in the daily operations.

Although the campaign to revamp employee morale was simply part of a broader strategy to return the company to profitability, the change in employee attitude was notable. When the company encountered difficult times, most of the employees would rate their performance with low results and low opinions of prospects for the future. Gradually, this began to change as the company’s performance improved.

Customer satisfaction improved as well. In 2004 Hynix’s rating was a “3” from the customer’s perspective—meaning Hynix was in third position relative to its competitors in terms of various metrics such as delivery, service, or response. By 2007 the company’s rating was a “1.4.” In several categories Hynix was ranked first, a major improvement on quality control in just two years.

Professor Woo attributed the company’s improvement largely to management’s entrepreneurial efforts, a significant success because of the contentious corporate culture in Korea involving labor unions. In particular, semiconductor unions typically experience more difficult labor negotiations with management in Korea due to their alliance with the metal unions. Hynix, however, was fortunate to have very good working relations with the two unions in its company. One union was from LG Semiconductor, and one was from Hyundai. So although the two unions competed for members, they cooperated quite well.

Professor Woo presented his logic in dealing with the unions as follows. He had three ways to spend money: employee’s welfare, capital expenditure, and shareholder dividends. But Hynix didn’t pay shareholder dividends, so everything went to welfare or capital expenditure. Welfare would help the employees now; capital expenditure would help in the future.

TABLE 10



Understanding the natural competition for resources is an important problem for every company to resolve, Professor Woo said. The labor unions naturally insist on wage increases while the management desires greater capital expenditure. Woo argued that “It’s not a fight or a confrontation; just a consultation is enough. Every quarter I just gave them a presentation of the company situation, all the performances including some of the profit and other things. So they believed the management. Up until 2007 we didn’t have any conflict.” This was a stark contrast with the time before Professor Woo’s tenure, especially considering the “notorious” labor unions with which he was negotiating.

Professor Woo concluded, saying “We are a role model to all employees. We should push constant innovation and the highest ethical standards. There are so many layers [to the companies]. So I think the best organization is just like a symphony. The conductor hears the violin, or maybe drum.”



Q&A SESSION

The first question regarded a \$1.1 billion global depository receipt (GDR) issue led by Salomon Smith Barney in 2001. Hynix burned through these funds in only six weeks, which was essentially the impetus for the prospective merger with Micron. The GDR issue hurt Hynix’s credibility with global investors to the point that, when Professor Fallon went back to the market to raise capital during the restructuring in 2005, he was forced to go on an ambitious road show to assuage investors who were concerned about Hynix’s previous problems with debt service.

Professor Fallon then gave his view on the future of the semiconductor industry. “It’s very competitive; not only is there a rapid evolution to smaller and smaller circuitry and larger and larger wafers, but the production costs are also dropping. It is a very difficult business unless you’re prepared to reinvest in new fabrication facilities and new technology, which Hynix understands.”

Professor Fallon predicted future consolidation in the marketplace. Memory chip companies are here to stay. Innovation in technology will continue, and Hynix will continue to compete in the chip market as developments emerge. At the end of the day, “Hynix—in terms of their sheer manufacturing skill—is really one of the most competitive semiconductor manufacturers in the world.”

Professor Woo then answered a question regarding the procedure by which Hynix was separated from the Hyundai Group, explaining that any restructuring would not have worked had Hynix continued to be part of the group.

Professor Fallon closed with remarks lauding Professor Kim’s case study on the organizational and human behavior of Hynix. Kim had concluded that the Korean work ethic and dedication to tasks was instrumental in fending off outside acquisitions and accomplishing this remarkable turnaround, most notably the fact that Hynix’s engineers were able to migrate to 300mm wafer fabrication with older semiconductor equipment, something that had never been done before in the semiconductor industry.



POST-SEMINAR UPDATE

Professor Woo retired from Hynix in the spring of 2007. Before he stepped down, he called for his successor to be appointed from the ranks of Hynix's existing employees. Unfortunately, the creditors did not follow his advice and instead appointed a former minister from the Korean Ministry of Commerce, Industry and Energy, Jong-Kap Kim, as successor. Under Mr. Kim's leadership, Hynix set out on an aggressive expansion program. In July 2007 Kim announced that Hynix planned to increase production of 300mm wafers dramatically to achieve Hynix's goal of becoming one of the world's leading chip producers. Substantial investment was undertaken to migrate to 56 and then 36 nanometer DRAM and 48nm NAND Flash production.

Though Mr. Kim's strategy had a laudable goal, it overlooked the volatility in memory chip prices, which began to fall in 2007. By September, prices for the standard 512 megabyte DDR2 DRAM chip had fallen over 70 percent from the beginning of the year, to \$1.75/chip from \$5.95. This should have been a warning sign to Hynix to curtail investment spending; at the lower chip prices, Hynix could barely cover its cash production cost plus interest burden. Incremental capital expenditure could not be financed from cash flow. Nevertheless, Hynix continued its aggressive capital expenditure.

Within the company, experienced members of Hynix's management grew concerned. They knew how the company's high debt had almost ruined the company in the past. Now they were witnessing debt levels increasing again. Senior Vice President Oh Chul Kwon, the architect of the ST Micro and ProMOS alliances, expressed his concern but was removed from his strategic planning role in favor of a new employee brought in from the Ministry of Commerce, Industry and Energy. Chief Financial Officer Seung Yon Lee, a veteran banker from JPMorgan Chase and KEB, also registered his serious concern, but was forced to resign in 2008 when the company's \$500 million global convertible bond refinancing failed in the market.

Why the creditors did not intervene earlier remains a mystery, but by the fourth quarter of 2008, they were clearly concerned. Chip prices had not recovered, and Hynix was beset with a liquidity squeeze. Hynix had to approach its banks to ask for an injection of new equity, new debt, and a rollover of its existing bank debt to longer, dated maturities.

It is ironic that a company that had fought so hard to delever its balance sheet was now confronted with increasing debt again. It seems management had neglected the hard-earned lessons of 2002-2006.



Uichol Kim

In December 2008 Hynix announced it was cutting spending for expansion of fabrication facilities in Korea, delaying a planned \$260 million investment to expand its facility in Wuxi, China, and had closed its 200mm fabrication facility in Eugene, Oregon.

In January 2009 the main Korean creditor banks announced they would provide 500 billion won in new loans, along with 300 billion won in new equity capital, in addition to rolling over 1,800 billion won in existing debt. It remains to be seen whether these steps will provide Hynix sufficient liquidity to withstand the severe downturn in memory chip prices. The company will probably report a huge loss for the fourth quarter of 2008.

It is apparent, though, that the pain is not confined to Hynix. Micron Technology reported over \$1 billion net loss combined for the last two quarters of 2008. The German chip manufacturer Qimonda and the Taiwanese semiconductor company Powerchip are in similar straits. Even the mighty Samsung Electronics and Toshiba are likely to report poor results. Only one thing is certain: 2009 will be a watershed year for the global semiconductor industry, especially memory chip manufacturers. The competitive landscape may look very different in the future. One hopes Hynix will emerge as one of the semiconductor company survivors.

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