Keio Business School

NIPPON MINIATURE BEARING CO., LTD. (A)

-- Growth Process through 1979 --

Establishment of Nippon Miniature Bearing Co., Ltd.

In July 1951, Mr. Goro Tominaga established Nippon Miniature Bearing Co., Ltd. (NMB) at Azukisawa, Itabashi Ward, Tokyo. The company was Japan's first miniature bearing company, and its capital was 1 million yen. When Japan Aircraft Servicing Co., Ltd. was established in July 1952, it invited Mr. Tominaga to join the board of directors. In 1952, Mr. Seiichiro Takahashi had founded Keiaisha Co., a scrap iron company, and had started business with Nissan Motor Co., Ltd. Through this relationship, Mr. Takahashi was requested by the president of Nissan Motor Co. to participate in NMB. This request was made at the suggestion of Mr. Ayukawa, the leader of the Nissan Group. In compliance with this request, Mr. Takahashi nominally assumed the presidency of NMB in August 1952, and extended financial assistance to the company.

The business expanded beyond the capacity of the Azukisawa plant, in Itabashi Ward in Tokyo. In 1956, therefore, the management decided to move the plant to Kawaguchi City, about 5 km north of Azukisawa. Mr. Tominaga continued to serve as the nominal president of NMB, while serving as a director of Japan Aircraft Servicing Co., Ltd. In April 1959, however, he decided to commit himself to Japan Aircraft Servicing Co., Ltd. as managing director, while retaining his position as an NMB director. In this situation, Mr. Seiichiro Takahashi had to find somebody to run day-to-day operations at NMB, and decided to entrust the management of NMB to his eldest son, Mr. Takami Takahashi.

Current President Takami Takahashi Joins NMB Management

Mr. Takami Takahashi was born in Tokyo in December 1928, the eldest son of Mr. Seiichiro Takahashi. He studied at the Economics Department of Keio University. He was chairman of the Keio University student council and cheerleader for baseball games of the Big Six Universities. Mr. Takahashi designed the Mickey Mouse sweaters of the Keio cheerleaders' uniforms, which were used by his successors for a long time. While studying at the University, he also displayed business talents in raising pigs and selling the oil that collected in the basement of a US Army mess-room, for soap-making.

This case was prepared in September 1985 by Associate Professor Sadahiko Suzuki at Keio Business School as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative problem.

In April 1951, after graduating from Keio University, he joined Kanebo, a blue-chip company. He was initially assigned to the personnel and labor relations department, and became the superintendent at the women's dormitory of the company's Hikone Works. He was appointed vice chairman of the labor union at the Hikone Works. In June 1954, he led the support movements in the human rights dispute at the Omi Silk Company.

In March 1959, Mr. Takami Takahashi, then 31 years old, left Kanebo after eight years' service and decided to join the management at NMB, which was still a small factory. At this time, NMB had capital of 15 million yen, monthly sales of 3 million yen, and 55 employees. Although his title was director, he was the nominal president. In 1955, prior to Mr. Takahashi's arrival, Mr. Seiichiro Takahashi merged his company, Shin-Eiwa Shoji Co., with NMB. Mr. Iwao Ishizuka, currently vice-president, was in charge of accounting at Shin-Eiwa Shoji Co. In June 1959, NMB increased its capitalization by 7.5 million yen, and constructed a new factory in Kawaguchi, moving the head office there.

In September 1959, Mr. Takami Takahashi went to the United States for market research. He visited Miniature Precision Bearings, Inc. (MPB), America's largest miniature bearing manufacturer at that time. He learned three important facts during his visit. First, he found that the bearing factory had excellent machines. However, he also found that these machines were not made by the company but were purchased from outside machinery manufacturers. This suggested to Mr. Takahashi that NMB could become competitive if it purchased similar machines. Soon after the second trip, therefore, he purchased a set of machines from Bryant Co., Ltd. Second, Mr. Takahashi noticed that many factories are located far from cities. He forecast that it would be necessary to move factories away from cities in Japan in the future because young labor was becoming scarce. Third, Mr. Takahashi saw the opportunities for future business in the American market.

Shortly after this visit, in September 1959, Mr. Takahashi became the managing director of NMB. In the same month, the president of MPB visited NMB and proposed capital participation in NMB. However, Mr. Takahashi did not want foreign capital but sought a technology transfer agreement. MPB insisted on an equity stake in NMB before any technology transfer. In September 1960, Mr. Takahashi went to the United States again and concluded a mutual sales agent contract with MPB. With this contract, NMB exported bearings to the United States for the first time. However, they only received one order from MPB (for 100,000 pieces) and had to find customers themselves. In November 1962, Mr. Takahashi sent his sales staff to New York, and instructed them to find new customers for direct sales. He himself made efforts to find customers directly. In 1964, Mr. Hidesato Ishikawa (current managing director), who had graduated from the Commerce Department of Keio University in the previous year, also joined in the sales efforts in the United States.

For almost 10 years after its establishment, NMB could not obtain satisfactory credit rating, and experienced difficulty in obtaining bank loans. During this period, therefore, NMB was greatly dependent on financial assistance from Keiaisha Co. and its better credit standing. Later, Mr. Ishizuka recalled that Keiaisha Co. had been the venture capital source for NMB in its early days. The first bank loan was obtained from The Sumitomo Bank, based on a guarantee from

Keiaisha Co. and a personal guarantee from Mr. Seiichiro Takahashi, the president. With these guarantees, NMB obtained other loans from The Long-Term Credit Bank of Japan, and The Mitsubishi Bank. In addition, because bearing production was in line with the national industrial policy, NMB received loans from the Small Business Finance Corporation under the Machine Industry Promotion Law.

Moving the Plant to Karuizawa

In July 1960, NMB increased its capital by 22.5 million yen to expand its plant facilities. In 1961, Mr. Takahashi found out that Nagano Prefecture, about 150 km north of Tokyo, was inviting factories. At that time, there were many rice paddies near the plant site at Kawaguchi City. Problems arose over pollution that would come from air conditioning cooling water. Labor shortages were also anticipated at the Kawaguchi plant.

Based on the results of foreign studies, therefore, Mr. Takahashi decided in April 1962 to build a plant in Karuizawa. It was the first plant invited to Nagano Prefecture under its promotion program. Through the prefectural government, NMB bought about 22,000 tsubo (approximately 18 acres) of land for 600 yen per tsubo (3.3 m^2). The plant site was about 22 times larger than that of the Kawaguchi plant (approximately 984 tsubo), but cost only about 2.5 times as much as its bank value.

NMB received loans from the Japan Development Bank under the Law to Promote Industry in Underdeveloped Areas. The loan terms did not require compensating balances, and thus the effective cost of the loans was very low. In addition, because a government financial institution had made a loan to NMB, city banks extended loans for working capital easily. Special depreciation was also permitted under the Industry Promotion Law. The Karuizawa plant started operation in March 1963. By that time, 250 million yen was invested in buildings (approximately 700 tsubo) and 166 million yen in machinery. These investments were financed with the 100 million yen of added capital and 340 million yen of loans. At that time, there were no other plants in the area, and local people had no experience in working on production lines. Thus, NMB worked to establish an on-the-job training system for workers.

In January 1962, NMB decided to integrate production and sales by absorbing a sales company. After that, exports began to increase gradually, reaching 13 million yen (5% of total sales) in September 1963. In January 1964, the end of the contract period, the mutual sales agent contract with MPB was terminated. In 1964, IBM started using NMB products. The escalation of bombing in the Vietnam war, which started in 1964, greatly increased NMB's exports to the United States. In fiscal 1963 (ending in September 1964), the import of machines was not as smooth as expected, and imbalance in the production capacity of various production lines became serious. Furthermore, rapid hiring of new workers lowered the overall level of skill and delayed production. Because of these combined factors, sales increased only 19% over the previous term. In addition, the company depreciated 200 million yen (49 million yen in fiscal 1962), more than 50% of the sales, to increase internal reserves and strengthen the international competitive power. As a result, the company plunged into the red and cut all dividends.

In April 1965, NMB was granted permission by the Japanese government to introduce the super-high-precision bearing manufacturing technology from SNFA of France on a five-year contract. According to the contract, NMB initially paid 50,000 dollars to use the technology and then paid a certain percentage of the net sales price as the royalty. Introduction of the technology greatly improved the precision of NMB products, contributing to export increase. In 1965, all the functions of the Kawaguchi plant were integrated and moved to the Karuizawa plant, and the Kawaguchi plant was closed. When integrating the production facilities, NMB established in the Karuizawa plant a support division, called the Tooling Division, to manufacture tools internally because one-micron precision was a must for the products. NMB made an initial investment of 1 billion yen in this new division.

In 1965, Mr. Takahashi instructed nine men to work in the office of C. Itoh & Co. (America) for sales activities to open a new market in the United States. In 1966, to open up a European market, Mr. Toshio Egawa (present managing director) was sent to the London office of C. Itoh & Co. He participated in sales activities together with Mr. Takahashi.

In April 1966, Mr. Takami Takahashi, at the age of 38, took over the post of president. After receiving an invitation in August 1966, he visited China to discuss the export of NMB's technologies to China. During this visit, he saw that China was very angry about America's aggression in North Vietnam and felt that the Vietnam war would last a long time. Before the visit to China, Mr. Takahashi forecast that the war would end early and had hesitated to increase plant investment. After returning from China, however, he purchased more machines to increase the production capacity. He also visited Moscow in the same year. Through these visits, NMB was able to start exports to China and the Soviet Union.

The great efforts on export to the U.S. market boosted the sales significantly in fiscal 1966. The Karuizawa plant could not be extended enough for the growth, and its operation rate exceeded 120%. NMB bought a helicopter (16.3 million yen) to link Tokyo and the Karuizawa plant. In October 1967, all the land and buildings of the Kawaguchi plant were sold for 73 million yen. Meanwhile, in September 1966, NMB established NMB Corporation in Los Angeles as a 100% subsidiary company for sales. Fourteen people were sent to the general agency for the U.S.-Canada area to consolidate the sales network. In October 1968, NMB concluded a sales tie-up with the Barden Corporation, one of America's three largest miniature bearing makers, hoping to weaken the movement for import restrictions in the United States.

Raising Funds from the Capital Market

In August 1968, NMB made its stock public by registering it as over-the-counter stock at the Tokyo Stock Exchange. The stock was listed on the Second Section of the Tokyo Stock Exchange when the Second Section was inaugurated in October the same year. This opened a way for NMB to raise funds from the capital market. In August 1962, NMB raised a total of 160 million yen by allotting about two million shares to registered shareholders at the par value (50 yen) and by issuing 0.2 million shares at the current price (issue price: 300 yen) on the market to adjust the fractional lot. During the seven-year period from 1963 to 1969, NMB issued the shares on a par value basis four times, raising 105 million yen in April 1963, approximately 158 million yen in June 1967, approximately 236 million yen in December 1963, and 354 million yen in July 1969.

Starting Manufacturing Business in the U.S.

As the export of NMB products to the United States grew, its market share increased. In the field of miniature bearings, NMB accounted for about 95% of total exports to the United States by Japanese makers. To check the inroads of NMB, the Antifriction Bearing Manufacturers Association (AFBMA) filed an action to the Emergency Action Bureau of the U.S. Government against the Japanese Association of Bearing Industry. NMB was accused of dumping in February the next year. However, the materials submitted at that time clarified that the NMB market share in the U.S. market increased from 1% or 2% in 1964 to 35% or 40% in 1969 for bearings with an outside diameter of 16 mm or less (Note). In April 1971, NMB was judged not guilty of the complaint filed to the Emergency Action Bureau or of the dumping complaint. The bureau took into account the fact that NMB raised the product prices by 30% or more during the preceding three years. However, the prices were slightly lower than those of bearings made by U.S. manufacturers. Since the NMB products were regarded as imports from a developing country, their prices had to be kept lower despite their high quality. The other main reason was that the service system supported mainly by the Japanese was not sufficient. Mr. Takahashi estimated that the sales activities by the Japanese would peak in the long run, and decided to adopt an American sales system with professional marketing ability. From 1971, NMB improved its service system to the level of U.S. manufacturers by greatly increasing the number of American salesmen. In the same year it also raised the product prices to the level of U.S. manufacturers. Mr. Takahashi visited Washington D.C. to confirm their real intention regarding the policy of the Department of Defense. In April 1971, however, despite these efforts, the Department of Defense announced that they would buy miniature bearings made in the United States or Canada only with a grace period of one year, for political reasons.

Note: The president of NHBB said, "Well, during the Vietnam war, our lead time went to 35 or 40 weeks. And the customers, of course, couldn't tolerate that. It was at that time that the Japanese, with their exquisite timing, came in and said, 'We can deliver those products off the shelf overnight. Moreover, our prices will be 30% less than you currently pay.' The offer was absolutely irresistible. When things in Vietnam subsided, we looked around and found that Japan had cornered about 40% of the market. It had happened virtually overnight."
<u>Forbes</u> (October 11, 1982) p.60

The decisions by the Department of Defense meant that NMB would be shut out from the market they had opened unless a manufacturing company was set up in the United States. Mr. Takahashi was concerned that it would take too long if land had to be purchased and then a factory constructed. According to plans, one year was necessary to construct the plant and at least one year after that for the start of operations. In addition, the estimated construction expenses were as high as 15 million dollars. Fortunately, however, Mr. Takahashi learned in July 1971 through the president of Barden Corporation that Reed Instrument Bearing, owned by SKF Industries of Sweden in Los Angeles, was on sale. Without any delay, Mr. Takahashi visited the headquarters of SKF America in Philadelphia in August 1971, and concluded a purchasing contract in two hours. He was worried that rival American companies might block the purchase if a rumor got out that NMB was trying to buy up the Reed plant. NMB bought the plant machines and inventory at a price of 1 million dollars, and established NMB America Inc. (capitalized at 1 million dollars) as the American subsidiary of NMB. Since the plant itself was a leased estate, the company took it over as it was. The expenses were paid by dollars raised from a local Japanese bank in September of that year. Since NMB paid back the loan to the bank after the Nixon Shock revaluated the Japanese yen, the effective purchasing expenses to the company decreased by about 10%.

Immediately after acquiring the plant in August 1971, Mr. Takahashi appointed Mr. Ishikawa, who had been a director of NMB Corp. since September 1968, to the post of director at NMB America. NMB assigned to this plant the production machines which NMB had ordered from American machine manufacturers for the planned Singapore project. In addition, NMB moved new machines from Karuizawa to improve the manufacturing facilities. These investments amounted to about 600 million yen. For the production, NMB took over 39 workers from SKF and dispatched 19 men from Japan for production guidance. The management of NMB America tried to raise its production goal to 150,000 pieces a month by September. At the same time, they trained seven key American employees in Japan. As a result, the monthly output of miniature bearings at NMB America reached 300,000 in June 1972 (the maximum annual output by SKF had been 1,800,000).

The first two presidents of NMB America were American and both were professional managers. However, since they were not familiar with the production method or technologies, they could not fully use the engineers sent from Japan or make the proper decisions. The plant had good "visible" facilities but the "invisible" part of plant operation, areas such as facility maintenance, operation checking system, repair function, and the operation manuals for the workers were insufficient. As a result, NMB America took more time than expected to start normal operations. The quality of bearings was not stable and the financial performance of NMB America deteriorated. NMB America had to reduce the number of employees to 180 by laying off 220, although there had been 400 employees for some time past. Toward the end of 1972, therefore, Mr. Takahashi asked Toshio Egawa, who had been the director in charge of managing the sales subsidiary in the U.K. since May 1972, to support NMB America by moving his residence to the U.S. Under these circumstances, NMB America started production of rod-end bearings and also bearings for gyros. The management also introduced the Karuizawa system (see Note on NMB (A)) to its American plant. In 1973, NMB America recruited 19 salesmen (including a top salesman from a rod-end bearing manufacturer) from American companies to promote sales of bearings and rod-end bearings. Because of these efforts, the performance of NMB America gradually recovered.

Introduction of Technologies

In February 1969, NMB bought the rod-end bearing manufacturing technology from Mr. Hovet and Mr. Mallott of America for a 10-year contract on condition that NMB would pay a fixed amount of money annually for five years and a royalty (at a fixed rate of net sales prices) from the sixth year. The rod-end bearing plant was completed in September 1971 and the first rod-end bearing production started.

In January 1970, NMB introduced the technologies for designing and manufacturing gears and gear assemblies from Micron Gear of America. The contract was for six years, with an initial payment of 38,000 dollars and a royalty of 3% of the product prices when shipped from the plant. In May 1972, a contract was concluded with Mr. Sawyer of the U.S. to receive technical assistance in designing and developing tape guide precision spindles for one year on condition that NMB would pay him a fixed sum of money every month. Based on the technologies introduced, NMB started the production of tape guides and gears in September 1972.

Movement into Singapore

In February 1972, NMB established NMB Singapore as a strategic low-cost production base, in contrast to NMB's U.S. operations, which had been established to protect the export market. When forming the company in Singapore, both Japan's Ministry of International Trade and Industry and the Economic Development Bureau of Singapore hoped for a joint venture. Mr. Takahashi felt, however, that a joint venture with Chinese businessmen seeking immediate profits would not succeed in the bearing manufacturing business. In addition, NMB was planning a production base for exports, and would not be dependent on local Chinese business for international marketing. Mr. Takahashi wanted wholly-owned status. He also considered it unreasonable to share the profits for Japan solely on the basis of the capital ratios, neglecting the intangible Japanese assets such as technological knowhow. Although the possibility of giving eight-year convertible bonds to the Singapore side was discussed during negotiations, the Singapore Government accepted Mr. Takahashi's proposal and permitted NMB to set up a 100%-owned subsidiary company.

Mr. Takahashi recognized the low labor costs, about one-sixth of those in Japan, and the favorable taxation system as the main advantages of going to Singapore. NMB Singapore was the first manufacturer of bearings in Singapore and was granted the status of a pioneer enterprise for five years until September 1978, based on the Economic Development Promotion Law. Because of this status, profits from several products were exempt from corporate tax. In addition, NMB Singapore qualified as an exporting company. With this qualification, even after pioneer company status expired, 90% of the profits from exported products were exempt from corporate tax for an extra three years, for a total of eight years. This was later extended to 10 years. In June 1972, NMB Singapore started construction of a plant (site area: 30,000 m^2; building area: 20,000 m^2) at a cost of about 1.8 billion yen. Approximately 1800 local workers were trained at the Karuizawa plant in preparation for the start of operations. Mr. Takahashi selected a young Singaporean from the NMB Corporation in the United States for the post of president at NMB Singapore. Some of the machines that had been contracted for Singapore were unexpectedly needed by NMB America, and sent there instead. As a result, production of miniature bearings started slightly behind schedule. In April 1973, however, production started at a pace of 200,000 pieces a month. The inauguration of NMB Singapore enabled NMB to set up an international logistics system in manufacturing operations for miniature bearings. In other words, NMB Singapore was set up as a base for producing standard bearings, which, according to the original plan, would increase the monthly output to 500,000 pieces. NMB America specialized in the production of bearings to be supplied mainly to the U.S. Department of Defense (with a monthly output of 300,000 pieces). The Karuizawa plant not only produced special high-precision bearings (with a monthly output of 1,700,000 pieces), but also functioned as the production coordination center for developing new products and providing production and technological guidance within the NMB group.

Acquisition of Companies in America

In 1972, NMB took more than 70% of the domestic market in the field of miniature bearings. It exported 60% of the total output of bearings. To diversify its markets, NMB expanded its exports to Europe (25% of the total export) and the Soviet Union (10%). With these efforts, NMB reduced the percentage of exports to the U.S. market from 85% to 60% of the total export quantity. Despite the relative decline of the export percentage, however, its foundation in America was firmer, and its high market share made Mr. Takahashi feel that NMB could not expect a great increase in the sales of bearings in the future. Mr. Takahashi thought that it would be difficult to expand the business simply by selling bearings. In expanding to other products, however, he believed that NMB should deal with components only because systems products would cost an enormous amount of money to develop and the risks were too big for NMB to bear.

In the latter half of the 1960s, Mr. Takahashi predicted that digital control would become an important feature in the field of electronics in the future. As part of the diversification program, therefore, he decided to develop precision motors. However, since the motor manufacturers were good bearings customers, business relations would deteriorate if NMB started producing motors. Therefore, NMB established Astrosyn with capital of 100 million yen to produce stepping motors. In developing the new products, however, they found it unexpectedly difficult to start business from the inside. After acquiring the Reed plant in the United States, Mr. Takahashi studied the diversification strategies of conglomerates such as Litton Industries, Textron, and ITT. The most important finding was that growth of these companies was supported by the strategy of acquiring other companies in different industries.

From this, Mr. Takahashi decided that it would be more effective to buy a company for diversifying the business of NMB. Based on this idea, NMB bought ITL Technology Corporation of California in October 1972. The company had sales of approximately 500 million yen equivalent and 500 employees. The company manufactured electronic equipment and artificial kidneys. At the same time, NMB bought ITL Singapore, which was a subsidiary of ITL and manufactured electronic parts, with 450 employees. Then in April 1973, NMB established a venture capital company named Japan International Technology (JIT) in Los Angeles, with capital of 25,000 dollars, to buy companies in the United States. All of the capital was invested by NMB, and Mr. H. Loveman, president of ITL, was nominated to the post of president. In December 1973, JIT purchased the convertible bonds of IMC Magnetics (listed on the American Stock Market in Wetbarry, New York), worth 2.1 million dollars, 200,000 shares after conversion. JIT purchased another 298,000 shares on the market, increasing its percentage to 57% of the company's shares outstanding. The company produced not only rotary components for cooling fans of computer mainframes, peripheral equipment, and aircraft computer equipment, but also small motors and magnetic clutches. In particular, the technology of building a synchro motor or stepping motor into a unit was very attractive. Sales were expected to reach 17 million dollars with profits of 800,000 dollars as of February 1974. The number of employees was 650, 50 more than NMB.

Meanwhile, NMB Corp, with sales of approximately 10 million dollars, merged with NMB America in 1973. In 1974, Mr. Egawa was moved to California to give more support to the plant while remaining a director of the subsidiary in the U.K. In February 1975, he was promoted to president of NMB Corp to achieve a better business showing. By this, Mr. Takahashi expected that NMB Corp. would be able to improve its own financing ability and to expand its business in the United States.

Issue of Shares at Market Price

The second point Mr. Takahashi learned from the strategies of American conglomerates was that these companies tried to increase their share prices, thus realizing advantageous stock exchange and financing.

In the Japanese stock market, when the full-fledged issue of shares at the market price started in 1969, it was regarded as an unusual method of issuing shares. Under these circumstances, it was difficult for small companies like NMB to issue their stocks at the market prices. However, Mr. Takahashi was reluctant to issue shares at par value. Instead, he wanted to find a way of issuing shares on the basis of prices of NMB stock quoted at the Tokyo Stock Exchange. Mr. Takahashi compromised on this matter and decided to combine a par-value based method and a market-value based method. In July 1970, NMB issued 5,320,000 shares at par and 1,422,000 shares at the market price (375 yen) for the first time, raising 800 million yen. In 1970, NMB granted shareholders 10% of the premium accrued from market-price issue as bonus stock (2.8 million shares). After experiencing the combination of methods, NMB started full-fledged issue at the market price. In May 1971, NMB issued 2.2 million shares at 340 yen per share, raising 750 million yen. In October the same year, NMB granted 10% bonus stock for the second time. However, since investors still felt reluctant to buy shares issued at the market price, even large-scale companies could not make such issues extensively. In December 1971, however, perceiving that the Japanese system allows the issue of stocks at the market price when they are first listed on the market, Mr. Takahashi issued 3.3 million shares at a price of 320 yen per share by listing NMB stock on the local stock exchanges in Osaka and Nagoya. Through these issues at the market price, NMB raised about 1.1 billion yen and repaid the bank loan which had been used to finance the Reed plant. However, it was difficult for NMB to issue further shares at the market price in Japan. In May 1972, therefore, Mr. Takahashi turned his eyes to foreign countries in May 1972 and issued Hong Kong depositary receipts (2.7 million shares) at a price of 390 yen per share. NMB was the first foreign company to issue HKDR in the Hong Kong market. Through this issue, NMB raised about 1.1 billion yen, and used it to finance part of the construction of the Singapore plant, which cost approximately 1.8 billion yen. In October 1972, NMB distributed 10% bonus stock to the shareholders for the third time.

Acquisition of Other Companies in Japan

In 1972, while issuing stock shares at the market price and buying the company in the U.S., Mr. Takahashi tried to purchase a Japanese company. As a diversification strategy, he was thinking of expanding the business line of NMB to include the components required in the aeronautical and computer fields. NMB selected Tokyo Keiki Co., Ltd., a major manufacturer of navigational instruments for ships and aircraft, and started buying up shares. To begin with, NMB purchased 10.53 million shares (29.4% of total shares issued) of Tokyo Keiki on the stock market. At the same time, NMB informed the chief shareholder, Sperryland, that NMB would not acquire more than 31.4% of the shares, the amount that Sperryland held. In addition, NMB requested Sperryland to accept an increase of shareholders by NMB so that the total shareholding of both companies would increase to at least 51%. NMB explained their action, stating that the present management of Tokyo Keiki would not be able to improve company growth much. However, the management of Tokyo Keiki and a major customer belonging to a Zaibatsu asked Sperryland not to cooperate with NMB, so Sperryland did not comply with NMB's request. Finally, NMB was unable to acquire Tokyo Keiki.

Stock Issue at Market Price and Company Growth

In December 1972, NMB again issued shares at the market price on the Japanese market. It issued 6.3 million shares issued at 850 yen per share, raising about 5.4 billion yen. In October 1973, it granted 10% bonus stock. Then in February 1974, NMB issued 5.4 million shares at 603 yen per share, raising approximately 3.3 billion yen. These repeated market-price stock issues were exceptional for a small listed company like NMB. Mr. Takahashi made the following comments on these stock issues from the viewpoint of corporate growth (Note 1):

I think corporate management is based on two factors. One is to make profits and the other is to maintain growth. A company which has a growth policy and realizes growth would need to issue stock shares at the market price to raise the necessary funds. Making good profits does not mean that you can issue stock shares at the market price. Dividends are naturally paid out of profits, but you cannot reward shareholders who bought shares at the market price by only giving them relatively smaller dividends. We must understand that NMB and other companies that issued shares at the market price are responsible for maintaining high growth.

In 1974, Mr. Ishizuka, the managing director (present vice-president), who was in charge of the financial management of NMB, added the following explanation:

To explain how NMB got the idea, we must go back to 1962. When a salesman of NMB visited Bendix Corporation to sell NMB products, he was told to show the financial statements of NMB. So we translated our financial statements and sent them to him immediately. Looking at the financial statements, the man at Bendix said, "I wouldn't be surprised if your company goes bankrupt in three days." Surprised at his comment, the salesman contacted me.

I wondered why the man had made such a comment and came up with the following reason. He must have determined that NMB was in a very bad financial position because many of the large number of loans were on a short-term basis while NMB's paid-in capital and internal accumulation was very low. I will try to explain why our financial statements appeared so bad. Firstly, we in Japan take out large short-term loans and roll them over to borrow on a long-term basis, thus reducing the loan interests. In this manner, the Japanese practice is different from the American.

Secondly, the small equity capital can be explained in the following way. Since half of the profits are deducted for taxes and the additional funds flow out of the company as dividends, it takes a lot of time to greatly increase the equity capital only through the accumulation of profits. Therefore, new or fast-growing companies cannot accumulate large amounts of equity funds inside the company. In the United States, however, even fast-growing companies gain sufficient equity capital. Examining their equity capital, I found that capital surplus accounts for a great percentage of it.

On studying the reason for the greater capital surplus, I found that the American ways of issuing shares are different from ours.

Note 1: Takami Takahashi, "Decisions and Execution", Keiei no Kokoro (Mind of Management) No.9, (Tokyo: Nikkan Kogyo Shinbun, 1973), p.26

In Japan, we issue shares by allotting them to shareholders at par. In the United States, however, they issue shares at the market price. Under the commercial code of Japan, we are allowed, in principle, to issue shares on a public placement basis and at market price. In practice, however, we allot shares to shareholders at par in most cases. In Japan, therefore, fast-growing companies cannot take advantage of high share prices in increasing their equity capital. The premiums obtainable from high stock price are retained by the shareholders and the companies cannot make effective use of them.

This financing practice does not pose many problems when the wages in Japanese companies are low and we are competitive cost-wise. However, I was afraid that this way of raising funds would negatively affect the competitive power of Japanese companies in the future.

In 1962, based on this idea, we offered a certain number of shares for public subscription under the pretext of fraction adjustment when we allotted shares to shareholders at par. This was very unpopular among shareholders. Despite this unfavorable response, however, I gained confidence that issuing shares at the market price is essential for a growing company while increasing its equity ratio.

A company can grow either by expanding the current business line or by diversifying into new business. However, expanding the market shares quickly with a single product causes trade friction. This makes diversification indispensable. I thought that the acquisition of companies was a good way of diversifying into new businesses quickly.

One of the major methods for a Japanese company to take over other companies is to send men in to a company in the red and rebuild the company by shelving old debts. However, since we acquire companies to expand NMB, we wish to acquire profitable companies so as to buy out both the sales and profits. We understand that this way of buying companies is possible in the United States. As of the early 1970s, however, it is extremely difficult to buy out profitable companies in Japan. Therefore, I feel it may take more time until American business practices can prevail in Japan. In other words, we will probably have to buy out unprofitable companies.

Acquisition of Companies in Japan

With this growth-oriented strategy, NMB continued to look for appropriate companies to buy in Japan. Finally, in 1974, NMB acquired its first Japanese company. In September 1974, NMB acquired 10% of the stock of Shinko Communication Industry Co., Ltd. (listed on the Second Section of the Tokyo Security Exchange and based in Zushi) through Wako Securities Co., Ltd. Shinko Communication Industry Co. was established in 1941 and mainly manufactures strain gages and other sensors. The company had 390 employees and the sales were about 280 million yen. However, since the business was showing a loss, they had a hard time in meeting the qualifications for listing on the Tokyo Stock Exchange. Thus, the company sounded out NMB on the issue of shares on a private placement basis. Mr. Takahashi became interested in the offer because sensors are applicable to a wide range of fields, including measuring instruments and computers. Mr. Takahashi decided to buy Shinko Communication Industry and expected it to be a foothold for diversification along the product line of parts - components - units.

Before acquiring the company, Mr. Takahashi prepared for the merger of Astrosyn, a sales subsidiary of electronic equipment and parts, and Shinko Communication Industry Co. At the time, Astrosyn had total sales of 1 billion yen, and income after tax of 27 million yen. Until then, Mr. Takahashi had been thinking of expanding the financing routes by listing Astrosyn directly on the Tokyo Stock Exchange. However, NMB encountered difficulties in the management of Astrosyn and the listing criteria of the Tokyo Stock Exchange became strict. As a result, the listing of Astrosyn did not materialize. Mr. Takahashi decided to list Astrosyn nominally by merging it with Shinko Communication Industry Co. In April 1975, NMB merged Astrosyn with Shinko Communication Industry Co. and acquired 57% of Shinko's stock. At the same time, it increased the capital of Shinko to 503 million yen to clear the minimum listing requirement of 500 million yen set by the Tokyo Stock Exchange. Through this merger, NMB separated the mechanical parts division to make an independent company, and, through the nominal listing, expanded the financing routes for further development of the division (Note).

Acquisition of Companies through Stock Exchange

Mr. Takahashi was thinking of buying more companies in Japan. In April 1975, Mr. Osamu Hanamura of The Nikko Securities Co., Ltd., asked Mr. Takahashi to let him join NMB, Mr. Takahashi employed him and gave him the task of buying Tokyo Screw Co., Ltd., which Mr. Takahashi had wished to do for some time. Tokyo Screw was owned by Mr. Motoichi Tohyama, former advisor to Nikko Securities. Mr. Takahashi was very interested in the company because their screw technologies were very similar to bearing technologies, and especially, screws are close to rod-end bearings from the technological viewpoint. In addition, many of their customers were in the aircraft industry, Mr. Takahashi proposed to purchase the company at an exchange ratio of 1 to 5 at the beginning of 1970. However, since Mr. Tohyama insisted on a ratio of 3 to 1, the negotiations were discontinued. Mr. Hanamura was the managing director of Nikko Securities, and guided the NMB party to the start of negotiations.

Mr. Motoichi Tohyama died later and his son Kazuyuki resumed the negotiations. In September 1975, NMB purchased Tokyo Screw Co., Ltd. (listed on the Second Section of the Tokyo Stock Exchange and based in Chiyoda Ward, Tokyo) with a total value of 1.9 billion yen, and acquired 50.9% of its stock. Tokyo Screw (established in 1898) is a major manufacturer of precision screws mainly for aircraft and automobiles. The company had a market share of about three-fourths in the field of screws for aircraft and employed about 650 people.

Note: Today, when a non-listed company merges a listed one, a strict inspection is performed as for listing, making this kind of merger now difficult.

Together with Tokyo Screw, NMB bought Shin Chuo Kogyo Co., Ltd. (listed on the Second Section of the Tokyo Stock Exchange, and based in Ota Ward, Tokyo, for 2.3 billion yen), acquiring 51.2% of its stock. The company was established by the Okura Zaibatsu in 1928. After World War II, the company manufactured equipment such as aircraft, armaments such as bomb racks and rocket bomb ejector racks, and pistols for the Defense Agency under a license from the Ministry of International Trade and Industry, issued under the Arms Manufacturing Law. At the time of the purchase, there were about 430 employees. In addition, Shin Chuo Kogyo began to manufacture civilian goods such as electromagnetic clutches and brakes through a technical tie-up with Stromag Co., Ltd. of West Germany and was also engaged in production of motors, automatic controllers, and hydraulic equipment.

The two companies that were bought in 1975 were running at a loss and paid no dividends. The major shareholder of the companies was the Tohyama family. NMB exchanged their stock with the family at ratios of 1 to 6 with Tokyo Screw and 1 to 7 with Shin Chuo Kogyo and obtained control over the companies. However, since the commercial code of Japan does not allow a company to keep its own stock, the NMB stock owned by Takahashi Shokai (66% owned by Mr. Takahashi) was used for the exchange and NMB purchased the stock of the companies from Takahashi Shokai. Mr. Takahashi was planning to improve the financial performance of Tokyo Screw and Shin Chuo Kogyo so that they would be able to issue their stock at the market price.

Restructuring of Acquired Companies

To restructure acquired subsidiaries and affiliated companies, Mr. Takahashi said, "A manufacturer must have good product lines with high quality, but high quality cannot be achieved simply by making efforts. That's why we concluded technical tie-ups with other companies. If we worry too much about financial deficits and do not do much development, the problem becomes worse. Therefore, deficits may be unavoidable during the process of restructuring production lines." However, Mr. Takahashi wanted to restructure the companies with minimum pressure on the financing activities of NMB.

To begin with, Mr. Takahashi moved the production division of Shinko Communication Industry for standard products to the Karuizawa plant. In addition, he transferred the labor-intensive manufacturing division of strain gages to the Singapore factory, and the Zushi factory specialized in the production of custom-made products and development. Meanwhile, in June 1975, NMB concluded a technical tie-up with DDC, the largest synchro-converter manufacturer in the U.S. to improve the semiconductor technologies and to promote the production of control systems by introducing hybrid and converter technologies. In addition, NMB introduced the strain gage transducer. In August 1975, it also introduced load cell technologies from BLH Electronics, and trained 30 employees in the United States.

In June 1975, Shinko Communication Industry Co. separated the sales division to set up Shinko Sales Company and to unify the sales of measuring instruments and motors that had been taken over as a result of the Astrosyn merger. In the same month, NMB concluded a sales agent contract with Shinko Communication Industry to support sales of the company's products with a commission of 3%. Then in December 1977, the plant completed in Karuizawa (approximately 5000 m^2) was leased from NMB and the production function and head office were integrated there. The head office and the factory in Zushi, which became unnecessary under the new production system, were sold to raise funds.

As for Shin Chuo Kogyo, which was manufacturing and supplying special OA equipment on a small scale, NMB decided to restructure the company so as to produce small but steady profits.

First, NMB integrated the motor equipment sections operated by Astrosyn and the electric appliance division of Shin Chuo Kogyo. The electric appliance division remained the only pistol manufacturer in Japan and continued to supply the Defense Agency and the Police Agency. Mr. Takahashi attributed the low profitability of Shin Chuo Industry to the overstaffed, pro-communist, non-cooperative trade union. To solve the problem, he cut the number of personnel drastically. In addition, he rationalized the manufacture of clutches for civilian use by introducing technologies from Stromag. Furthermore, NMB entrusted production of artificial kidneys to Shin Chuo Kogyo to help the restructuring of the company.

In Tokyo Screw, Mr. Takahashi dismissed about 220 employees in a year, thus reducing personnel expenses by about 600 million yen. This was as drastic as the personnel reduction in Shin Chuo Kogyo. In 1976, Tokyo Screw opened in Karuizawa and transferred part of the production system there to establish a mass-production system for precision screws. In June 1977, NMB established Nishi-Nippon Screw Ltd. and constructed an automated factory to produce standard screws mainly for the automobile industry of western Japan, including Toyo Kogyo Co., Ltd. Shin Chuo Kogyo sold out some assets which became unnecessary due to the restructuring.

Meanwhile, NMB recovered part of the money used for the acquisition of the companies by selling part of the Karuizawa plant site to the acquired companies and appropriated the money for repayment of bank loans. In 1976 and 1977, NMB reduced its ratio of Tokyo Screw's shares from 79% to 50.4% by selling 4.3 million shares, and collected most of the invested funds. In addition, NMB decided to produce the exterior rings of bearings not only by the conventional machine processing method but also by forging based on the technology of Tokyo Screw. At first, NMB produced exterior rings with an outer diameter of 22 mm. Later improvements, however, made it possible to produce ones with 8 mm outer diameters.

In 1976, NMB established Nippon Engineering Co. as a wholly-owned subsidiary company to develop computer peripheral technologies and to educate engineers. Through a tie-up with Computer Products Co., the new company started selling interfaces with popular computers in Japan. Nippon Engineering Co. developed the pressure distribution measuring instruments in cooperation with Shinko Communication Industry Co. The new products were adopted by Nissan Motor Co., Ltd. and some other automobile makers.

In February 1977, NMB bought 27.8% of the shares of Osaka Motor Wheel Co., Ltd., listed on the Second Section of the Osaka Security Exchange, from a third party for 1.5 billion yen. The number of employees at that time was about 510. Before acquiring the company, NMB obtained approval from Sumitomo Bank, the main bank of Osaka Motor Wheel, and Toyo Kogyo, the main customer. Then NMB obtained the stock on a third-party allotting basis to raise its shareholding ratio to 47.7%. After the completion of the deal, NMB introduced up-to-date facilities to Osaka Motor Wheel Factory, and dismissed 100 employees.

In these ways, NMB was striving to restructure the subsidiaries and affiliated companies. Unlike in the United States, however, consolidated tax payments were not allowed in Japan. Because of this, the managing director, Mr. Ishizuka, stated that the acquisition of deficit companies or ventures would be a great burden on NMB.

Suspension of Market-price Issues Due to Deteriorating Financial Performance

NMB had repeated the issue of shares at the market price five times since 1971. In return, however, the shares distributed free to shareholders amounted to only 7% of the shares issued. Under the voluntary regulation in the security industry enacted in October 1973, it was necessary for NMB to increase the ratio of free distribution if it wished to issue more shares at the market price. In addition, it was desirable to increase the number of individual shareholders for smooth issue at the market price. Especially, NMB wanted to raise the percentage of shares held by individuals (each holding less than 5000 shares) from about 14% (September 1973) to 30% or more. In October 1974 and October 1975, therefore, NMB granted 20% bonus stock to shareholders. After this preparation, NMB was planning the next stock issue at the market price. On March 5, 1976, however, NMB had to suspend the plan of offering 9 million shares on a public subscription basis because the Ministry of Finance pointed out incorrect accounting procedures in the registration statement submitted by NMB (Note). Originally, NMB was planning to repay the bank loan by raising about 4.5 billion yen. Since the plan was suspended, however, NMB had to bear a larger interest burden than originally planned.

After the cancellation of the stock issue, the stock price dropped quickly. At one time, it fell below the 500 yen level. In October 1976, to overcome this situation, NMB Singapore raised 12 million dollars for NMB by issuing notes with an issue price of $99.5 and an interest rate of 8.5% with guarantees by NMB and Tokai Bank.

Note: The Ministry of Finance pointed out the following:

(1) Production by the U.S. subsidiaries was recorded in both procurement and sales. However, since the products from the U.S. subsidiaries were sold directly to the local sales companies, only the balance between the sales price and the procurement price should have been added to the profits.

(2) The long-term credits and debts in foreign currencies were translated at the end of each accounting term, but the exchange rate at the time of transactions should have been used. These corrections decreased the sales from 12.5 billion yen to 11.8 billion yen and slightly increased the current term net profits from 1.46 billion yen to 1.48 billion yen in fiscal 1975.

The profit before extraordinary profits and losses of NMB in fiscal 1975 fell to 167 million yen, which was about one-tenth of the 1.709 billion yen in fiscal 1974. NMB financial performance worsened because it had acquired many underperforming companies and expanded the business in Singapore too quickly. Coupled with these, orders dropped sharply due to the oil crisis. In fiscal 1976, NMB reported a deficit before extraordinary profits and losses for the first time since the company was listed on the stock market. As a result, NMB slashed dividends to 2.50 yen. Reflecting the worsening financial records, the stock price plunged to around 200 yen in 1977. In the securities industry, it was believed that NMB had been attractive to investors because of its acquisition strategy. Some people thought, however, that the declared loss would make investors skeptical about the NMB strategy and estrange them from NMB. It took several years for NMB to recover the confidence of investors in the acquisition strategy.

Assistance to Subsidiaries and Affiliated Companies and Recovery of Invested Funds

The bad financial performance of NMB was attributable to the oil crisis, expansion of production at NMB Singapore, and an increase in the financial burden on the parent company for restructuring the acquired subsidiaries and affiliated companies.

In 1976, the NMB management adopted the idea that the parents must sacrifice themselves to some extent until their children grow up. Mr. Takahashi thought it important to increase the combined profits of subsidiaries and affiliated companies to meet the rising importance of consolidated figures in evaluating companies, rather than manipulating the non-consolidated accounting figures of NMB alone. Mr. Takahashi continued to emphasize the importance of acquiring other companies and said, "If the age comes when consolidated figures are considered important, the approach to evaluating companies will change. That is, people will judge a company on its annual sales and earnings per share. The management will have to recognize the significance of the role of shareholders. The rights of the leading shareholders, which have been more or less neglected so far, will come to the fore. Under these circumstances, consolidated figures will be more important than an unconsolidated settlement for the acquisition of companies."

Towards the end of 1977, Mr. Takahashi further elaborated on his view, and said that NMB would give a lot of consideration to the speed of recovery of investing funds when acquiring companies in the future.

> "So far, we have been able to acquire stagnated companies successively because it was a period of transition to the system of consolidated accounting. However, if a company buys up low-performance companies and becomes overloaded by them, the company may also be dragged down with its business achievements falling very quickly not only on an unconsolidated basis but also on a consolidated basis. When buying a low-performance company, the timing and method of its restructuring must be considered with the financial performance of the parent company. It is very difficult to recover the funds used for acquisition and restructuring only from the income of the companies concerned.

In acquiring companies, therefore, we would like to obtain 76% or more of the stock when buying a company. After acquisition, we can gain control over the board of directors and transfer the right of management to NMB. Once the right of management comes into hand, there is no problem even if the NMB shareholding percentage drops to 51% or further to 30%. After the acquisition, therefore, we will make efforts to raise the share price. Through the sale of shares, we recover some of the funds invested for acquisition and restructuring."

One company NMB invested in at great expense was NMB Singapore. NMB was recouping the invested funds using several methods. Since NMB Singapore gradually started making profits, NMB could recoup part of the investment through dividend payments of approximately 450 million yen each in 1975 and 1976. Then in fiscal 1977, the dividend was increased by about 100 million yen to approximately 550 million yen, which was paid to NMB to improve the worsening net profits of NMB. Because NMB Singapore was approved as a pioneer enterprise and a tax agreement was concluded between Japan and Singapore, the exempted taxes were treated as having been paid, thus preventing double taxation. As a result, no tax was imposed on the dividend in Japan. The second method to recoup funds was to record all sales as those of NMB. NMB sold all the products made in Singapore through NMB's sales networks in Europe and America. Therefore, NMB recorded the sales of NMB Singapore in the books of NMB. Regarding this, Mr. Ishizuka, the executive manager director, made the following comment:

> Our products made in foreign countries are sold through NMB's worldwide sales network. In other words, NMB has the right to sell the products. The products are delivered directly to their destinations and the sales are settled by NMB in Japan.

About NMB Singapore, he made the following comment:

> NMB Singapore is very profitable. Once the company consolidates its base in Singapore, NMB may sell its shares to local investors so that NMB Singapore can become an independent local corporation both in name and reality. This will contribute to the development of Singapore. At the same time, the sale of the shares will give NMB an opportunity to recoup the invested funds. In the future, we may list the shares of NMB Singapore on the Singapore Stock Exchange. An appropriate time for such a listing may be just before the tax exemption period expires. Local people will be pleased if we firm up the operations of the company using the benefits of the taxation system and then localize it.

Acquisition of Small Companies

Mr. Takahashi was planning to improve the performance of each acquired company as soon as possible, and to increase the sales of each company to 10 billion yen. He planned to acquire companies that would help the recovery of the acquired companies. To put this strategy into practice, he was searching for unlisted companies with capital of 100 to 200 million yen.

In April 1978, NMB acquired 60% of the Tokyo-based Hokuto Onkyo Corporation, capitalized at 280 million yen, through a stock exchange at a ratio of 1 to 3. At that time, Hokuto was the second largest manufacturer of loudspeakers in Japan. In the fiscal year ending March 1978, sales were about 5.7 billion yen (about 7.4 billion yen in 1977) with a deficit of 30 million yen and no dividend paid. Hokuto had three factories in Iwate Prefecture (in northern Japan). While still negotiating the acquisition, NMB started preparation for shifting part of the speaker production line to Singapore.

In May, one month after acquisition of the company, NMB transferred the production line to Singapore. Three out of seven domestic factories were closed and the number of employees reduced from 800 to 600 while restructuring the company. NMB also corrected excessive export orientation (export ratio: 70%) of Hokuto, and made efforts to expand a new domestic market. In addition, NMB transformed the Ibaragi factory of Hokuto for mass production of motors. With the acquisition of Hokuto Onkyo, NMB also took over its Taiwan factory.

In April 1978, NMB paid 350 million yen for all the stock of Hata Radio Co., Ltd., which was capitalized at 55 million yen and based in Kawaguchi City, in Saitama Prefecture. The sales in the fiscal year ending February 1978 were 2.1 billion yen, down from 2.47 billion yen in the same period of 1977. The profit before extraordinary items was 60 million yen (down from 110 million yen in 1977), with 15% dividend. The factories were located in Iwate and Akita Prefectures and the employees numbered about 300. Hata Radio was manufacturing hard mold transformers, while NMB had the technology for a plastic mold. Here, too, NMB transferred part of the transformer production lines to Singapore. NMB sold all the products of the two companies through its accounts.

Acquisition of Overseas Companies

In 1977, Mr. Takahashi was convinced that the stability of companies was becoming more and more important in the United States. He thought that the scale of the company should exceed a certain level to achieve this stability. Therefore, he hoped to form a profitable company in the United States with sales exceeding 60 million dollars. He thought that if he bought another company of a scale equal to that of IMC Magnetics (sales of 21 million dollars), it would be easy to raise funds in the capital market because underwriters are expected to arrange the financing. Therefore, Mr. Takahashi wanted IMC Magnetics to acquire other companies with the funds invested by NMB. Accordingly, in February 1977, IMC Magnetics acquired Hansen Manufacturing Co., Ltd. for 4.5 million dollars. The company's Princeton factory in Indiana had a building area of about 5000 m^2 and employed about 350 people. The company was the motor business division of Mallory, and manufactured historical motors with a share of 40% in the U.S. market. In fiscal 1976, the company recorded 8.6 million dollars in sales and 1.94 million dollars in net income. At the beginning of 1980, IMC Magnetics acquired AK Fans of the United Kingdom. In the meantime, in 1977, NMB had also established a sales subsidiary in West Germany.

Expansion of Business in Singapore

The sales of NMB Singapore grew steadily from the lowest level reached soon after the oil crisis. The production of miniature bearings surpassed that of the Karuizawa plant in 1978. Although the Karuizawa plant had a production capacity of 1.8 million bearings per month, the actual production had been reduced to 1 million. NMB shifted its main production base to Singapore. Besides miniature bearings, NMB Singapore started manufacturing stepping motors, strain gages, transformers, calculators, and small printers on behalf of the acquired companies in Japan and United States. In transferring the manufacture of products other than bearings to Singapore, NMB trained the workers employed in Singapore in Japan. At the same time, engineers and workers from the Karuizawa plant and its subsidiaries and affiliated plants frequently visited Singapore to provide technical guidance. Because of overseas assignments, a quarter of the people working at the Karuizawa plant experienced overseas factories. At NMB Singapore, the general manager managed the overall operation. However, young engineers around 30 years old were responsible for manufacturing products. Most of the engineers and workers dispatched from Japan were machine operators in their twenties. The line managers were responsible for solving production problems at the different plants. The financial and other control divisions were managed by the NMB head office.

In Singapore, the NMB plants were located at different places because production of the various products had started at different times. In addition to the bearing plant in Chai Chee District, the press plant was located in Jurong Town, and floors in several high-rise buildings located in the industrial park at Kallang District were leased. Therefore, NMB decided to integrate the plants scattered around Singapore and construct a new plant (total building area about 18,000 m^2) in Chai Chee District so that the different plants could be combined into the main plant for the entire NMB group. The construction work started immediately after receiving permission from the Singapore government. The factory was completed at the end of 1980 and ready to start production in early 1981. It was planned to assign almost all mass-produced items to Singapore after completion of the factory. The revaluation of the yen during this period made the products exported from Japan expensive. Therefore, Mr. Takahashi decided to increase the local production to take full advantage of the revalued yen. However, the funds NMB had to invest for this purpose were estimated to reach 9 billion yen.

Improvement in Performance of Subsidiaries and Affiliated Companies

In April 1979, Shinko Communication Industry Co. obtained 1.5 billion yen by allocating a total of 4 million shares at 375 yen per share to NMB (1 million shares), Shin Chuo Kogyo (1 million shares), Tokyo Screw (1 million shares), Keiaisha (0.5 million shares), and Mr. Takahashi (0.5 million shares). The company used part of the funds to improve its financial structure, and part of the funds to undertake the capital increase of 55 million yen made by Doboku Keisan Center, which was capitalized at 45 million yen and based in Yokohama City.

The company increased its share holdings to 65%, combined with shares worth about 10 million yen already owned. The company was the second largest manufacturer of measuring equipment for the construction industry in Japan. In the same month, the company established Matsukawa Seiki Co., Ltd. to manufacture special motors for railroad crossings, septic tanks, and the production of steel-plate stepping motors. In the autumn of 1979, the company started production and sale of a very low priced and small load cell, a measuring unit for commercial use that was developed by BLH Electronics. Shinko Communication Industry decided to develop the load cell as its main product for the future. In addition, with the appearance of floppy disk drives in the market, an explosive increase of demand was expected for Shinko's stepping motors. To meet this situation, the company restructured the mass-production system and increased the internal manufacturing ratio of motor parts to about 80%.

In March 1979, Osaka Motor Wheel Co., Ltd. acquired an idle subsidiary of a bowling machine maker located in Hiroshima, for approximately 700 million yen. After the acquisition, the company changed the name of the acquired company to Nishi-Nippon Kogyo, and established a base for manufacturing products for Toyo Kogyo. Osaka Motor Wheel transferred the majority of the facilities at the Osaka factory to the acquired company, and modernized the factory for wheels and casings with an investment of about 3 billion yen. The rationalization increased the number of wheels and casings supplied to Toyo Kogyo.

In the meantime, NMB transferred 110,000 shares of Hata Radio worth approximately 351 million yen that it owned to Shin Chuo Kogyo, whose combined holdings of shares of Hata Radio increased to approximately 366 million yen.

Acquisition of Listed Companies

To increase the self-sufficiency ratio for production, NMB felt the need to establish a die-cast department in its plant. In particular, the need to internalize the manufacture of components was rising for stepping motors, the production of which was increasing in Singapore. In August, 1979, therefore, NMB purchased 3.99 million shares of Teikoku Die Casting Industry Co., Ltd., which was listed in the Second Section of Osaka Stock Exchange and based in Matsubara City, Osaka. NMB acquired the shares from the main shareholder, Nippon Soda, for 720 million yen. Teikoku Die Casting manufactured aluminum die casts, with about 230 employees. The company had business relations with major companies such as Honda Motor Co., Ltd., Sanyo Electric Co., Ltd., and Kubota Ltd., and had about 230 employees. In October 1979, NMB transferred the shares it owned to NMB Singapore. In October the same year, Teikoku Die Casting issued 3.9 million more shares and allocated them to third parties to meet the listing standard (minimum capital: 500 million yen). NMB subscribed to 2,511,600 shares and Keiaisha Co. (capitalized at 145 million yen) to 1,388,400 shares. With this subscription, NMB owned about 60% of the shares of Teikoku Die Casting. After the acquisition of the shares, NMB constructed a die casting plant as a base for customers in eastern Japan. The plant adopted a 24-hour working system with support from NMB's Karuizawa plant.

In September 1979, NMB subscribed to 10 million shares of Kanemori Corporation on a third-party allotment basis, at a price of 280 yen per share, upon request from the company. At the time, Kanemori was based in Meguro, Tokyo, and listed in the Second Section of the Tokyo Stock Exchange. Mr. Takahashi became interested in the direct sales method used by Kanemori but did not want to let the funds lie idle. If shares were acquired from the main shareholders, the funds would flow out of the NMB group. Therefore, NMB decided to adopt the third-party allotment method to keep the funds within the group. Kanemori was selling clothes and bedding from door to door and had 2,170 employees. The company was the first non-manufacturing, profitable company that NMB had bought. Kanemori had net worth of about 9 billion yen with no bank loans. Thus, Mr. Takahashi was thinking of using it as a venture capital company or a financing company for the NMB group.

Recovery of Financial Performance

Towards the end of 1978, the performance of NMB began to recover. The subsidiaries and affiliated companies listed, with the exception of Teikoku Die Casting, went into the black. In particular, Tokyo Screw enjoyed a high demand for screws from the automobile industry and increased the sales of profitable screws for aircraft. Shin Chuo Kogyo, supported by a growth in demand for defense equipment such as components for anti-submarine aircraft and pistols, and electrical equipment such as system control equipment for machine tools, steadily increased the sales. Shinko Communication Industry also cleared the deficit brought over and became a completely profitable company supported by the sales growth of motors for OA equipment. The company resumed dividends. Hokuto Onkyo recovered from the last deficit (30 million yen) operation in fiscal 1978, and made slight profits in 1979, because of the expanded production of car stereos. Considering such a quick recovery, the executive managing director, Mr. Abe, of Hokuto Onkyo said, "We hope to resume dividends in fiscal 1980." Some of the sales companies, including Shinko in charge of selling Shinko Communication Industry's products, were slightly in the red but their losses were getting small.

One of the factors behind the recovery was that the mass-production system was almost complete at the Singapore plant. In other words, since the Singapore plant went into full operation, it became possible to reduce the prices of products that NMB and its subsidiaries and affiliated companies purchased from Singapore. This helped the domestic companies reduce the cost/price ratios. The reduction in the prices of bearings purchased from NMB Singapore made a great contribution to NMB's recovery. The bearing purchase prices decreased markedly, especially from 1978. The average price of bearings NMB purchased from NMB Singapore dropped to 169 yen in fiscal 1978 and to 107 yen in fiscal 1979.

Adjustment of Sales Accounting Method

Mr. Takahashi started thinking of creating a system where the performance of the affiliated companies would contribute not only to the consolidated accounts but also to the non-consolidated base of NMB itself. In August 1979, therefore, NMB concluded a contract for sole sales agent with Tokyo Screw and Shin Chuo Kogyo in the same way as already established with Shinko Communication Industry. Because of this adjustment, most of the sales of Tokyo Screw and Shin Chuo Kogyo could be added to the sales of NMB so that part of their income would be combined to the income of NMB. In particular, the defense-related sales were expected to increase greatly from about 1.4 billion yen in fiscal 1979 to about 9.9 billion yen in fiscal 1980, with approximately 6.1 billion yen coming from the transactions with the Defense Agency.

In September 1979, NMB separated the sales divisions of five subsidiaries and established five independent sales companies: Tora Sales Co. Ltd. (from Tokyo Screw), Shin Chuo Sales Co., Ltd. (from Shin Chuo Kogyo), Dairin Sales Co., Ltd. (from Osaka Motor Wheel), Hokuto Onkyo Sales Co., Ltd. (from Hokuto Onkyo), and Hata Radio Sales Co., Ltd. (from Hata Radio). They were capitalized at 30 million yen except for Hata Radio Sales Co., Ltd., whose paid-in capital was 3 million yen. The capital was invested by NMB and their respective manufacturing subsidiary or affiliated company. In October 1979, the sole sales agent contract was concluded with Hokuto Onkyo and Hata Radio. The new sales system which started in October 1979 also allowed NMB to receive margins by recording the sales of the sales companies in the NMB accounting. By this adjustment of the sales procedures, it became possible for NMB to make profits without consolidating the subsidiaries or their affiliated companies.

Raising Funds in the Capital Market

When the performance of NMB deteriorated, NMB had to stop the issue of shares on a market-price basis at for three years from 1975. In 1979, after the recovery, however, NMB resumed the issue of shares on a market-price basis. NMB raised funds twice in the overseas market without any collateral. Specifically, in February 1979, NMB offered an unsecured convertible bond worth 30 million Deutsche Marks (conversion price: 657 yen; exchange rate: 108.27 yen) on a private placement basis. The conversion period was seven years and seven months, and the interest rate was 4%. This was an "out-out" bond which required that the funds be used outside Japan. In fact, NMB used these funds for the investment in Singapore. In September 1979, NMB issued an unsecured convertible bond worth 40 million Swiss francs (conversion price: 712 yen; exchange rate: 135.71 yen) with a conversion period of five years and an interest rate of 4.75%.

Business Development in Singapore and Taiwan

In 1979, NMB established Precision Watchcase (Pte.) Ltd. in Jurong Town in Singapore. This was a joint venture with SSIH of Switzerland to manufacture watch cases. SSIH was a holding company of the manufacturer of Omega and Tissot watches. It was planned to sell the products made in Singapore to the SSIH group. In the autumn of 1979, NMB decided to buy the Singapore subsidiary (capitalized at about 600 million yen) of Koyo Seiko Co., Ltd. Koyo Seiko put this factory on sale because of the company's financial crisis. The sales of the subsidiary company were about 1 billion yen but its deficit was 500 million yen. At the time, Koyo Seiko ranked third in Japan's bearing manufacturing industry. In early 1980, NMB decided to establish Pelmec Industries (Pte.) Ltd. in Singapore and to acquire Koyo Singapore Industry to create a mass-production system for instrument ball bearings.

NMB already owned the Taiwan factory of Hokuto Onkyo. In 1980, NMB was planning to establish Taiwan Minebea in Kaohsiung and absorb Hokuto Onkyo's factory into this. NMB planned to strengthen the manufacturing capacity of the Taiwan factory and its exports to the U.S. market.

NMB in Late 1979

Since the purchase of the Reed plant in the United States in 1972, NMB has been promoting diversification mainly by acquiring companies inside and outside Japan. Because of these diversification efforts, the sales of the NMB Corporation increased after a period of stagnation, and reached 23 million dollars in 1979. The production base in Singapore was also enlarged. For diversification of products and the internationalization of production, the strengthened support function of the Karuizawa plant contributed greatly to improving the in-house capability of component manufacture at each production base.

The financial performance remained low after the oil crisis. However, the management of NMB were confident that the company would take off. In fiscal 1979, NMB recorded sales of about 27 billion yen, about 12 times higher than those of 12 years before. On a consolidated basis, the sales were about 53 billion yen. That is, the sales increased by about 24 times during a 10-year period. The sales by product for fiscal 1979 and percentage of total sales on a consolidated basis were as follows:

Bearings	13.056 billion yen	(25%)
Electronic devices	16.070 billion yen	(30%)
Screws and fasteners	10.950 billion yen	(21%)
Loudspeakers	5.472 billion yen	(10%)
Measuring instruments	2.679 billion yen	(5%)
Mechanical parts	1.060 billion yen	(2%)
Other	3.700 billion yen	(7%)

The electronic devices division manufactured stepping and synchro motors (14% of electronic devices; 68% including electromagnetic motors), calculators (14%), and electromagnetic clutches (4%). The division became the largest in NMB. Bearings, which were still the largest item on an individual product basis, had annual sales by area and monthly production volume (at the end of 1979) on a consolidated basis as follows:

	Annual sales volume	Monthly production volume
Japan	34 million pieces	1.1 million pieces
Singapore	--	4.4 million pieces
U.S.A.	14 million pieces	0.3 million pieces
Europe	9 million pieces	

The production volume in Singapore increased greatly to 4.4 million per month during the last year. Reflecting the above sales and production system, the number of employees by area are as shown in the following table. In particular, since Singapore was a major production center, the number of employees was the largest.

NMB (including staff temporarily transferred overseas)	1,200
Singapore	3,400
U.S.A.	1,300
Europe	50

Meanwhile, Mr. Takahashi adopted the policy of actively acquiring companies to promote corporate growth both inside and outside Japan. He emphasized that the following are important criteria for corporate acquisition.

1. Companies in the electro-mechanical field

2. Companies related to composite industries such as the automobile industry

3. Companies that can be expanded to other countries

4. Companies of small capital with a small number of stable shareholders

5. Companies clearly not belonging to major corporate groups

6. Promising but currently weak companies due to poor management, despite technological potential and commodity share

The basics in developing and manufacturing new products were in superior manufacturing technologies. Mr. Takahashi said "We have almost completed the hardware part of manufacturing and will be able to manufacture any product." With this superior hardware basis, Mr. Takahashi was planning to manufacture high value-added products. Basically, he wanted to complete a strong component manufacturing system, especially on an OEM basis, so that NMB products could be adopted for any customer.

Exhibit 1

Financial Performance of NMB
(million yen)

	Sales	〔Exports〕	Operating Profits	Net Income before Taxes	Net Income after Taxes	Per Share EPS	Per Share (Dividends)
July 1960 ~June 1961	169	-	80	71	31	-	(7.5- 7.0)
July 1961 ~Mar. 1962	151	-	51	46	30	-	(5.6- 2.5)
Apr. 1962 ~Sept.1962	103	-	36	24	13	-	(3.8- 0.9)
Oct. 1962 ~Sept.1963	266	〔 13 (5%)〕	93	59	34	5.4	(7.5- 3.3)
Oct. 1963 ~Sept.1964	318	〔 68 (21%)〕	85	40	▲60	▲ 9.5	(0.0)
Oct. 1964 ~Sept.1965	409	〔 203 (50%)〕	86	25	18	2.9	(0.0)
Oct. 1965 ~Sept.1966	829	〔 568 (69%)〕	257	193	79	12.5	(5.0)
Oct. 1966 ~Sept.1967	1,442	〔1,007 (73%)〕	517	363	60	6.3	(6.0- 1.5)
Oct. 1967 ~Sept.1968	1,823	〔1,144 (63%)〕	580	429	81	5.7	(6.0- 1.0)
Oct. 1968 ~Sept.1969	2,250	〔1,226 (54%)〕	698	501	414	19.5	(6.0- 1.5)
Oct. 1969 ~Sept.1970	3,358	〔1,842 (55%)〕	1,057	755	627	22.4	(7.5- 1.9)
Oct. 1970 ~Sept.1971	4,212	〔2,382 (56%)〕	1,328	935	791	24.0	(7.5)
Oct. 1971 ~Sept.1972	5,278	〔3,032 (57%)〕	1,516	1,175	982	23.2	(7.5)
Oct. 1972 ~Sept.1973	7,474	〔3,723 (50%)〕	1,386	1,454	1,411	26.7	(7.5)
Oct. 1973 ~Sept.1974	11,729	〔6,588 (56%)〕	1,577	1,304	1,215	19.1	(7.5)
Oct. 1974 ~Sept.1975	12,467	〔8,537 (69%)〕	1,954	1,709	1,461	19.2	(7.5)
Oct. 1975 ~Sept.1976	14,748	〔8,567 (58%)〕	299	167	356	3.9	(7.5)
Oct. 1976 ~Sept.1977	18,141	〔9,194 (51%)〕	▲ 650	▲ 551	136	1.5	(5.0)
Oct. 1977 ~Sept.1978	20,152	〔9,179 (46%)〕	591	844	297	3.2	(5.0)
Consolidated	(35,898)		(2,193)	(1,099)	(602)	(6.6)	
Oct. 1978 ~Sept.1979	26,952	〔9,031 (34%)〕	2,110	1,803	865	9.4	(5.0)
Consolidated	(52,988)		(4,483)	(1,948)	(673)	(7.3)	

Subsidiaries and Affiliated Companies Consolidated as of September 1979:

Tokyo Screw, Shin Chuo Kogyo, Hokuto Onkyo, Shinko, Hata Radio, NMB Corp., IMC Magnetics, NMB(UK) Ltd.,NMB GmbH, NMB Singapore Ltd., NMB(Asia) Ltd., Hansen Mfg. Co.
〔Equity Method: Shinko Communication, Osaka Motor Wheel, NMB Electronics 〕

Exhibit 2

Summarized Balance Sheets of NMB
(million yen)

	Current Assets	Fixed Assets	Total Assets	Current Liabil-ities	Fixed Liabil-ities	Total Liabil-ities	Capital	Capital Surplus	Retained Earnings	Total Equity
June 1961	127	166	293	190	22	212	45	-	36	81
Mar. 1962	175	194	369	176	42	217	100	7	44	151
Sept.1962	178	372	557	154	93	248	210	58	42	309
Sept.1963	334	637	980	358	187	554	315	58	53	426
Sept.1964	509	578	1,096	486	286	772	315	58	▲ 49	324
Sept.1965	609	515	1,160	573	245	818	315	58	▲ 31	341
Sept.1966	735	586	1,368	703	223	947	315	58	48	420
Sept.1967	1,191	948	2,139	1,280	204	1,534	473	58	75	605
Sept.1968	2,174	2,049	4,230	2,095	892	3,356	709	59	107	875
Sept.1969	3,025	2,840	5,931	2,693	1,323	4,355	1,063	59	454	1,576
Sept.1970	4,339	3,399	7,843	3,192	1,539	4,973	1,400	522	949	1,796
Sept.1971	6,015	5,041	11,144	4,254	2,511	6,978	1,650	1,020	1,496	4,166
Sept.1972	8,108	7,949	16,158	6,454	2,640	9,279	2,115	2,664	2,101	6,880
Sept.1973	11,422	14,600	26,244	9,299	3,643	13,101	2,642	7,492	3,001	13,143

	Sept. 1974	Sept. 1975	Sept. 1976	Sept. 1977	Sept. 1978	(Consol.)	Sept. 1979	(Consol.)
Cash and Deposits	4,844	5,596	6,664	7,506	8,146	26,177	8,533	28,139
Bills & Accounts Receivable	2,203	2,683	2,533	3,927	4,571	14,488	8,359	15,261
(to Subs. & Affiliates)	(1,003)	(1,829)	(1,541)	(2,506)	(2,680)	(712)	(5,663)	(467)
Inventories	6,848	6,962	7,328	6,454	5,076	21,033	4,333	18,617
Short-term Loans	1,037	751	476	971	1,285	1,836	1,995	-
(to Subs. & Affiliates)	(778)	(533)	(321)	(502)	(1,285)	(n.a.)	(450)	-
Total Current Assets	15,715	17,761	19,614	21,812	22,710	72,591	27,799	73,527
Land	100	100	101	101	246	2,825	329	575
Tangible Fixed Assets	5,309	4,876	4,245	3,615	3,103	15,020	2,979	13,905
Intangible Fixed Assets	32	30	27	24	21	37	20	105
Shares of Subs.& Affiliates	1,611	4,480	4,594	4,472	9,134	3,776	9,965	11,372
Long-term Loans to Subs.	2,841	2,908	2,483	2,226	1,881	n.a.	11,632	n.a.
Total Investments	11,352	13,542	12,094	12,079	12,021	11,398	27,568	14,934
Total Fixed Assets	16,693	18,448	16,366	15,718	15,146	26,455	30,568	28,944
Deferred Assets	195	84	19	267	495	721	153	441
Total Assets	32,603	36,293	35,999	37,797	38,351	(100,158)	58,520	(103,276)
Bills & Accounts Payable	2,822	3,366	4,040	6,102	5,563	12,764	8,900	14,539
(to Subs.& Affiliates)	(40)	(1,142)	(2,168)	(2,639)	(701)	-	(4,727)	-
Short-term Borrowings	5,250	8,350	8,835	9,435	10,293	36,922	14,278	30,287
Long-term Borrowings(Cur)	1,513	1,631	1,062	952	1,475	-	828	-
Total Current Liabilities	10,882	13,770	14,155	16,790	18,387	54,179	26,032	48,963
Convertible Bonds	-	-	-	-	-	10,812	8,778	10,005
Long-term Borrowings	4,626	4,715	4,327	4,068	3,208	12,336	6,438	18,359
Total Fixed Liabilities	4,626	4,715	4,327	4,068	3,208	24,783	15,216	28,370
Total Liabilities	15,644	18,597	18,528	20,881	21,595	82,925	41,248	79,260
Capital	3,176	3,811	4,573	4,573	4,573	4,581	4,581	5,059
Capital Surplus	10,214	9,579	8,817	8,817	8,817	8,918	8,918	14,828
Retained Earnings	3,569	4,306	4,081	3,527	6 366	3,735	3,784	4,129
Total Equity	16,959	17,696	17,471	16,916	16,756	17,233	17,272	24,016
Bills Receivable Discounted	1,038	1,092	4,944	4,595	4,080	4,396	6,247	6,763
Tangible Fiexed Assets pledged as Collateral	5,055	4,659	4,087	3,343	2,824	9,127	2,783	4,856

Exhibit 3

Production and New Product Introduction at NMB

	Production (Monthly Capacity: million units) 〔Value of Production: milliion yen 〕 — Miniature Bearings	Rod-end Bearings	No. of Employees (Others- 〔Overseas Assignment) (Temporary)	Timing of Introduction of New Products
July 1960 ~June 1961	0.89(0.06)			
July 1961 ~Mar. 1962	0.71(0.08)		167	
Apr. 1962 ~Sept.1962	0.63(0.11)		176	
Oct. 1962 ~Sept.1963	1.35(0.17)		252	
Oct. 1963 ~Sept.1964	2.42(0.25)		341	
Oct. 1964 ~Sept.1965	3.12(0.30)		321	
Oct. 1965 ~Sept.1966	4.65(0.40)		400	
Oct. 1966 ~Sept.1967	8.10(0.55)		433(54) 〔 9 〕	
Oct. 1967 ~Sept.1968	9.94(0.70)		574(85) 〔 14 〕	
Oct. 1968 ~Sept.1969	12.00(1.00) 〔2,231 〕	0.04(0.01) 〔 26 〕	660(86) 〔 14 〕	
Oct. 1969 ~Sept.1970	15.76(1.43) 〔3,247 〕	0.23(0.05) 〔144 〕	760(242) 〔 12 〕	
Oct. 1970 ~Sept.1971	16.25(1.60) 〔3,233 〕	0.91(0.10) 〔460 〕	897(266) 〔 25 〕	Mechanical Parts such as Tape Guides and Micron Gears(NMB)
Oct. 1971 ~Sept 1972	16.17(1.65) 〔3,528 〕	1.45(0.15) 〔736 〕	886(275) 〔 43 〕	Electronics, Artificial Kidney(ITL) Handling Works of Electronics Parts (ITL Singapore)
Oct. 1972 ~Sept.1973	21.02(1.80) 〔3,639 〕	1.59(0.16) 〔807 〕	934(266) 〔 53 〕	Stepping and Sincro Motors(NMB)
Oct. 1973 ~Sept.1974	28.88(2.80) 〔6,479 〕	1.40(0.15) 〔1,154 〕	907(253) 〔 67 〕	Special Rollers, IC Small Motors Magnetic Clutches(IMC Magnetics) Strain Gages(Shinko Communication)
Oct. 1974 ~Sept.1975	15.98(2.00) 〔5,457 〕 #	0.96(0.12) 〔868 〕 #	877(52) 〔 61 〕	Precision Screws(Tokyo Screw) Aircraft Armaments(Shin Chuo Kogyo) Technologies for Semiconductors, Hybrid, Discrete, Converters(DDC)
	Value of Production (milion yen) (Operating Rate)			
Oct. 1974 ~Sept.1975	2,825 #	692 #		Transducers(BHL)
Oct. 1975 ~Sept.1976	3,153(89%)	425(71%)	869(159) 〔 55 〕	
Oct. 1976 ~Sept.1977	2,720(94%)	769(87%)	775(148) 〔 57 〕	Wheels and Casings for Automobiles (Osaka Motor Wheel) Watch Cases(Casio)
Oct. 1977 ~Sept.1978	4,386(97%)		821(160) 〔 59 〕	Calculators(Kato Boeki) Printers(NMB) Speakers(Hokuto Onkyo) Transformers(Hard mold type) (Hata Ratio) Multi-dials(NMB)
Oct. 1978 ~Sept.1979	5,039(98%)		862(136) 〔123 〕	Watch Cases(Joint Venture w. SSIH) Measurement Equipment(Doboku Keisoku Center) Special Motors(Matsukawa Seiki) Load Cells(BLH) Die Casting(Teikoku Die Casting)

(Note) Value of production is based on the average sales prices for the period.
Lack of continuity for figures

Exhibit 4

Products at Subsidiaries and Affiliated Companies of NMB

(Non-Consolidated: 1979/1980)

Manufacturing Companies	Percentage of Shares	Businesses by Product
NMB	—	Bearings(46%),Motors/Electronics-related Equipment/Precision Equipment(27%)
Shinko Communication	20.4%	Strain Gages(31%),Transformers(Load-cells)(13%),Small Motors(Syncro-Motors, Stepping Motors, Clutches)(46%), Others
Tokyo Screw	50.9	Fastners for commercial use(76%) and for aircraft(23%),Others (2%)
Shin Chuo Kogyo	51.2	Electronic Devices(Small Motors,Small Fans, Small Generators, Magnetic Clutches, Brakes),, Special Machines(Pistols,Bomb Racks, Rocket Bomb Ejector Racks)(45%), Others(9%)
Osaka Motor Wheels	33.6	Automobile Wheels for OEM(24%) and for spot market(10%), Wheels for Industrial Vehicles (22%), Casings(44%)
Teikoku Die Casting	20.7	Die Casting Products/Dies/Automobile Components(43%), Components for Industrial Equipment(27%), Others (30%)
Hokuto Onkyo	51.0	Speakers
Hata Radio	100.0#	Transformers
NMB Electronics	49.7	Calculators
Doboku Keisoku Center		Measuring Instruments for Construction Industy
Matsukawa Seiki		Motors for special use
Nishi-Nihon Kogyo		Wheels and Casings
NMB Corp.	100.0	Miniature Bearings, Rod-end Bearings
IMC Magnetics	58.5	Self-controlled Rotating Components, Fans
Hansen Mfg. Co.	100.0#	Syncro-motors
ITL Technology		Electronics Devices, Artificial Kidneys
NMB Singapore	100.0	Miniature Bearings, Gages, Speakers, Transformers, Injection Moldinigs Press Components, Machining Parts, Rubber Components, Printers, Others
Pelmec Industries	100.0	Small-size Bearings
Hokuto Onkyo		Speakers
NMB Aoki Rubber		Rubber Products
Precision Watchcase		Watch Cases
International Technology		Electronic Components
NMB Hata Radio		Radios
Taiwan Minebea Denshi		Speakers
Industries Electro Mechanic S.A. Haiti	100.0#	Components for Rotating Devices
Sales Companies		
Kanemori	25.0	Japanese Clothes(61%), Bed-clothes(18%), Precious Metals(12%),Others
Shinko	100.0	Sales Company of Shinko Communication
Tora Sales	100.0#	Sales Company of Tokyo Screw
Shin Chuo Sales	100.0#	Sales Company of Shin Chuo Kogyo
Dairin Sales		Sales Company of Osaka Wheels
Hokuto Onkyo Sales		Sales Company of Hokuto Onkyo
Hata Radio Sales		Sales Company of Hata Radio
NMB Export Corp.	100.0#	Export Company (Los Angeles)
Supplies for Industry	100.0#	Sales Company for Products for Mining (New Mexico, USA)
NMB(U.K) Ltd.	100.0	Sales Company for Bearings
NMB GmbH.	100.0	〃
NMB(Hongkong) Ltd.		
NMB(Asia) Ltd.	100.0	Sales Company for Bearings (Hongkong)
Hokuto Onkyo (Hongkong)		
Hokuto Onkyo Korea		
JIT Corporation	100.0	Investment Company (Los Angeles)

Note: Figures in parentheses represent the percentage of sales in the total

 \# Figures include the indirect holdings through subsidiaries and affiliated Companies.

Exhibit 5

Value of Production/Value of Sales of Major Products
(million yen)

	1974	1975	1976	1977	1978	1979
NMB						
Miniature Bearings	6,476/6,623 (98%)	5,458/7,763 (70%)	3,135/8,857 (35%)	2,720/9,027 (30%)	4,357/11,477 (38%)	5,039/12,319 (41%)
Rod-end Bearings	1,154/986 (117%)	868/979 (89%)	425/481 (88%)	769/789 (97%)		
Shinko Communication						
Strain Measurement Instruments	—	—	1,254/672 (187%)	985/884 (111%)	1,139/1,207 (94%)	1,314/1,466 (90%)
Transformers	—	—	881/625 (141%)	523/606 (86%)	611/640 (95%)	708/609 (116%)
Strain Gages	—	—	96/83 (116%)	35/173 (20%)	1/118 (0%)	0/116 (0%)
Small Precision Motors	—	—	717/885 (81%)	1,415/1,287 (110%)	1,215/1,593 (76%)	783/1,811 (43%)
Tokyo Screw						
Fastners for Commercial Use	—	—	6,037/6,059 (100%)	5,827/5,354 (109%)	6,233/5,696 (109%)	6,403/5,841 (109%)
Fastners for Aircraft	—	—	1,693/1,869 (91%)	1,730/1,671 (104%)	1,822/1,764 (103%)	2,486/2,510 (99%)
Shin Chuo Kogyo						
Electronic Devices	—	—	1,179/1,217 (97%)	1,546/1,705 (91%)	1,339/1,432 (94%)	1,446/1,464 (99%)
Machinery	—	—	51/44 (116%)	138/133 (104%)	202/236 (86%)	251/285 (88%)
Special Machines	—	—	1,226/1,169 (105%)	982/971 (101%)	1,345/1,289 (104%)	1,417/1,436 (99%)
Osaka Motor Wheels						
Wheels	—	—	—	4,875/4,875 (100%)	5,721/5,721 (100%)	6,926/6,959 (100%)
Axle Casings	—	—	—	3,140/3,140 (100%)	4,272/4,443 (96%)	5,020/5,476 (92%)

Note: Value of production is based on the average sales prices for the period.

Exhibit 6

Financial Performance of Subsidiaries and Affiliated Companies
(million yen)

	Sept. 1975	Sept. 1976	Sept.1977	Sept.1978	Sept.1979	Sept.1980 (E)
Shinko Communication						
Sales	1,753	2,397	3,232	3,977	4,684	6,360
CGS	1,388	2,194	2,853	3,599	3,963	5,440
SGA expenses	455	172	277	243	241	360
Non-operatings	254	192	211	149	86	50
EBT	▲ 344	▲161	▲ 110	▲ 15	393	510
Net Income	▲ 73	▲271	▲ 189	▲ 62	518	325
EPS(yen)	-	-	-	-	32.5	18.2
Dividend(yen)	0.0	0.0	0.0	0.0	5.0	5.0
Employees	306	280	320	312	304	304
Tokyo Screw	(March)		(Mid-term)			
Sales	9,324	8,424	4,625#	9,741	10,951	11,940
CGS	8,639	7,352	3,856#	8,141	9,192	9,875
SGA expenses	816	924	460#	930	848	915
Non-operatings	280	389	159#	286	185	60
EBT	▲ 140	▲240	150#	384	727	1,090
Net Income	▲ 73	▲426	100#	235	275	520
EPS(yen)	-	-	6.7#	15.7	15.4	22.0
Dividend(yen)	0.0	0.0	2.5#	5.0	5.0	5.0
Employees	842	624	577	555	570	570
Shin Cho Kogyo						
Sales	2,656	2,430	1,296#	2,969	3,185	3,510
CGS	1,034	1,913	1,000#	2,299	2,391	2,600
SGA expenses	206	340	152#	290	370	480
Non-operatings	86	177	66#	51	50	100
EBT	▲ 14	0	77#	328	374	330
Net Income	▲ 21	2	70#	140	190	200
EPS(yen)	-	0.0	5.5#	13.0	15.8	12.6
Dividend(yen)	0.0	0.0	2.5#	6.0	6.0	6.0
Employees	420	338	320	309	319	321
Osaka Motor Wheels		Mar. 1976	Mar. 1977	Mar. 1978	Mar. 1979	Mar. 1980(E)
Sales	-	6,837	8,015	8,892	10,163	12,435
CGS	-	5,905	6,952	7,858	8,910	10,935
SGA expenses	-	636	698	709	802	910
Non-operatings	-	70	109	116	- 9	20
EBT	-	226	256	209	461	570
Net Income	-	131	148	128	183	290
EPS(yen)	-	76.0	86.00	74.00	91.00	146.50
Dividend(yen)	-	40.0	40.00	40.00	50.00	50.00
Employees		512	506	493	348	331
Teikoku Die Casting						
Sales	-	-	4,643	4,692	3,711	4,165
CGS	-	-	4,246	4,163	3,383	3,870
SGA expenses	-	-	364	375	368	350
Operatings	-	-	140	121	63	50
EBT	-	-	▲ 106	33	▲ 103	▲105
Net Income	-	-	▲ 124	106	▲ 80	▲135
Employees			327	231	218	199
Kanemori						
Sales	-	-	9,439	9,652	10,603	11,270
EBT	-	-	935	977	1,035	1,160
Net Income	-	-	448	450	557	580
EPS(yen)	-	-	24.0	20.0	20.0	16.4
Dividend(yen)	-	-	7.5	7.5	Spec 8.5	7.5
Employees			2,233	2,170	2,384	2,627

Exhibit 7
Share Prices

		1976	1977	1978	1979
NMB	High (M)	625(7)	496(1)	619(9)	740(11)
	Low (M)	380(12)	290(11)	340(1)	541(7)
	Convertibles	—	—	—	DM 30mil(2) Conv. price 657yen SFr 40mil(9) Conv. price 712yen
Shinko Communication	High (M)	315(2)	230(1)	459(11)	618(5)
	Low (M)	160(12)	169(7)	178(1)	375(2)
	Issue of Shares	—	Third-party (6) 1 million shares Issue price 180yen	—	Third-party(3) 4 million shares Issue price 375yen
Tokyo Screw	High (M)	407(7)	520(2)	825(11)	707(3)
	Low (M)	190(1)	325(1)	395(1)	349(11)
	Issue of Shares	—	—	Public(10) 2 mil. shares Issue price 584yen	Free Distr.(4) 1 : 0.1 Public (10) 2 mil. shares Issue price 448yen Free Distr.(10) 1 : 0.15
Shin Chuo Kogyo	High (M)	395(8)	332(12)	905(11)	810(1)
	Low (M)	161(4)	225(10)	301(1)	390(10)
	Issue of Shares	—	—	—	Public (2) 2 mil. shares Issue price 695yen Free Distr.(10) 1 : 0.2
Osaka Motor Wheels	High (M)	3500(9)	3350(7)	3740(3)	6100(4)
	Low (M)	2100(12)	1750(3)	1800(4)	3550(1)
	Issue of Shares	—	—	Third-party(5) 0.27mil. shares Issue price 1900yen	—
Teikoku Die Casting	High (M)	158(12)	215(7)	240(3)	430(8)
	Low (M)	80(1)	111(3)	117(4)	119(6)
	Issue of Shares	—	—	Free Distr.(4) 1 : 0.4	Third-party(4) 0.7 mil. shares Issue price 131yen Third-party(10) 2.9 mil. shares Issue price 128yen
Kanemori	High (M)	420(11)	454(3)	375(8)	518(9)
	Low (M)	219(1)	270(8)	300(4)	275(7)
	Issue of Shares	Free Dist.(4) 1:0.1	Public(2) 2mil.shares Price 361yen Free D.(4) 1: 0.12	Public(2) 2.12mil.shares Price 338yen Free D.(4) 1:0.12	Public(3) 1.86mil.shares Price 333yen Free D.(4) 1: 0.1 Third-party(10) 10mil. shares Price 280yen

Note: Figures in parentheses indicate the months when the actions were taken.

Exhibit 8

Financial Performance of NMB Singapore
(Thousand Singapore Dollars)

	1974	1975	1976	1977	1978	1979
Income Statement(Through September)						
Profit(Loss) before Taxation	4,061	3,543	3,478	5,163	790	(11,792)
Taxation	-	-	-	111	62	81
Extraordinary items	170	184	170	-	-	7,855
Profit(Loss) for the year	3,891	3,359	3,308	5,052	728	(4,017)
Unappropriated profits Carried Forward	1	3,892	3,451	2,959	-	-
Dividends	3,892	3,800	3,800	5,000	-	-
(Reference)						
Depreciation of Fixed Assets	n.a.	1,444	1,367	1,563	3,462	5,728
Machinery Parts Written-off	n.a.	923	1,012	1,563	2,001	311
Interests on Fixed Term Loans	n.a.	2,294	2,077	3,674	3,850	8,443
Rent of Land and Buildings	-	-	-	473	1,165	1,836
Balance Sheet(End of September)						
Stocks	5,242	7,302	6,128	11,773	37,097	61,830
Bills and Accounts Receivable	2,411	2,712	5,338	4,724	3,505	15,258
Loans to Related Companies	294	56	8,701	4,386	4,730	2,159
Cash and Deposits	1,159	7,987	2,136	17,853	5,537	111,776
Total Current Assets	9,106	18,057	22,305	50,040	49,029	191,024
Land and Buildings	7,816	6,024	6,113	7,239	8,686	10,024
Plant, Machinery and Equipment	10,761	12,412	12,942	21,203	30,276	44,521
Office Furniture, Dies, etc.	2,469	217	290	560	3,923	8,975
Total Fixed Assets (Gross)	21,046	18,653	19,345	28,999	43,192	64,092
Accumulated Depreciation	n.a.	2,851	4,204	5,767	9,219	14,751
Machinery Parts at Cost less Amount Written Off	-	2,177	2,330	2,420	3,264	1,356
Total Fixed Assets (Net)	19,046	17,978	17,471	25,652	37,236	50,696
Investments, etc.	-	-	-	10,320	8,412	3,126
Expenditures Carried Forward	697	515	388	2,040	6,981	6,017
Bills and Accounts Payable	2,057	6,944	5,997	16,446	24,458	30,806
Interests Payable	-	385	1,547	2,231	1,990	1,667
Amounts Owing to Holding and Related Companies	248	3,059	16,656	2,800	19,893	917
Current Portion of Bank Loans	-	-	-	7,926	7,235	72,674
Current Portion of Notes Issued	-	-	-	-	3,345	3,216
Total Current Liabilities		10,388	24,200	29,299	56,922	109,282
Long-term Loans from Banks	13,857	14,380	2,811	4,140	7,283	19,814
Long-term Loans from Holding Companies	6,316	6,316	7,800	5,300	5,300	87,839
Notes Issued	-	-	-	30,000	23,415	9,296
Total Long-term Liabilities	20,153	20,696	5,459	39,440	35,997	126,948
Share Capital	2,500	2,500	2,500	5,000	5,000	15,000
Retained Earnings(Losses)	3,891	3,451	2,959	3,010	3,738	(279)
Total Equity	6,391	5,951	5,459	8,010	8,733	14,721
(Reference)						
Bills Discounted	-	-	2,670	22,868	23,315	19,277
Forex Rate (yen/s$) (end of Sept.)	123	121	118	109	86	105
No. of Employees (as of Month)	n.a.	300(4)	400(6)	500(12)	700(7)	950(9)
Shipments of Bearings(mil.units/M)	1(8)	0.4(7)	1(11)	2(11)	3(10)	4(7)