INDUSTRIAL ALLIANCE FOR COMPETITIVENESS:  
THE CASE OF KOREA

Hyung-Yoon Byun  
Seoul National University

Youn-Suk Kim  
Kean University

ABSTRACT
IMF stabilization policy has forced Korea to implement significant reforms. Arguing the changes necessary to catalyze a revitalization of the Korean economy, this paper contends that Korea is going to emerge from the crisis more competitive, having better allocated its resources along with facilitating technology-based industrial alliance with global companies. Korea is at a crossroads, and its present crisis signifies a challenge which the success of developmental efforts brings with it. Since Korea can no longer rely on technology and R&D imports, it has to reformulate its technology policy, creating a climate for catching up high technology. Korea must muster the human capital, as well as financial and other resources to generate an industrial growth path, complemented by industrial alliance.

INTRODUCTION

During the recent Asian crisis, Korea’s macroeconomic policies were initially tight, but have since eased considerably. Interest rates rose in the early stages of the crisis, when currencies were under pressure, but have since declined in a number of economies. The Korean interbank rate, about 14% when the crisis broke out, peaked at 35% but fell to just over 8% in November 1998. Its industrial and financial restructuring were implemented and its interest rates were lowered without weakening its currency. The Korean economy has achieved relative stability since it was forced into the IMF-led bailout.

Immediately after the crisis broke out, IMF stabilization policy had forced Korea to implement significant reforms. Arguing the changes necessary to catalyze a revitalization of the Korean economy, this paper contends that Korea is going to emerge from the crisis, and more competitive, having better allocated its resources along with facilitating technology-based industrial alliance with global companies. This paper analyzes how best the new economic policy brings out Korea’s industrial competitiveness in the global market, having foreign direct investment, technology transfer, and industrial alliance Industrial competitiveness implies enhancement of the productivity of Korean workers producing goods and services to meet the test of domestic and international markets so that Koreans enjoy a standard of living both rising and sustainable. The ability to do so depends on the productivity of Korea’s labor associated with skills and knowledge. Moreover, the new realities of global competition are forcing Korea to attract foreign firms and capital. Korea must muster the human capital, financial and other resources for domestic R&D to maintain a continuing industrial growth path, complemented by imported technology. Korea has to promote its own technological innovation with R&D efforts that are essential in meeting the constraints imposed on it in the changing global economy.

Industrial competitiveness has been influenced by the structural problems which include infrastructure and economic institutions. These factors determine whether business environments are fertile for competitiveness. The purpose of this study is to analyze how best industrial alliances could enhance Korea’s competitiveness in the global market. We attempt to provide some perspective on these questions by reviewing the crisis and examining the impact of its industrial technology and industrial alliance strategy.
ECONOMIC CRISIS AND ITS IMPACT

The Korean currency crisis has inflicted a most dramatic and crushing impact on the Korean economy. The credit crunch forced heavily-indebted companies to scramble for dollars, leading to a steep depreciation of the won and raising fears of a national default. The won plunged in value amid the contagious decline of Asia’s currencies. Its frail merchant banks were one of the main culprits behind Korea’s meltdown in November 1997, the event that forced Korea to seek an IMF package. The IMF program has attempted to reform Korea’s troubled economic system and bring it in line with international standards. Thereby, financial sector restructuring was crucial for economic recovery and thus became the center of reform efforts.

The IMF bailout arrangement imposed vast changes, indeed major financial and industrial restructuring, and the IMF demanded a tight monetary and fiscal policy. The structural restructuring includes reforms in the banking sector so that there were no longer government-initiated loans, enhancement of transparency by requiring all conglomerates (chaebols) to disclose combined financial statements, reforms of chaebols by prohibiting the companies belonging to the same chaebols from giving mutual loan guarantees.

The key to overcoming Korea’s crisis was to restore financial flows and investment by stabilizing the external payments position of the Korean economy. The external payments situation had been stabilized through large IMF bailout, the rescheduling of short-term foreign debt, and reductions in foreign borrowing through painful reversals of current account deficits. Intense debate had focused on how Korean industry could create and maintain competitiveness in the process of its industrial restructuring. The country opened its financial markets to foreign investors, and the liberalization of long-term capital markets came much earlier than scheduled because of the crisis.

The perception of economic opportunity depended on information about markets, competitors, new technology, government policy, and general economic and political conditions which might be viewed as a strategic intelligence system. The industrial restructuring implemented the smooth exit of non-viable companies, and creditor banks assessed the viability of client firms and determined their support for undertaking corporate restructuring. In the case of corporate debt reduction, the legal basis for establishing equity funds had been analyzed under the standard of international accountings, and the corporate sector either raised additional equity capital in the capital market or sell off their assets and subsidiaries to reduce debt-equity ratios.

Private domestic and foreign investors have been allowed to freely establish mutual investment funds, and the Korean government has also established an equity fund and a debt-restructuring fund. The reform of the corporate sector, especially the chaebols, has been undertaken to reduce the debt equity ratio to the international level. Despite so much progress with economic reform, there has been a steady weakening of the real sector. In 1998 the number of bankruptcies stayed very high in association with a high unemployment rate due to highly restrictive fiscal and monetary policies.

The main task in financial sector restructuring was the disposal of nonperforming loans (NPL). Financial institutions have planned to dispose of half their respective total of NPL by either selling off collateral or calling in loans, and by the Korea Asset Management Corporation (KAMC) purchasing the remaining half from the financial institutions at an estimated market price of 50% of the book value. To implement this plan, the government has purchased NPL by the KAMC, and re-capitalized financial institutions, along with protecting depositors.

Providing a guarantee on these bond issues and bearing interest costs, the government has raised funds mostly by issuing public bonds. The Korean Asset Management Fund and the Deposit Insurance Fund are the major bond issuers, and they split equally the total bond amount to carry out disposing of NPL. Most of the fiscal support would be recouped over time by sales of collateralized assets, the divestment of acquired equity shares of financial institutions, and by liquidation of insolvent financial institutions.

Restoring credit flows and investments
required Korea to repair the balance sheets of banks and borrowers. Since lenders were saddled with bad loans, those in a better financial position would not lend to firms whose net worth was negative, even if these firms had profitable projects. As nonperforming loans had to be written off, financial institutions and borrowers were able to recapitalize so that normal operations could resume.

In a market economy, recapitalization happens automatically, as stronger and more efficient firms take over bankrupt institutions at low prices, setting the stage for renewed investment and recovery. As the financial crisis hit the real economy in the negative GDP or very slow growth, there had been a sharp deterioration of labor market conditions. Thousands of companies have gone under the beginning of the crisis since the companies found almost impossible to discount their commercial paper and new loans.

Korea faced a number of obstacles to such a market adjustment. The lack of effective bankruptcy provisions has made it difficult to dispose of properties. As the costs of recapitalization after a major financial crisis were often very high, government funds were also needed during the transitional period. The true value of assets being offered for sale was indeterminate due to a lack of transparency and efficient accounting and reporting. At the same time the high debt ratios of corporations made them unattractive to buyers.

Since investors had been deterred by the unstable Korean labor market that made it very difficult to restructure firms, the Bank of Korea, in the short run, used its funds to assume bad loans and pay off depositors of failing institutions so as to perk up economic viability. Furthermore, these financial reforms strengthened industrial competitiveness, which can be realized through technological innovation deriving from the transfer of technical knowledge via licensing, trade, and other forms of communication that initiate new production functions and new goods by enterprises.

INDUSTRIAL COMPETITIVENESS AND TECHNOLOGY

Technological innovation in industries is the process of realizing new production functions and new products, and it includes technical research, development, production start-up and improvements, and market information. The international technology market is typically oligopolistic and imperfect, and technology is the accumulated knowledge, skills, and techniques that are incorporated into the production function. It is posited to be the foundation of economic development, and it is associated with the scientific base and education of a country. Successful technology transfer requires that the importing country has adequate technological absorptive capacity in its integration with the production process.

Korea heavily emphasized industrial technology, and even more so in undertaking industrial restructuring, and Korea has to promote its own technological innovation with R&D efforts that are essential in meeting the constraints imposed on it in the changing global economy. Patterns of international trade and competition have been changing dramatically in recent years, with serious consequences for economic policy and business strategy. These changes are especially important for Korea in searching out strategies for promoting trade-technological cooperation. The decision to select a given technology must be based on a clear understanding of Korea's potential and the constraints to which it is subject.

Korea has been enjoying high returns from imported technology because it had made strategic use of management, allocation of investment, and domestic R&D to capitalize on the use of that technology. The Korean government had played a major role over importation of technology along with forming human capital, which contributed to the remarkable growth rate of its industrialization.

With more internationalizing trade, industry and technology, Korea has been pushing its economy toward globalized markets, more consolidation and greater efficiency in production. After this opening of the economy, national
boundaries signify much less than they used to in terms of the flow of technology and capital. Furthermore, international trade allows Korea to increase its productivity by specializing in those industries in which its firms are relatively more productive than those of foreign rivals and import the goods and services in which its firms are less productive. In this way, resources are channeled from low-productive uses to high productive uses, thus increasing the economy’s average level of productivity.

Korea’s innovation affects foreign trade through higher factor productivity, changing production functions, and new products, producing more goods with the same inputs or producing the same quantity of outputs with less inputs. At the same time it has actively solicited industrial alliance from advanced countries such as the United States and Japan, as a partner to facilitate joint ventures of R&D and production, and engages in fields like high-definition TVs (HDTVs), next generation automobiles, semiconductors, and new materials for the purpose of formulating a technological and industrial alliance.

There is rising competition over the technology market in the world, and the United States and Korea are major participants with growing influence. Development of new and applied technology contributes to innovating production and improving productivity. Its industrialization integrates international product cycles so as to realize dynamic competitive advantage by mixing endogenous inputs with imported capital goods.

As Korea loses it competitiveness in the labor-intensive production sector, the development of high technology industries has become vital to Korea’s future economic growth. Given Korean’s relatively weak domestic R&D base, the choice for Korea appears to be reliance on imported technologies. Yet with growing protectionism regarding technology transfer among advanced countries, it clearly has become more difficult for Korea to get many of the technologies it desires from abroad. This has made it even more imperative for Korea to put added emphasis on effective, efficient assimilation of imported technologies and on its innovation to strengthen long term competitiveness and to achieve self-reliance in technology. In other words, traditional government-led solutions to problems mainly based on an industrial policy would not work, but industries associated with the strategic alliance could play a major role enhancing industrial competitiveness and revitalizing Korea’s industries.

A most serious problem has been the heavy dependence of Korea’s exports on Japanese equipment and intermediate inputs, which has caused massive trade deficits with Japan. In fact, Korea has continuously complained to Japanese government and its companies, since the latter consistently failed to be more forthcoming regarding technology transfer to Korean companies. If Korea wants to break out of this structural imbalance, it has been focusing its efforts on thoroughly digesting and improving imported technology to maximize synergistic benefits.

Japanese production has been characterized with management technology such as lean manufacturing, continuous production, mass customized production and quality control circle adaptation, as known Japanese management know-how. Japan’s improvement engineering processed by reengineering here and there to meet market preference and enhance value added. As a unique device of processing technology, the reengineering approach has served its export expansion and incorporated to nurture Japan’s endogenous technology. While one of Japan’s major strengths has been its ability to create and commercialize new innovations from imported technology, the same cannot be said of Korea.

According to a survey conducted by the Korea Industrial Technology Association, Korea spent far less for improvement engineering than for the transfer cost, a policy that has left Korean firms in the unenviable position of becoming heavily dependent on external technology suppliers. Thus, a major challenge to Korean industry is how it can acquire or develop its own technologies and managerial knowhow associated with cutting-edge industries in global community. At present, Korea adopts two ways to achieve success in this area. One is self-reliant technology
development. The other is development based on technology import. With respect of the first approach, Korea’s R&D capabilities remain behind most other OECD economies in terms of capital and human capital. The industrial alliance could strengthen the competitive advantages of partners, whether former, current, or future rivals, and the industrial alliances favor the safe, mutually beneficial transfer of technology from one partner in return for the non-technological assets of the other.

INDUSTRIAL ALLIANCE

As globalization of competition has engulfed every regional market of the world, product life cycles are being so quickened that industries focus on market share competition. Increasing returns to scale plays an even more important role in market competition in high-technology industries. Another factor for increasing returns is of course learning by doing, improving production efficiency through experience. Industrial alliances are having a profound impact on the nature of international relations and global business.

The globalization of the economy goes hand in hand with the strategic intelligence system and knowledge. Because knowledge has become the currency of modern economic competition, the strength of the firm now lies in its openness to ideas from the outside world. A high technology industry is one in which knowledge is a prime source of competitive advantage for producers who in turn make large investments in knowledge creation. The introduction of new products from home country to the world market is virtually instantaneous, and can greatly shorten the product life cycle. Firms have an even greater incentive to enter the market early because they have only a very short time to recoup the enormous cost of R&D. It is therefore understandable that we observe strategic alliances among the firms in the electronic industry, where the market is global and the product life cycle is becoming ever shorter.

Koreans are seeking industrial alliances with countries such as the United States, European countries and Japan. The most promising business strategy is the formation of an international corporate alliance, i.e., trade-based industrial alliance, which would introduce new technologies and economics of consolidation. Behind the moves toward the trade-based industrial alliance lies the structural change in the environment of corporate management since the industries have entered an era in which an individual company cannot by itself ensure its competitive edge in the world market.

To counter the loss of competitiveness due to rising labor and land costs, the Korean companies are promoting a new strategy for continued high-speed growth, namely, moving Korean industry decisively into high-technology and high-value added production. To Korean government technocrats as well as leading corporate executives, this means upgrading technology in traditional industries such as textiles and garments, and pushing Korea onto the frontiers of microelectronics, mechatronics, automobiles, aerospace, and biotechnology.

Automotive vehicle industry, the single most important industrial sectors in most advanced economies, exercises a powerful forward-and-backward linkage on other sectors. The growth in Korea’s automobile industry has relied heavily on industrial alliances with multinationals, drawing on partners’ model designs and on help with setting up modern manufacturing facilities and component suppliers. Although many corroborations were established to share development costs, automobile companies also cooperate to gain access to difficult export markets.

The major automobile companies such as Hyundai and Daewoo have taken different approaches in forging their industrial alliances. As the market required that dealers carry a broad product line, there is an incentive for automobile companies to fill the product line with other companies’ models. For example, the Big Two automotive companies (GM and Ford) in the US are filled a part of the subcompact end of their product line with Korean and Japanese models. As for market and production specialization, automobile marketing is also known for its large-scale operation, especially when the dealer organization is an exclusive one as practiced in
the US market.

The Ford-Kia (auctioning off of bankrupt Kia to Hyundai in 1998) alliance was an example of production and marketing specialization. To get technology and parts, the industrial alliance was mostly a technology-based one where a late-starting Korean company was collaborating with technologically advanced foreign companies. The motivation of U.S. partners was simply either to get extra revenue by selling technology or to get an extra source of products, usually on the low end of their product line.

What makes these alliances strategically important is that whether many of the equity-based or not, involve some form of technology transfer or collaborative R&D activities. While alliances involve joint marketing arrangements or distribution agreements, some form of cross-national transfer of technology is usually involved. The industrial alliances involving technology transfer can take many forms, such as technical exchange and cross-licensing, co-production, and marketing agreements, joint product development programs, or standalone joint venture firms with equity distributed among the partners. Although the specific alliances vary in motivation, scope, and duration, they all are aimed at enhancing the current competitive advantage of collaborating firms.

Another example, the industrial alliance of Japan’s Hitachi and Korea’s Goldstar might be an interesting case in point. Hitachi’s goal of competing with its domestic rivals appears to have been a bigger concern than a potential future competitor such as Goldstar which has its own reasoning. Goldstar might have sold its long-term potential for self-reliance to buy a short-term advantage in technology in linking with Hitachi. Having the industrial alliance arrangement, Hitachi earned significant licensing fees for 16 MB DRAM technology while simultaneously freeing up its resources for the bigger game of 64 MB DRAM development in progress. The increase of semiconductor exports in the late 1980s, through increasing returns, helped the Japanese manufacturers to become leaders in producing some types of semiconductors, although only very top manufacturers could enjoy profits, which again shows us the strong effect of increasing returns.

Korea has built up considerable technological capability through continued expansion of investment in indigenous R&D and imported technology since the 1980s, along with the communication facilities, adaptation, and use of technology imported from the United States. Korea’s technological progress has increasingly been implemented by the private sector’s drive into high-technology industries along with their increasing R&D investment.

The new government has reformed, doing away with economic restrictions to secure flexibility in corporate management so as to enhance global competitiveness. It has speeded up its efforts to help industries’ technology innovation and carry out educational reforms. Korea has picked up existing machinery and technology at bargain prices. It has established its own R&D institutes, which have brought together scientists and engineers to work on common problems with efficient utilization of research equipment and facilities. Conspicuous in the past was the stress on a factor mix in which brainpower was the dominant element. The only way to take advantage of this asset is to develop its technological expertise, since competitiveness stems from technology.

Korea has been promoting high technology and has accelerated its drive toward sophisticated technology which changes the nature of tasks implementing technology, the interconnections and nature of physical, energy, and information flows, the skills required, the management and coordination, and the organizational culture along with technological progress. To meet growing requirements for high technology, Korean firms introduced various new devices and incentives for product-oriented technologies and fundamental technologies.

The industrial alliance could give firms to involve a golden opportunity to expand sales channels globally. This operation facilitated that the industrial corroboration for participating firms to expand the market early and to quickly establish a lead. A shorter time to market can greatly enhance the probability of becoming a dominant player and creating a de facto standard. Thus, the industrial alliance shortened the
development time by supplementing necessary technologies and funds of firms involved resulting in Pareto gain.

Thus one source of the technology focus was rising concern in the United States about challenges to American technological preeminence in both medium-tech as well as high-tech. It became clear that patents to protect intellectual property were ineffective in some leading sectors, such as semiconductors, computers, telecommunications, and aircraft. In these sectors, companies reap returns mainly by achieving a head start on their rivals, which they then exploit by seizing the market and moving rapidly down the learning curve. In short, Korea’s policy has shifted from the promotion of targeted industries to that of innovation-related activities.

The industrial alliance of Korea’s firms indicated that technology transfer from the United States has been efficient. Korean industries have been launching an overall restructuring of industry toward more technology-intensive, higher value-added products. Trade between the United States and Korea has involved the exchange of specialized products within the same industry, i.e., intra-industry rather than inter-industry trade. Despite Korea’s economic difficulties, a new generation of U.S.-flavored venture-driven startups and U.S. role-model firms are now emerging. Korea tries to revitalize battered industries and encourage their entrepreneurs, such as the Korean American Society of Entrepreneurs, Korea Software Incubation Center, and Digital Cast of Korea. Furthermore, Korea faces increasing external pressure to liberalize its market access and internal pressure to cope with unemployment problems. As public policy increasingly shifted toward promoting small and medium enterprises and the interests of these small and medium enterprises are increasingly advocated, Korea’s new policy should stress assisting small-medium firms mixing with foreign technology-based small-medium firms in joint ventures. Hereby a quasi-public sector could serve as catalyst between domestic and foreign firms under industrial alliance arrangement.

To promote a more diversified base of technology sources rather than becoming too dependent on anyone advanced industrial country, Korea might promote positioning its firms to Japanese, US, and Western European companies seeking industrial alliance partners with Korean industry in East Asia, particularly those multinational corporations seeking partners to provide manufacturing process capabilities. Korean manufacturers are increasingly to become bigger players in East Asia. They may also play an important brokering role in gaining access to the markets and talents of China, Southeast Asia, and developing countries.

CONCLUSION

Korean industries with industrial alliance play a major role for a new economic order in Asia. Following the guidelines of OECD, Korea eliminated subsidies, liberalized foreign investments and the capital market, and privatized commercial banks and financial institutions. With more internationalizing trade, business, and technology, Korea pushes its economy toward globalized markets, more consolidation and greater efficiency in production. After this opening of the economy, national boundaries signify much less than they used to in terms of the flow of technology and capital.

Given the changing position of technology policy in Japan, the United States and European countries it is in the interest of Korea to comply with the new situation of the global economy, and reformulate its economic policy, promote the industrial alliance and technological collaboration with advanced industrial countries.

REFERENCES

East Asian Executive Reports, Vol. 18, No. 9, 1996


