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THE EMERGENCE OF AN ASIAN STEEL INDUSTRY LEADER: POSCO (1968-2010)¹

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Introduction

Modern-day South Korea has established itself as an economy that is crisis-resistant.² This sentiment is based on the growth of its gross national product, which is currently ranked anywhere between the thirteenth or the fourteenth rank in the world.³ It is plausible that Korea will maintain this prosperity until 2051, as shown in previsions of the OECD and the United Nations, despite the increase of rising powers. This is due to the relative and upcoming decline of North America (Canada) and Europe (Spain, Italy). Benefiting from 15 sovereign wealth funds, Korea is situated in 11th place in terms of competitiveness, behind Germany, the United States, the United Kingdom and Japan, but before Canada, France, Australia, Spain, Italy, China and India. Between 2000 and 2007, Korea appeared as the global leader in terms of hourly labor productivity earnings. The country also continually benefits from the power of its industrial groups: Samsung Electronics (globally ranked 38th), LG (67th), Hyundai Motors (82nd) and SK Holding (87th).⁴

Above all, Korea is characterized by its emphasis on research development expenses. In 2010, the country was ranked sixth in the world for research development spending, behind the United States, Japan, China, Germany and France, but was fifth in terms of percentage of gross national product (roughly 3%). This figure is less than that of Japan, but more than that of France

¹ Translated by Amber P. Sweat, 2017, this article is based on the following bibliography (always in Korean): 1 / Posco, 10 years of history, Posco, Seoul, 1979. 2 / Posco, 20 years of history, Posco, Seoul, 1989; 3 / Posco, 25 years of history, Posco, Seoul, 1994; 4 / history of Posco Committee, Posco, 35 years of history, Posco, 2004. ; 5 / SONG Bok (eds.), Posco, study of Park Tae-Joon, Asia, 5 vol., 2012. For the period 1998 to 2012, the study is based on a comprehensive count of annual reports, still published in English (complete financial information since 1996). You can also visit <http://www.posco.com>.

² See: Dominique BARJOT (ed.), "Globalization-La Mondialisation", *Entreprises et Histoire*, n° 32, 2003 ; Dominique BARJOT, Rang-Ri PARK-BARJOT (eds.), « Aux origines du miracle coréen », *Conflits Actuels*, n° 22, 2008-2 ; The Korean Overseas Information Service, *Handbook of Korea*, Jung Moon Sa Printing Co. Ltd., Seoul, Korea, 1978, 12th edition 2003 ; « Corée du Sud (République de Corée) », Focus export pays, UBIFRANCE et les missions économiques, www.ubifrance.fr.

³ Dominique BARJOT, « Le développement économique de la Corée depuis 1950 », *Les Cahiers de Framespa*, <http://framespa.revues.org>, 2011.

⁴ See: Rang-Ri PARK-BARJOT, *Samsung. L'œuvre d'un entrepreneur hors pair*, Byung Chull Lee, Paris, Economica, 2008, 266 p.; Myung-Hun KANG, *The Korean Business conglomerate. Chaebol then and now*, Institute of East Asian Studies, University of California, 1996; Seung-Ho KWON, Michael O'DONNELL (eds.), *The Chaebol and Labour in Korea: The Development of Management Strategy in Hyundai*, London, Routledge, 2001.

and similarly the United States. These expenses are of private origin for the most part (with 23% stemming from public spending.) Consequentially, in 2010, South Korea occupied third place in terms of patents; only surpassed by the United States and Japan. Similarly, South Korea was ranked third in terms of teaching expenses (according to the OECD), surpassed by the United States and Canada, but surpassing Japan, the United Kingdom, France and Germany.

In its industrial plan, South Korea holds a very esteemed position thanks to a certain number of buoyant markets. Information electronics and technologies constituted approximately 28% of the total in 2010, the second export position for a country that also occupied second place in the world for Internet usage. The first belongs to maritime construction, given that South Korea maintains the highest rate of maritime global construction (constituting 40% of orders, but 36% of order logs). Korea is supported by three of the world's largest specialized firms: Hyundai Heavy Industries (15% of the global market), Daewoo Shipbuilding and Marine Engineering (DSME) and Samsung Heavy Industries. On their own, these firms constitute 70% of Korean Production. In addition, Korea is the sixth ranked global motor industry. Two brands (Kia and Hyundai) of Hyundai Motors represent 78% of the 3.5 million vehicles produced in Korea. Occupying the third export position, the Korean automobile industry has made Hyundai Motors the only manufacturer able to buyback one of its largest global competitors (a feat that has only been matched by German company, Volkswagen. Finally, South Korea has become the fifth global leader in steel production, generating 4.2% of global steel production in 2011: the steel industry has thus constituted one of Korea's economic driving forces since the 1960s.

This dynamism in steel production is based principally in POSCO, the third-largest global producer of steel in 2008, fifth largest in 2010:

Table 1 – Large global steelmakers (production per 1 million tons)

Rank	Company	Headquarters	2007	2008	2009	2010
1	Arcelor Mittal	Luxembourg	116.4	103.3	77.5	98.2
2	Hebei Iron and Steel	China	31.1	33.3	40.2	52.9
3	Baosteel Group	China	28.6	35.4	31.3	37.0
4	Wuhan Iron and Steel	China	20.2	27.7	30.3	36.6
5	Posco	South Korea	31.1	34.7	31.1	35.4
6	Nippon Steel	Japan	35.7	37.5	26.5	35.0
7	JFE	Japan	34.0	33.0	25.8	31.1
8	Jiangsu Sagang	China	22.9	23.3	26.4	30.1
9	Shougang	China	12.9	12.2	17.3	25.8
10	Tata Steel	India	26.5	24.4	21.9	23.5

Source: World Steel Association

Mostly dominated by emerging countries (China, India, Russia, Brazil), the global steel industry is currently witnessing a certain resistance from the most dynamic, developed countries (Japan, South Korea, The United States). In light of this resistance, POSCO participates in a decisive manner, and its adjoining history is marked by three distinct phases.

1/ TAKE-OFF (1968-1981)

The birth of Posco embodies an ambition that was born during the epoch of Japanese Occupational Power. The idea was then reborn in the 1960s through plans to construct steel production establishments. At the time, President Park Chung-Hee and his administration agreed to the necessity of obtaining self-sufficiency in the domain of steelmaking, with the creation of Korea Iron and Steel Association in 1965. In July 1967, Korea saw the construction of a comprehensive steel mill for economic development in Pohang.

1-1/ Creation (1965-1969)

When considering Posco's origins, there is doubtless importance regarding Park Chung-Hee's visit to the United States. During the occasion, he created links with the president of Koppers in regards to the construction of an integrated steel mill. The instrumentation of this project resided in the completion of a joint venture between the then Korean government and Taegu Tech, led by Park Tae-Joon. The enterprise led its foundations in 1968, under the business name "Pohang Iron & Steel Company." In fact, it was not possible to install operational equipment before this date. The company also had rather humble beginnings, with only had 39 official employees. In spite of skepticism surrounding investment in the South Korean industry, the company launched in 1972, four years after its inauguration.

At the time, collaboration with Japan was decisive. This was due to the normalization of relations with Japan, which called for Park Chung-Hee, and materialized through international accord. This harmonization appeared as a priority for the United States: during the meeting between President Nixon and Japanese Prime Minister Sato, Nixon declared, "The national security of the Republic of Korea is essential to the security of Japan". A bilateral agreement followed, concluding during the third ministerial meeting between South Korea and Japan. It was composed of:

- The contribution of 73.7 million dollars of subsidies and government funding
- The supplying of 50 million dollars in credit from the Japanese Export Import Bank
- Technical assistance of Nippon Steel and other large Japanese enterprises.

1-2/Development (1970-1981)

Thus, the business saw steady growth in power within its production capacities

1/ April 1st, 1970 saw official groundbreaking of Pohang phase 1.

2/ July 3, 1973 saw completion of Pohang phase 1 construction. From this point, production rose to 1.03 million tons of steel per year

3/ May 31, 1975 saw completion of Pohang factory phase 2, and production reached 2.6 million tons of steel.

4/ December 8, 1978 saw the end of Pohang phase 3. Production rose to 5.5 million tons of steel.

5/ February 8, 1981 saw completion of Pohang factory phase 4. Production hit 8.5 million tons of steel per year.

6/ 1983 saw construction of Pohang factory phase 5. Production peaked at 9.1 million yearly tons of steel.

This rise in power was accompanied by important progress. In 1972, Posco 1 started to deliver flat steel products. This was primarily done to contribute to Korean self-sufficiency and ameliorate the quality of iron and steel products, but also to reinforce competitiveness by exporting at the lowest price possible. In 1980, the company supplied 6.2 million tons of steel (a 13% increase over 1979). However, at the time, nearly all of the Korean economic sectors were experiencing crisis. Domestic industries absorbed the largest amount of Posco products: hot-rolled steel contributed to the automobile industry, metal sheets went to maritime/mechanical construction or to the BTP, and electrical wires went to transformation manufactures. Ultimately, as South Korea remained a net importer, it showed competitiveness for certain products.

2/ A SUSTAINED ECONOMIC GROWTH (1981-1997)

During the 1980s, Posco saw rapid economic development.

2-1/Posco, the fifth-largest global steelmaking enterprise

Multiple steps began to take place. On March 5, 1986, Posco saw the construction of Gwangyang factory (phase 1). On December 3, 1986, Posco created POSTECH (the Pohang University of Science and Technology)⁵, followed by RIST (Research Institution of Science and Technology) on March 3 the following year: from this time onward, Posco emphasized technology and science. In addition, its growth continued: in terms of production capacity, the company surpassed 11.8 million tons in 1987 (with the construction of Gwangyang Works phase 1, inaugurated on May 7th) to 14.5 million tons in 1988 (with the inauguration of Gwangyang Works 2 on July 12), and 17.5 million tons in 1990 (with the opening of Gwangyang Works 3 on December 4.) From October 2, 1992, the establishment of the factory's final installment allowed for 20.8 million tons of steel produced.

At this time, Posco also became the fifth-largest global steelmaking enterprise. It continued to enhance its productivity in a context marked by a decline in American, followed by Japanese, steelmaking. In terms of productivity, Posco displayed its ability as a national leader. This evolution fostered the development of Pohang: with approximately 52,000 citizens in 1996, the city constituted itself in a progressive manner as an industrial complex for finished products, and intermediary products supplied from the steelmaking industry.

⁵ For a history of Postech, see: <http://www.postech.ac.kr>

2-2/ A growing internationalization

At the same time, the firm saw growing internationalization.⁶ Certain successes mark this international breakthrough between 1992 and 1997:

Table 2 – Stages in Posco's Internationalization (1993-1997)

Date	Stage
December 9, 1993	Iso 9002 Certification
October 14, 1994	Introduction to the New York Stock Exchange (NYSE)
December 7, 1994	Construction of Pohang Light Source (PLS)
September 1, 1995	Opening of the Posco Center
October 27, 1995	Introduction of Posco to the London Stock Exchange (LSE)
November 28, 1995	Strengthening of the Pohang Blast Furnace
October 15, 1996	Construction of five blast furnaces in Pohang. Beginning of construction of the company's first mini-mill (micro-factory)

Source: Posco's Annual Reports.

This internationalization was accompanied by profound changes. In 1993, founder Park Tae-Joon (1927-2011) had to resign from his position as chairman. The President of the Republic, Kim Young Sam (the newly elected candidate of South Korea's first democratic election) lost confidence in Tae-Joon. An empty accusation of poor managerial skills pushed the former chairman to a voluntary exile in Japan. The arrival of Kim Dae-Jung to the Republic's Presidency saw the restoration of Park Tae-Joon and, with him, his former managers. Furthermore, Park Tae-Joon became the Prime Minister of Korea. His Posco successors, Yoo Sung-Boo (chairman and representative director) and Lee Ku-Taek (president and representative director), followed his actions in reinforcing decentralization and diversification. They sought flexibility and increased autonomy, all in seeking consensus-based decisions and without instilling a strictly hierarchical structure. Finally, in July 1994, Posco equipped itself with two subsidiaries— POSTEEL, for domestic market sales, and POSTRADE for international trading. They entered operation in September 1994: Postrade then controlled all international subsidiaries.

2-3/ Park Tae-Joon, a great civil servant

Park Tae-Joon was born on September 29, 1927 in Jangan (modern-day Busan), where he lived until he accompanied his father to Japan for work at the age of 6 years old.⁷ He returned to Korea in 1945, ending his studies at Waseda University. From there, he enlisted into the Korean Military Academy, where he graduated in 1948 and acted courageously during the Korean War. His military career was accompanied by studies at Dankook University, followed by studies at the National Defense University Graduate School, where he obtained a Masters in Political Science. As a

⁶ On this internationalization: Rang-Ri PARK-BARJOT, « Mondialisation et avantage concurrentiel. La percée internationale de Samsung (1953-1986) », *Revue Economique*, vol. 58, n° 1, January 2007, p. 231-258.

⁷ SONG Bok (eds.), Posco, study on Park Tae-Joon, op. cit. See also: Dennis HEVESI & CHOE blood-Hun, "Park Tae-joon, Founder of a Giant in Steel, Dies at 84, The New York Times, December 13, 2011.

general, he took part in the coup d'état of May 16, 1961 on the side of Park Chung-Hee. Overall, he took care of his family, which, at the time, was crucial given the intensifying political state.

The two men (Park Chung-Hee and Park Tae-Joon) knew each other very well. In 1947 Park Chung-Hee, a commander and a ballistics instructor, complimented Park Tae-Joon on his mathematical capacities. Ten years later, they reconnected when Park Tae-Joon became a colonel. General Park Chung-Hee recruited him to high command and appointed him deputy. Two months after the coup d'état, Park Chung-Hee named Park Tae-Joon as the Secretary to the President of the National Reconstruction Council. In September of the same year, he was named Officer of the Commercial and Industrial division of the National Reconstruction Council. In 1963, Park Chung-Hee and Major General Park Tae-Joon left the army. The majority of officers (mainly superiors who took part in the coup d'état) found themselves in high-ranking politics; Park Tae-Joon instead oriented himself towards business. At the end of 1963, he became the Chief Executive Officer of the Korean Tungsten society. Within a year, he improved the company and increased profitability. This earned him the title of *president* (not to be confused with *chairman*, for his position exercised executive power.) In 1967, Park Chung-Hee called on him to lead Pohang Iron & Steel Company, where he became president in April 1968. After the assassination of Park Chung-Hee, Park Tae-Joon became the protector of the Park Jiman, the President's son. He helped him acquire control of Samyang Industries.

In 1980, Park Tae-Joon entered politics as the first member of the National Preservation Legislation Council. He was elected as the eleventh member of the National Assembly, under the label of the Democratic Justice Party. The Assembly almost instantly assigned him to the position of Committee Finance Director. After the fusion of three close political parties, he became the president of the Democratic Liberal Party in 1992. For a long time, Park Tae-Joon protected Posco from political contingency. However, his discord with the new president Kim Young-Sam and his government led to him submitting a letter of resignation from his position as Posco's president on October 5, 1992. The same day, Posco's exceptional administrative council attempted to overturn this decision.

The conflict with Kim Young-Sam also compelled him to step down from his duties with the National Assembly. The courts suggested that he had received 3.9 billion won in bribery on behalf of Posco's dealers. However, investigations exonerated him due to a lack of evidence. Although momentarily exiled in Japan, he successfully returned to Korea in 1997. He was elected deputy of the National Assembly as a representative of Buk-ku in Pohang. In denouncing the economic failures of President Kim, he ascended into the presidency of the Liberal Democratic Party. Associated with Kim Jong-Pil, the former Prime Minister of Park Chung-Hee (and his brother-in-law), he supported the election of presidential candidate Kim Dae-Joong. Park Tae-Joon then became the Prime Minister of South Korea at the demand of Kim Dae-Jung. He quickly left his office following accusations of fiscal fraud, which once again went unproven.

He ended his career as the honorary President of Posco, not without marrying off his daughter, Park Yua, to Ko Sung-Duk, governing member of the Liberal Democratic party and former CEO of Posco. Considered by Anglo-Saxons as the "Korean Andrew Carnegie", and recognized under the nickname Chungnam, Kim Tae-Joon became a Doctor *Honoris Causa* by a number of universities such as Carnegie Mellon University, Harvard Business School and Seoul National University. A study from Stanford Business School credited "his leadership... a decisive contribution to the South Korean government." He distinguished himself for his social service,

offering Posco employees housing as well as public service, such as childcare. Having founded the Posco Scholarship Foundation in 1971, followed by Postech, he gave the Park Tae-Joon Foundation a flux of human resources; in doing so, he promoted cooperation within Asian business and sought to promote the next generation and Korean interest in Asia. After becoming president of the foundation in 2008, he endorsed Postech's distribution of the Park Tae-Joon Prize, which was to be given to high-achieving researchers. He passed away on December 13, 2011 at 84 years old at Yonsei University Medical Center, leaving behind a phenomenal legacy as a major leader in Korean industrialization.

3/ FROM PRIVATIZATION TO MULTINATIONALIZATION

The history of Posco is an example of successful privatization, without complete and sudden shift from past practices. This history also constitutes one of the key notions in understanding the rebound of Korean economics after the 1997 economic crisis.

3-1/ 1996-1998: From public to private

The concept of opening capital to the public sector dates back to 1988: on this date, Posco conducted its first public share offering. This process involved simply opening the capital of enterprises (privately financed) in order to limit the use of bondholding debt. The decision to privatize Posco took place in 1997. In the context of an incredibly severe and troublesome Korean financial crisis, President Kim Young-Sam was compelled to engage in a privatization policy of anonymous societies with share from state capital. However, while completing this endeavor, the administration led by Kim Young-Sam changed policy directions and decided to not sell state-controlled stock.

The election of Kim Dae-Jung revitalized the process. The new president made it a priority, due to the economic crisis. The decision was then made to privatize Posco. Starting in 1998, governmental share in Posco's capital continued to diminish, falling to 20% at the end of the year. More than 50% of the business's capital came from foreign investors. In 2000, the privatization became complete. Between 1996 and 1998, ownership and shareholding evolved as follows:

Table 3 – Evolution of Posco's Shareholders (in total percentage) from 1996 to 1998

	1996	1997	1998
Korean Government	33.7	33.8	21.1
Other	66.3	66.2	78.9

Source : Posco's Annual Reports.

From 1996 to 1998, privatization seemed favorable when considering growing rates of production.

Table 4 – Evolution of Posco's production and production capacities from 1994 to 1998 (in millions of tons)

	1994	1995	1996	1997	1998	Percentage of annual growth rate
Production Capacity	21.2	21.2	23.4	23.9	24.5	+3.6
Production	22.1	23.4	24.2	26.4	26.0	+4.1
Utilization percentage of production capacity	104.4	110.6	103.5	110.6	106.1	N/A
Sales	23.2	23.5	25.4	28.0	29.8	+6.3

Source : Posco's Annual Reports.

The period saw amelioration in the coefficient of utilization in production capacity, carried out by the vigorous progression of sales as well as significant gains in productivity by salary hour: in 1998, one ton of steel could be created in 1.36 hours of work, as opposed to 1.80 in 1994.

These gains in productivity allowed for an advancement in exportation, whilst the internal Korean market became preponderant.

Table 5 – Evolution of Posco's sales by geographic market (In percentage of total)

	1996	1997	1998
South Korea	68.4	69.0	60.8
Japan	11.1	11.2	9.4
China	5.9	5.2	8.5
Other Asian Counties	9.5	9.3	8.1
United States	4.6	4.8	8.2
Europe	0.2	0.2	3.5
Middle East	0.3	0.3	1.5

Source : Posco's Annual Reports.

In addition, the decline of Japanese demand was largely compensated for by growth in China, the United States and Europe.

This growth in sales is correlated to the production accompanied by a lively progression in profits:

Table 6 – Comparative evolution of differing indicators in Posco's Performance, 1996 to 1998 (in percentage, based on data of Won trends)

Sales revenue without taxes	+17.2
Raw added value	+15.2
Operative Results	+17.6
Net Benefit	+11.9
Dividends	+ 11.6

Source : Posco's Annual Reports.

In practice, the increase in margin of operation (operative results/sales revenue without taxes) occurred between the period of 13.8 percent in 1996 and 14 percent in 1998, despite the South Korean economic crisis. Such a situation allowed for the rapid restoration of dividends in stocks paid by stockholders:

Table 7 – Evolution of dividends via stocks paid by stockholders (in US dollar)

1994	1995	1996	1997	1998
0.85	1.23	1.18	0.59	1.04

Source: Posco's Annual Reports.

Between 1994 and 1998, progression was an average 5 percent per year from foreign capital interest (namely from the United States) that invested in Posco.

Three factors benefitted from this evolution. The first was in the elevated level of investment:

Table 8 – Posco: investment strategies (in%)

	1996	1997	1998
Investment rate = <u>Raw investments</u> Sales revenue without taxes ⁸	20.5	22.2	22.4

Source: Posco's Annual Reports.

It is noteworthy that investment efforts were maintained even during the growth of the financial crisis.

A second factor took place and justified this massive investment effort: gains in work productivity. In point of fact, the costs of work suffered between 1996 and 1998, with a relatively important reduction in total percentage of operative costs: 10% in 1996, 8.3% in 1997 and 6.8% in

⁸ In a strict accounting approach, it would be better to report the gross investment to sales taxes. Nevertheless, the ratio remains interesting, insofar as duty-free sales also include annual depreciation.

1998. However, the expansion continued in sales as well as within the maintenance of employment volume:

Table 9 – Posco's employment evolution from 1996 to 1998

	1996	1997	1998
Total Staff	27507	27580	28485
Subsidiaries Only	7303	8027	9222
% Of Subsidiary Total	26.6	29.1	32.4

Source: Posco's Annual Reports.

The search of productive gains and growth in operation led to relative development in employment at the profit of subsidiaries. Comprising a powerful syndicate since June 1988, the salaries of Posco (80% qualified technicians and factory workers, 20% of employees in 1998) benefited between 1996 and 1998 from one of the most elevated salaries in Korea, thanks to good cooperation efforts between managers and salary representatives.

The final favorable factor in redeployment during the crisis period is the consecutive fashion privatization took, in the effort of non-negligible research development (0.9% of sales revenue in 1998 but 1.8% in 1996), supported by 290 researchers in the Research Institute of Science and Technology and the 229 researchers in the Posco Technical Research Laboratory (of which 93 held a doctorate or post-doctorate level of education). In addition, since 1997, Posco has maintained a technical cooperation with principal Japanese competitor, Nippon Steel. As a sign of this success, with 25.6 million tons of steel produced in 1998, Posco became the highest-ranking global steelmaking industry.

3-2/ After the crisis, a hesitant reprise (1998-2002)

The firm overcame the crisis rather well, but growth rates fell. Sales saw quasi-stagnation:

Table 10 –Evolution in Sales Production from 1998 to 2002 (Annual Growth Rate in Percentage)

Production (in millions of tons)	+1.9%
Production (in wons)	+1.2%
Sales (in wons)	+1.3%

Source: Posco's Annual Reports.

With 28.1 million tons of raw steel produced in 2002, Posco thus became the second global leader.

This situation can be explained through growth in competition. From 1996 to 1998, Posco was confronted with Japanese, American and Brazilian competition in the global market. Competition was also growing in the internal market. Posco maintained a dominant position, given that the business fulfilled 73% of Korean demand for stainless steel, 75% for cold-rolled steel and 78% for hot-rolled steel, in spite of local competition in the form of a mini-mill (micro-factory) in producing lower quality steel. In the domestic market, their main competitor was Hyundai Group. In order to provide for their subsidiaries (automobiles, maritime construction), this group

established a cold-rolling factory in May 1990 (buying 2.2 million tons of steel to Posco per year). This internal competition was encouraged by the endorsement of the Korean government for the price of steel, due to the 8% surtax bias on imported steel goods and the General Agreement on Tariffs and Trade (GATT). Posco continued to hold its ground in the internal market between 1998 and 2001:

Table 11 –Distribution of Steel Sales in the Korean National Market from 1998 to 2002 (In tons and total percentage)

	1998	1999	2000	2001	2002
Posco Sales (%)	77.6%	56.3%	52.2%	54.6%	48.2%
Sales of other Korean Steelmaking Industries (%)	15.9%	37.2%	39.3%	37.0%	40.6%
Imports (%)	6.5%	7.3%	8.5%	8.5%	11.2%
Total (%)	100	100	100	100	100
Total (in millions of tons)	25.0	34.0	38.4	38.3	43.7

Source: Posco's Annual Reports.

In addition, import rates progressed in a spectacular fashion, but internal competition maintained a considerable importance.

Facing the growth of competition, Posco searched for a solution in technical and geographic double diversification. The firm took advantage of its diversified spectrum of products:

Table 12 – Evolution of Posco's different steelmaking product categories between 1998 and 2002 (in % of total delivered)

	1998	1999	2000	2001	2002
Hot-Rolled Steel/Coils	37.1	38.2	35.0	37.9	37.8
Sheet Metal Plates	10.9	10.8	10.9	10.5	10.1
Cold-Rolled Steel	29.8	31.3	32.7	31.3	31.3
Wire Mesh	9.9	7.7	9.2	9.3	9.3
Electric Steel	1.0	1.7	1.9	2.0	1.9
Stainless Steel	3.8	5.9	4.9	4.2	4.6
Divers	7.5	4.4	5.4	4.8	5.0
	100	100	100	100	100

Source: Posco's Annual Reports.

The joint dominance of the laminates was accompanied in effect a significant production of plate and tubing, while began a breakthrough on the market of special steels. However, export demand seemed more favorable to the laminates hot and stainless steels.

From a geographic point of view, a major factor resides in the reorientation of sales to China and other emerging countries.

Table 13 – Evolution of Posco's exportation per geographic region (in total % of tons)

	1998	1999	2000	2001	2002
China	20.6	21.6	31.7	32.7	30.6
Asia (excluding China and Japan)	21.1	22.3	22.6	21.4	26.1
Japan	21.7	25.0	24.2	22.2	19.3
North America	21.5	20.6	12.4	7.2	10.6
Europe	9.5	6.4	3.2	3.4	3.2
Middle East	2.8	1.2	1.7	0.1	0.1
Other	2.8	2.9	4.1	13.1	10.2
Total	100	100	100	100	100

Source: Posco's Annual Reports.

It is clear that Chinese markets and, in a more transient sense, Japanese markets, allowed for recovery before the advancement of emerging countries as well as Latin America and Africa.

Another method in confronting competition was constituted in the conclusion of cooperation efforts with a certain number of major competitors. In 1998, Posco and Nippon Steel reinforced their cooperation via mediation and an equal cost cross-participation: 1% of Posco's capital was transferred to Nippon Steel where as 0.7% of Nippon Steel's capital was acquired by Posco. This alliance came to fruition during 2002: the participation of Nippon Steel in Posco's business grew to 3.2%, whereas Posco elevated its participation within Nippon Steel to 2.2. These cooperative agreements are greatly seen in the provisioning of coal and ore: iron is imported from Australia, Brazil and India, whereas coal comes from Australia, China, Canada and Russia. With this in mind, Posco solidified an agreement with la Compania Vale do Rio Doce (VRD), an ore producer, in January 1995. It took the form of a joint venture (50/50) in hopes of constructing an operative factory. Starting in October 1998, the factory supplied 4.1 million tons of ore per year. In April 2002, similar agreements were made with Australian group BHP Billington, Itochu Corporation and Mitsui Corporation.

This strategy seemed to pay off, for the enterprise preserved its profitability:

Table 14 – Evolution of Posco's Profitability Ratios between 1998 and 2002 (in % of total)

	1998	1999	2000	2001	2002
1/ Operational Margin: <u>Operational Results</u> TTC Turnover	14.0	15.8	16.7	12.1	14.3
2/ Profitability of Investment Capital: <u>Operational Results</u> Immobilizations	17.0	18.6	22.1	15.0	19.9
3/ Stock yield: <u>Dividends</u> Total Social Capital	11.4	16.9	17.1	15.3	17.7

Source: Posco's Annual Reports.

The relative stability of the operational margin was accompanied by a return of accrued investment as well as progress in stock yield. Measured by net working capital (retained earnings deficit), cash flow became positive from 1998 to 2002, in spite of a slight decline in 2002. Such evolution favors the achievement of privatization: between July 1998 and September 2000, the Korea Development Bank yielded next to 35% of the capital it possessed in June 1998. After a succession of stock sales (July 1998, July 1999, June 2000, September 2000), such capital found itself entirely privatized.

This strong performance owed a great deal to external growth strategy. Since February 2009, the business engaged in an active policy of restructuration (including the buyback of Posco Refractories, indirect subsidiary, the absorption of two other subsidiaries, the fusion of POS-AC Co. Ltd and Pohang Engineering and Construction Company Ltd) as well as external growth (buyback of 50% of stock from Pohang Steel Industry Co. Ltd). This group strategy accompanied diversification: the creation in 1990 of POS Data for information technologies, a joint venture launched for the production of silicon (1990 and, with Shinsegae Telecom, reaching 15% in 1994, then 22.1 in 1998), and in developing mobile telephones through a 2002 cooperation with Mitsui corporation (51% of capital from Posco terminal Co) with an equity investment of 6.8% in the capital of SK telecom, the first ranked Korean mobile telephone provider. Posco found itself armed for success in this new phase of growth.

3-3/ A new growth phase (2002-2007)

From 2002 to 2007, the business saw a net stimulus in sales production:

Table 15 – Evolution of sales production between 2002 and 2007 (Average annual growth rate %)

Production (in millions of tons)	+1.5%
Production (in wons)	+14.3%
Sales (in wons)	+15.8%
Sales (in dollars)	+20.5%

Source: Posco's Annual Reports.

This expansion mainly results from the favorable evolution of global prices, as well as the progression in production volume. The positive evolution of the won/dollar was additionally favorable.

However, the enterprise continued to face a growing competitive market. Such is the case in the internal market, where Posco supplied as much as 40% in 2006-2007.

Table 16 – Distribution of Steel Sales in the Korean National Market from 2003 to 2007

(in tons and % of total)

	2003	2004	2005	2006	2007
Posco Sales (in %)	46.6	50.0	48.5	42.3	38.6
Sales of other Korean steel companies (in %)	39.3	33.9	33.9	36.4	55.1
Imports (in %)	14.1	16.1	17.6	21.3	22.9
Total (in %)	100	100	100	100	100
Total (in millions of tons)	45.3	47.2	47.1	49.6	55.1

Source: Posco's Annual Reports.

While benefitting from a promising domestic market, the enterprise had to face growing imports from Japan, China and Russia, as well as growing powerful competition within South Korea such as mini-mills (micro-factories) in producing hot-rolled laminate. Posco greatly withstood this competition, notably in cold-rolled laminate (45% of the national market in 2007) and stainless steel (60% in 2007). Hyundai Steel continues to be Posco's principal competitor. This producer of electrical steel supplied 11.3 million tons of steel in 2007 (compared to 32.1 tons produced by Posco).

Table 17 – Annual growth rate of raw steel production from 2003 to 2007 (in %)

2003	2004	2005	2006	2007
+7.3	+10.9	+2.0	+5.8	+6.1

Source: International Iron and Steel Institute.

In particular, and despite the negative effects of the won in relation to the dollar, the Posco's growth was supported by Chinese demand (which made up 29.4% of exports in 2007). Between 2005 and 2007, Posco's exports grew by +9.2% in value (but only +1.4% in volume). Later on, they continued in their deployment towards emerging and non-Asian countries.

Table 18 – Evolution of Posco's exports by geographic region (in % of total and in tons)

	2003	2004	2005	2006	2007
China	36.8	38.3	32.1	25.3	29.4
Japan	18.0	20.3	22.4	19.6	19.7
Asia (excluding China and Japan)	23.7	18.3	19.9	19.0	19.5
North Korea	7.5	9.0	9.2	9.6	7.0
Europe	2.5	1.4	0.4	3.2	5.0
Other	11.5	12.7	16.0	23.3	19.4
Total (in %)	100	100	100	100	100
Total (in tons)	9.5	8.2	8.2	10.0	10.9

Source: Posco's Annual Reports.

This major evolution concerned the magnitude of Chinese disengagement surveyed in 2005 and 2006. It resulted from rigorously enforced anti-dumping measures instilled by the country in 2000. Posco overcame part of the problem through agreements with the country's officials, from which a revival resulted in 2007. On the other hand, the enterprise maintained its positions with Japan and North America very well, and took steps towards expanding within the European market.

This operational activity is principally based in the sales growth of cold-rolled steel sheets:

Table 19 – Posco's export evolution by product type (in % and tons) between 2003 and 2007

	2003	2004	2005	2006	2007
Hot-Rolled Laminate Sheets	25.8	25.0	23.8	24.8	14.1
Sheet Metal	3.8	3.6	2.8	2.3	2.1
Cold-Rolled Laminate Sheets	48.8	50.5	50.3	47.8	57.0
Drawn Steel	6.3	3.1	4.1	5.0	4.6
Silicon Steel	2.3	3.0	3.2	3.7	4.7
Electric Steel	8.3	12.4	12.5	12.4	15.6
Other	4.7	2.4	3.3	4.0	1.9
Total (%)	100	100	100	100	100
Total (Tons)	9.5	8.2	8.2	10.0	10.9

Source: Posco's Annual Reports.

The spectacular rise within exports, of electric and silicon steel, demonstrates willingness to revive growth in expanding the spectrum of Posco's technological innovation in order to compensate for the decline in base product competitiveness.

A reorientation followed, concerning the profit sales of cold-rolled steel and specialty steel (electric and silicon).

Table 20 – Posco's sales evolution by product type (in % and won's)

	2003	2004	2005	2006	2007
Hot-Rolled Laminate Sheets	26.1	25.1	25.0	20.8	16.1
Sheet Metal	8.2	9.1	9.6	10.7	10.2
Cold-Rolled Laminate Sheets	32.4	30.2	32.0	30.3	31.1
Drawn Steel	6.6	6.2	6.5	5.6	5.2
Silicon Steel	2.7	2.4	2.9	3.0	4.0
Electric Steel	19.7	22.6	19.3	25.8	29.7
Other	4.3	4.4	4.7	3.8	3.7

This reorientation assured a continual positive cash flow and an elevated level of profitability.

In fact, the group's cash flow became significantly positive. It was, in fact, improving: the net working capital presented a solid positive of 16.6% of total assets in 2003, and 21.4% in 2007. This situation shows the very rapid progression of profits.

Table 21 – Annual average growth rate in various profit indicators from 2003 to 2007 (in %)

Operative Results (in US dollars)	+22.3
Net profit (in US dollars)	+29.1
Dividends (in US dollars)	+32.5

Source: Pasco's Annual Reports.

During the period, Posco constituted an attractive enterprise for international capital: such is evident with its 4% capital acquisition by Warren Buffett's Berkshire Hathaway at the beginning of 2007.

Effectively, the company maintained rather elevated profitability despite an observed decline in 2006 and 2007:

Table 22 – Evolution of Posco profitability ratios from 2003 to 2007 (in % of total)

	2003	2004	2005	2006	2007
1/ Operational Margin:	18.3	22.2	23.1	17.0	15.6
<u>Operational Results</u>					
TTC Turnover					
2/ Profitability of Investment Capital:	33.1	51.0	49.6	30.0	31.6
<u>Operational Results</u>					
Raw Immobilizations					

Source: Posco's Annual Reports.

However, between 2003 and 2007, Posco situated itself within levels of profitability superior to those of a former period.

This favored the stability of its shareholders:

Table 23 – Capital Structure of Posco on December 31 2007 (in % total stock)

Nippon Steel Corporation	5.0
Mirae Asset Investment co., Ltd	4.2
National Pension Service	3.9
SK Telecom	2.9
Pohang University of Science and Technology	2.3
Public	68.4
Self-control	13.3
Total	100

Source: Posco's Annual Reports.

The period between 2002 and 2007 saw a marked evolution. On March 15, 2002, the society changed its company name and became Pohang Iron & Steel Co. Ltd (or Posco Ltd). In anticipating the process of privatization, its new chairman, Lee Ku-Taek, introduced a new system of governance. This system was adapted to the international standards that granted priority to the interests of shareholders, and was founded on a new system of performance evaluation, thanks to which Posco became the most profitable steelmaking enterprise in the world. This organization is based on the Posco center, whose headquarters were established in Pohang (1987) as well as Seoul's Teheran Valley's *High Tech* quarter (1995). These are the first intelligent buildings in the steelmaking industry. Lee Ku-Taek implemented a strategy of exportation that was calibrated towards China and India. Urged by the new heightened surplus in Korean salaries, the group implanted itself in China in November 2003 and initiated Zhanjiang Pohang Stainless Steel (SPSS) in 2006: Posco was then the first foreign firm to establish an integrated factory in China.

Interest in India unfolded a bit later. On June 30, 2005, Posco signed a cooperative memorandum with the State of Orissa: it countered the warranty of the provisioning of 60 million tons of iron reserves (over 30 years of production). Posco committed itself to producing 12 billion dollars of investment, as well as four blast furnaces, one electric factory, housing for personnel, 12 million tons of yearly production capacity and 13000 direct employments. On August 25 of the same year, Posco India was born. Instantly, the establishment was met with strong local opposition, for both the federal and the State government had tried to illegally utilize land in violation of the Forest Rights Act. These oppositions denounced a project conceived to profit Posco, driven by population displacement and founded on the appropriation of the State's mineral resources at a very low price. Posco then turned towards other countries; Vietnam, with the construction of a hot and cold-roll laminate factory in 2006, that had the ability to deliver 3 million tons of steel per year; Mexico, thanks to the opening of the Altamira factory in 2008. Thanks to the combination of these foreign and Korean installations (Pohang, Gwangyang), Posco is thus seen as the second global producer of steel sheets after Arcelor-Mittal.

Conclusion: In search of growth resources

In its ascension, Posco benefited from specific advantages, notably the development of service activities.

1/ Specific Advantages

Within these advantages, technological innovation does not seem to be the lesser.⁹ Posco supplies a vast array of diversified products. They profit notably from the *Finex Iron Making Process*, an effort to reduce pollution, introduced in Pohang in November 2007, assuring a production of 1.5 million tons of steel per year. Another new procedure is *Strip Casting*. Meant for the provision of hot-rolled laminate products, this allows for a reduction in investment and fabrications costs as well as energy expenditures. Successfully tested in June 2006, it authorized mass production in 2008. However, the efforts of the enterprise also concern the laminate roll trains themselves, as well as the promotion of techniques that allow for the rapid attachment of steel sheets with resin.

A second advantage resides in the group's Asian and American implantation. The former is based in six major sites. Two are Korean: Pohang, on the southeast coast of the country, constructed between April 1970 to February 1981 and capable of producing 12.7 million tons of steel per year; Gwangyang, on the south coast, installed from September 1982 to October 1992, is the most modern factory, concerned primarily with automobile production needs and high-quality steel, and producing 16.2 million tons of steel annually. In other parts of Asia: Zhanjiang in China, an integrated factory that produces stainless steel (2.6 million tons per year) and reinforces two subsidiaries (Zhanjiang Posco Stainless Steel, Qingdao Posco Stainless Steel); Phu My, in Vietnam, near Ho-Chi-Minh (1.2 million tons of cold-rolled laminate steel per year); Paradip, in India, the third largest steelmaking plant in the world. Outside of Asia, Posco works in Altamira, Mexico, in a joint venture with US Steel and Sean Steel (specializing in steel tubes), and in Pitbara, Australia, with an investment founded on the search for ore self-sufficiency, based on a driving policy that exists in Brazil as well.

Benefiting from global shareholding (45% of foreign investors, 33% of national), Posco emphasizes durable development, surrounding five objectives. The first resides in protection of the environment. In 2008, this objective absorbed 12% of investments. It concerned itself with utilizing 98% clean energy and 98.8% recycled products, notably in small and medium enterprises. This policy involves agreements for ecological amelioration with governmental and non-governmental organizations (NGO). The second objective constitutes itself in reducing carbon emissions, notably in the integration of alternative energy. Added to this is a third objective of transparency (establishment of *labor-management councils* and *stock ownership programs* destined for salaried workers). The fourth objective is *win-win partnership*, thanks to a group of 597 experts, serving as technological advisors.

The final objective is concerned with the group's social contribution. Here, four programs are found:

1/*Educating Tomorrow's Leaders*. This program oversees the financing of one dozen private kindergartens. This program is based in the Institute of Ferrous Technology (the first global

⁹ POSCO 2005 & 2007 Digital e-Brochure, see: <http://www.posco.com>.

graduate school of its kind founded in 2006), at Pohang University of Science and Technology, and Posco TT as well as the Park Foundation, principally funded by Posco Asia Fellowship.

2/ *Sharing Time and Hearth through Community Service.* This program is made up of the 92% of employees and leaders who give an average of 24 hours a year towards collective interest activities (Posco Volunteers Organization).

3/ *Enriching Life through Culture and Arts.* Posco finds importance in regularly sponsoring various projects such as regular concerts at the Posco Center, symphonies, art galleries in Pohang and Gwangyang, the Pohang International Fireworks Festival and the Gwangyang Korean Classical Music Festival.

4/ *Contributing to Society with Non-Governmental Organizations.* Posco is active in supporting the “Habitat for Humanity” campaign in Thailand and India, as well as “Korea Food for the Hungry Intl.” They also support programs for establishing elementary schools in China and Vietnam. Lastly, they work to create computer centers for technological information advancement in Bangladesh.

2/ A development from service activities

Posco presents itself, alongside Samsung and Hyundai, as one of the largest global engineering associations following the American model (Bechtel, Fluor). In 1994, Posco Engineering of Construction was born (Posec). This subsidiary saw a rapid international breakthrough from 1995 to 1999. 1995 witnessed the creation of two subsidiaries, one in Vietnam (IBV), the other in Shanghai (POS-Plaza), and the construction of a steel mill for Arco Steel in Egypt. The association then multiplied its technical and innovative implementations in South Korea, in China, for the LG account, in Brazil, in Vietnam and in Iran (blast furnaces). The enterprise then saw a certain slowdown between 2000 and 2003, except for in China and Vietnam. However, starting in 2004, growth accelerated with implementation in Taiwan (February 2004), Saudi Arabia (September 2006), in Dubai (February 2007) and in Cambodia (April 2007). Posec stood out through a number of major projects in Vietnam and, notably, South Korea (seen in the construction of a new blast furnace in Gwangyang within only 55 days). Notably, in April 2008, Posec bought back the rights of Daewoo Engineering and became one of Korea’s engineering leaders. This breakthrough in service activities saw new horizons for Posco.