Economic Recession and Hyundai Heavy Industries
- Strategies to Cope with the Risk Factors of Heavy Industry*

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Hyundai Heavy Industry (HHI) is a world-class Korean company, which significantly relied on the shipbuilding industry that was suffering from a worldwide recession followed by the European debt crisis. HHI found that it cannot continue to depend only on the shipbuilding industry. In this case study, we analyze the crisis affecting HHI from various perspectives and propose solutions. We conduct interviews with HHI employees and analyze the company's financial and sales data. Finally, we discuss how to address the issue of HHI's high dependency on the shipbuilding industry by suggesting a diversification from its current business segments.

Key Words: Hyundai Heavy Industry, heavy industry, diversification strategy, shipbuilding industry, Korea

Ⅰ. Start of HHI's Nightmare

Japan's economic journal Diamond Weekly announced in 1985 that the shipbuilding operation division of Hyundai Heavy Industries (HHI) ranked first in the contracting and shipbuilding division, beating Mitsubishi Heavy Industries in Japan. Now, 20 years later, HHI has not only maintained the top position in the field of shipbuilding but also made Korea a global shipbuilding nation.

However, Europe's financial crisis in 2010 imparted a negative effect on HHI, which depends heavily on exports. Hyundai's core business—shipbuilding and heavy industries—which highly depends on the prices of raw materials, was affected by the Greece's fiscal crisis. In particular, Greece, which was the starting point of Europe's fiscal crisis, accounts for a large proportion of Korea's ship exports. In the situation where the shipbuilding industry has stagnated for long time since the bankruptcy of the Lehman Brothers, Europe's financial crisis poses a considerable threat to HHI.

Indeed, the shipbuilding economy, which accounts for a large proportion of the heavy industry, has been getting worse; simultaneously, many heavy industries at home and abroad face various unfavorable factors: liq-

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uidity risk and decline in enterprise value. Every business faces difficulty in finding new growth engine with the worsening of the economy in which new investment is inconceivable. In addition, as Europe (which accounts for the majority of the shipbuilding markets) experienced a financial crisis, all the world's shipbuilding and heavy industry companies hit the bottom of contract performance. The economic depression in the heavy industry, which started with the bankruptcy of the Lehman Brothers in September 2008, has continued until the first half of 2012 with the European economic crisis. Entering the second half of 2012, the heavy industry and shipbuilding economy expected a rally, and a tentative attitude appears, which projects the outlook that the withdrawn market will show signs of activity (as of the third quarter of 2012).

However, this sign of market recovery will not be the opportunity for a new leap forward for all heavy industry companies. This change in circumstances may be either beneficial or not, depending on whether a company had prepared for a new phase in the economic recession situation. Is the HHI, which experienced such threats as decline in the market value and lack of sufficient orders, prepared to take this opportunity of a new rebound?

Although the world economic condition is accepted as the worst condition in the field of heavy industry, HHI in Korea aims for a second leap by trying to secure a new growth engine and expand into new business fields. The present case study aims to illustrate how HHI—South Korea's largest heavy industry company—tries to overcome the economic crisis at the lowest point of the heavy industry economy. It also looks at the crisis situation analyzed internally by HHI and discusses the coping directions of HHI against these problems.

II. HHI Divisions

HHI has six business divisions, namely, Shipbuilding, Offshore & Engineering, Industrial Plant & Engineering, Engine & Machinery, Electro Electric Systems, and Construction Equipment, with shipbuilding as its core business. Further, the Green Energy Division was created in 2011. It currently operates seven business divisions (Table 1).

2.1 Shipbuilding Division

HHI's Shipbuilding division (the world's No.1 shipbuilder) leads the shipbuilding industry with a 15% share of the market. The Hyundai shipyard stretches over 4 km along the coast of Mipo Bay in Ulsan, Korea. The Shipbuilding division can build all kinds of ships to meet various demands from its clients. It has nine large-scale dry docks with seven huge "Goliath Cranes." The division reached the 10 million DWT[1] production mark and

1) DWT: Deadweight tonnage is a measure of how much weight a ship can safely carry.

〈Table 1〉Major business divisions and current status

Business division	Major products	Major customers	Major competitors	Projected Percentage of Sales in 2013
Shipbuilding	Oil tanker, container, LNG carrier, Drillship	Hapaq Lloyd (Germany), C.P. Offen (Germany), Diamond Offshore (USA)	Samsung Heavy Industries (Korea), Daewoo Shipbuilding & Marine Engineering (Korea)	36%
Offshore & Engineering	Fabrication, Installation of offshore structures	BP (UK), Eni Norge (Norway), Chevron (Nigeria)	Samsung Heavy Industries (Korea), Daewoo Shipbuilding & Marine Engineering (Korea)	16%
Industrial Plant & Engineering	Chemical equipment, Power generation equipment	MEW (Kuwait), SEC (Saudi)	Doosan Heavy Industries (Korea), Samsung C&T Corporation (Korea)	7%
Engine & Machinery	Marine engine, Diesel power plant	Major shipbuilders at home and abroad	Doosan Engine (Korea), Mitsui (Japan)	13%
Electro Electric Systems	Transformer, Circuit breaker, Switch board	Korea Electric Power Corporation (Korea), SEC (Saudi)	ABB (Sweden), Siemens (Germany)	11%
Construction Equipment	Excavator, Wheel loader, Forklift	-	Doosan Infracore (Korea), Komatsu (Japan), CAT (USA)	13%
Green Energy	Solar/Wind Power Systems	Wagner&Co Solartechnik (Germany) MHH Solartechnik (Germany)	Suntech (China) Yingli (China) Vestas (Denmark)	3%

reached milestones of 20 million DWT in 1988, 30 million DWT in 1991, 40 million DWT in 1994, 50 million DWT in 1997, 100 million DWT in 2005, and 150 million DWT in 2012.

2.2 Offshore & Engineering Division

The Offshore & Engineering division operates the world's largest offshore yard, which covers an area of 215 acres. It has the world's largest gantry crane, capable of lifting 1,600 tons. HHI's involvement in offshore structures began with a Saudi Arabian order for 89 jackets and deck structures for the Open Sea Tanker Terminal in the Jubail Industrial Harbor Projects. Since 1991, the Offshore & Engineering division has become a world lead-

ing Engineering, Procurement, Installation, and Commissioning (EPIC) contractor, providing integrated services such as engineering, procurement, construction, transportation, installation, offshore hook-up, commissioning, and project management. This division has successfully completed more than 150 projects, including over 100 EPIC projects, for the oil and gas industry worldwide. The division has completed 3 million tons of offshore facilities and 5,100 km of subsea pipelines in 49 projects for more than 30 clients worldwide.

2.3 Industrial Plant & Engineering Division

The Industrial Plant & Engineering division has 30 years of extensive experience in industrial plant projects. It provides sophisticated engineering capabilities for power plants and carries out all phases of project implementation on a turnkey basis, including engineering, procurement, fabrication, construction, commissioning, and training. The Industrial Plant & Engineering division's core business activities comprise the Engineering, Procurement, and Construction (EPC)[2] of thermal power plants, co-generation power plants, combined-cycle power plants, desalination plant, and oil and gas processing plants, as well as the fabrication and supply of the main equipment for nuclear power plants and oil and gas processing plants.

2.4 Engine & Machinery Division

The HHI Engine & Machinery division is the world's largest marine diesel engine builder with approximately 35% share of the global market. The division achieved a production milestone of 100 million brake horsepower in low-speed engines on September 29, 2010. It is also a leading manufacturer of propellers, cargo oil pumps, ballast water management system, and side thrusters, playing an important role in the shipbuilding industry. The division received 5,869 unit orders for Korea's first independently designed in-house diesel and gas engine, the Hyundai HiMSEN. The sales of the diesel power plants, including packaged power stations, have increased dramatically in markets such as Cuba, Brazil, the Middle East, Africa, Europe, and many Asian countries. The sales of the industrial pumps and robot systems have also increased rapidly. These products are strategic items in the division's plan for long-term growth.

2.5 Electro Electric Systems Division

HHI has earned a worldwide reputation as a reliable business partner in the power industry by manufacturing and supplying the highest quality electric equipment to the customers, including transformers of up to 800 kV, Gas-Insulated Switchgear (GIS) of up to 800 kV, low- and medium-voltage switch-

2) EPC Engineering, Procurement, and Construction is a common form of contracting arrangement within the construction and heavy industry.

gears, circuit breakers, motors, generators, power electronics, and integrated control and monitoring systems. Hyundai has taken the initiative of becoming environmentally responsible by developing advanced smart grid products.

2.6 Construction Equipment Division

Established in 1985, the Construction Equipment division has grown into a world-class total construction equipment producer. The division has developed 120 independent models, including three types of construction equipment, three types of industrial vehicles (excavators, wheel loaders, and forklifts), and skid-steer loaders. The division has a manufacturing capacity of 35,000 units per year at its Ulsan factory in Korea. It has one manufacturing plant in India and three manufacturing plants in China, together with overseas subsidiaries in the U.S., Europe, India, and China, as well as offices in Chile, Columbia, Panama, Turkey, U.A.E., and Russia.

2.7 Green Energy Division

The Green Energy division provides services in the fields of solar energy, wind power, and tidal power generation. The division tries to contribute to the sustainable advancement of mankind by providing solutions to global environmental issues, specifically through research and development to improve the commercial benefits of green energy. The division endeavors to achieve steady growth to position itself as a leader in the green energy market, thereby supplying much of the clean energy needed to pass on a greener planet Earth to future generations.

Ⅲ. History of HHI and the Present

The Hyundai Shipbuilding yard was established at Mipo, Ulsan in 1972, and the name was changed to Hyundai Heavy Industries (HHI) in the following year. Shipbuilding business has been HHI's core business since its founding. The Shipbuilding division not only became Korea's No. 1 but also enjoyed remarkable success to rewrite the world history in shipbuilding. The division recorded the best shipbuilding performance within the shortest period in the history of the world's shipbuilding industry by delivering 100 million tons of ships in 2005 and achieved a production of 1,738 ships in June 2012.

In addition to the Shipbuilding division, HHI has diversified its business by aggressive investment into various fields of heavy industry for decades. It also established the new Green Energy division based on the recent economic trends for future-predicted investment.

However, in recent years, the world economic slowdown has brought recession to most heavy industries in the world, including HHI. This recession can be easily observed in the recent management situation of HHI (Table 2).

〈Table 2〉 Income statement for the second quarter 2012 (unit: million US dollars)

	2nd Quarter 2012			1st Quarter 2012	2nd Quarter 2011
		Quarter on Quarter	Year on Year		
Sales	12,454.9	-1.7%	2.3%	12,671.2	12,177.0
Sales of Cost	11,581.3	2.7%	8.2%	11,278.0	10,701.5
Gross Sales	873.6	-37.3%	-40.8%	1,393.2	1,475.5
Operating Earnings	325.9	-63.0%	-65.2%	881.2	936.6
Profit Ratio	2.6%	-4.4%p	-5.1%p	7.0%	7.7%
Non-operating gain and loss	140.3	-	-	(206.7)	(423.7)
Financial gain and loss	(232.8)	-332.6%	-146.4%	100.1	502.1
Equity method gain and loss	(43.7)	-44.6%	-	(79.0)	5.1
Net profit before tax	189.6	-72.7%	-81.4%	695.5	1020.1
Net profit	121.9	-74.4%	-83.0%	475.5	715.9
Profit Ratio	1.0%	-2.8%p	-4.9%p	3.8%	5.9%

The quarter on quarter (QoQ) revenue decreased by 1.7% because of the company's lagging sales in the oil refinery sector caused by the decline in oil price and the sales reduction in the Shipbuilding division resulting from the reduction in the share of expensive orders. The operating profit decreased by 63% because of the company's transition to deficit in the oil refinery sector caused by the reduced profitability in the shipbuilding sector and decline in oil prices. The Year on Year (YoY) sales increased by 2.3% because of the increased operating ratio resulting from the increased volume of manufacturing in the Offshore & Engineering division and extension of advanced facilities in the refinery sector. However, the operating profit reduced by 65.2% because of the company's transition to deficit in the oil refinery sector caused by the reduced profitability in the shipbuilding sector and decline in oil prices.

This phenomenon can be seen in more detail from the sales of each business division (Table 3).

In most business divisions, the sales and profit decreased in the YoY basis. In particular, in Shipbuilding—Hyundai's major business division—the profit reduced by 63% in YoY, and this division led the overall profit decline. The sales by business divisions (Figure 1) shows that the overall reduction in sales orders was caused by the worsened shipbuilding market conditions, and the proportion of sales in shipbuilding declined. Currently, the Green Energy division, which started in 2011, is in the growth phase, showing less than 1% of

〈Table 3〉 Sales and proft by business division and major sectors

	2012				2011	
	Sales	Year on Year	Profit	Year on Year	Sales	Profit
Shipbuilding	17,154.7	-2.8%	778.3	-63.5%	17,657.2	2,130.7
Offshore & Engineering	4,059.1	12.8%	311.4	-14.8%	3,599.6	365.7
Industrial Plant & Engineering	1,426.6	-46.0%	105.9	-54.2%	2,639.6	231.3
Engine & Machinery	2,776.9	-4.6%	330.5	-41.5%	2,911.5	564.9
Electro Electric Systems	2,924.6	21.5%	(121.2)	-188.8%	2,406.6	136.5
Construction Equipment	4,770.6	-7.5%	191.0	-51.5%	5,155.4	393.6
Green Energy	319.1	-13.6%	(187.6)	-10.2%	369.3	(209.0)
Financial Services	606.0	-9.3%	63.9	12.2%	667.7	56.9
Oil Refining	24,476.7	22.9%	144.9	-54.4%	19,914.4	317.7
Others	999.6	1.1%	(384.7)	-59.1%	989.2	(941.2)
Consolidation adjustments(*)	(8,612.3)	30.9%	(287.5)	-43.3%	(6,577.6)	(506.9)
Total	50,901.6	2.3%	945.0	-62.8%	49,733.0	2,540.2

(*) Consolidation adjustments are made by eliminating inter-segment transactions and unrealized profits and losses, and valuations of joint venture and investments in associates using the equity method.

the sales contribution.

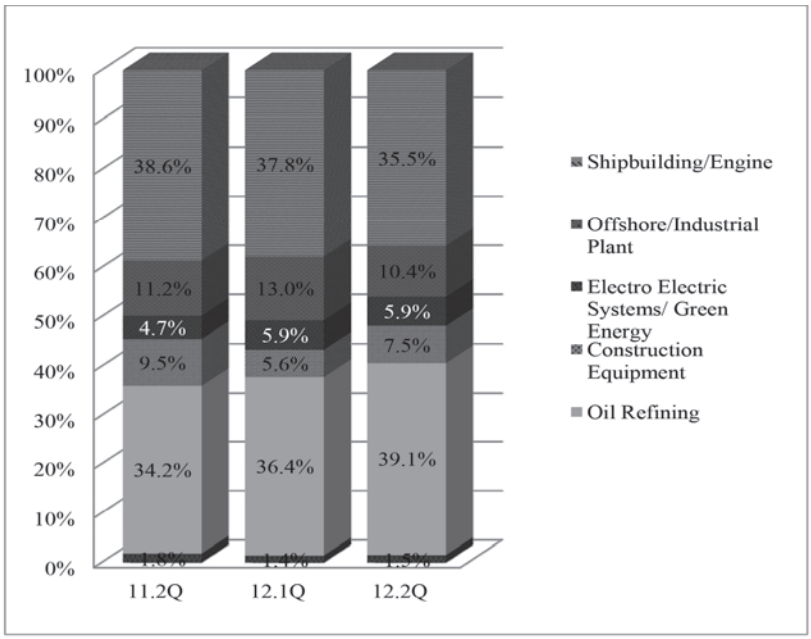
Ⅳ. Risk Factors of HHI[3)]

The HHI performance slowdown and poor sales due to the economic recession is not HHI's own problem. The heavy industry economy itself suffers serious recession because of the economic crisis in the U.S. and Europe that undermined the world economy. Recognizing this crisis properly and preparing a counter-measure against this threat are important. Given that HHI is a first-class enterprise, recognizing the HHI's risk factors is very important. Therefore, we analyze the various threats based on a series of interviews conducted among HHI employees, and the response to these threats is considered to influence the future growth of HHI.

4.1 Risk 1. High Sales Ratio that the Business Sector of Shipbuilding Occupies in the Entire Sales

HHI has a stable business portfolio as a comprehensive heavy industry company that operates various business divisions such as Shipbuilding with world-class competitiveness,

3) This analysis is based on the interview with employees during the Strategic Planning of the HHI Electro Electric division (September 2012).



〈Figure 1〉 Sales configuration by business division and major sectors.

Offshore & Engineering, Industrial Plant & Engineering, Engine & Machinery, Electro Electric Systems, Construction Equipment, and Green Energy. Until now, the Shipbuilding division has occupied the highest proportion at 38%. Therefore, the company's overall performance is likely to be affected by changes in the Shipbuilding division, which has the highest variability of orders. In the Shipbuilding division, because the changes in the volume of orders depend on the liquidity of the global economy, HHI's sales trend exhibits a similarity with that of the world's economic condition.

4.2 Risk 2. Reduced Order of Special Ship Due to Global Economic Slowdown

The shipbuilding industry showed some recovery with new orders in 2010, although it declined in the second half of 2008 because of the world's economic slowdown. The industry-wide downturn has extended because of the deepened Europe's debt crisis in 2011. The market situation of merchant ships is not likely to recover sharply because of the over-supply of ships and the fall in freight rates, although orders for Liquefied Natural Gas (LNG) carriers, marine ships, and special ships, which have been the recent focus of HHI, is relatively good. Nevertheless, the company's profitability indicator is likely to show a slow down if the order of special ships is not as active as expected because of the rapid global economic slowdown.

4.3 Risk 3. Cancelled Order and Delayed Delivery

Because the concerns of large European banks' credit limit have increased with the recent ripple effects of the economic crisis in Europe, the global shipbuilding market cannot rule out the possibility of order cancellations and delivery delays in the worst case, similar to that in 2009. This risk factor is closely related to the instability of long-term borrowing in the international financial market. HHI is expected to be less affected by the shrinking shipping finance because the government and the oil industry continue to invest on the company's main product – special ship – and the company is focusing its sales on current ship owners; however, the shipbuilding economy is likely to be affected if the financial crisis is prolonged.

4.4 Risk 4. Reduced Profits Due to the Rise in Prices of Raw Materials

The rising prices of steel products, including shipbuilding plates, which account for approximately 25% of the production cost and are a major raw material for shipbuilding, can weigh on the profitability of HHI. In particular, because of the nature of the industry in which the point of contract is different from the point of shipbuilding, the risk hedge against the thick-plate price fluctuation is difficult. Since the fourth quarter of 2011, the thick-plate price has been in a horizontal price movement, and the proportion of the cost of thick plate has declined because of the increase in demand for higher value-added vessels. However, it can act as a negative factor in the profitability if the price of thick plate and steel skyrockets due to the increase in the prices of the raw materials.

4.5 Risk 5. Price Elasticity on the High Demands in Marine Plant Industry

With the continuing trend of high oil prices due to the increased demands, the installation areas of offshore structures have gradually expanded into the deep ocean, and the relevant offshore plant industry has increased. However, the offshore plant industry has high price elasticity in terms of demands, and the price fluctuation in the energy industry sensitively affects the demands. Therefore, the continuing global economic crisis and the increased uncertainty in the financial market can have a negative effect on the entire offshore plant industry.

4.6 Risk 6. Slow Economic Growth Due to Mechanical Engineering Field's Dependence on Shipbuilding Industry

The Engine & Machinery division, which produces engines largely for ships and electric generation, has been gradually growing based on its dominant market position in the global engine market. However, the sales growth has weakened somewhat because of the slug-

gish shipbuilding economy. If this trend continues for a long time, the earnings volatility of the Engine & Machinery division can possibly increase. Long-term slowdown of the shipbuilding industry and subsequent slowdown in the Engine & Machinery division will be the factors that can adversely affect the overall HHI business.

4.7 Risk 7. Intensifying Competition in Non-shipbuilding Business Sectors Including Plant and Electric and Electronic Equipment

The steady profitability in the non-shipbuilding business divisions has reduced the volatility of the main business exposed to a variety of exogenous variables and has created a synergy among the non-shipbuilding businesses. However, the possibility of expanding the volatility of future earnings exists because of the intensifying competition in the industry and the global recession, meaning that a considerable uncertainty exists in continuing the generation of stable revenue as well as the reduction in the short-term revenue.

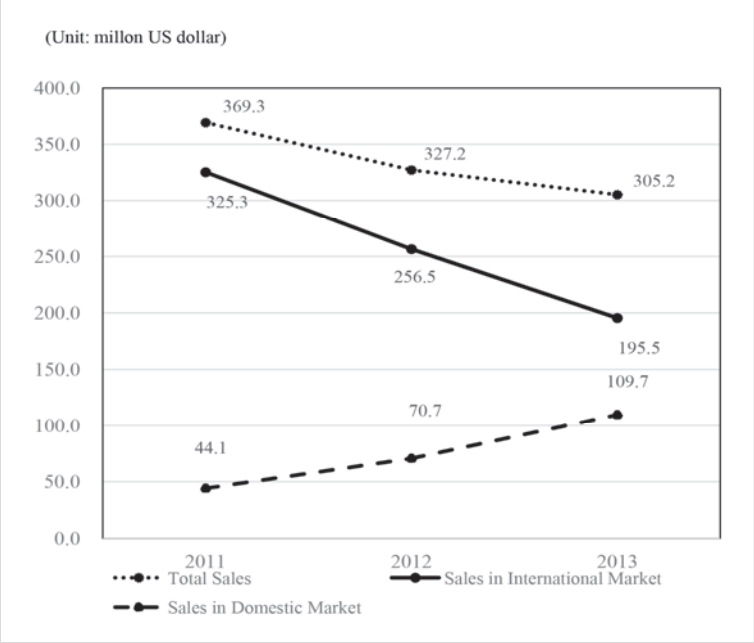
4.8 Risk 8. Political Instability in the Middle East and Plant Project

The HHI Industrial Plant & Engineering division has recently received active orders from the Middle East. However, the uncertainty of the plant business environment in the Middle East is expected to increase because of the political unrest in the region, including those in Egypt and Libya. The competitive intensity in this region is predicted to increase between European and Japanese constructors, as well as among Korean construction companies. The future change in the industrial plant business environment can possibly influence the profits of HHI.

Ⅴ. Attitude of HHI in Responding to the Crisis—Aggressive Business Diversification

If we look at the business structure of HHI, the Shipbuilding division accounts for approximately 38%. As the company's performance is associated with the shipbuilding industry's performance, a certain level of business contraction is likely to appear depending on the economic changes in the Shipbuilding division, which has a higher volatility of orders. Because of this fundamental crisis, revenue structural characteristic exists that leads to secondary crisis. Given this fact, HHI must urgently build stable business portfolio that is less sensitive to the economy. In other words, growth in the non-shipbuilding business division is urgently needed.

If a certain business sector has a high dependence on sales, the risk is commonly spread by distributing the revenue through diversification in the business fields (Ban 2013). However, many considerations have to be taken into account on the direction and time of the



〈Figure 2〉 Sales of Green Energy Division (Sales in domestic and international market)

business diversification. HHI has been involved in relevant diversification and is well known for its aggressive investment in terms of diversification. Paradoxically, the reason of this aggressive investment is due to its sales dependence on the Shipbuilding business division. Even if the company has a poor performance in the newly funded projects, this performance does not significantly affect the actual sales. Therefore, HHI can wait patiently for the growth of the newly invested division while investing more aggressively.

〈Table 4〉 SWOT Analysis for Green Energy Division of HHI

Strengths	Weaknesses
- Experiences in related industries (Electro Electric Systems, Industrial Plant and Engineering) - Financial firepower for conducting M&A	- Technical gap between the first mover and HHI - Low ROI (return on investment) of green energy industry - Need for massive investment
Opportunities	**Threats**
- Expected growth in green energy demand (solar power systems, wind power systems, and battery for electrical vehicle) - First mover in domestic market	- Immaturity of green energy market - Potential rivals in Europe, U.S., and China - Long economic recession

5.1 Investment in the Field of Green Project

HHI separated the solar and wind power projects from the electronic electric systems and then established the new Green Energy business division in 2011. Although the division accounts for only 1% of the entire sales as of 2012, HHI believes that this field can be the future growth engine. Green energy and relevant businesses reflects the government's high dependence on international policy. The United Nations Environment Program expects that the renewable energy field, such as wind and solar power, will spend nearly one trillion dollar in 2020. The Korean government also announced that it would invest a total of 36.3 billion dollars with major businesses until 2015 to become one of the world's top five renewable energy power players. Table 4 shows the SWOT analysis to identify HHI's organizational strengths and weaknesses, as well as opportunities and threats in the external industry environment.

HHI already built an annual size of 30 MW of solar plant in Eumseong, Chungbuk (South Korea) in 2008 and increased it to 600 MW in the first half of 2011. However, a shutdown of the factory occurred as a consequence of the economic recession; thus, the company's accumulative performance as of May 2012 showed a decrease of 40% compared with that in the previous year. As depicted in Figure 2, total sales also have decreased since 2011. Though the sales in domestic have been improved, total sales have been getting worse due to the sales in the international market. According to the United Nation Environment Programme (UNEP)'s report, the global new investment in 2012 also shows a decrease of 12% compared with 2011. This means that the impact of economic recession on green energy industry still exists.

However, HHI decided to increase its investment despite this situation, and it still shows its strong commitment toward the green energy project after it has successfully entered into the recent electric vehicle (EV) battery market and high-efficiency solar battery product development. The company decided to establish a 10,000 pack of EV battery production plant by investing 200 million dollars for a joint venture with Magna E-Car Canada for collaborative research and development of the EV battery. It also built eight factories in Europe and the U.S. with Magna E-Car to occupy 30% of the European EV battery market until 2020. In the long run, HHI should focus on its ability to compete in markets requiring high-quality and high-performance products. As barriers to entry in the green energy industry are very high, massive R&D investment must be inevitable choice to HHI.

5.2 Growth in the Field of Construction Machinery

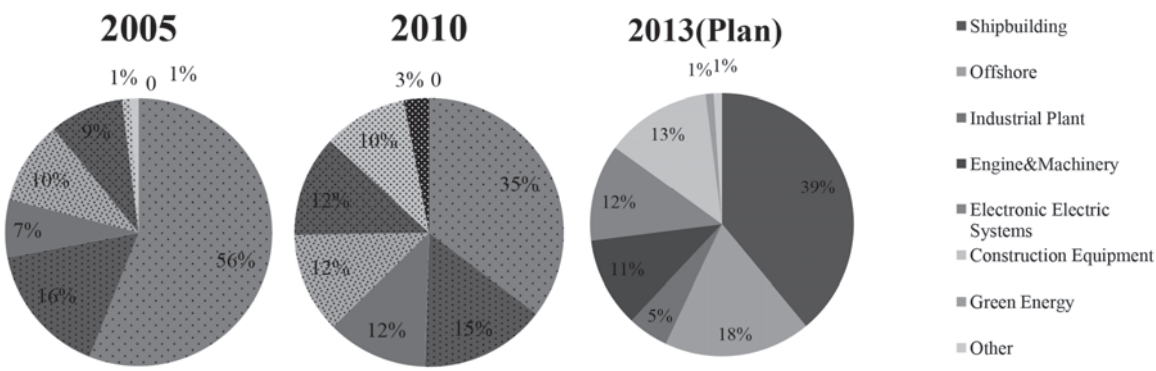
HHI is largely involved in its Shipbuilding and Engine & Machinery divisions. However, if we consider the company business since

2010, the HHI stock has become an attractive item for international investors because of its successful business diversification. Figure 3 shows that the 56% sales ratio of shipbuilding in 2005 declined to the estimated 36% in 2012.

The field that shows continuous growth in the non-shipbuilding fields is the Construction Equipment division. The construction equipment field shows a continuous growth even during the decline of the world economy. In particular, HHI has targeted the markets with high growth potential since the second half of the 2000s, and in preparation for this project, completed the construction equipment factory in Prune, Maharashtra, in Midwest India in 2008.

After targeting a steady overseas market, the company exceeded a 3 billion dollar amount of construction equipment sales in the second half of 2010. Moreover, it invested 150 million dollar of construction equipment in Brazil, the largest construction equipment market in South America, to dominate the emerging South American market. Thus, some short- and long-term performance results are expected. For example, it won a 70 million dollar order for construction equipment from Brazil in June 2012. This successful performance is more encouraging because this success was realized under the situation when the main business division of HHI was directly affected by the global recession. The business diversification into the construction equipment sector is the most successful diversification attempt that HHI have done so far.

HHI considers sales volatility caused by intensifying competition in the construction equipment field as a risk factor; however, HHI's competitor in the construction equipment field must be at a higher level to compete. Because of the company's quality control based on state-of-the-art production system as well as its diverse product lineups, the sales in the Construction Equipment division have continually grown.



〈Figure 3〉 Changing trends of the business portfolio: HHI (sales)

5.3 How to diversify HHI's Business Portfolio?

Most of the previously mentioned eight risk factors for HHI are seen as threats of the business portfolio caused by the excessive bias in the shipbuilding business sector (Threats 1, 2, 3, 4, and 6). Therefore, these threats can be possibly solved naturally if the business portfolio of HHI is diversified. HHI has been investing steadily into the non-shipbuilding business sectors to maintain a certain level of external appearance and profitability even during the recession. To cope with the characteristics in the shipbuilding industry, which is very sensitive to the world economy, HHI has built a stable business portfolio. As a result, each business division supports the overall business stability of the company, achieving an annual 1.8 billion dollars to 2.7 billion dollars of sales on the basis of good business. In other words, the proportion of sales in the shipbuilding-related business sectors shows a declining trend compared with that of the past, and thus, the changes in profitability in a single business sector has not considerably affected the overall company performance.

However, another major threat factor is HHI's competition in the non-shipbuilding business sector in the overseas market. As mentioned earlier, the non-shipbuilding business division has achieved a certain scale of sales. HHI's non-shipbuilding business divisions are highly globally competitive. However, concluding that the threats are eliminated would be difficult. Reducing the dependence on the shipbuilding sector is achieved by the realization of stable profits from the non-shipbuilding sectors for HHI. The non-shipbuilding sectors in HHI are at the most critical period of maintaining both stability and growth.

5.4 HHI Must Keep Doing Aggressive Investment

The core of the non-shipbuilding sectors in HHI includes the Offshore & Engineering, Industrial Plant & Engineering, Construction Equipment, and Green Energy divisions. Because the Engine & Machinery division is highly associated with the shipbuilding industry, it is a part of the shipbuilding industry as long as the nature of the business does not change rapidly. Among the non-shipbuilding business sectors of HHI, the Offshore & Engineering, Industrial Plant & Engineering, Construction Equipment, and Green Energy business divisions are expected to be very fiercely competitive in the international market. In particular, green energy is quite often promoted by the government. Therefore, the competition among the advanced countries is expected to intensify.

Under this condition, HHI's aggressive investment into the non-shipbuilding sectors is urgently needed for the HHI's non-shipbuilding sector to play a role, as much as it did in the past. HHI's strategic planner, Seunghyun Kim, also said the following:

"HHI's investment into the non-shipbuilding sec-

tors is an essential condition for the future of Hyundai Heavy Industries. Especially the Green Energy field is expected to be enormously competitive since its future market is so big. In the nature of Green Energy business, R&D investment is directly associated with the industrial competitiveness and so Hyundai Heavy Industries is planning to invest into the Green Energy business continuously."[4)]

The global business environment continued to be challenging in 2012 as the financial crisis once again in Eurozone come to the forefront, the US economic recovery faltered, and economic growth in China and other developing countries. In these risky business environment, HHI fail to show the dramatic improvement in sales and net income.

The outlook for economic recovery in the developed countries remains very unclear. Economic growth is also expected to slow in the developing world, the prime driver of global economic growth in recent years. If the global economy is unable to break out of its current slump, the HHI's business environment is expected to become even more challenging. In this respect, the HHI and its consolidated subsidiaries should continue to strengthen their business fundamentals and put in place a crisis response system to ensure that it is capable of rapidly and effectively responding to all conceivable internal and external challenges it may face going forward. HHI should take a long-term view towards these risky environment rather than focusing on short term revenue gains. For HHI, only its aggressive investment will ensure its future.

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- Interview

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December 10-11, 2012, Hyndai Heavy Industry, Ulsan, Korea.
August 8-10, 2013, Hyndai Heavy Industry, Ulsan, Korea.

- Material Provided by HHI

Annual and quarterly financial statements (2005-2013)
IR material and some confidential materials provided by HHI.

- Website

Official Website of Hyundai Heavy Industry (www.hhi.co.kr)

4) Interview (December 2012, August 2013, Ulsan, Korea)

경기 침체와 현대 중공업
- 중공업 위험 요인에 대한 대응 전략 중심으로

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요 약

현대중공업은 전통적으로 조선 분야에서 강점을 보이며 세계 수준의 중공업 기업으로 자리잡은 한국의 기업이다. 현대중공업은 매출의 큰 비중을 조선 산업에 의존하고 있었기 때문에, 유럽의 금융 위기로 말미암은 세계 조선 업계의 침체는 현대중공업의 수익구조와 경영 전략에 큰 영향을 미치고 있다. 본 경영 사례 분석에서는 현대 중공업이 세계 경제 불황으로 인해 어떠한 위험에 노출되게 되었는지 분석해보고 이에 대한 대응 전략을 모색해 보았다. 현대 중공업과의 인터뷰 및 자료 협조를 통해 재무 상태 분석 및 위험 요인 분석을 진행하였으며, 조선 사업에 의존하고 있는 현대 중공업의 사업 구조를 어떻게 다각화 할 수 있을지에 대한 구체적인 방안을 제시하였다.

주제어: 현대중공업, 중공업 산업, 다각화 전략, 조선 산업

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〈Teaching Note〉

Economic Recession and Hyundai Heavy Industries
– Strategies to Cope with the Risk Factors of Heavy Industry

Synopsis

The bankruptcy of Lehman Brothers followed by the European debt crisis led to a decline in the overall world economy. In particular, heavy industry around the world entered a state of depression, which also affected Hyundai Heavy Industries (HHI) – the leading worldwide shipbuilding company. HHI is a world-class Korean company, which significantly relied on the shipbuilding industry that was suffering from a worldwide recession. HHI found that it cannot continue to depend only on the shipbuilding industry. In this case study, we analyze the crisis affecting HHI from various perspectives and propose solutions. We conduct interviews with HHI employees and analyze the company's financial and sales data. Finally, we discuss how to address the issue of HHI's high dependency on the shipbuilding industry by suggesting a diversification from its current business segments.

Objective

The objective of this case study is to identify the necessity of business diversification and diversification methods in the case of HHI. The diversification of business segments is the most fundamental method to reduce the risk factors in executing corporate profit activities (Lee 2013). A firm may face a big operational crisis if its primary business is in an industry that is not likely to be healthy over the short- or long-term.

HHI is the world's leading heavy industry company focusing on shipbuilding. However, the worldwide shipbuilding industry saw a decline due to the European financial crisis following the bankruptcy of Lehman Brothers; subsequently, the profitability of HHI worsened. HHI has previously identified the risk factors some years ago and has put a lot of effort into diversifying its business away from the shipbuilding segment. However, the company has not yet found a similarly profitable business.

Therefore, this case study aims to provide an insight for business diversification strategy

and to clarify the factors that should be considered for successful diversification. Furthermore, this study considers the company's distinct characteristics and makes suggestions on how HHI can make a new leap forward through the implementation of future-oriented business diversification strategies.

Background - Diversification Strategy

Types of Diversification Strategy

Generally, there are two types of diversification strategies: related and unrelated diversification.

Businesses are said to be related when their value chains possess competitively valuable cross-business strategic fits; businesses are said to be unrelated when their value chains are so dissimilar that no competitively valuable cross-business relationships exist (Thompson et al. 2005).

Most companies favor related diversification strategies in order to capitalize on synergies as follows (Porter, 1980):

- Transferring competitively valuable expertise, technological know-how, or other capabilities from one business to another.
- Combining the related activities of separate businesses into a single operation to achieve lower costs.
- Exploiting common use of a well-known brand name.
- Cross-business collaboration to create competitively valuable resource strengths and capabilities.

Guidelines for Diversification Strategy

To select a diversification strategy, an organization must take many factors into account. As establishing a diversification strategy requires large investment, an organization must make a careful decision. In particular, an organization needs to clarify which strategy to select, either unrelated diversification or related diversification. To select one of these strategies, a company should take various situations and characteristics that it faces into account. The diversification guidelines in the below are telling about the factors to consider in this type of selection. Some of guidelines in related and unrelated guidelines can overlap because two different strategy have a common objective in terms of diversification.

Six guidelines for related diversification (Muto 2001)

When a product that is released into a market using related diversification creates a synergy with an existing product, related diversification can be very effective. When a new product into a market can be highly competitive or when a product group currently being sold is in the declining stage of product life cycle, related diversification may be effective.

As the characteristics of an industry that a company belongs to and the characteristics of a product family that a company produces are all related diversification, this related diversification strategy may be successful in an appropriate situation. There are six guidelines for successfully related diversification as follows:

1. When an organization competes in a no-growth or a slow-growth industry.
2. When adding new, but related, products would significantly enhance the sales of current products.
3. When new, but related, products could be offered at highly competitive prices.
4. When new, but related, products have seasonal sales levels that counterbalance an organization's existing peaks and valleys.
5. When an organization's products are currently in the declining stage of the product's life cycle.
6. When an organization has a strong management team.

Ten guidelines for unrelated diversification (Davis 2010)

Unrelated diversification is sometimes selected when the industry that a company belongs to or the future of a related market seems to be gloomy. When a market growth slowed down or when a market was saturated with already-entered competitors, there were many diversification attempts into a new field. Unlike related diversification, unrelated diversification is like an expansion into the existing business area. Thus, a company needs to have confidence and conviction of the field which it aims to enter into. In general, since unrelated diversification requires more investment than relatedness diversification, clear understanding and management skills of a new business area are essential. There are ten guidelines for a successfully unrelated diversification as follows:

1. When revenues derived from an organization's current products or services would increase significantly by adding new, unrelated products.
2. When an organization competes in a highly competitive and/or a no-growth industry, as indicated by low industry profit margins and returns.
3. When an organization's present channels of distribution can be used to market new products to current customers.
4. When new products have countercyclical sales patterns compared to an organization's present products.
5. When an organization's basic industry is experiencing declining annual sales and profits.
6. When an organization has the capital and managerial talent needed to compete successfully in a new industry.
7. When an organization has the opportunity to purchase an unrelated business that is an attractive investment opportunity.

8. When there exists financial synergy between the acquired and acquiring firm. Note that a key difference between related and unrelated diversification is that the former should be based on some commonality in markets, products, or technology, whereas the latter should be based more on profit considerations.
9. When existing markets for an organization's present products are saturated.
10. When antitrust action could be charged against an organization that historically has concentrated on a single industry.

Assignment Questions

1. What is the reason why heavy industry suffered a heavier blow than the other industries after the Europe's financial crisis?

2. Give an example of a company who proceeded with related/unrelated diversification.

3. Which of the two types of diversification would be better for HHI to select? Why? (You can refer to the successful guidelines of the diversification strategies.)

4. Is now the right time for HHI to use aggressive diversification strategies? Isn't it too late or too fast?

Answers:

1. What is the reason why heavy industry suffered a heavier blow than the other industries after the Europe's financial crisis?

The European financial crisis had a huge impact on the global economy. Most industries were greatly hit by the financial crisis. But, particularly, heavy industry is one of the greatly suffered industries. The reason heavy industry was hit by the financial crisis compared to the other industries can be explained through the industrial structure of heavy industry.

1) Heavy industry - Capital-intensive industry

Heavy industry is the representative labor- and capital-intensive industry. Since all the production processes in heavy industry cannot be fully automated, large-scale projects in heavy industry depend heavily on labor. Moreover, as most of the equipment required for production is costly, the heavy industry is difficult to be maintained without a huge amount of capital.

In case of purchasers who buy finished products of heavy industry, their capital intensity is very high. In particular, as the price of a ship is very expensive in the shipbuilding industry, making or receiving an order is based on credit. In general, all the

contracted price of a finished part is not paid at the initial time of order, and instead, full payment should be made when a company received finished products. Therefore, the transaction in the heavy industry has a risk factor in terms of credit from contract to delivery. The worldwide shipbuilding industry was hit by the financial crisis because a lot of orders were cancelled immediately after the financial crisis. As credit transaction was withdrawn by the financial crisis, many ordering companies lost their ability to pay for their orders.

2) Strengths of the shipbuilding industry in Europe

Traditionally, Europe was strong in the shipbuilding industry. However, the European sovereign debt crisis led to the economic downturn in Europe as a whole, and the shipbuilding industry in Europe suffered from financial problems. European shipbuilder's large-scale new orders and subsequent cancellations consequently had a major influence on the worldwide shipbuilding industry. The recession in the shipbuilding industry, which occupies a large portion of heavy industry, brought about the overall descent of the economy in heavy industry.

2. Give an example of a company who proceeded with related/unrelated diversification.

The examples of related diversification and unrelated diversification can vary. It may not be easier to look for unrelated diversification cases than related diversification ones. Remind your students of the fact that most unrelated diversification cases utilized M&A a lot. The following examples of diversification may be taken by students. Of the following examples, unrelated diversification was based on the cases without M&A.

1) Related Diversification

- **Google**: Google is a company with a global search engine and famous for providing customers with the most accurate and fast search results. Later, Google achieves its diversification of selling ads as well as providing search services. Google was successful in diversifying its business areas into making a profit by inserting ads related to search words into research results.
- **McCafe**: This is considered as the recent most successful diversification case. McDonald, a trademark of fast foods including hamburger began to sell coffee at an affordable price. Furthermore, it opened a coffee bar McCafe, thus threatening Starbucks leading in coffee brands.
- **Crosco Oils**: The maker of jam, peanut butter, and Crisco oils, J. M. Smuckers Co. completed the acquisition of Procter & Gamble's Folger's coffee business. Smuckers continues to strive to acquire related food and consumer brand businesses as it pursues related diversification.

- **Cheil Industries**: Cheil Industry have been a leading fashion and textile company in Korea since they had been found in 1954. In late 1980s, they stretch their business portfolio into chemicals and electronic material industry. Now, over 60% of Cheil Industries' sales is from chemical sector.

2) Unrelated Diversification

- **IBM**: IBM, a global computer company, entered into a water management business in 2009. IBM developed a technology to remove arsenic and boron salts contained in underground water and made a revenue model through licensing.
- **Qualcomm**: Qualcomm Inc. diversified beyond cellular phones into desktop hardware. The company's strategy is to bring Web access to places in the World that have cellular phone networks but do not have Internet access because it is impractical or unaffordable. Qualcomm is test-marketing its new device called Kayak. The company expects Intel to be its main competitor in this new product area.
- **GE**: GE can be the most typical example of unrelated diversification. GE, a leading company in consumer electronics in the United States jumped into a capital and lease business completely different from its previous businesses. GE established a subsidiary company called as GE Capital, running banking operations in various countries of the World.
- **Barunson**: Barunson was the beginner of the manufacturing industry in stationery product (note, pen, card, etc) in 1980's in Korea. Barunson diversify their business into entertainment and film business successfully. Now Barunson film division is one of main film makers in Korea.

3. Which of the two types of diversification would be better for HHI to select? Why? (You can refer to the successful guidelines of the diversification strategies.)

Related diversification strategy is more appropriate for the situation of HHI faced. The reason for this can be explained by the successful guidelines of related diversification as mentioned earlier.

1) Guideline 2: When adding new, but related, products would significantly enhance the sales of current products.

Given the business areas of HHI, it is possible to diversify toward creating a synergy effect with the existing business areas. Green Energy division, an example of HHI's diversification efforts began with the existing accumulated capability of Electro Electric Systems division. A significant portion of necessary parts for implementing green energy is able to use the existing products of Electro Electric Systems division. In light of these, the future diversification should be achieved in a sim-

ilar fashion.

2) Guideline 1. When an organization competes in a no-growth or a slow-growth industry.

The worldwide growth of heavy industry is stagnant. Moreover, the growth of the shipbuilding industry, which was responsible for the major sales of HHI is slowing down.

3) Guideline 5: When an organization's products are currently in the declining stage of the product's life cycle.

The products produced by HHI are not significantly different from the product families produced by most heavy industries. Generally, heavy industry is an industry with no big changes and especially shipbuilding industry has no big changes as well and even does not have its product cycle. However, the shipbuilding industry is closer to the declining period in product life cycle as there is a sharp drop in new orders with the economic downturn. At this point when economic recovery is less likely in short-term, it is necessary to diversify its business areas based on the existing heavy industry technologies.

4. Is now the right time for HHI to use aggressive diversification strategies? Isn't it too late or too fast?

Now is the right time for HHI to use its aggressive diversification strategies. Although the shipbuilding industry sector occupying a high proportion of HHI sales is on a downturn, HHI is still acknowledged as one of the heavy industries on its own. In this situation, HHI can afford to overcome the risk factors of diversification.

If the economy of heavy industries is slowing down more significantly than now and there occurs a deadly problem in the overall sales of HHI, it will be difficult to decide an aggressive investment as there is too high a risk of failure in terms of business diversification. The use of diversification strategy after being faced with danger makes it more difficult for a company to make a bold investment and even take time until the diversified business areas can be successful. The diversified business areas are potentially sufficient, but the businesses already in threats cannot afford to wait, if it takes time until it can succeed. On the other hand, the current situation of HHI is considered to have enough energy to wait its success by investing aggressively into the promising field of business.

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