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# KERI ECONOMIC BULLETIN

## Contents



Korea Economic Research Institute

# Economic Trends and Outlook

## Executive Summary

Despite the better-than-expected performances of recently published economic indicators, we decided to maintain our initial projection of the annual growth rate of the Korean economy, which was 4.4%. This is mainly due to the unstable international financial markets caused by the subprime mortgage crisis in the U.S. and the possible liquidation of yen carry trade. In light of the current financial turmoil, we expect the growth rate of the Korean economy to slow down to 4.3% in the second half of this year.

Most of all, we expect Korea's export growth, in terms of the balance of payments, to decline from 13.7% in the first half to 10.1% in the second half as the world economy becomes more vulnerable due to the subprime mortgage crisis.

The current financial market instability is also expected to hamper the robust recovery of facility investment as investors become more wary. The fact that private consumption exhibited a rather tepid growth in the second quarter is another bad news for facility investment. Private consumption has been the most important factor in driving facility investment for the past 10 years. Its slowdown implies that the robust facility investment growth is unlikely. Another factor in slowing facility investment is the strong possibility that cash flow for SMEs and service businesses, which contributed considerably to facility investment growth in the first half, will tighten in the aftermath of the financial uncertainty and recent interest rate hikes.

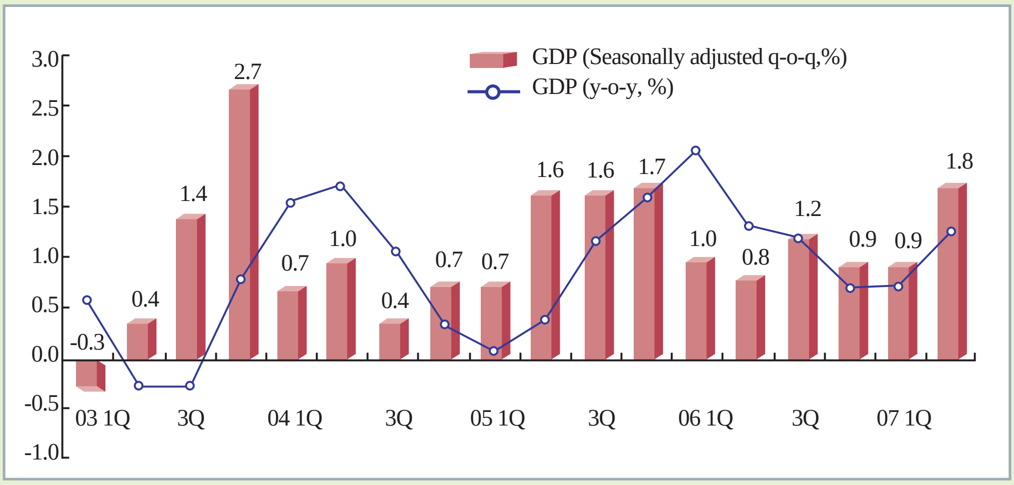
Private consumption growth is also expected to slow in the second half due to higher energy prices and interest rates. Consumer confidence is already deteriorating due to the subprime mortgage crisis. The current account balance is projected to suffer an annual deficit of USD 0.2 billion. The inflation rate is likely to be higher in the second half of the year.

Considering the negative impact of the financial market uncertainty on the real economy, the government should focus on the stabilization of the overall economy as well as the financial market. The government should proceed cautiously with raising interest rates further as it could prove a huge burden for the economy.

# Recent Developments

The economy grew at a healthy rate of 5.0% in the second quarter of 2007. It was a dramatic improvement over the growth rate of 4.0% in the first quarter. Despite a slight decline in private consumption, facility investment and export continued their brisk upward trends.

## Real GDP




With production growing at 7.0% in the second quarter, the manufacturing sector appeared to be recovering from a slump in the first quarter. Meanwhile, the service sector continued its expansion that started in the third quarter of 2006 and posted 6.2% growth in the second quarter.

In the second quarter, the consumption growth slowed. In spite of the strong growth in durable goods sales, the overall consumer goods sales growth fell to 5.3% from 7.1% in the first quarter due to poor performances in the food, beverage and vehicle fuel markets. But in July, the consumer goods sales went up by 9.8%.

Thanks to brisk investment in machinery and transportation equipment, facility investment expanded further to 12.1% in the second quarter from 11.3% in the first quarter. Construction investment growth, however, declined to 4.8% in the second quarter from 6.5% in the first quarter due to a slowdown in the number of new orders in both private and public sectors.

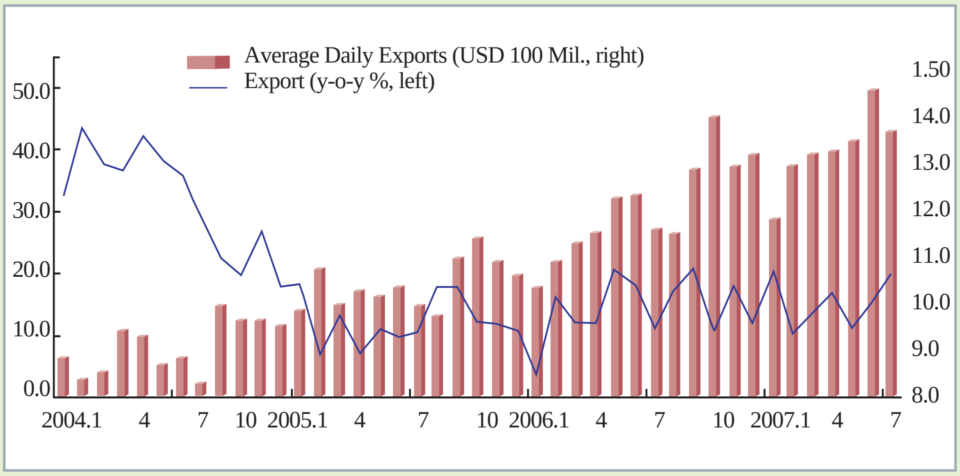
## Industrial Output, Consumption and Investment

(Unit: y-o-y,%)

| | 2005 | 2006 | | | | | 2007 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Year | 1/4 | 2/4 | 3/4 | 4/4 | Year | 1/4 | 2/4 | July |
| Manufacturing production | 6.2 | 13.4 | 12.1 | 11.8 | 5.6 | 10.5 | 3.4 | 7.1 | 7.6 |
| Service Activities | 3.7 | 6.2 | 5.4 | 4.4 | 4.8 | 5.2 | 5.6 | 6.2 | 9.8 |
| Wholesale & Retail sales | 2.9 | 4.0 | 4.5 | 4.4 | 4.0 | 4.2 | 5.3 | 4.4 | 7.8 |
| Consumer Products Sales | 4.1 | 5.3 | 6.1 | 2.9 | 4.5 | 4.7 | 7.1 | 5.2 | 9.8 |
| Estimate of Equipment Investment | 6.4 | 6.2 | 6.7 | 11.8 | 5.1 | 7.4 | 11.3 | 12.1 | 1.3 |
| Domestic Construction Completed | 4.1 | 4.2 | -0.3 | 4.8 | 6.0 | 3.7 | 6.5 | 4.8 | 12.4 |

The export sector is continuing its hot-streak. By posting a growth rate of 14.4% growth in the second quarter, the export sector has grown at a double-digit rate since the third quarter of 2005. Also in July- August, exports increased as much as 16.1% over the same month in 2006. Notably, exports of wireless communication equipment and computers have rebounded from a decline in the first quarter.

## Exports



In the first half of 2007, the current account deficit has deepened to USD 1.4 billion from USD 0.4 billion in the first half of 2006. The increase is largely attributable to seasonal factors such as the winter holidays, remittance of dividends in March-April, and the sustained expansion of the service account deficit.

## Balance of Payments

**(Unit: USD Bil.)**

| | 2005 | 2006 | | | | | 2007 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Year | 1/4 | 2/4 | 3/4 | 4/4 | Year | 1/4 | 2/4 | July |
| Current Account | 15.0 | -1.1 | 0.7 | 0.4 | 6.1 | 6.1 | -1.7 | 0.3 | 1.6 |
| Goods | 32.7 | 5.2 | 7.4 | 6.2 | 10.3 | 29.2 | 6.0 | 7.0 | 3.1 |
| Service | -13.7 | -5.0 | -3.9 | -5.4 | -4.5 | -18.8 | -6.2 | -4.4 | -1.7 |

Consumer prices in July-August sustained stability with an on-year 2.3% rise. Overall prices in July-August remained stable, backed by tamed housing rents and stabilized prices of industrial products, excluding oil products.

## Prices

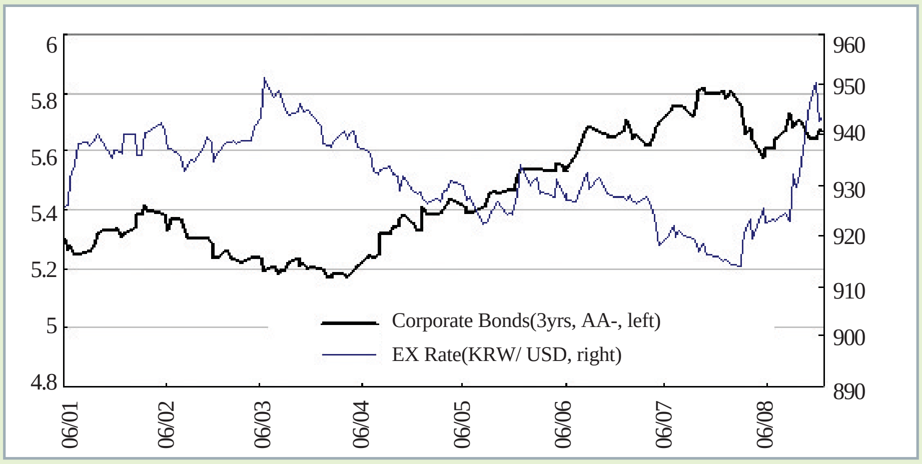
**(Unit: y-o-y,%)**

| | 2005 | 2006 | | | | | 2007 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Year | 1/4 | 2/4 | 3/4 | 4/4 | Year | 1/4 | 2/4 | July-Aug. |
| Consumer Prices | 2.8 | 2.1 | 2.2 | 2.5 | 2.1 | 2.2 | 2.0 | 2.4 | 2.3 |
| Producer Prices | 2.2 | 1.7 | 2.4 | 3.1 | 2.0 | 2.3 | 1.8 | 2.6 | 2.0 |

Market interest rates have reversed to a upward trend. The change is due to the tighter global credit condition and the call rate raises. Yields of treasury and corporate bonds, which stood at 5.17% and 5.55% at the end of May, rose to 5.32% and 5.73% respectively as of August 9.

The won-dollar exchange rate, which had posted a continuous decline since April this year, took a sharp upward turn as the subprime crisis made investors prefer safer assets.

## Interest Rates and Exchange Rates



# Outlook for 2007

***External Environment***

The subprime crisis is likely to hamper the global economic growth in 2007. If the unstable conditions in the U.S. housing market gets worse and spread to the whole economy, it can deal a blow to the Chinese export sector which is heavily dependent on the U.S. demand. Europe and Japan will also be similarly affected.

On the other hand, the increasing uncertainties in the international financial markets will put downward pressures on the international oil prices as the global demands for petroleum and raw materials weaken. Therefore we expect the international oil price to decline in the second half of 2007 to around USD 65 per barrel (Dubai oil). However, it is noted that geopolitical risks in the Middle East and seasonal fluctuations in demand remain a concern.

The financial market instability is expected to amplify the magnitude of fluctuations in the value of won against the U.S. dollar and Japanese yen.

Due to the financial market instability, fluctuations in the won-U.S. dollar and won-yen exchange rates are expected to increase. The U.S. dollar is on its depreciating trend due to the U.S.'s still huge current account deficits and narrowing interest rate differentials with the EU and Japan. However, things can change pretty quickly if investors become more risk averse and prefer to hold the U.S. dollars. amid the subprime crisis.

***Internal Environment***

The possible easing of North Korea's nuclear-related uncertainty and reduction of household debt delinquency appear to be positive factors for the Korean economy in the second half of this year. As the six-party talks, IAEA's verification of the shutdown of nuclear facilities in North Korea, and related actions are proceeding smoothly, the uncertainty over North Korea's nuclear-related issues is subsiding significantly. The number of delinquencies in the household loans made up less than 1% in May. Nevertheless the monetary authorities are taking no chances and adopting a more austere tone. Facing an over-abundant supply of liquidity and signs of a higher inflation, the Bank of Korea made an unprecedented decision to raise the call rates for two consecutive months in July and August. The central bank is expected to implement contractionary policies until there is a substantial reduction in liquidity. However, it is possible that the stern monetary measures might harm the economy that is beginning to recover. In terms of fiscal policies, the government doesn't have enough room to maneuver since it made an early execution of budget expenditures in the first half of the year, which will further tighten Korea's economic conditions in the remaining months of 2007.

***Outlook for 2007***

Economic growth in the second half is projected at 4.3%, which is lower than 4.5% in the first half. The annual growth rate of the economy will be 4.4% which is what we projected at the beginning of the year. This is mainly due to the unstable international financial markets caused by the subprime mortgage crisis in the U.S. and a slower-than-expected recovery of the private consumption.

Private consumption growth is also expected to slow in the second half due to higher energy prices and interest rates. The fact that income growth is not enough is adding to the problem as well. The prices of the real estates that make up a bulk of the households' wealth are expected to decline. Also, the stock market is looking at the possible correction as more investors feel that the stock prices are too high.

Facility investment, including intangible assets, is expected to decrease to 8.2% in the second half of this year from 10.7% in the first half. This is because there is a possibility that cash flow, which had contributed considerably to the facility investment growth of SMEs in the first half, may decline in line with a tighter financial market due to the aftermath of the recent U.S. subprime mortgage crisis. Construction investment is also likely to slow to 1.5% in the second half from 3.5% in the first half reflecting the worsening business conditions in the construction sector as the house prices decline. On top of that, a reduction in the ability to use fiscal administration tools in the second half due to early execution of the budget in the first half will negatively impact public construction projects.

As there is a strong possibility that the U.S. subprime mortgage crisis may lead to stagnation of the U.S. and the global economy, exports are expected to decline in the second half. In particular, a slowdown in the U.S. economy will have a negative impact on Chinese exporters, which, in turn, will reduce China's demand for Korean made parts and raw materials.

Due to higher prices of oil and depreciating Korean won, the consumer prices are expected to rise further in the second half. However, a lukewarm recovery of domestic demand and stabilizing house prices will prevent the inflation rate from going off the mark. We expect the inflation rate in the second half to be around 2.6%, up 0.3%p from the first half of the year.

The current account balance in the second half is projected to record a surplus of USD 1.2 billion, recovering from a USD 1.4 billion deficit in the first half. Hence we expect the current account to post an annual deficit of about USD 0.2 billion, turning red for the first time since the financial crisis in 1997.

Recent decisions by the Bank of Korea to raise call rates and the international credit tightening will put the market interest rates on an upward march. The Korean won is expected to depreciate against the U.S. dollar as international investors become more jittery amid the subprime crisis.

## Outlook for 2007

**(Unit: y-o-y, %)**

| | 2006 | | | 2007 | | |
|---|---|---|---|---|---|---|
| | 1st H | 2nd H | Year | 1st H | 2nd H | Year |
| GDP | 5.7 | 4.4 | 5.0 | 4.5 | 4.3 | 4.4 |
| (S.A. h-o-h, %) | 2.2 | 2.1 | | 2.2 | 2.0 | |
| Private consumption | 4.6 | 3.8 | 4.2 | 4.1 | 3.9 | 4.0 |
| Construction Investment | -2.9 | 1.7 | -0.4 | 3.5 | 1.5 | 2.4 |
| Equipment Investment* | 7.1 | 8.4 | 7.8 | 10.7 | 8.2 | 9.4 |
| | | | | | | |
| Consumer Prices | 2.2 | 2.3 | 2.2 | 2.3 | 2.6 | 2.4 |
| | | | | | | |
| Current Account(USD 100 Mil.) | -4.3 | 65.2 | 60.9 | -14.3 | 12.4 | -1.9 |
| Commodity(USD 100 Mil.) | 126.4 | 165.8 | 292.1 | 132.0 | 155.5 | 287.6 |
| Exports(USD 100 Mil.) | 1579.3 | 1739.2 | 3318.4 | 1795.6 | 1915.4 | 3711.0 |
| growth(%) | 13.8 | 15.7 | 14.8 | 13.7 | 10.1 | 11.8 |
| Imports(USD 100 Mil.) | 1452.9 | 1573.4 | 3026.3 | 1663.5 | 1759.9 | 3423.5 |
| growth(%) | 20.2 | 16.7 | 18.4 | 14.5 | 11.9 | 13.1 |
| Service & Others(USD 100 Mil.) | -130.6 | -100.6 | -231.2 | -146.4 | -143.1 | -289.5 |
| | | | | | | |
| Ex rate(Ave, KRW/USD) | 963.1 | 946.5 | 954.8 | 934.0 | 936.5 | 935.2 |
| Corp. Bond Yield Rate(3yrs. AA-) | 5.3 | 5.1 | 5.2 | 5.4 | 5.8 | 5.6 |

* Including intangible asset investment

# Issue Focus

## The recent spurt of facility investment : a sustainable reality or a fleeting dream?

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***Introduction***

Facility investment is not only a leading indicator of short-term economic cycles but also an important determinant of long-term growth potential of the economy.

Hence it is only natural that declining facility investment for the past number of years has generated quite a concern over the health of Korean economy. However things are looking much better nowadays as the facility investment grew by 10% in the first half of 2007, raising expectations that the economy may be finally back on its track to recovery. If this trend continues, the decoupling of export and domestic demand, a problem that has been bogging us down recently in the past, and the disappointing performance of the labor market could finally be over. Moreover it would help lift the long-term growth potential of the Korean economy as well.

A major concern at this point is that whether this fortunate turn of events is likely to continue in the near future. We address this issue by examining future investment prospects based on key macroeconomic indicators like consumption and exports and noteworthy changes, if any, in corporate finance.

***Relationship between Facility Investment and major Macroeconomic Variables***

The analysis show that facility investment is positively correlated with private consumption, export and the relative size of the manufacturing sector in the economy, but is negatively correlated with the won-dollar exchange rate. In particular, the degree of correlation between the private consumption and facility investment is strongly positive, but has declined from 0.979 before the 1997 financial crisis to 0.87 in a more recent period. On the other hand, a strong positive relationship between facility investment and export doesn't seem to have been affected by the financial crisis. Interestingly, the correlation between facility investment and the relative size of the manufacturing sector appears to have actually strengthened after the foreign exchange crisis. The won-dollar exchange rate affects the costs of facility investment significantly as more than half of materials needed for investment are imported from abroad. Hence, the floating exchange rate system adopted after the financial crisis made the facility investment negatively correlated with the won-dollar exchange rate as expected.

### Correlation Coefficients between Facility Investment and major Macroeconomic Variables by Period

| | Private Consumption | Exports | GDP Share of Mfg. output | Ex Rate (KRW/USD) |
|---|---|---|---|---|
| 1970s | 0.93 | 0.90 | 0.89 | 0.69 |
| 1980s | 0.98 | 0.97 | 0.92 | 0.06 |
| 1990s | 0.73 | 0.25 | 0.27 | -0.21 |
| 2000s | 0.75 | 0.86 | 0.86 | -0.91 |
| Before the Crisis | 0.97 | 0.87 | 0.79 | 0.61 |
| After the Crisis | 0.87 | 0.85 | 0.90 | -0.73 |

Note: Quarterly data from 1970 1Q to 2007 2Q were used.

We proceed to examine how the nature of the elasticity of facility investment has changed before and after the foreign exchange crisis. For the analysis, we employ three different specifications for our regressions using data from the first quarter of 1980 to the second quarter of 2007. In addition, we use step-dummy variables to count for the effects of the financial crisis on determinants of facility investment,

The results show that, first, the facility investment has become less responsive to changes in the private consumption and the won-dollar exchange rate. One percentage increase in private consumption is shown to raise the facility investment by 2.01-2.56% after the foreign exchange crisis. On the contrary, it has become more sensitive to changes in export and the relative size of the manufacturing sector after the financial crisis. The export elasticity of facility investment rose significantly to the level of 0.54-0.80 after the financial crisis. The won-dollar exchange elasticity of facility investment was 0.28-0.38. One percent increase in the relative size of the manufacturing sector is found to raise the facility investment by 1.3% after the financial crisis.

### Elasticity of Facility Investment by Determinants

| | Eq(2) | | Eq(3) | | Eq(4) | |
|---|---|---|---|---|---|---|
| Before the Crisis | | | | | | |
| Private Consumption | 3.31* | 0.26 | 3.28* | 0.25 | 3.00* | 0.27 |
| Exports | 0.19* | 0.07 | 0.18** | 0.07 | 0.16** | 0.07 |
| KRW/USD | | | -0.39* | 0.07 | -0.44* | 0.07 |
| GDP Share of Mfg. output | | | | | 0.38* | 0.10 |
| After the Crisis | | | | | | |
| Private Consumption | 2.56* | 0.19 | 2.48* | 0.19 | 2.01* | 0.25 |
| Exports | 0.79* | 0.16 | 0.80* | 0.16 | 0.54* | 0.19 |
| KRW/USD | | | -0.38* | 0.13 | -0.28** | 0.13 |
| GDP Share of Mfg. output | | | | | 1.30* | 0.43 |

Note : * significant at 1% level
** significant at 5% level

### *Facility Investment and Capital Flow*

Another important finding of this report is that the facility investment is becoming less dependent on the external financing. It is shown that this trend became more widespread since the financial crisis in 1997. For example, while 71% of the facility investment in the manufacturing sector was financed by external funding before 1997, only 10% has been through external funds after the financial crisis. On the other hand, for the non-manufacturing businesses, the ratio has been steady at the 45-50% level throughout the sample period.

**Facility Investment Financing Ratios**

(Unit: %)

| Industry | | Financing | 1990~1997 | 1998~2000 | 2001~2006 | 2007p |
|---|---|---|---|---|---|---|
| All | | External | 62.4 | 56.5 | 30.4 | 27.4 |
| | | Internal | 37.6 | 43.5 | 69.6 | 72.6 |
| | Mfg. | External | 70.8 | 42.8 | 17.3 | 10.5 |
| | | Internal | 29.2 | 57.2 | 82.7 | 89.5 |
| | Non-Mfg. | External | 45.8 | 70.1 | 49.9 | 48.1 |
| | | Internal | 54.2 | 29.9 | 50.1 | 51.9 |

Note: The statistics for 2007 are planned figures,
Source: The Bank of Korea

An analysis of cash flows in the manufacturing sector tells us the same story about the declining importance of the external finance. Between 1996 and 1998, investment expenditures were far greater than cash revenues, forcing the businesses to meet their investment demands through the financial market. However, the firms began to earn large amounts of cash revenues after the crisis so as to be able to meet their investment demands mostly from their own pockets.

## Cash Flow of Manufacturing Sector

**(Unit: million won)**

| | Cash-Revenue (A) | Cash-Expenditure (B) | A-B | Financing (C) | Cash Change (A-B+C) |
|---|---|---|---|---|---|
| 1996 | 4,462 | 15,933 | -11,471 | 11,678 | 207 |
| 1997 | 3,418 | 14,654 | -11,236 | 13,192 | 1,956 |
| 1998 | 8,588 | 11,540 | -2,952 | 3,231 | 281 |
| 1999 | 11,544 | 7,523 | 4,021 | -4,392 | -371 |
| 2000 | 9,477 | 8,802 | 675 | -77 | 598 |
| 2001 | 8,493 | 5,949 | 2,544 | -2,127 | 417 |
| 2002 | 12,698 | 7,363 | 5,335 | -4,758 | 577 |
| 2003 | 11,605 | 8,638 | 2,967 | -1,902 | 1,064 |
| 2004 | 14,283 | 10,993 | 3,290 | -3,153 | 137 |
| 2005 | 10,862 | 9,867 | 995 | 142 | 1,136 |
| 2006 | 11,772 | 11,724 | 48 | 236 | 285 |

Note: Based on the average per company
Source: The Bank of Korea

However modus operandi regarding the facility investment diverges as we take a closer look at the business sector. It is found that although big businesses are mostly self-financing their investments, SMEs are still largely dependent upon the external finance for their investment needs as shown in the table below.

## Cash Flow of Manufacturing Sector by Company Size

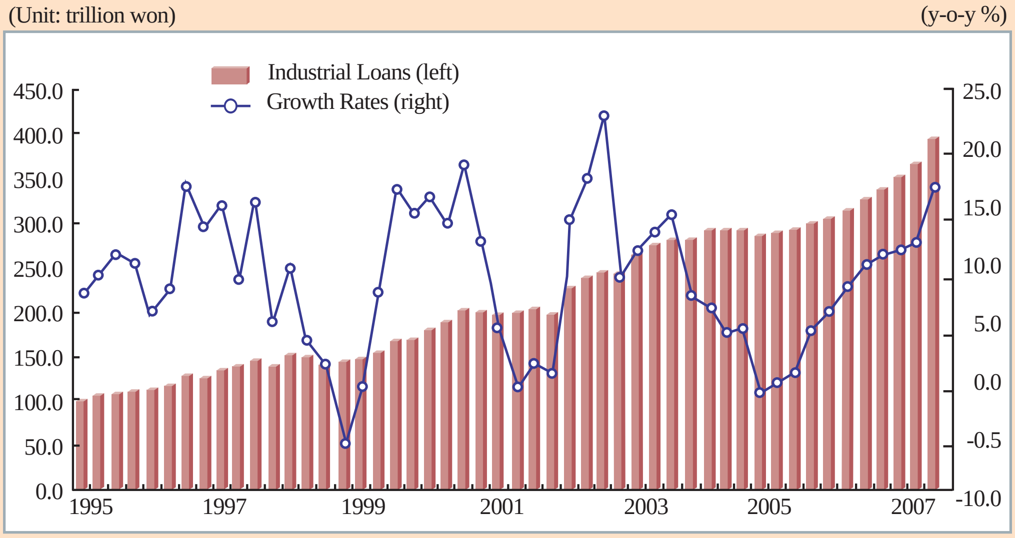
**(Unit: million won)**

| | Large Enterprises | | | SMEs | | |
|---|---|---|---|---|---|---|
| | 2004 | 2005 | 2006 | 2004 | 2005 | 2006 |
| Cash-Revenue(A) | 122,868 | 99,646 | 109,791 | 2,074 | 1,895 | 1,872 |
| Cash-Expenditure(B) | 87,792 | 79,901 | 95,749 | 2,280 | 2,794 | 3,237 |
| A-B | 35,076 | 19,746 | 14,042 | -206 | -899 | -1,365 |
| Financing(C) | -34,865 | -11,064 | -11,852 | 316 | 1,273 | 1,457 |
| Cash Change(A-B+C) | 211 | 8,682 | 2,190 | 110 | 374 | 92 |

Source: The Bank of Korea
Facility investment loan, especially industrial loans, is rapidly increasing.

Although the average firm is becoming less dependent on the external funds, the absolute size of the industrial loans, especially those for facility investment, is rapidly increasing nowadays. At the end of July 2007, the industrial loans made by commercial banks stood at 397 trillion won. This is a significant increase of 12.4% (43.8 trillion won) from the first half of the year.

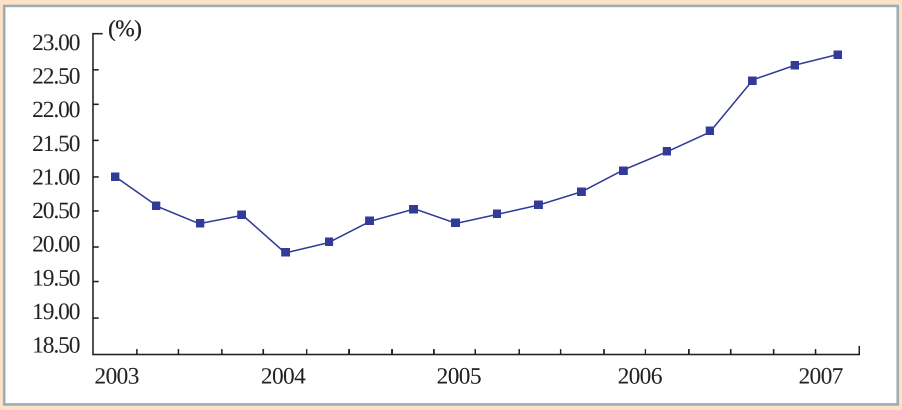
## Industrial Loan




Source: The Bank of Korea

The loans for facility investment has been on a steady rise since the second quarter of 2004. While the size of the industrial loans has been growing by an average of 3.25% since 2005, the loans for facility investment has grown by 4.29% on average during the same period.

## Ratio of Facility-Related Industrial Loan

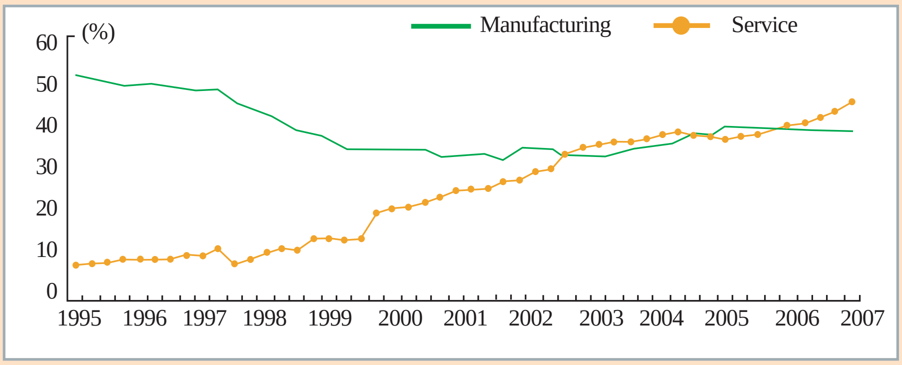



Source: The Bank of Korea

Most of this increase seems to have originated from the service sector. The manufacturing

sector made up 38.6% of the total loans for facility investment in June 2007, showing virtually no change from 37.6% in 2004. During the same time period, the portion of the loans going to the service sector rose from 37.8% to 45.3%.
As shown in the graph above, in terms of the relative size of the loans, the service sector

**Facility-Related Loan Ratios - Mfg. vs. Service**

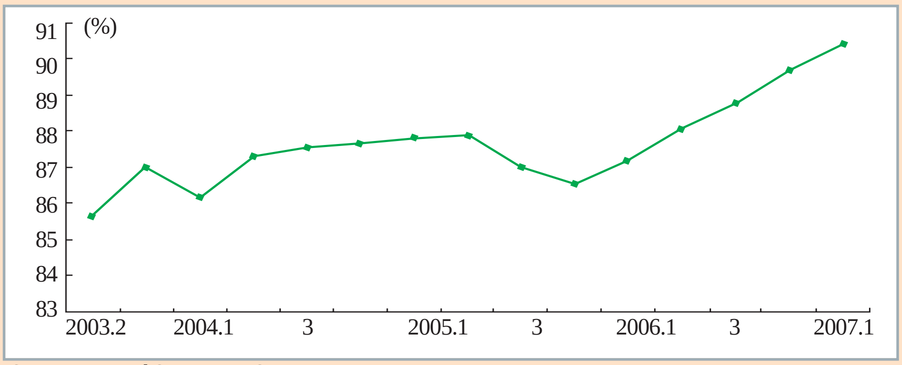



Note: as of the end of each year
Source: The Bank of Korea

overtook the manufacturing sector for the first time in the fourth quarter of 2002 and has been expanding ever since. However some fear that the rising loans for facility investment may mean something quite different. They argue that as most of these funds are flowing into the real-estate sector, not enough funds may be available for the actual accumulation of productive facilities in the service sector. However this fear that loans are flowing into relatively unproductive areas may be warrantless. Although the data shows that the loans for real estate purposes increased 39.6% in the first half of 2007, those for the machinery rental businesses have risen by 97.9%. Also, loans by the business services and retail & wholesale businesses posted growth rates of 33.6% and 34.4%, respectively. Overall, contrary to some fears, a considerable amount of loans seem have flown into those areas that can boost the productivity of the service sector.

Judging from the composition of borrowers where SMEs are major recipients of the loans from the commercial banks, it can be concluded that they are the ones that are driving the robust investment growth seen in the recent periods. For the past several years, loans to SMEs have accounted for more than 80% of total corporate loans. As of the end of March 2007, the number has gone up to 90.4%.

### Ratio of Loans to SMEs among Corporate Loan




Source: Financial Supervisory Service

At the same time that dependence on the external funds is declining, more and more firms are borrowing through direct financing. In the first half of 2007, the amount of funds raised through the stock market increased 112.7%.

### Financing through Capital Markets

(Unit: 100 million won, %)

| | | | 2006 | | 2006 Jan.-Jun. | | 2007 Jan.-Jun. | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | No. of case | Amount | No. of case | Amount | No. of case | Amount | y-o-y |
| Stocks | IPO | KSE | 9 | 11,167 | 4 | 9,996 | 1 | 5,760 | △42.4 |
| | | KOSDAQ | 51 | 5,891 | 20 | 2,128 | 19 | 2,470 | 16.1 |
| | Issues | KSE | 37 | 23,895 | 16 | 9,298 | 23 | 47,181 | 407.4 |
| | | KOSDAQ | 196 | 20,692 | 108 | 10,930 | 111 | 17,087 | 56.3 |
| | | other1) | 24 | 3,348 | 16 | 2,335 | 3 | 1,291 | △44.7 |
| Corporate Bond | | | 1,250 | 416,782 | 585 | 198,599 | 540 | 214,091 | 7.8 |
| Total | | | 1,567 | 481,775 | 749 | 233,286 | 697 | 287,880 | 23.4 |

Note: 1) Public subscription of non-listed corporations (incl. establishment)

Firms differed in their uses of financing instruments. Large firms raised the needed funds by issuing new stocks, while SMEs met their investment needs by selling corporate bonds. Funding through selling stocks increased 168.0% compared with the first half of 2006 for the large firms. For the SMEs, it was only 31.4%. Meanwhile, funding supply for SMEs through corporate bonds increased 221.3% while that of large enterprises recorded lower growth of 42.0%.

### Financing through Capital Markets by Company size

(Unit: million won, %)

| | | 2006 | | 2006 Jan.-Jun. | | 2007 Jan.-Jun. | | |
|---|---|---|---|---|---|---|---|---|
| | | Amount | Ratio | Amount | Ratio | Amount | Ratio | y-o-y |
| Total | | 236,588 | 100.0 | 116,606 | 100.0 | 191,950 | 100.0 | 64.6 |
| | Large | 206,769 | 87.4 | 101,530 | 87.1 | 170,158 | 88.6 | 67.6 |
| | SMEs | 29,819 | 12.6 | 15,076 | 12.9 | 21,792 | 11.4 | 44.5 |
| Stocks | | 64,993 | 100.0 | 34,687 | 100.0 | 73,789 | 100.0 | 112.7 |
| | Large | 37,139 | 57.1 | 20,655 | 59.5 | 55,351 | 75.0 | 168.0 |
| | SMEs | 27,854 | 42.9 | 14,032 | 40.5 | 18,438 | 25.0 | 31.4 |
| Bonds | | 171,595 | 100.0 | 81,919 | 100.0 | 118,161 | 100.0 | 44.2 |
| | Large | 169,630 | 98.9 | 80,875 | 98.7 | 114,807 | 97.2 | 42.0 |
| | SMEs | 1,965 | 1.1 | 1,044 | 1.3 | 3,354 | 2.8 | 221.3 |

Note: Excluding financial bonds and ABS
Source: Financial Supervisory Service

Paid-in capital increases related to facility investment have posted significant growth mainly in the KOSDAQ market. Whereas paid-in capital increases for facility funding via the securities market was 8.2 billion won in the first half, paid-in capital increases via the KOSDAQ market amounted to 277.3 billion won.

### Stock Issues by Funding purpose

(Unit: billion won)

| | | | 2006 | | | | | 2007 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Year | 1/4 | 2/4 | 3/4 | 4/4 | 1/4 | 2/4 |
| KSE | Facility Funding | No. of Cases | 14 | 5 | 2 | 4 | 3 | 4 | 0 |
| | | Amount | 149 | 81.2 | 13.2 | 13.6 | 33.7 | 8.2 | 0 |
| | Sub Total | No. of Cases | 37 | 10 | 6 | 11 | 10 | 15 | 14 |
| | | Amount | 2,390 | 401 | 529 | 340 | 1,119 | 4,383 | 912 |
| KOSDAQ | Facility Funding | No. of Cases | 67 | 14 | 24 | 12 | 17 | 13 | 26 |
| | | Amount | 394 | 66 | 142 | 66.3 | 99.3 | 77.3 | 200 |
| | Sub Total | No. of Cases | 196 | 53 | 55 | 40 | 52 | 36 | 130 |
| | | Amount | 2,069 | 488 | 605 | 478 | 498 | 504 | 1,258 |

Source: Financial Supervisory Service

The issue of corporate bonds for facility funding also registered brisk growth in 2007. While the issue of corporate bonds in the first half of 2007 grew 44.24%, the issue of corporate bonds for facility investment increased as much as 273.28%.

## Corporate Bonds Issued

**(Unit: 100 million won)**

| | 2004 | 2005 | 2006 | 2006 Jan.-Jun | 2007 Jan.-Jun |
|---|---|---|---|---|---|
| Corporate Bonds | 262,066 | 221,552 | 171,595 | 81,919 | 118,161 |
| for Facility | 10,982 | 10,620 | 4,790 | 2,073 | 7,738 |
| for Operation | 124,525 | 141,096 | 110,229 | 51,492 | 70,340 |
| for Refundin | 126,559 | 69,836 | 56,576 | 28,354 | 40,083 |

Source: Financial Supervisory Service

### *Implications*

Although facility investment has exhibited robust growth recently, the trend may not continue as hoped due to developments in the overall economic environment. Interest rate increases by the monetary authority in the months of July and August are likely to slow private consumption through a reduction of the disposable income of households. As our analysis shows that private consumption is an important determinant of facility investment, tighter monetary controls like raising interest rates could throw the facility investment off the recovery track. Moreover, the situation surrounding the recent U.S. subprime mortgage market crisis can have negative effects not only on credit availability in the financial market but also on both Korean exports and foreign exchange rates.

Volatile international financial markets and a global credit crunch that may come out of it will likely hamper recovery of investment in the future. When one considers the fact that the recent boom in investment is mainly driven by SMEs and the service sector, the outlook becomes more worrisome as these are the ones not generally known, for various reasons, for financial sophistication needed to navigate successfully the tumultuous sea of international finance.

The most important factor to overcome to sustain the investment recovery is dealing with the subprime crisis and its aftermath in the future. As the crisis will affect the Korean economy through various channels, the government should focus on maintaining the healthy condition of the overall economy. Treating the subprime crisis as just a financial trouble would be a big mistake. The government must be cautious with interest rate increases given what's going on in the international financial markets. If the financial market instability becomes prolonged, the government should seriously consider lowering the interest rates to mitigate further damages to the economy.

Efforts to improve investment environments also have to continue. Regulations that undermine facility investment, such as 'total factory number system for the capital area,' should be reformed. Japan serves as a good example in this area.

# Recent Publications



- Research Monograph: provides comprehensive medium- and long-term research results in both theoretical and empirical aspects on various economic issues.
- Policy Report: provides timely and current analysis on the economic policy issues and offers policy alternatives.
- Issue Paper: provides research results in a form of the series of related papers dealing with occasionally selected issues.
- Working Paper: provides preliminary research results on various economic issues.

This issue of KERI Economics Bulletin introduces 5 new research monographys, 2 new policy reports and 1 new working paper published during 2007.

## Research Monograph

### Paradigm of Fiscal Policy for Big Market-Small Government

Research Monograph 07-01

Kwang Choi (Hankuk University of Foreign Studies)

This report was written with conviction that Korea's economic prosperity can be achieved only by adapting the small government-big market philosophy.

In part 1, the functions of government and the economic problems currently facing Korea are reviewed. Specifically, it starts out with a canonical analysis of the meaning and the functions of government followed by rigorous examination of cases where government intervention is arguably justified. It then provides a basis for why such government interventions are bound to fail by demonstrating the dominance of market forces over bureaucratic intervention efforts. It is argued that this is the root cause of those problems economic and fiscal policy makers are now facing.

The second part is a critical review of the concept of national budget. The report uses simple examples to illustrate the ineffectiveness of early execution of budget which traditionally has been a favorite tool of the government to boost the economy. The report also touches on the issue of social bipolarization. The contribution of this report here is that by specifying the exact economic definition of bipolarization. Based on the precise definition of bipolarization, the report surveys and critically evaluates the government's proposed solutions to narrow the gap between the haves and have-nots. Part 2 of the report ends with two additional controversial issues; local finance and public health service.

Part 3 deals with tax-related issues. The topics include; replacing income tax with consumption tax, abolition of a corporate income tax, substituting progressive income tax rates with a single proportional rate.

The contribution of this report is twofold. First, it provides a fresh and fundamental insight with which to view economic and fiscal policies. Second, instead of focusing on specific time period with limited data, the report examines the fundamental aspects of major fiscal issues Korea now faces from the historical perspective imbued with small government-big market philosophy.

## Exploring the Economic Potential through the Corporate Investment

Research Monograph 07-02

Kwanghee Nam (Kookmin University)

This paper has explored the causes of decreasing corporate investment and its consequences on the economic growth potential. For theoretical and empirical findings, three models are used. Accelerator model of investment, Classical growth model, and R&D based endogenous growth model with capital.

Main findings are as follows. First, from the estimation of an accelerator model using Korean data from 1981 to 2005, labor disputes and lowered productivity reduce investment while the recently lowered interest rate does not stimulate investment. In addition, effective corporate taxes and uncertainty of regulation have a significantly negative effect on investment.

Second, from the simulation of Classical growth model, the steady-state gross investment rate is lowered to 24.6% from 27.8% due to lowered productivity, decreased population growth, and higher capital income tax. In along with the lowered investment rate, economic growth rate is down to 4.343% from 5.605% during 2001-10, down to 3.681% from 6.027% during 2011-20, and down to 3.697% from 6.115% during 2021-30. The lowered productivity has a more dominant effect on lowering economic growth than higher capital tax rates and lowered population growth.

Third, from the estimation of two equation system implied by R&D based endogenous growth model using Korean data from 1970 to 2005, R&D intensity significantly stimulates technological innovation and hence economic growth in the steady-state. Increasing R&D intensity by one percentage point increases the growth rate of output per capita by 0.088 or 0.332 percentage points.

## A Study on National Pension Reform in Korea: Focusing on the Introduction of Individual Account and Decentralized Decision on Asset Portfolio

Research Monograph 07-03

Jae Hee Lee (Kyungwon University)

Since the bill on basic old age pension proposed by the ruling party and the government has passed through the National Assembly, and the ruling party and the main opposition party agreed on carrying the temporary bill on National Pension Reform in April 2007, in Korea we have a growing prospect of the success in National Pension Reform which has started in 2003. But regardless of whether the National Pension Reform bill will pass or not in the National Assembly in 2007, it is believed that additional reform will be needed to strengthen the financial sustainability of National Pension System with discussion about a long-term pension finance structure of National Pension.

This study presents a funded Defined Contribution type individual account program as an effective and feasible reform model for the case that a partial funded pension system with a high level of reserve is considered as an optimal long-term pension finance structure of National Pension System. The reform model includes the program for decentralized decision on asset portfolio, the introduction of a default fund for passive account holders, the introduction of the minimum guarantee pension to reduce market risk inherent in asset management.

## Effectiveness of Tax Policy Towards R&D

Research Monograph 07-04

Hag-Soo Kim

It is believed due to the characteristics of public goods that private firms are undertaking R&D investments funded by themselves less than the optimal social level of R&D. Based on the market failure argument, governments of many countries are practicing fiscal policies to alleviate the market failure problem and to further private firms' R&D investments. Korean government has also been practicing both R&D subsidy programs and tax credits on R&D. The purpose of this report is, specially focusing on tax policy towards R&D, to measure the effectiveness of each policy tool on the R&D investments funded by private firms and to deduce some policy implications.

Using a large number of firm-level panel data over 2002 ~ 2004, we estimate both user costs of R&D investments and how responsive the R&D investments funded by private firms are to changes in user costs and/or government subsidies. It is also shown under a number of assumptions and proxies for those unobserved details related to individual firms' tax and financial informations that the estimated user costs have approximation errors at most 10%.

As we can expect as a priori, the empirical results show the increase in tax credits on R&D leads to the decrease in the user costs, which in turn increases the R&D funded by private firms. It is also found that R&D funded by firms responds more elastically to the changes in their user costs the lower the economic depreciation rate for current expenditures. In addition, tax-price elasticity for small & medium firms is more elastic than large firms. Even if the estimated coefficient on lagged dependent variable is insignificant for some cases, the long-run tax-price elasticity is quite larger for small & medium firms than large firms.

On the other hand, we cannot find any statistically significant evidence for the hypothesis that the government subsidy programs increase R&D investments funded by private firms. Specially, the crowding-out effect of government subsidy is prominent for small & medium firms even if the magnitude itself is very small. Since the magnitude of crowing-out effect is not large, it could be said that the purpose of government subsidy programs has been accomplished as intended if government subsidy programs aimed to increase total R&D level. However, we have to draw the opposite conclusion if they were initially designed to increase R&D funded by individual firms.

## Enterprises Competitiveness of Korea, China and Japan

Research Monograph 07-05

Seung Rok Park

To study competitiveness of Korea's leading firm, this study employed non-parametric approach (based on DEA) with the panel data for 1,900 firms composed of Korea, China and Japan's during the period 2001-2004. Beside of comparing scale of sale and asset, profit, and factor productivity, we measured index of total factor productivity growth and its three components of scale economies, technical efficiency and technical change for these firms. This study suggested valuable points about scale of corporation, investment of corporation, corporation restructuring, improvements of firm's technology and future target for change of industrial structure of Korea's firms.

# Policy Report

## A Trend in Korean Manufacturing Wages

Policy Report 07-03

Chan-Guk Huh, Chang-Bae Kim, Pilhyun Kim

When national incomes in respective countries are considered, the wages in Korea's manufacturing sector are not only higher in terms of level but also sharper in terms of the rate of increase than in advanced countries. According to the U.S. Bureau of Labor Statistics(BLS), an employee in Korea's manufacturing sector received US $13.6 an hour in 2005. The figure puts the Korean workers at 21st place among 31 countries. When it is adjusted with the level of the Gross National Income(GNI) per capita, Korea ranks 5th, ahead of Japan and the U.S. The level of the U.S. setting at 100, the level of Korea was 158.4, higher than that of the U.S. or Japan(103.2), and far higher than that of Taiwan(76.9), Singapore(51.5), or Hong Kong(37.8).

Since 2000, the labor income growth rate in Korea exceeded the optimum level. Considering the changes in the labor-equipment ratio over the 2000-2005 period, the ratio of the labor income share to the capital income share was 4.2 percentage points higher than the optimum level. This indicates that the ratio of labor income share has risen more than the labor's contributions to output. This is also one of the reasons why the increase in the conventional labor productivity cannot be directly related to wage increases while contributions of other factors of production are excluded.

Even if the conventional labor productivity, that is, measured as output per labor hour, is regarded as a measure of labor productivity, wage increases in Korea have been higher compared with other countries. The unit labor cost, which is defined as the ratio of the labor productivity(output per labor hour) to hourly wages, has fallen over the past five years in Taiwan(-21%), Japan(-13%), U.S.(-5%), Germany(-6%), and others, but it has increased by as much as 2.5% in Korea.

To establish ways to determine the optimum wage level for the manufacturing sector, it is suggested, first, to recognize that linking the conventional labor productivity, calculated as the labor's contributions to output, directly to wage increase is invalid, second, to self-regulate the wage increase rate at a lower level than labor productivity to increase competitiveness, and third, to stabilize the growth rate of indirect wages like social insurance fees, etc.

## The Industrial Unionism: Issues and Tasks

Policy Report 07-04

Sung-Joon Park

The movement for organization of industrial unions that the labor communities have been promoting since 1997 lacks a decision making process internally, and just follows practices of the old system. It has been causing more negative side effects than positive effects that the labor communities had expected.

The new negotiation scheme is nothing but the multiple-procedure of negotiation format, that is, adding one more procedure of negotiation by the industrial union representatives to the procedure of negotiation by the local(enterprise) union which is just the old format. It causes some irrelevant agenda being put on the negotiation table by the industrial level, and consequently draws resistance from the local representatives. Then, the local union requests the whole process from the beginning, which results in longer span of negotiation and higher expenses to both sides.

However, it appears that the labor communities will continue to pursue organization of industry-level unions and centralized negotiations, meaning that the issues with the labor-management relationship are likely to grow further complicated. To solidify the concept of industrial unions and negotiations on the industry level, in particular, the Korean Confederation of Trade Unions(KCTU) is expected to request that the government legislate the centralized negotiations on the industry level into law.

Meanwhile, we should pay attention to the fact that the labor communities with a longer history in advanced countries are converting the negotiation scheme from the industry-level to the local enterprise. While reviving the advantages of corporate labor unions and negotiations by enterprise, ways to stabilize the labor-management relationship should be sought.

It is suggested that, as tasks for enterprises, establishment of roles and functional enhancement of employer organizations are important. Employer organizations should pay more attention on the agenda setting before engaging in actual negotiations, whether they can or should handle it. It is also necessary for employer organizations to be aware that examining the advantages and disadvantages of industrial unions in the long term and promoting group negotiations from the perspective of individual enterprises are realistic and effective strategies.

## Issue Paper

### Korea-U.S. FTA Negotiations: Analysis by Key Sectors

Issue Paper 07-01
Chan-Guk Huh et al.

This book consists of four chapters. They are on the foreign investment, communications, automobile and pharmaceutical sectors, and each of the four sectors is the key dispute issue regarding the U.S. request for Korea's market opening during Korea-U.S. FTA negotiations.

Korea-U.S. FTA and Foreign Investment (Kwan-Ho Kim, Dongguk University)
The regulations on compensation for indirect expropriation and investor-government conflict management are analyzed. The scope of indirect expropriation in the Korea-U.S. FTA is already limited, and furthermore, it is not fair to reject compensation liabilities against the U.S. that are stipulated in investment treaties with most other countries. The regulations on investor-government conflict management plays the role of safety device lest disputes between investors and government expand to national disputes, while being a means to protect investors at the same time. To link the Korea-U.S. FTA to expansion of foreign investment inducement, domestic investment environments should be improved, which can also provide momentum to strengthen awareness of property rights in Korea.

Korea-U.S. FTA and Telecommunications Industry (Byung-Il Choi, Ewha Womans University)
Two disputed issues in the telecommunications industry, technology neutrality and foreign ownership ceiling, are addressed. The paper argues that adhering stubbornly to the present system is not desirable. Although it is also not desirable to just accept the U.S. request that the government should not take the role in selecting the technology standard in the market, it is desirable if government rather helps promoting dynamic R&D environments, with the Korea-U.S. FTA as momentum. There is no grounds for the assertion that with relaxation of foreign ownership ceiling, the domestic telecommunications industry will be assailed by speculative capital and public interest will be undermined due to short-term result oriented management. By stimulating competition and innovation, the Korea-U.S. FTA can provide momentum for the domestic telecommunications industry to prepare reasonable systems suitable for advancing into the global market including developing countries.

Korea-U.S. FTA and Automobile Industry (Wongun Song, KERI)
Affected by the Korea-U.S. FTA, Korea's U.S. market share in the auto industry is expected to increase with enhancement of export price competitiveness and improvement of investment environments. Simplification of the present engine-displacement taxes, which is

a key issue for the U.S. side, is also suggested to enhance economic efficiency in the auto industry. In the case of pick-up trucks, on which the U.S. has been imposing a 25% tariff, domestic automobile firms will have a great opportunity to advance into the U.S. market. On the other hand, the imports-increase effect of U.S.-made automobiles on the domestic market is unlikely to be severe. Lifting the tariff barrier and simplifying the auto tax system with Korea-U.S. FTA will not only benefit the customers but have a positive impact on domestic automotive parts industry as well.

Korea-U.S. FTA and Pharmaceutical Industry (Jae-Young Lim, Hallym University): This study analyzed the ripple effects regarding ways to optimize health insurance drug coverage and IPR on drugs. If drug coverage is simplified through the positive list system, the possibility of a sharp increase in drug costs caused by the Korea-U.S. FTA is projected to be low. As for IPR-related dispute issues, if the related laws and systems are revamped, the impact on domestic industries will not be very significant.

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