

EFFECTS OF HIGHER INTEREST RATES, FX LOSSES,
AND FUEL COSTS ON KOREAN INDUSTRIES

by the Industry Analysis Division

Effect of Rising Interest Rates on Financial Costs

Based on 1996 statistics, financial costs accounted for a greater percentage of total revenues than exchange rate costs and fuel costs. For the entire manufacturing sector, financial costs accounted for 4.3% of total revenues. The highest percentage among individual sectors was the chemical sector at 5.9%, followed by the textile and shipbuilding industries at 5.5% each, while the lowest was the electronics industry at 2.2%.

It is assumed that the interest rates on corporate bonds will rise from the average 11.9% in 1996 to 18% in 1998, which would mean an increase of 51.3%. If this is the cases, then the total financial costs, which amounted to 15.334

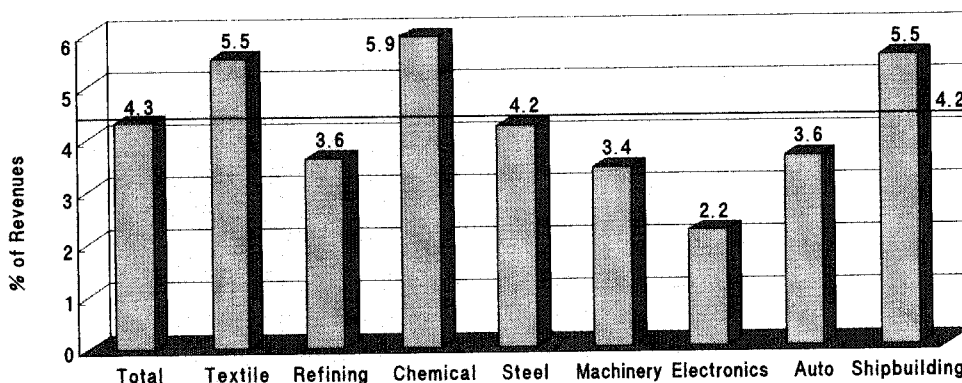
trillion won or 4.3% of total revenues in 1996, would increase another 7.866 trillion won or an additional 2.2%. The industry most affected would be the chemical industry, whose additional burden would amount to 1.081 trillion won, while other heavily affected industries include the automobile (795.8 billion), textile (638.9 billion) and steel (496.9 billion) industries. The industry least affected in terms of total amount would be the machinery industry at 319 billion won.

"The industry most affected by higher interest rates would be the chemical industry."

Effect of Rising FX Losses Due to Won's Devaluation

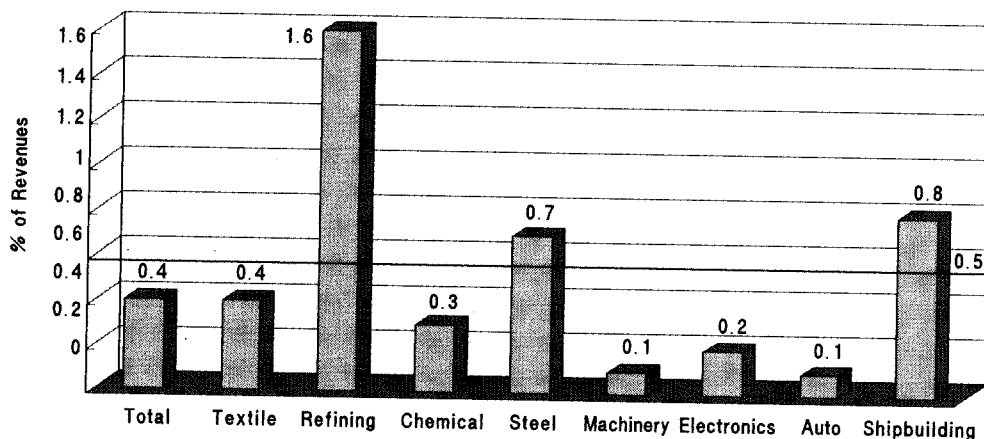
In general, the exchange rate losses accounted for 0.4% of revenues of the entire manufactu-

<Figure 1> Financial Costs as % of Revenues by Industry in 1996



Source: Bank of Korea, "Business Management Analysis," August 1997.
Notes: 1) Financial costs=interest expenses + discount on notes receivable - interest income
2) The horizontal line (at 4.2%) is the average for all industries

〈Figure 2〉 Exchange Rate Losses as % of Revenues by Industry in 1996



Source: Bank of Korea, "Business Management Analysis," August 1997

Note: The horizontal line (0.5%) is the average for all industries.

"The industry most affected by higher FX losses would be the electronics industry."

"High fuel-consuming sectors such as the chemical and the refining industries will be hurt by the higher fuel costs."

ring sector. (Note: exchange rate losses are taken to mean net exchange rate losses; exchange rate gains have been deducted from total exchange rate losses.) For the oil refinery and shipbuilding sectors, though, the levels were four times and two times higher (1.6% and 0.8%), respectively, mainly due to the high amounts of foreign currency-denominated debt incurred in facility investment. The lowest ratios were in the machinery and automobile sectors.

For this section, it is assumed that the won's value will drop from the yearly average of 804.4 won/dollar in 1996 to 1415 won/dollar in 1998, which would mean the won has depreciated by 75.9% over the cited period. Accordingly, the additional exchange rate losses occurred based on 1996 revenues would amount to 6.228 trillion won or an increase of 1.7%. The industry most affected would be the electronics industry with its high level of foreign debt, which would

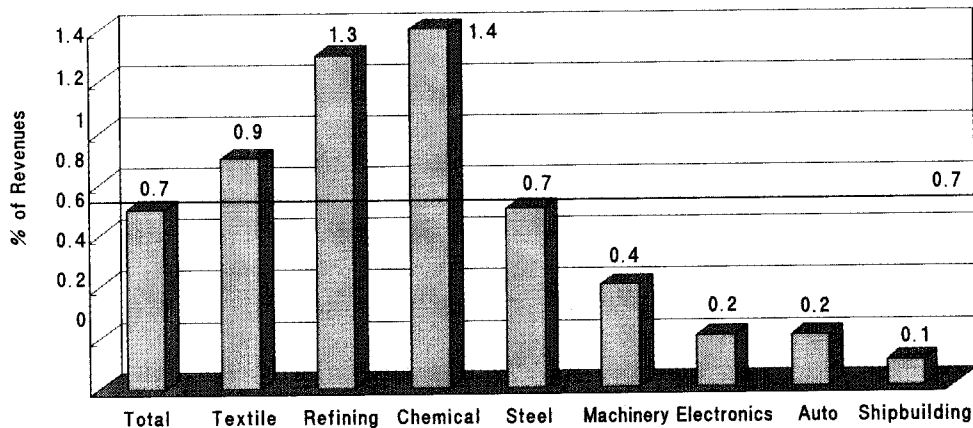
lose an additional 2.726 trillion won, followed by the refining, steel and shipbuilding industries. The industries least affected would be the textile, machinery and automobile industries.

Effect of Rising Fuel Costs

Fuel costs amounted to about 0.7% of total manufacturing sector revenues. These levels were highest in high energy-consuming sectors such as the chemical (1.4%) and oil refining (1.3%) sectors, while the lowest percentages were in the electronics, automobile and shipbuilding sectors.

The change in fuel costs is based on the rise in the post-tax prices of diesel and B-C fuel between December 1996 and December 1997. Over that period, domestic fuel prices rose 95.1%. Since world crude oil prices are stable for now, it is assumed that the current prices will be

〈Figure 3〉 Fuel Costs as % of Revenues by Industry in 1996



Source: Bank of Korea, "Business Management Analysis," August 1997; National Statistical Office, "Report on Survey of Mining and Manufacturing Statistics," April 1997
 Note: The horizontal line (at 0.7%) is the average for all industries.

maintained throughout 1998. Based on this, the manufacturing sector will incur additional fuel-related costs of 2.536 trillion won. High fuel-consuming sectors such as the chemical and the refining industries will be hurt the worst whereas the shipbuilding industry will be hurt the least.

Analysis of Combined Effects

The combined effect of the rise in interest rates, the won's devaluation, and the higher fuel costs will result in an additional burden of 16.63 trillion won on Korea's manufacturing sector. Thus, the combined financial costs, FX losses, and fuel costs are estimated to reach around 36 trillion won, an increase of 86 percent over 1996's 19.37 trillion won.

The sector which will feel the greatest effect

is the electronics sector, largely because of its huge amounts of foreign debt. This industry will see estimated added costs of 30.63 trillion won to reach a total of 4.043 trillion won in costs from these three areas. The next most affected is the chemical sector, which will have additional costs of 1.949 trillion won to reach a total of 4.643 trillion won. The sector which is least affected is the machinery sector, whose additional costs would only amount to 617 billion won, followed by the shipbuilding and textile industries, at 1.018 and 1.184 trillion won respectively.

1998 Industry Revenue Forecasts and Effects of Rising Costs

To estimate revenues for 1998, the following three assumptions or calculations were made. First, revenues for each industry were

"The combined financial costs, FX losses, and fuel costs are estimated to be increase of 86 percent over 1996's."

divided into export revenues and domestic revenues according to the 1996 ratio. Second, domestic revenues for 1998 were calculated by taking 1996 domestic revenues and adjusting them by the 2-year domestic growth rate as forecast by each industry association, while export revenues were calculated by adjusting 1996 export revenues by the 2-year export growth forecasts while also reflecting the change in the exchange rate and a resulting drop in export prices (in terms of dollars). Third, the estimated domestic revenues and export revenues were combined to forecast total industry revenues for 1998.

Accordingly, domestic revenues for Korea's manufacturing industries are expected to

increase by 2.1% while exports are to increase by 96.2%. Domestic revenues will be sapped by the reduction of overall consumption in the IMF era, while exports will be greatly boosted by their enhanced price competitiveness due to the won's devaluation. Overall, the manufacturing sector's 1998 revenues are predicted to reach 453 trillion won, a 25.9% increase over 1996. Revenues will increase the most in the refining (54.4%), electronics (44.1%), chemical (43.8%) and textile (42.6%) industries, while revenues will actually decrease in the automobile industry (-4.4%).

Altogether, it is estimated that the combined financial costs, FX losses and fuel costs of the manufacturing sector will rise from 5.4% of total

"Domestic revenues will be sapped by the reduction of overall consumption in the IMF era, while exports will be greatly boosted by their enhanced price competitiveness due to the won's devaluation."

<Table 4> Industry Revenue Forecasts

(unit: %, billion won)

	1996			1998		
	Exports	Domestic	Total	Exports	Domestic	Total
Total	97,034.8	262,993.1	360,027.9	190,459.0(96.2)	268,516.0(2.1)	453,452.1(25.9)
Textiles	14,245.9	8,478.7	22,724.6	23,511.7(65.0)	8,902.6(5.0)	32,414.3(42.6)
Refining	3,064.8	20,885.7	23,950.5	6,550.8(113.7)	30,438.8(4.1)	36,989.1(54.4)
Chemical	11,334.0	24,137.5	35,471.5	22,974.5(102.7)	28,023.6(16.1)	50,998.1(43.8)
Steel	7,062.6	15,775.0	22,837.6	13,040.3(84.6)	15,412.2(-2.3)	28,452.5(24.6)
Machinery	7,022.4	11,305.0	18,327.4	11,751.2(67.3)	9,439.7(-16.5)	21,190.9(15.0)
Electronics	20,852.6	12,565.0	33,417.6	36,107.5(73.1)	12,041.0(-4.3)	48,154.5(44.1)
Automobile	9,532.1	34,110.2	43,642.3	19,715.4(106.8)	22,001.1(-35.5)	41,716.5(-4.4)
Shipbuilding	5,735.4	10,318.9	16,054.3	10,714.1(86.8)	10,958.7(1.0)	21,672.8(35.0)

Source: Bank of Korea, "Business Management Analysis," August 1997

Note: 1) 1998 export forecasts take into account industry projections on export growth rate and changes in the exchange rate. However, assuming that export prices (in terms of dollars) would be lowered by 30%, the change in the exchange rate was calculated at 53.1% (70% of the total 75.9% change), except in shipbuilding (the full 75.9%), and automobiles (12% lower prices or 66.8%).

2) For the refining industry, the increase in domestic revenues reflects in the increase in domestic prices.

3) The figures in parentheses represent increases over the same figures in 1996.

revenues in 1996 to 7.9% in 1998, with the ratio increasing in every sector. Among individual sectors, those with the highest combined financial costs, FX losses, and fuel costs relative to total revenues will be the steel (9.1%), chemical (9.0%), and shipbuilding (9.0%) industries. The electronics, steel and automobile sectors will show the greatest additional burdens relative to 1996's ratios. According to our projections, the industries with the lowest cost ratios will be the machinery (6.1%), automobile (7.2), and electronics (7.4%) sectors.

Conclusion

Even though exports will be greatly boosted (on a won-revenue basis), the Korean manufacturing sector's overall profitability will be weakened by the slowdown in domestic demand and the significant rise in financial costs, FX losses, fuel costs, and other rising costs com-

pared to 1996 when the exchange rate was stable. Even though revenues are expected to increase by 25.9%, the abovementioned financial costs, FX losses, and fuel costs will rise a whopping 86%. To compensate for this diminished profitability, Korea's manufacturing industries must strive to raise their productivity, reorganize their structures to be more efficient, and reduce their overhead costs. Industries with high financial costs such as the chemical and automobile industries need to dispose of some assets and improve their financial structures. Industries with high FX losses should also consider disposing assets and using export earnings to reduce their foreign debt burden as much as possible. Sectors with high fuel costs should pursue measures to make their facilities more energy efficient and reduce overall energy consumption. And finally, sectors with high export ratios such as shipbuilding and automobiles need to go all out to expand exports even further to increase their profitability.

"It is estimated that the combined financial costs, FX losses and fuel costs of the manufacturing sector will rise from 5.4% of total revenues in 1996 to 7.9% in 1998."

<Table 5> Total Additional Costs by Industry

(Units: %, billion won)

	Estimated	Major Costs Increases				Ratio (B+C+D)/A
	Total Revenues (A)	Fuel (B)	FX (C)	Financial (D)	Total (B+C+D)	
Total	453,452.1	5,202.1	7,601.4	23,199.9	36,003.4	7.9(5.4)
Textiles	32,414.3	420.4	4,36.1	1,884.3	2,740.8	8.3(6.0)
Refining	36,989.1	620.2	1,137.1	1,299.1	3,056.4	8.4(6.5)
Chemical	50,998.1	956.4	497.4	3,189.0	4,642.8	9.0(7.6)
Steel	28,452.5	289.9	878.0	1,465.6	2,632.5	9.1(5.6)
Machinery	21,190.9	133.1	250.9	940.8	1,324.8	6.1(3.9)
Electronics	48,154.5	112.2	2,305.5	1,127.8	3,545.5	7.4(2.6)
Automobile	41,716.5	163.1	493.7	2,347.0	3,003.8	7.2(3.9)
Shipbuilding	21,672.8	36.1	573.7	1,347.5	1,957.3	9.0(6.4)

Notes: 1) The figures in parentheses are 1996's ratios
 2) The total additional costs are relative to 1996's figures

<Table 6> Relative Effects of Rising Financial, FX and Fuel Costs

	Financial	FX Losses	Fuel
Textile	■	○	○
Refining	○	■	■
Chemical	■	○	■
Steel	○	○	○
Machinery	△	△	○
Electronics	△	■	△
Automobile	■	○	○
Shipbuilding	○	○	△

Note: ■ = relatively big change, ○ = average change, △ = small change

Rising Unemployment

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(Cont'd from p. 14)

used for this purpose is just less than 10 percent of the total funds for unemployment policies. While the funds for this should be expanded if possible, compulsory or non-economic measures except economic incentives should not be used because these measures could retard economic restructuring, which is essential to economic recovery and the ultimate solution of the unemployment problem.

Above all, creating a lot of new jobs is necessary in order to reduce unemployment. The Korean government feels envious of the American experience. Recognizing that the success of venture businesses in America has contributed to the creation of an enormous number of jobs and reduced unemployment, the Korean government has made ambitious plans to support venture business financially.

Public SOC projects will be executed earlier than originally planned. At the same time public work projects, which are helpful for the unemployed who cannot get unemployment benefits as is stated above, will be expanded to employ 130,000 for eight months.

One of the biggest problems of the govern-

ment's unemployment policies is how to raise the funds necessary to execute the above policies. In particular, the Korean government plans to issue long-term government bonds with an 8.5 percent interest rate worth more than \$1 billion. However, the interest rate is too low for them to be sold out.

Some funds are expected to be raised from cutting public officials' wages by 10%. However, public officers' wages are already low compared with the private sector, so cutting their wages might depress their morale, and the corruption of government officials. One of the biggest problems the Korean government needs to solve, might become more serious.

While unemployment is the most serious problem to be tackled aggressively by the government, the Korean government should recognize that the fundamental solution of the unemployment problem is to strengthen the Korean economy by restructuring in order to build overseas confidence, cope with the foreign exchange crisis and increase export competitiveness. To some degree unemployment is inevitable in these processes. The Korean economy is now in a paradoxical situation in which unemployment should be increased to solve the unemployment problem. **VIP**