「 An Analysis of Net Foreign Currency Asset Leverage effect on the Ship Industry by Period of Financial Crisis 」

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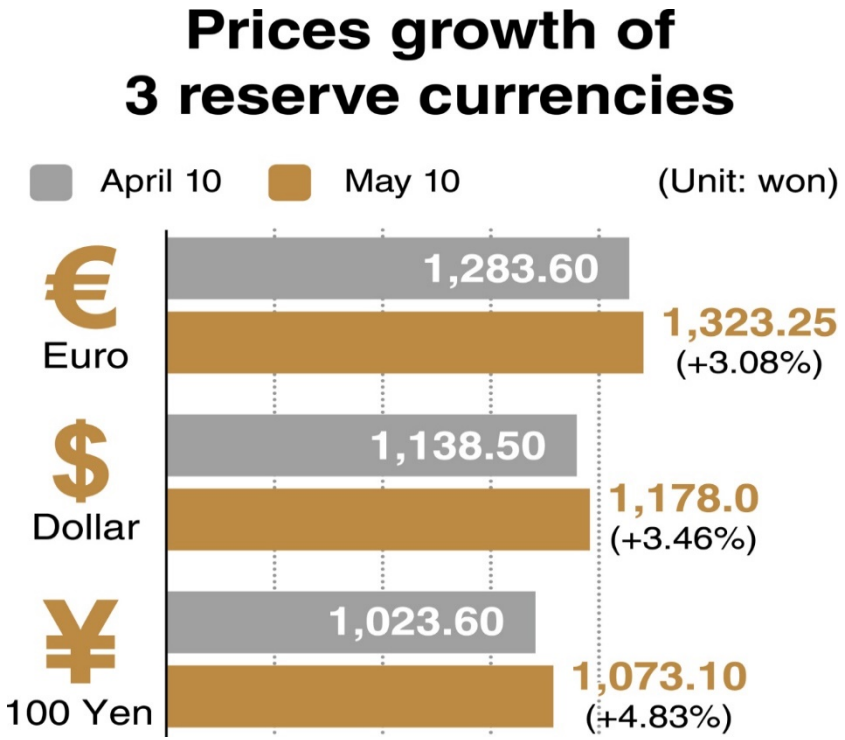
"Weak currency prompts fears of capital flight"



CONTENTS

01. Research Motivation

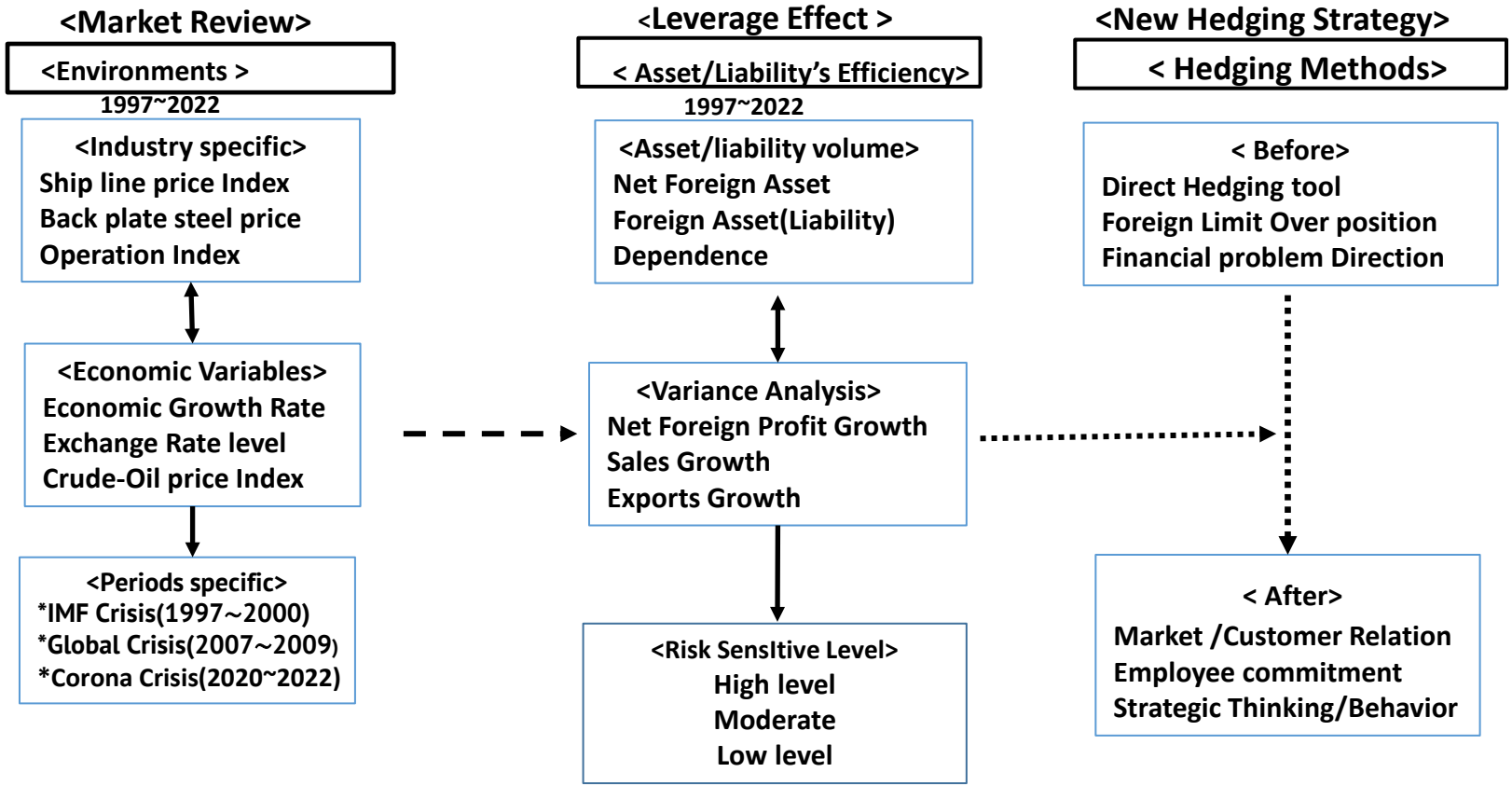
- How it process ***foreign assets(liabilities) & derivative assets impact the net foreign profits*** and ***the trend of foreign asset by three periods of weak won***

- To evaluate the stability of the diversified foreign transactions ***how far those operational activities are influenced by the external factors.***

- ***To derive competitive foreign Asset management solutions*** for the situations based on the sensitivity result on the characters of the manufacturing industry

02. Model

Drivers of Analysis between Net Foreign Asset and Foreign Profit



2. Research Target & Data sourcing

2.1 Target Industry

- Shipbuilding industry → One of the sensitive industry on the exchange rate volatility, Top 90% ranked market share(six sample corps)

2.2 Analysis Data sourcing

'Korea the financial supervisory service dart system', 18th financial data

·**B/S**: **volume and ratio of the foreign asset/ liability, derivatives asset/liability**

·**P/L**: volume and growth rate of the sales, export, **net foreign profit**, operation net Income, translation profit, **derivatives profits**

· **Market economic factors**: economic growth rate, exchange rate, Interest rate, raw material(crude-oil) price Index

· **shipbuilding firms specific** : container line price, back plate steel price, operation index

2.3 Focused Research Methods:

$$*\mathbf{FER} = \frac{NFP}{NFA} \times 100, \ldots\ldots\ldots\ldots 1)$$

$\mathbf{FER}$: $foreign\ asset\ leverage\ effect\ ratio$

NFP: $net\ foreign\ profit(Gain - Loss)$

NFA: $net\ foreign\ asset(Asset - Liability)$

- It means efficient management level of the foreign assets and liabilities **to reduce exchange rate risk and opportunities to earn additional profits**

- ***The value of the FER fluctuates how the exposed asset and liability volume are booked and reduced exchange risk***

- The companies that scored High FER value are regarded as global companies which manage effectively foreign asset & relationship reducing exchange rate risk

3. Results

3.1: Review of the Macro Economic Factors : 1998~2022

(Unit: thousand won/mill usd,%)

Variables	Total-Average	IMF crisis	1st KRW value stabilization	Global crisis	2nd KRW Value stabilization	Corona crisis
Exchange Rate ₩/$(book)	1,145	1,257	1,118	1,126	1,119	1,180
Economic growth rate	4.2	5.4	5.1	4.1	3.0	2.1
CD 90 days rate	4.7	10.6	4.4	4.0	2.3	1.4
3M Libor rate(USD)	2.5	5.8	2.8	1.7	0.9	1.7
Sales Growth rate	116.7	82.2	128.0	117.9	97.7	102.6
VLCC(crude-oil carrier)	95	74	94	124	92	106
Back Plate price (Won/ton)	646	426	477	806	794	1,020
Operating Index	105.2	88.5	118.3	132.2	90.9	106.6

Source: Korea the Financial Supervisory Service Dart system, OECD, BOK statistical data

3. Results

3.2 Macro economic Factors review

- ***Large Firms including shipbuilding companies prefer to borrow foreign currency debt, the reason why foreign borrowing rate is 2.5% lower than KRW 4.7%***

- Exchange rate volatility impact negative factors ***to receive a large amounts of the shipping orders in foreign currency and translation loss on the foreign receivables and liabilities***

- The profitability of shipbuilding Industry have affected ***by the ship orders and ship's market price based on the world logistics → keeps stable in market price of the VLCC & LNG carrier(1998~2022)***

3. Results

3.3: Profit Structure of Foreign currency transaction

(Unit: trillion Won,%)

Foreign Profits Structure	Total	IMF crisis	1st KRW stabilization	Global crisis	2nd KRW stabilization	Corona crisis
Total Earning to Sales	2.0	-1.5	3.1	10.2	-0.3	-10.7
*Foreign Profits to Sales	-0.9	-1.0	0.8	-4.6	-0.2	-1.2
Net Foreign Profit to Total Earning	16.4	23.0	30.9	-6.2	10.2	-25.4
Translation Profit to Total Earning	7.9	25.3	2.8	-1.6	-6.4	-25.1
Derivative Profit to Net Foreign Profit	82.9	7.3	61.5	-275.9	-45.8	-155.7
Derivative Valuation Profits to Net Foreign Profit	109.8	5.9	31.5	0.6	-247.6	-222.0
Exports Volume Ratio to Sales	83.8	54.4	89.3	90.3	81.8	88.0

Data sourcing: Korea the Financial Supervisory Service Dart system

3. Results

3.3: Profit Structure of Foreign currency transaction

- The portion of the net foreign profits to total earnings accounts **for 16.4%**, that is high portion compared to other industry.

- The weight of net derivative profits to net foreign profits reached to **82.9%** for the last 20years.
- High portion of the derivative profit was resulted from ***large amounts per unit- dealing & large book value at the end of the year***

- During periods KRW value volatility, global company should reduce exchange risks ***by shortening maturity structure and taking counter derivatives trading.***

3. Results

3.4: Industry- Foreign Asset Leverage Effect Trend

(Unit: Million Won,%)

FER-Review	1998	2008	2013	2019	Total-Average	IMF crisis	1st KRW stabilization	Global crisis	2nd KRW stabilization
*Shipbuilding	-7.8	79.6	-21.5	-26.8	-36.4	-3.2	-81.1	21.9	**-35.8**
IT-Mobile	13.4	-43.8	0.4	-0.9	7.9	0.0	18.0	0.5	6.9
Auto-Car	98.8	-20.3	5.0	-3.3	7.8	28.8	12.6	-11.2	4.0
Oil Refining	83.4	-54.7	0.5	3.3	2.3	13.1	8.8	-10.2	-0.4
Steel Manufacturing	39.5	-152.6	0.0	-3.1	1.3	10.9	20.5	29.8	-1.6
Int'l Trade	1.4	-8.3	-3.0	1.1	-0.4	1.8	0.4	-0.8	-1.8
Electronics	2.5	-13.8	-2.3	-3.5	**-1.0**	-1.2	5.0	-5.8	-2.7
Total	39.8	-48.9	0.1	-1.1	3.0	8.9	10.9	-9.6	0.8

Data sourcing: Korea the Financial Supervisory Service Dart system
Industry's value be calculated on the top 60% market share firms

3. Results

3.4 FER Value of the main industries

- Shipbuilding Industry get just **-36.4%** revenue from net foreign Asset exposure
- The FER value of the IT & Auto-Motor Industry is estimated **7.9%** its efficiency, high level compared to other industry

- The company with the High positive(+) FER Value can ***comparatively manage exposure risk and low-risk fund matching in timing***

- ***FER value of the most Industry be low level stand out during the Global crisis for the entire periods***

- The profitability of some companies with negative FER Value have influenced ***by the translation risk on excess credit limit***

3. Results

3.5: Shipbuilding Foreign Asset Leverage Effect

FER A: Overall transaction,(Loss- Gain)/Foreign asset & liability (Unit: %)

FER-Review 1	Total	IMF crisis	1st KRW stabilization	Global crisis	2nd KRW stabilization	Corona crisis
Net Foreign Asset leverage	-36.4	-3.2	-81.1	21.9	-35.8	-12.8
Foreign Asset leverage	-11.4	-5.2	21.3	-74.2	-7.0	4.1
Foreign Liability leverage	-1.6	-3.1	42.7	-64.0	-1.3	-10.5
Foreign Debt leverage	-487.4	-3.7	-144.9	-2,391.8	28.6	-594.9

Data sourcing: Korea the Financial Supervisory Service Dart system

3. Results

3.4: <Shipbuilding Foreign Asset Leverage Effect Trends >

- The value of foreign asset leverage effect on the Shipbuilding firms **-36.4**, its result was further negative than other industries
- That reason why shipbuilding company have ***specialized in global business over 85% and huge amounts per-unit.***

- Korean shipbuilding firms should decrease foreign debts size as possible, considering high foreign debt leverage**(-487.4%)**

- The size of foreign debt held by the company further impact profitability of the firms than other periods **during the Global crisis(KRW devaluation)**

3. Results

3.5: Shipbuilding Foreign Asset Leverage Effect Trends

FER B: Net profit in Foreign currency except for other revenue (Unit: %)

FER-Review 2	Total	IMF crisis	1st KRW stabilization	Global crisis	2nd KRW stabilization	Corona crisis
Net Foreign Asset leverage	-2.5	-10.0	-5.1	2.2	-1.7	-2.0
Foreign Asset leverage	-1.1	-4.3	-1.0	-2.7	0.9	8.1
Foreign Liability leverage	-0.9	-4.4	-6.3	7.3	0.3	3.6
Foreign Debt leverage	-73.6	-4.3	-407.5	240.8	-0.9	13.2

Data sourcing: Korea the Financial Supervisory Service Dart system

3. Results

3.5: <Shipbuilding Foreign Asset Leverage Effect Trends >

- Fer B is differentiated to Fer A, the point that FER B estimated how the foreign assets ***impact net profits in foreign currency except for derivatives profit, other etc.***

-The value of FER B are estimated in the lower level and more positive(+) impact on the improve profitability than FER A.

- ***Global manager should be prudent to take derivatives to hedge external risks,*** point that the foreign asset management of shipbuilding companies positive(+) impact to foreign profitability excluding other profits

3. Results

3.6: Foreign Asset Leverage Effect Gap Analysis

★FER A/ FER B, both Gap analysis

(Unit: %)

FER-Review 3	Total	IMF crisis	1st KRW stabilization	Global crisis	2nd KRW stabilization	Corona crisis
★Net Foreign Asset leverage	14.5	0.3	15.9	9.8	20.6	6.4
Foreign Asset leverage	10.2	1.2	-21.7	27.3	-7.7	0.5
Foreign Liability leverage	1.9	0.7	-6.8	-8.7	-4.6	-2.9
Foreign Debt leverage	6.6	0.9	0.4	-9.9	-30.2	-45.1

Data sourcing: Korea the Financial Supervisory Service Dart system

3. Results

3.6: Foreign Asset Leverage Effect A/B Gap Analysis

- The value of foreign Debt leverage effect(B) is decreased ***by 6.6 times*** comparing to FER (A) for the entire periods.

- ***At the global crisis(KRW devaluation), the size of the foreign assets have far less influence on the net foreign profitability comparing to FER (A)***

- ***Adversely, Global companies should keep long position of the foreign asset as possible, during the KRW devaluation periods***.

4.1 Implications

- ***Independent credit rating which is considered relating stability of the foreign activity should be introduced to prepare for the emergency global shock.***

- Foreign business firms should maintain high leverage foreign asset position which is contributed on the performance maximization.

- All employee ***keep in mind comprehension of the exposure risk and forecasting risk relating global business activity in order to keep optimal balance.***

- Global manager should estimate exchange risk level on the basis of linked value creation ***from business contraction stage to completion of the account receivables.***

4.2 Conclusion

- To recognize and assess foreign risk-exposed assets ***by each stage of performance including beginning schedule, needs all employee commitment***

- ***Global manager should be prudent to take derivatives to hedge external risks, considering derivatives maturity shortening and counter trade at the end of year prevent preventing decline in creditworthiness***

- ***To hedge exposure risk on strategic view, we*** need to maintain sales volume which is achieved by ***stakeholder relationship plus marketing empowerment***

- To consider environment factor which impact company performance, those are ***economic prospectus, financial forecasting, customer status***

T H A N K Y O U

For Seeing The Presentation