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The Causes of Hanjin Shipping's Collapse: Is it Market Failure or Policy Failure?

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한진해운 파산의 원인: 시장실패인가 정책실패인가?

이태휘

Abstract

Most scholars and media viewed the cause of the bankruptcy of Hanjin Shipping, which once boasted the world's seventh largest company, as management failure or CEO risk. However, in this study, the cause of Hanjin Shipping's bankruptcy was considered to be the collective action of ship investment from a behavioral economics perspective, and it was pointed out that the Korean government's inflexible fleet expansion policy was the background for this collective action. In short, the cause of Hanjin Shipping's bankruptcy was the purchase of ships during the boom period, and the root cause of the purchase of ships during the boom period was pointed out as 'collective action in which one feels safe only by following the actions of others.' In addition, in order to achieve the goal of 'shipping competitiveness = fleet size' set by our government, a policy was implemented to encourage ship purchases during recessions and even boom times, and this policy signaled to the market that 'now is a good time to buy ships'. It can be pointed out that was given.

Key words: Hanjin Shipping, market failure, policy failure, shipping management, shipping policy

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Ⅰ. Introduction

The bankruptcy of Hanjin Shipping, it was the world's seventh largest container shipping company, signifies the collapse of the international logistics network that Korea has built for a long time, and furthermore, the lost of trust in Korea's shipping industry. According to previous studies that analyzed the causes of Hanjin Shipping's bankruptcy, irrational ship investment and chartering during the boom period was pointed out as the critical point (Song et al., 2019; Shin et al., 2019). Following the rate of change in charter for Hanjin Shipping, in 2006-2007, when shipping economy was booming, charter rates increased by 306.4%. In addition, the company has experienced a liquidity crisis by signing expensive long-term charter contracts.

Shipping demand is basically a derived demand for trade and manufacturing. The demand for trade goods is the primary demand, and the demand for shipping could be said to be the secondary and derivative demand (Stopford, 2009). Thus, shipping economy cycle depends on the global macro-economic conditions. If the global macro-economic condition like COVID-19 period is good, the freight rate shows good. Because of imbalance of shipping demand and supply, shipping freight rate is dynamic and volatile. During the boom period in shipping business, many shipping companies and ship owners would be purchasing the more vessels. In that time, if the global macro-economic conditions shrink, the shipping economy would be experiencing the oversupply stage.

In preparation for the 2008 Beijing Olympics, China has embarked on huge investments not only in stadium construction but also in urban infrastructure. China has become the world's consumer instead of world's factory. In early 2006, China's coal imports will exceed coal exports of China. Naturally, several ships were supplied in the market to carry the cargo, and the shipping companies enjoyed an unprecedented boom. However, let us consider the circumstances after the "China economic boom" disappear. Almost shipping companies may pass through the severe over-supply stage.

The player in the industry that has the above volatile economic trend could be shown as herding behavior (HB) normally like stock market and shipping market. This paper shed light on how shipping companies mimic the other companies' investment behavior using a case of Korea. In that point, this study would raise another question as follows: Is Shipping's HB market failure? How does impact policy on shipping's HB?

The rest of this study organized as follows. Section 2 reviews theoretical background. Section 3 shows what the shipping companies' HB is and how shipping companies show HB. Section 4 explores the policy impact on shipping companies' HB. How does the policy make the environment that HB reveal repeatedly. Section 5 discusses conclusion.

Ⅱ. Theoretical Background

1. Behavioral Economics

Richard Thaler, a professor at the University of Chicago who won the Nobel Prize in Economics in 2017, is highly regarded for his book Nudge,

which deeply explores the then-unfamiliar field of behavioral economics. The term "nudge" refers to a gentle intervention that nudges others' choices, meaning to "poke with an elbow" or "to arouse attention." In his book, Thaler explains that those who are concerned about how others will evaluate them may conform to certain thoughts or behaviors to avoid anger or gain favor.

In this book, Thaler presents three examples of "group conformity." One example is the influence of fellow judges on federal judges serving on three-judge panels. Specifically, when a judge appointed by the Republican Party sits with two judges appointed by the Democratic Party, they tend to exhibit a more libertarian voting pattern. Conversely, when a judge appointed by the Democratic Party sits with two judges appointed by the Republican Party, they tend to exhibit a more conservative voting pattern. The second example is how broadcasters imitate each other, leading to the creation of temporary trends in program scheduling that have no other explanation. Reality TV shows and audition programs like American Idol fall under this category. The final example involves the contagiousness of obesity, where a close friend gaining weight increases the likelihood of oneself gaining weight.

This phenomenon of group conformity can be easily observed in movie theaters and airports. Let's say it's currently 8:45 a.m. and the movie starts at 9. Even if you enter the theater now, you know that they will show advertisements for about 10 minutes. You also know that the seats in the theater are not assigned on a first-come, first-served basis, so you don't have to watch the boring ads in a dark theater. However, because people are entering one after another, you end up following them and watching the ads for more than 10 minutes. Second, let's say you're sitting at the gate waiting for a 2 p.m. flight. The airline starts admitting passengers from 1:45 pm. People are standing in line to board the plane. They know that the seats on the plane are not assigned on a first-come, first-served basis and that if they board now, they will have to wait for 15 minutes in a cramped economy seat. But they feel anxious about waiting alone at the gate for 15 minutes, and end up joining the line with others.

2. Application of Herding

Group conformity is one of the frequently studied research areas in international finance. In international finance, this phenomenon of group conformity is referred to as herding, which means imitating the actions of the group one belongs to. From an investment perspective, herding refers to blindly following the behavior of the group rather than making rational judgments in the investment decision-making process. According to the International Finance Research Association (2016), an example of herding behavior is as follows:

"Assume that a financial crisis occurs in country A, which has an emerging economy, and international investors begin to make large-scale withdrawals of investments from its financial market. In this situation, international investors who have invested in another emerging country B imitate the behavior of those who have invested in country A and also withdraw their investments from B's financial market, leading to a financial crisis in B as well."

Gleason et al. (2004) claim that herding behavior, where investors imitate the actions of other investors, is more easily identifiable in markets with high levels of uncertainty. Nofsinger and Sias (1999) define herding behavior as multiple investment groups exhibiting the same investment patterns or directions over a certain period of time, while Cote and Sander (1997) define it as a behavior where individuals follow the opinions of the majority of investors rather than their own beliefs when making investment decisions.

Meanwhile, herding behavior in the capital market is measured using the stock price synchronicity model. Stock price synchronicity refers to the tendency for the stock prices of a country or industry to become identical to those of other countries or industries. As the economy becomes more open and investment information becomes more asymmetric, this phenomenon becomes more pronounced. Roll (1988) proposed the following model for measuring stock price synchronicity.

$$RET_{i,t} = C + \beta_1 MARKET_{i,t-1} + \beta_2 MARKET_{i,t} + \beta_3 MARKET_{i,t+1}$$

Roll claims that stock price synchronicity is not caused by market factors or the influence of public information, but rather by a distrust of the information that individuals have acquired and a blind following of others' investment behavior.

Ⅲ. The shipping industry's herding behavior

Among studies that describe or empirically analyze herding behavior in the maritime industry, Shinohara (2009) found that participants in the maritime market tend to interpret faint signs in the market as indicators of fear and invest based on that fear, or in some cases show a competitive speculative tendency based on overconfidence. Hampton (1990) claims that the fear arising from volatility in the shipping market causes shipowners to follow herd mentality over objective facts, seeking comfort in the "market sentiment." Martin Stopford's book, Maritime Economics, also explains herding behavior in the shipping industry as follows.

"The participants are caught up in a struggle between fear and greed. Because we are human beings, influenced to varying degrees by those around us, the psychology of the crowd feeds upon itself until it reaches an extreme that cannot be sustained. Once the extreme has been reached, too many decisions have been made out of emotion and a blind comfort which comes from following the crowd rather than objective fact."

In a CEO roundtable discussion published in Monthly Maritime Korea in 2011, Chairman Jung-Seug Park of Korea Marine Transport pointed out that herding behavior can also be observed in the maritime industry.

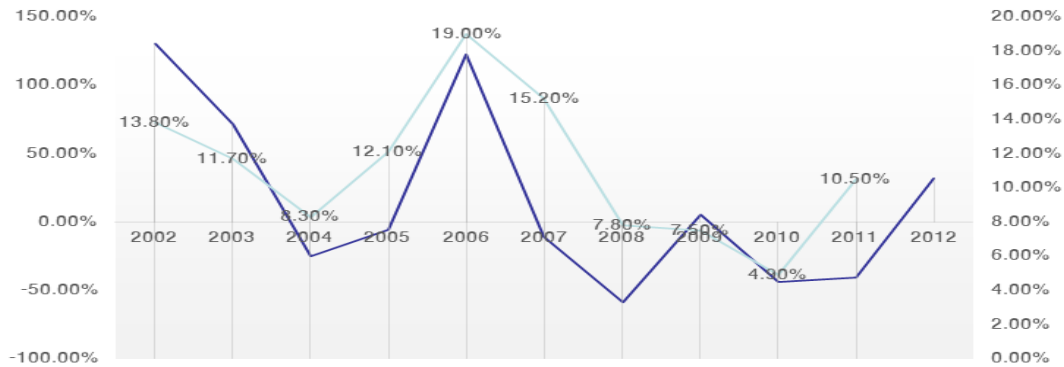
"It's a question of the appropriateness of ship investment timing. According to a report in a certain media outlet, the Greek fleet decreased unprecedentedly during the long-term boom until 2006, while the Korean fleet increased by more than 20%, as was the case with most of the world's major shipping companies. Duke's irrational economics mention that economic theory should be established in consideration of how

people do not make decisions based on rational thinking but but forget recent actions and repeat the same mistakes. Having worked for large corporations, financial institutions, and other companies, I know that the biggest advantage and disadvantage of Koreans' psychology is herd mentality. It is true that the anxiety of key executives in the company is exacerbated if they do not follow others."

At the same CEO roundtable, Tae-gyun Kim, who was the CEO of Heung-A Shipping at that time, noted the widespread herding behavior and blind investment patterns of Korean maritime companies.

"Back in 2007, the prevalent view was that those who did not place orders were fools. We had to retire old ships and acquire new ones according to our fleet renewal plan, which followed the trend of ships growing larger and emphasized stability due to IMO rules. Together with Korean shipyards, we made the mistake of issuing too many ships to 1,200 TEU and 1,900 TEU sizes, exceeding the market demand. This is a prime example of greed and poor judgment. How could we have predicted that the boom would continue three years later? Our market prediction was completely off. The situation was similar in the chemical tanker field, despite it being regarded as a special field."

The table below shows the increase rate of vessel capacity by major ship-owning countries. It can be seen that Korea has consistently increased its vessel capacity without reducing it even once, with growth rates of 8% in 2006, 12.6% in 2007, and 24.1% in 2008. However, most ship-owning countries such as Greece, Hong Kong, Norway, Japan, Germany, Denmark, and China have made efforts to balance supply and demand by reducing vessel capacity. This indicates the problem of Korean shipowners' ship purchasing behavior and timing, which can be seen as excessive ship investment during the boom period.



Note: The thick line represents the annual average increase rate of BDI compared to the previous year, and the thin line represents the annual average increase rate of registered ships in Korea compared to the previous year.

Fig 1. Year-on-year increase in BDI and Korea's registered vesselsYear-on-year increase in BDI and Korea's registered vessels

Furthermore, a comparison of the two-year growth rate of the Baltic Dry Index (BDI) and the annual increase rate of registered vessels in Korea shows that Korean shipowners' ship purchases were responsive to market conditions from 2005 to 2007, indicating that excessive ship orders were made during the boom period.

IV. Should we only blame market failure for herding behavior?

1. Sentiment created by Policy

The main cause of excessive ship investment and chartering is misjudgments about market conditions. We can presume that high expectations led to the securing of ship finances to order and charter vessels. Against this backdrop, policy authorities, national research institutes and academia failed to provide warning signals to the market. In fact, policy authorities and national research institutes offered evidence of a positive outlook.

This is described in detail in the book Korean Shipping and Shipping Policy by Jong-rok Park, a former shipping policy officer of the Ministry of Land, Transport and Maritime Affairs. Park proposed shipping policy directions and discussed the achievements and failures of Korea's ship procurement policy. While foreign-flagged ships significantly increased their shipping capacity, the government's policy goal of becoming a maritime power and encouragement of ship investment resulted in excessive investment. Below is an excerpt from the book.

"New ships between 2009 and 2013 were much less competitive in terms of pricing. How did domestic shipping companies place massive ship orders even at a time of high shipbuilding prices? The most important factor was their poor assessment of market conditions. BDI soared in 2007 and early 2008, and this was enough for shipping companies to misjudge the market, assuming that the shipping boom would continue for a few more years. The government set a policy goal of becoming the world's fifth largest shipping power, so as to encourage investment in shipbuilding. With Korea pursuing self-reliance and openness in the shipping industry since the 1990s, the final investment decision lies with business operators. However, the government's policy goal could have influenced the investment decisions of shipping companies, Moreover, at the time, the tonnage tax system was introduced for the purpose of supporting shipping companies' reinvestment. The reduced taxes and ample liquidity due to the shipping boom created a situation where it was easy to overinvest."

2. Dilemma between fleet increase and fleet surplus

Depending on the appropriateness or perspective of ship purchase timing, the acquisition of ships can be interpreted as an increase or surplus. Suppose shipping companies invest in ships due to shipping policies. If they face a shipping boom, the shipping policies will be seen as having contributed to fleet increase. If they face a shipping recession, the shipping policies will be evaluated as having caused ship surplus. The policies that encouraged ship purchases since the

mid-2000s faced a recession, and it is hard to refute the fact that such policies led to ship surplus. Some studies that trace fleet increase to ship purchase policies are summarized below.

Kim et al.(2015) investigated how shipping market variables and shipping policies have influenced the expansion of Korea's merchant fleet. The study found that the international ship registration system and financial policies were the top two factors that contributed to the increase in merchant fleet size.

Kim et al.(2013) analyzed the priority of factors influencing a shipping company's decision to invest in ships and the effects of government policies on merchant fleet expansion. Shipping market prospects, ship price prospects, and securing cargo were the priority factors for ship investment decisions. Effective government policies for fleet expansion were suggested to be financial support from policy financial institutions, the establishment of the Korea Shipping Guarantee Fund, the tonnage tax system, and the establishment of the Korea Shipping Finance Corporation.

Kim(2009) estimated various economic effects of the tonnage tax system implemented in the shipping industry since 2005. The tax reduction due to the tonnage tax system amounted to KRW 713 billion, which was invested in new shipbuilding and second-hand vessels. The total ship investment, including tax reduction and shipping finance, was KRW 3,565 billion, and the total vessel scale was 5,451,000 DWT. The operating profit from the invested vessels amounted to KRW 277.6 billion. The effect on seafarer employment and wages was estimated to be 5,685 people and KRW 223.8 billion, respectively, while the employment and wage effects on the shipbuilding and maritime ancillary industries (ship inspection and ship insurance industries) were estimated to be 6,196 people and KRW 883.9 billion, respectively.

Ko(2009) calculated various economic effects, including value-added and employment creation, due to the introduction of the tonnage tax system. The research results showed that the national tax reduction and secondary effects resulting from the tonnage tax system amounted to KRW 571.1 billion, and the economic effect of the tonnage tax system was as high as KRW 2.2973 trillion, resulting in a B/C ratio of 4.02. In addition, the tonnage tax system was estimated to have generated a value-added effect of KRW 422.9 billion and employment of over 6,400 in the shipbuilding industry.

Choi and Park(2009) analyzed the problems of Korea's shipping industry and determined the priority of policy alternatives. The problems were identified as overinvestment, lack of liquidity, shortage of self-owned ships, charter system, excessive number of shipping companies, and decrease in cargo volume. The study also showed that the perception of the problems of Korea's shipping industry varied among different job groups. Specifically, former officers responded that the problem of overinvestment in ships was not as serious as the charter system or the excessive number of shipping companies, while the academia and industry saw the problem of overinvestment in ships as being more serious than the charter system or the excessive number of shipping companies.

In summary, most maritime policies have had

some influence on fleet increase (or excess supply), and it is possible to calculate specifically how many ships have increased through the tonnage tax system. Former officers perceived excessive investment in ships as less serious, and were more inclined to view policies as having led to an increase in fleet size rather than ship surplus.

3. How can we prevent excessive ship purchases?

This section has a few suggestions to prevent a second Hanjin Shipping crisis and successfully reconstruct the shipping industry. First, it should be acknowledged that the policies implemented by the Ministry of Oceans and Fisheries at that time directly or indirectly caused shipping companies to place excessive orders during the boom period. Kim (2009) and Ko (2009) showed that tax savings from the tonnage tax system flowed into new vessel investments and purchase of second-hand vessels. According to data from the Korea Shipowners' Association, the tonnage tax system resulted in a total tax savings of KRW 713 billion for Korea's merchant fleet industry from 2005 to 2007. Based on these studies, the government's tax benefits for shipping companies can be seen as having led to excessive investment. Taking into account the influence of policies on excessive ship orders, policy directions should be carefully reviewed during the boom period.

Second, policies to control supply during the boom period and market warning signals are required. Since the 200s, we have seen ship supply expansion policies in the form of the tonnage tax system, international ship registration, and Jeju special zone for ship registration. While such policies may be appropriate during a recession, if they are introduced during a boom period, shipowners may perceive it as a signal that "the market has not yet reached its peak, so it is okay to purchase more ships." This highlights the need for not only supply expansion policies during a recession, but also supply control policies and market warning signals during a boom.

Third, the nation's maritime market analysis capabilities should be improved. The Korea Ocean Business Corporation should not only analyze market trends, but also provide information on the price bubble of second-hand vessels and the appropriateness of ship investment timing.

Fourth, shipping companies should receive education to enhance their expertise in ship investment. Ship investment seminars should be held for shipping company CEOs and ship investment teams, and graduate programs should be designed to nurture experts in S&P (Sales and Purchase) and maritime market analysis.

Finally, ship investment simulation programs should be developed and supplied to schools, shipping companies and related organizations. Stock investment simulators have been developed to promote a sound investment culture, and they are being widely used by college students and general public. As such, the development of a ship investment simulation program that replicates the current shipping market is expected to enhance Korea's ship investment capabilities and significantly contribute to the nurturing of ship investment experts.

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한진해운 파산의 원인: 시장실패인가 정책실패인가?

이태휘

국문요약

한 때 세계 7위의 규모를 자랑하던 한진해운 파산 원인을 두고 대부분의 학자와 언론은 경영의 실패나 CEO 리스크로 바라보았다. 그러나 이 연구에서는 한진해운을 파산하게 한 원인을 행동경제학 관점에서 선박 투자의 군중집단행동에 있다고 바라보았고, 이 군중집단행동이 생기게 된 배경으로 우리 정부의 유연하지 못한 선대 확충 정책이 있었음을 지적하였다. 요컨대 한진해운 파산 원인은 호황기 선박 매입에 있었고 호황기 선박 매입의 근본 원인으로 '타인을 행동을 쫓아서 행동해야만 안심을 하는 군중집단행동'을 지적하였다. 또한, 우리 정부가 설정한 '해운경쟁력 = 선대 규모'라는 목표를 달성하기 위해 불황기와 심지어 호황기에도 선박 매입을 유도하는 정책을 펼쳤고, 이 정책이 시장으로 하여금 '지금 선박을 사도 좋은 시기'라는 신호를 주었음을 지적할 수 있다.

주제어 : 한진해운, 시장실패, 정책실패, 해운경영, 해운정책