

THE IMPACT OF ECONOMIC CRISIS ON MARITIME TRANSPORT

SALTER IVOR

Warsash Maritime Academy, Ukraine

ABSTRACT

The economic crisis impacts on all the players in our industry, the ship owners, the charterers, the insurers, the regulators and the consumers that drive our business, they are all affected. An added factor in this particular crisis is that fuel costs are going up as well and this is not always the case. So, we can expect the ship owner to reign in various budgets within his/her organisation, such as training, maintenance, new buildings, they may look to put vessels on slow speed or even lay some of their tonnage up. The whole market responds to this crisis, the ship owner may look to scrap off some of their tonnage rather than lay them up and therefore the supply of tonnage to be scrapped goes up and so the price paid per light ton for the scrap steel will go down. If consumers demand fewer goods, then there is less demand for transport and freight rates will tend to tumble as owners try to cover some of their costs. Transport that is not being utilised is only a cost to its owners. In order to balance the demand for transport with supply, fewer ships will be utilised by charters and those that are will travel at economic speed to reduce the total cost of the fuel they burn.

It is my intention that this paper will cover all aspects of our industry, the insurers and the regulators, ship building and scrapping, the seafarers and the trainers. The crisis will also have an effect on cargoes as it may increase the demand for Giffen goods. Therefore all aspects of our industry will be affected and this paper will illuminate this phase in the market.

Keywords: *Economic crisis, maritime transport, shipowner, maritime industry.*

1. INTRODUCTION

Economics is the study of how society decides what, how and for whom to produce (Begg 1984, p2). The branch of knowledge concerned with the production, consumption, and transfer of wealth within society. The efficiency of transport has really transformed the way the world's economy works so that goods manufactured on the other side of the world can compete with goods created at home. A local cobbler working in his village produces fine shoes at affordable price. Soon everyone in the village has a nice pair of shoes and the cobbler is wondering what he/she can do, when they here of a new road that is passing the village and linking it to a town. So the cobbler travels to the town where he/she sets up a shop and starts to sell shoes to the townfolk. Soon the cobbler has lots of orders so he/she can take on more cobblers and make arrangements with the local cart owner to take his/her shoes to the shop in town. The town has a train station which links it to the city so the cobbler travels to the city to open a new shop. Each time the cobbler enters a new market as long as his/her shoes meet a demand in the market the more orders the cobbler gets. Now the cobbler needs to open a new plant and specialise the lines of production. The transport network around the plant not only takes the product to market but also brings in the materials needed for production from further afield. The cobbler could invest in wagons and carts or farms to produce the leather he needs to diversify his/her holdings. The city has a port and the cobbler travels to another country where he/she notices that there is a gap in the market for boots and so the economic activity expands. For the cobbler as long as the cost of production and the cost of transport to the market when combined are such that his/her goods can still compete in the market still find their niche in the

market, then there will still be a demand for his/her shoes.

Before the industrial revolution transport was not so readily available, sailing ships although able to cover great distances, although pottery was shipped large distances. In Adam Smith's time, the author of "The Wealth of Nations" most production was manufactured within the consumer's home nation. In our time transport has enabled goods to be produced far away from the consumer. There is a balance here, if the cost of production; labour cost; manufacturing cost; the cost of raw materials and local transport cost is more than the cost of production plus the transport cost from further a field then the goods will continue to flow. The cost of labour has recently risen in some countries resulting in some production returning to the consumer's home country.

Oil is an important commodity, not only does it provide the fuel for the transport process but is often used in the process of manufacturing the commodity itself. Therefore increases in oil prices can have a double effect of producers. Anyone who was around in 1973 when OPEC increased the price of oil will understand the effects of the price rise and how inflexible was the demand for oil.

When considering the cost of transport we have to take into account the different modes of transport. The main types are by air; by sea; by rail or by road, we have to consider whether we wish to own the means of transport. Owning the means of transport may initially look attractive until we consider all that that may entail such as parking charges. When one analyses the fare structure numerous variables come into play; if one arranges transport a few days in advance that may reduce the cost, if one does not travel at peak time this may reduce the cost. Congestion pricing is a way of rationing

New Technological Alternatives for Enhancing Economic Efficiency

travel at peak times to those who are willing to pay for it or have no alternative. The more product you can transport at any one time will encourage economies of scale and therefore should reduce the cost of transport per unit i.e. one pair of shoes versus a shipping container full of shoes.

2. THE SHIPOWNERS

According to the Marine Information Centre website there is a fall in demand for transport and a report by Drewry shows that Very Large Crude carriers [VLCCs] continue to struggle. Drewry's Earnings index for dirty tankers plunged 62% to 14.2 during the month. This pulled the wider Tanker earnings index down by 52%. Katharina Stanzel of Intertanko reports that VLCCs operating on the spot Market have run up \$5.5 billion in losses since 2009 (Ship and Bunker). By Easter 2013 there were as many as 91 VLCCs available in the Middle East Gulf looking for employment (Lloyds List).

The LNG and LPG industry is fairing far better due to the growing demand for gas in the emerging economies. This demand has lead owners to build new ships; evidence of this is there were 4 orders for Very Large Gas Carriers (VLGC) in 2011, but there were 11 orders in 2012. As the infrastructure at the port has improved, owners have gone for the larger vessels. The VLGC is approximately 84,000 cbm and costs \$73.5 million.

In the container market the weak demand for transport is putting all the carriers under strain. In previous years this has led freight wars between the leading carriers. In order to avoid such competition, carriers are returning vessels they have leased to their owners. They remove the least efficient and more polluting vessels from the network. There are newly built Triple E vessels, these vessels have Economies of Scale, they are more Energy efficient and they pollute less, so the environment is improved. They are expected to consume 35% less fuel per container and create 50% less CO₂.

In the cruise industry, larger and larger cruise ships continue to be built. Energy efficiency, being eco friendly and a clean ship are important factors in this industry. As fuel costs rise, that cost needs to be spread amongst a greater number of passengers to make it viable. Therefore, smaller cruise ships are struggling in this market. As evidence of that phenomenon, MSC Cruises has confirmed that they are retiring the Melody from service. She was built in 1995, but her capacity is just 1,000 passengers.

The dry bulk market suffered a decline in 2013, mainly in the capsized market, due to the steady supply of ships into this market, the disruption to coal shipments by weather, labour disputes and violation of environmental laws. Harsh drought conditions in the

Midwest have reduced the expected harvest and that will affect the need for transport from the United States. However, the Indian and South American harvest may make up for this.

The reefer market has switched from reefer ships to reefer containers. Reefer vessels are being scrapped at a rate of 36 a year and the order book for this type of vessel is empty. Containerships will continue to carry these reefer containers, but there is no say whether they will be able to raise the pricing on these reefer slots.

The cost of fuel is \$608.50/mt in Rotterdam and the price of oil has risen over the last 25 years. Using Brent crude as an example, crude from 1988 to 1998 stayed mostly between \$10 and \$20 a Barrel (bbl), but from 1998 to 2008 it went from \$15/bbl to \$95/bbl, peaked at \$135/bbl in the middle of 2008, to drop again and then slowly recover to \$110/bbl (Oilnergy). BP's chief economist, Jeremy Leggett, gives us 40 years at current usage (Makewealthhistory).

The oil industry will must be looking to its end game. Shipping companies must consider how their business might continue without oil, utilising a different form of fuel such as LNG, which is cleaner, has a longer life expectancy than oil, but brings with it some hazards that need to be managed. There are experiments with bacteria to produce ethanol, which could be used as a fuel; the human race will no doubt come up with an ingenious method of producing fuel.

3. GREAT RECESSION

The decline that began in December 2007 and accelerated in September 2008 has many names, the above being one of them. Liquidity in the markets was the trigger for this downturn. The recession affected the world's economy, gross domestic product of the state was weighed against the states sovereign debt and in some cases a crisis followed. Not only on a national scale, but also on an individual scale, banks had been lending to customers whose chance of defaulting on the loan was high. High individual debt levels made sense, while house prices rose but as soon as they began to fall people found they were living with negative equity and therefore the chance that they might default on their mortgage rose quickly. Total debt in many states is the highest ever recorded. Inter bank confidence fell, as banks began hoarding money to cover their loan losses. In fact, many banks had to be bailed out by the state. In these markets securing a loan for the purchase of a ship might seem impossible. However, looking at figures taken from the Ship Builders Association of Japan (SBAJ) March 2013 report on World Orders (Tabel 1), it would seem a great many orders were placed just before the markets went into recession, but many more continue to be built, which has lead to this great over supply we have at present.

Table 1. World Orders Report, March 2013

Year	2006	2007	2008	2009	2010	2011	2012
No. of Ships	3,828	5,404	3,260	1,408	2,780	2,252	1,926
Gross Tonnage	99.6 m	169.0 m	88.0 m	33.6 m	82.4 m	56.8 m	38.4 m
World Completion							
No. of Ships	2,447	2,782	3,242	3,554	3,748	3,670	3,655
Gross Tonnage	52.1 m	57.3 m	67.7 m	77.1 m	96.4 m	101.8 m	95.3 m

4. SCRAP

Now called ship dumping, the scrap market in Asia has had a busy year in 2012; more than 1,000 ships were scrapped, India accounting for 527, followed by Bangladesh, Pakistan and China. The Basel and Hong Kong Convention were designed to eliminate the practice of beaching the ship and cutting it up or to limit the environmental damage this practice can cause. However, ships can be purchased on the high seas for their final run to the beach by the scrapping company.

Prices are around \$350 per lightship ton. The Exxon Valdez’s hull apparently changed hands for \$16 million. There is a contradiction here: China, where they have invested in some facilities, cannot compete with India, who has not. India is unlikely to invest in facilities, while regulators continue to look for ways to stop ships from being scrapped in the above countries. Many of the above countries look to the ship-breaking sector as vital for their economies as a supplier of steel for many industries, including construction and ship building (BBC).

Table 2. World scrap figures from the (SBAP) figures

Year	2006	2007	2008	2009	2010	2011
Losses	173	204	183	212	203	126
Disposals	708	616	803	1538	1389	1526
Gross Tonnage (L+D)	5.8 m	5.0 m	8.8 m	26.3 m	20.1 m	25.8 m

The IMO “International Shipping facts and Figures 2011” says the world fleet in 2010 for vessels greater than 100 gross tons (GT) is 103,392 ships of 958 million GT. In 2010, according to the figures above, 203 vessels were lost. So, in 2010 the risk of a loss was 1/509 ships, which seems a large figure, and if we added no more ships at the rate the gross tonnage is leaving the market, it would take 47 years to remove all the ships. A disparity between the figures might be explained by vessels in lay up. However, in the (SBAP) report from Clarkson, “Shipping Review and Outlook” data, it would appear that laying up vessels is a thing of the past, in 1982 about 20% of the tanker fleet and 15% of the bulk carrier fleet were laid up. This number decreased to less than 5% in 1987 and, since then, less than 5% of the world fleet have been laid up in any year, although there was a small peak in terms of all vessels laid up in 2011, but nothing like the 1980s. Laying up the vessel may be too expensive, previous experience with laying up vessels in the 1980s may have been negative.

5. GLOBALIZATION AND INTERNATIONAL TRADE

Goods move from one place to another when the cost of producing the good, plus the cost of transporting the good, plus a profit margin is equal to the cost you can sell the good in the other place. Small profits on

thousands of items are the same as large profits on one item, allowing for the retailers for a profit margin. Barriers to trade were taxes or quotas on imported goods into a country. Some countries are accused by others of using non-traditional barriers to trade; this allows a one-way trade in goods, which can be profitable for the producer. The argument today is that we have an interdependent world economy that the streams of goods and materials enable us all to participate in the planet’s wealth. A state cannot just be a consumer; otherwise its wealth will eventually pass to the producers of the goods it consumes. The establishment of this interdependent global trade system came with the provision of a cost effective transport system in the shape of shipping. However, should shipping become prohibitively expensive as the cost of fuel for its engines gets higher and higher? Will the nations and markets of the world return to a position where they have to be self-sufficient or will we return to an era of magnificent square riggers carrying the world’s trade?

It is generally accepted that 90 per cent of the world’s trade is carried by sea (IMO). At this moment in time I do not see a viable alternative that would enable world trade to continue should the fuel become too expensive to use. On 16th April 2013, the International Monetary Fund (IMF) announced that there was a gradual improvement of the global economy. The global economic growth is expected to reach 3.3 per cent in

New Technological Alternatives for Enhancing Economic Efficiency

2013. Bringing the public debt back to a prudent level poses the long term challenge the report says. Certain countries have borrowed vast sums of money and their ability to pay depends upon their Gross Domestic Product (GDP), a prudent level is less than 60% of GDP. At present, 10 large economies have a debt ratio above 90%, which is considered to be high: Japan - 245%; Greece - 179%; Italy - 131%; Portugal - 122%; Ireland - 122%; United States - 108%; Belgium - 100%; United Kingdom - 94%; France - 93% and Spain - 92%.

Food prices are expected to rise as an increase in bio fuel production will divert crops away from food uses (IMF). Demand for food is expected to increase and the stock to use ratio remains low, i.e. there is little reserve. Metal prices have generally declined due to less consumption and weak demand in China. The outlook for metal prices is dependant on consumption in China; if China's consumption falls, metal prices will reduce also. However, some metals, like Copper supply, continue to be difficult, hence the price has doubled in the last few years. The world's demand for oil grew by 1% with the decline in the developed countries more than offset by the increase in demand in the developing countries. The supply of oil grew in 2012 above demand, therefore some oil can be held in reserve. OPEC, concerned by the weak demand for oil and increasing supply, will be endeavouring to keep oil prices at \$100 per barrel.

6. THE INDUSTRY

The cycle of business forces the weakest and most poorly managed ships and companies out of business when a down turn occurs, unless they are so big they cannot be allowed to fail, like the banks. The shipping industry has always consisted of four interrelated markets: the building market, the freight market, the sale and purchase market and the scrapping market. The demand and supply in one market will have a related effect on the other markets. When the supply of shipping is greater than the demand for shipping, we are in the position of overcapacity, which has the following effects on the four markets: the building market is underutilised, yards find it difficult to find customers, some customers may default, the cost of a new ship is very keen and it may even be built at low cost to keep the yard turning over.

The SBAJ put the cost of new buildings down between 10 to 15% and global orders down to 30% in 2013. In the freight market there is great competition for the goods that are being transported and therefore the cost of transport goes down. In the sale and purchase market, the purchase price of a ship is based on its value, but also on how much the vessel can earn. As the cost in the new building market is down the asset value in the sale and purchase market is also down. As the expected earnings in the freight market are down the amount that contributes to the value of the vessel is also down, according to SBAJ second hand prices fell by 27% in 2012. There is pressure on the owners to balance out the demand for shipping with the supply of shipping but as

the demand for scrapping services rises the price offered to the owner per ton of lightship falls.

7. THE DECISION TO SCRAP

The owner has to decide whether to remove the ship from the market by scrapping the ship. This traditionally gave the owner a payment which would enable him to contribute to the costs of the other ships in the fleet. However, if the owner thinks the market is about to turn, he may hang on to the ship in order to exploit the market. The owner's decision then is not just based on the economics of the individual ship, but on what he expects the market to do in the future. The owner then is balancing the cost of keeping the ship operating against its possible future earnings; if its future earning potential is low and the cost of keeping it available is high, then the optimal decision is to scrap the vessel (Oil Tanker Phase Out). The owner needs to take that decision early in the market cycle, otherwise the value of the scrap will be declining. The age of the ship will have an influence on the decision the owner makes.

The new ship's costs will mainly be made up of the capital cost of the vessel but, as the ship gets older, the capital cost may be paid off at 10 or 15 years old and most of the costs will be the running costs, which go up as the vessel gets older. The SBAJ put 26% of the world fleet at older than 15 years. Once the vessel reaches 25 years old, this is her fifth special survey where much work may well be needed to keep her operational. The more the shipowner is offered to scrap his ship, the more likely he will be to do it. This is the demolition supply curve. So, the owner is balancing several factors: the future earning potential; the operating costs; the age of the ship; the present liquidity of the company; the future regulatory cost of the vessel and the scrap price available.

The scrap market has its own forces at work. The prices that the scrapper can get for the steel and other re-usable items are the basis on which he sets his price for the ships. If his revenue declines, then his offer for the ship will be less, which in turn will feed into the owner's decision on whether to scrap or hang on. The price the demolition company can offer will depend on the labour costs, waste disposal costs, regulatory costs, taxes and the cost of the capital it needs to pay the shipowner. The supply and demand curves reach an equilibrium which determines the market price for the set of circumstances in play at that time. Historically, that has meant that the shipowner received some payment for decommissioning his ship. However, it may be that in certain parts of the world the demolition costs will outweigh what can be earned by the scrapper of the vessel. In this scenario the owner will have to pay to scrap his vessel. In this scenario what is to stop owners from hanging onto their vessels as they can see no benefit in scrapping them and the market to be in a permanent position of oversupply?

Therefore regulatory pressure in the scrapping market may lead to effects in the other markets that have not been anticipated.

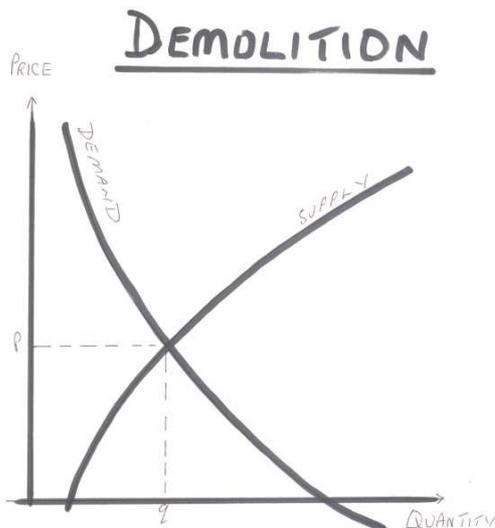


Figure 1 Demolition curves

Scrap yards will demand more vessels as the price per vessel decreases, whereas shipowners will release more vessels for scrap as the price per vessel increases. At some price and quantity, the supply and demand curves will be in balance. Today the cost of steel is low, 10% down on 2012. This feeds into the price on offer for the ship.

8. THE REGULATORS

Regulation has had a significant impact on the shipping industry. Although shipping is undoubtedly the most efficient transporter of goods in the global economy, regulators continue to reduce the environmental impact of ships rather than improve the conditions for the people who work on them. If 1 in every 600 airplanes were lost, the tourist industry might become a more domestic industry.

The criminalisation of seafarers has led to a position where well trained and experienced seafarers are not prepared to go to sea and face possible jail sentences for an accident or an incident beyond their control. The industry will allow the owner to escape justice, but seafarers who have tried their best face long civil and criminal prosecutions. Countries welcome the goods they want into port, but will often not let the seafarers who brought them ashore.

As of the 1st January 2013, chapter 4 of MARPOL VI, the new Energy Efficient Design came into place. It is important to reduce the Sulphur Oxide, Nitrogen Oxide and Particulate Matter ships engines produce. However, if the regulator is not astute, one section of the market can win an economic benefit over another by political means, which only distorts the market.

9. THE CHARTERERS

The Charterer represents the party who hires a ship or space on a ship for the purpose of transporting cargo from one place to another. The contract used to recall the

exact bargain between the ship owner and the charter is called a charter party. The ship may be hired for a period of time or for a voyage, the whole ship may be hired or just some space upon it. The charterer wishes to pay as little as possible for the service, but he usually wants his goods to arrive at their destination. The freight rate or the charge for carrying the goods will vary according to several factors: the number of vessels available to carry the cargo, the quality and quantity of the product to be shipped, including any special requirements and dangers it may pose, the distance to be transported, the ports to be loaded and discharged and the bunkering cost.

If the cost of transport does not reflect the cost of providing the service, all those providing the service will eventually leave the market. However, if the charterer can sustain an oversupply of shipping in the market, then this should be reflected in lower freight rates.

10. THE INSURER

To be competitive, the insurer must offer insurance at a price that takes into consideration the risk, the amount that he is insuring, spread among his many customers, so that at the end of the year despite all the claims paid, he should still have a margin of profit.

The dilemma comes when one of his long term customers has an unusual loss. The insurer may be concerned that the ship has been lost due to an action of the owner, but does he investigate that fact and lose his long term customer who may look elsewhere for insurance in the future? The fraud of “scuttling” the vessel and then claiming on the insurance occurs mainly when the insured value is substantially greater than the second hand value. The hull and maybe the cargo insurer will investigate the claim, looking at the circumstances of the case and the key factors which will indicate whether further investigation is needed. An owner who is planning such a course of action will need to contact people, who for a price are willing to scuttle his vessel. If the whole crew or members of the crew have just been replaced this may be an indication. Also, if the vessel has sunk in an area where divers or other investigators cannot easily examine the wreck, such as if it is in deep water or where it cannot be found.

Usually the owner will be a small operator sailing under a flag of convenience with the ship registered in a tax haven. Crew who have served aboard a vessel which mysteriously sinks sometimes appear on another vessel in similar circumstances. In circumstances where the insurer is in doubt as to the validity of the claim, he should consider that refusal to pay the claim will no doubt mean he will have to defend that decision in a court of law against the ship owner with the costs that will entail.

11. TRAINING

When shipping companies are facing a recession and an oversupply of ships in the market, ships are no longer earning what was expected. Companies are looking to reduce expenditure in all areas, in order that they can weather the financial storm until the market

New Technological Alternatives for Enhancing Economic Efficiency

becomes favourable again. The training and development budget can be the first place to be cut or the last place to be cut depending upon the philosophy of the company.

12. THE BALANCE

If the market functions correctly, the supply of shipping should come into balance with the demand for shipping. The world fleet expanded from 2008 to 2012 by 36% compared to the expansion of world trade over the same period of only 9%. Therefore, the world fleet is oversupplied; scrapping did rise in 2012 but to only 3% of the world fleet. How can the market bring supply and demand back into balance?

It takes time to get a ship built and recessions can come without warning. You may also not be able to get out of a contract without prohibitive penalty clauses applying. At the moment, some fairly young ships, i.e. before their 15th birthday, are being scrapped. The prices on offer to scrap them are not good, as the cost of steel is low.

The new building yards are offering great deals. At present the new building cost is down between 10 and 15%. Some commentators say that government-supported yards are offering ships at less than the marginal cost to build the ship in order to keep the yard working. At present, there does seem to be a barrier to removing ships from the market. Oversupply of shipping in the market distorts the economics of the industry. The cost of transport is kept artificially low. The owners get a poor return on their investment.

The impact on the human element required to man the ships is that you need more people at a lower cost. Each ship has an environmental impact in its building, in its disposal and the fuel it uses during its life. Ensuring the balance between supply and demand is the most economic use of the industries and the world's resources.

13. REFERENCES

- [1] Begg, D *et al* (1984) *Economics* 2nd ed. McGraw-Hill (UK).
- [2] DREWRY MARITIME RESEARCH, www.micportal.com.
- [3] SHIP AND BUNKER, <http://ship&bunker.com>.
- [4] LLOYD'S LIST, <http://lloydslist.com>.
- [5] OILNERGY, IPE Brent Crude Price, <http://www.oilnergy.com>.
- [6] MAKE WEALTH HISTORY, <http://makewealthhistory.org>.
- [7] SHIP BUILDERS ASSOCIATION OF JAPAN, <http://www.sajn.or.jp/e/>.
- [8] BBC, Bangladesh ship breaking industry, www.bbc.co.uk.
- [9] INTERNATIONAL MARITIME ORGANIZATION, *International Shipping Facts and Figures 2011 revised*, <http://www.imo.org/KnowledgeCentre/ShipsAndShipping/FactsAndFigures/Statisticalresources/Documents/December%202011%20update%20to%20July%202011%20version%20of%20International%20Shipping%20Facts%20and%20Figures.pdf>.
- [10] *Oil Tanker Phase Out and the Ship Scrapping Industry*, published June 2004, http://ec.europa.eu/transport/modes/maritime/studies/doc/2004_06_scrapping_study.pdf.
- [11] INTERNATIONAL MONETARY FUND, <http://www.imf.org/external/pubs/ft/survey/so/2013/POL041613B.htm>
<http://www.imf.org/external/pubs/ft/weo/2013/01/pdf/text.pdf>.
- [12] BOURKE, A.Z., *Recession Affects Training and Development program*, [http://www.theinstitutes.org/MediaCenter/docs/articles/Recession Affects Training and Development for Web 10-09.pdf](http://www.theinstitutes.org/MediaCenter/docs/articles/Recession%20Affects%20Training%20and%20Development%20for%20Web%2010-09.pdf).