Challenges For Global Shipping

In the wake of the great shipping boom 2003-8
Presented by Martin Stopford, MD Clarkson Research
at a seminar on the occasion of the 125 years' anniversary of the Danish Shipowners Association, 20th January 2009

1. The shipping market 125 years ago

I feel very honoured to be asked to address you on this auspicious occasion - the 125 the anniversary of the formation of the Danish shipowners Association. 1884 was a year of great change in the shipping business. Marine technology was "on a roll". It was the year when the frozen meat trade from New Zealand and the River Plate first got started and when the petroleum oil in barrels first started to move in volume in steamers. The world's first oil tanker, the Glückauf was ordered for delivery in 1886. In these and many other ways the shipping industry has dramatically improved performance over the years and the industry today, though similar in many ways, is vastly more efficient than it was 125 years ago (The two pictures above illustrate the similarities and the differences).

But in shipping it is not enough to improve efficiency. The industry must manage its way through that financial obstacle course we know as the "shipping market cycle". We are now entering a recession and it looks as though it will be an unpleasant one. The industry generally treats recessions with dismay, often laced with recrimination against those who are felt to have caused them. This is an aspect of the industry which has not changed. Looking through brokers' reports for the 1880s, I came across the following:

"In almost every trade the lowest points reached during the year at which steamers have been chartered are lower than have ever before been accepted[1]. This state of things was brought about by the large overproduction of tonnage during the previous three years, fostered by reckless credit given by the banks and builders, and over speculation by irresponsible and inexperienced owners. The universal contraction of trade also aggravated the effect of the above causes.[2]"

[1] The list of quotations at foot of the highest and lowest rates paid for cargo steamers from the ports named and will bear out this assertion. Four example of the notes below show that in 1881 Java to the UK for sugar was 75 shillings per tonne, in 1882 it had fallen to 52 shillings per tonne; in 1883 to 47 shillings per tonne and in 1884 to 35 shillings per tonne. So rates had halved.

[2] J.C.Gould, Angier & Co, 31 December 1884

Some things never change! But these cycles are a routine part of the shipping market mechanism, coordinating supply of ships in a world where the shipping industry is never sure how demand for these expensive assets will develop in future. They rarely follow the same course and one of the main requirements for a successful shipping investor is to get comfortable with this mechanism.

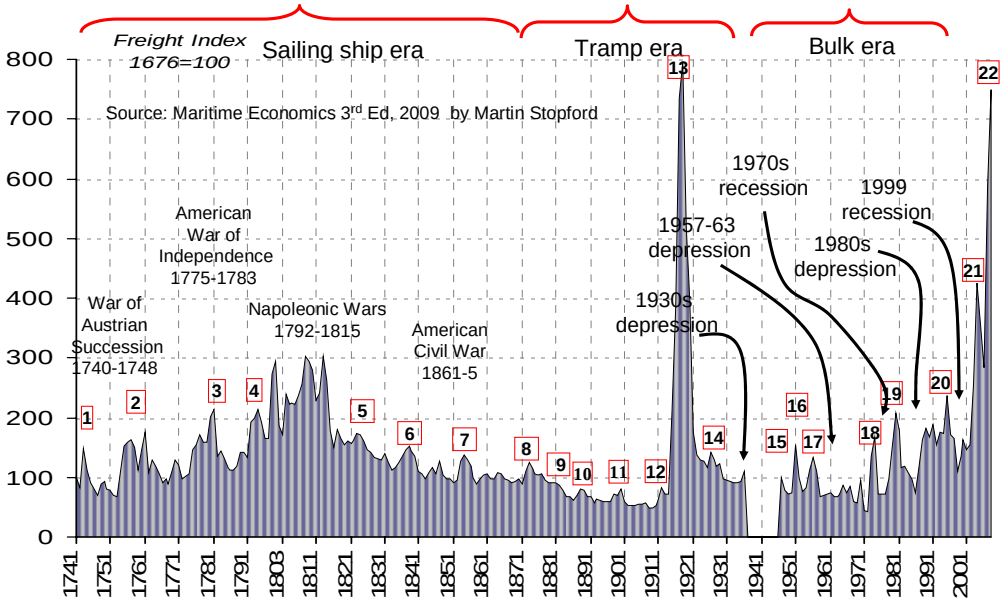
"The pessimist sees difficulty in every opportunity. The optimist sees the opportunity in every difficulty." Sir Winston Churchill

In practice business cycles in the world economy are the prime drivers of shipping cycles and the credit crisis has triggered the most severe downturn in 50 years. This is a challenge to the supply side of the shipping market and shipowners are in competition with each other to see who can survive and come out the other end with a stronger fleet. Recessions are threatening to weak businesses, but they bring opportunities which successful and lucky shipowners are able to exploit.

2. A historical perspective on the shape of shipping cycles

The evidence that shipping cycles come in all shapes and sizes can be seen from the freight chart in Figure 1, which shows dry cargo freight rates since 1741. The average length of recession in the last fifty years is 8 years, with three years at the peak and five years in the trough. But that is just an average. Measured from peak to peak, some cycles lasted just 4 years (a short cycle) and others as long as 14 years (a "long cycle"). The current dry cargo cycle started with a five year peak in 2003 and the challenge facing everyone here today is to understand what sort of trough it will turn out to be, how long and how deep.

Figure 1 Dry cargo shipping cycles 1741-2008



3. The balance of fundamentals & the long shipping cycle

In practice the supply and demand fundamentals set the tone for these market cycles and Table 1 summarizes the balance since 1869. Column 1 shows the period; Col 2 the tone of demand growth (i.e. whether fast or slow); column 3 the status of shipbuilding capacity (whether surplus or shortage); and column 4 the freight market conditions during the period.

Table 1 Shipping Market Fundamentals Analysis

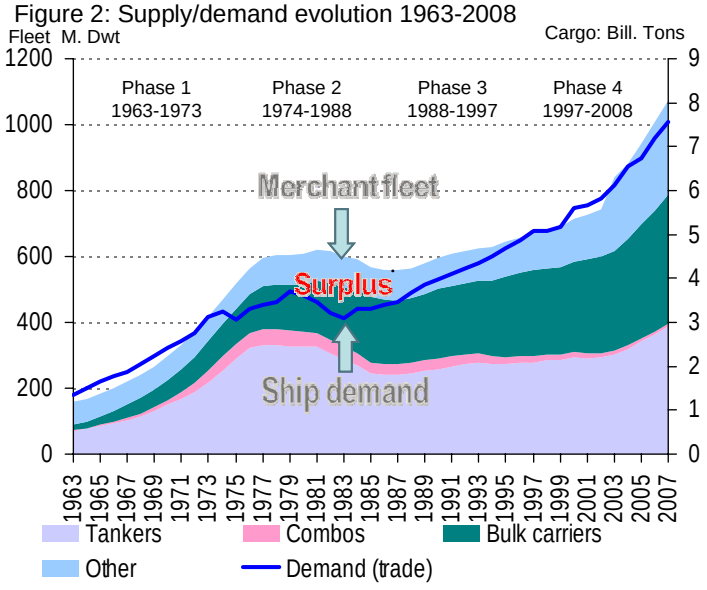
	Demand Growth	*Supply Tendency*	*Market Tone*
1869-1914	Fast	Expanding	Competitive
1920-1930	Fast	Over-capacity	Weak
1930-1939	Falling	Over-capacity	Depressed
1945-1956	Very fast	Shortage	Prosperous
1956-1973	Very Fast	Expanding	Competitive
1973-1988	1% pa	Over-capacity	Depressed
1988-1997	4% pa	Soaking up surplus	Low returns
1998-2008	4% pa	Shortage of ships	Prosperous
2009-?	*Falling*	*Over-capacity*	*Depressed ?*

Source: Maritime Economics 3rd Ed, 2009 by Martin Stopford

Broadly speaking when supply and demand were both unfavourable there was a depression; when only one was unfavourable there was a recession; and when both were favourable to shipowners the market boomed. For example the 1973-88 depression was caused by very sluggish demand growth and overcapacity in the shipbuilding industry. Lingering overcapacity kept rates low in the between 1988 and 1997. Then from 1998 to 2008, demand grew rapidly and shipyard capacity became tight, setting the tone for period of great prosperity. But these were not really separate periods. Over the last 30 years the fundamentals balance, shown in red in Table 1, evolved in a way which suggests that each stage formed part of a long drawn out recovery from the 1970s market crisis. If this is the case we should not necessarily expect the outcome of the present crisis to be a single cycle. It could turn out to be a long drawn out affair.

Figure 2 shows the evolution of this long cycle in graphical terms by comparing the growth of the fleet and trade between 1963 and 2008, referring to roughly the same phases as in Table 1. In *Phase 1* (1963-73) demand and supply both grew rapidly and the market for shipping was prosperous. *Phase 2* (1974-88) started with the Oil Crisis in 1973 and a shipbuilding bubble. As a result for a decade there was virtually no growth of demand and overcapacity of ships and shipbuilding. This caused a long period depression stretching from 1973 through to 1988. Then in *Phase 3* (1988-97) trade picked up, but supply was weak because the market was still soaking up surplus, so returns during this period were generally low. Finally in Phase 4 (1998-2008) trade grew rapidly and there was a shortage of ships, so the market boomed. Clearly these underlying fundamentals can be subject to very long periods of adjustment.

Figure 2: Supply/demand evolution 1963-2008



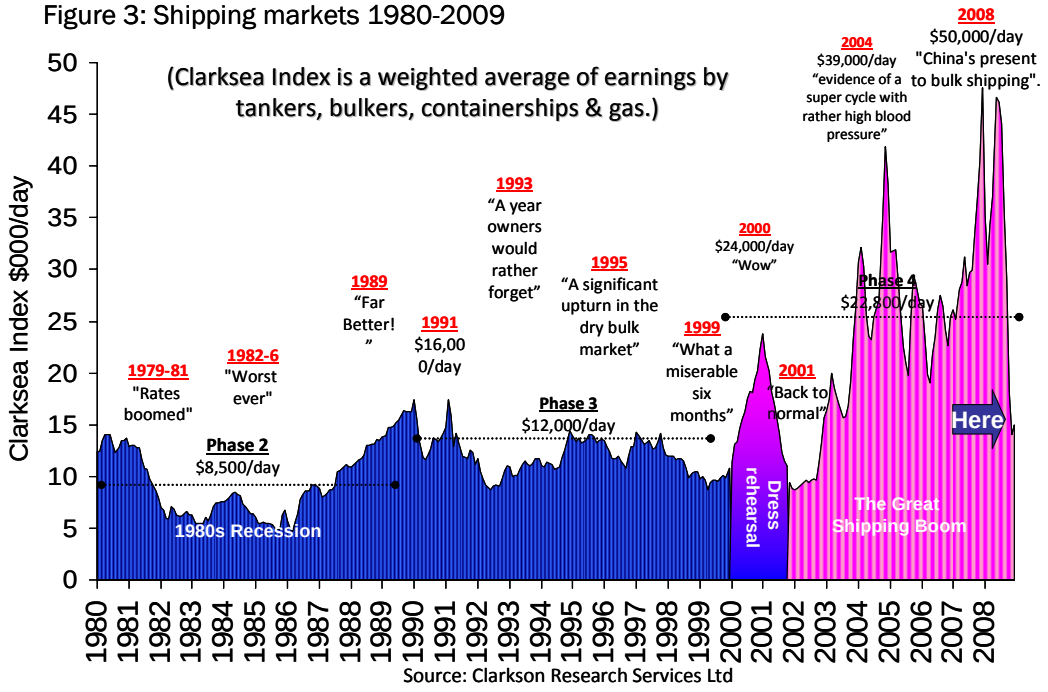
The relevance to the present

situation is that if demand now moves into recession and shipyard production expands, the industry will face a period of over-supply which could potentially be as serious as it was in Phase 2 in Figure 2.

4. Freight earnings cycles 1980-2009

The way earnings developed during Phases 2-4 identified in Figure 2 is shown graphically in Figure 3. The graph shows the Clarksea Index, representing average earnings for tankers, bulk carriers, container ships and gas (prior to 1990 it covers tankers and bulk carriers only). Clearly we are not dealing with discreet cycles, but with the

Figure 3: Shipping markets 1980-2009

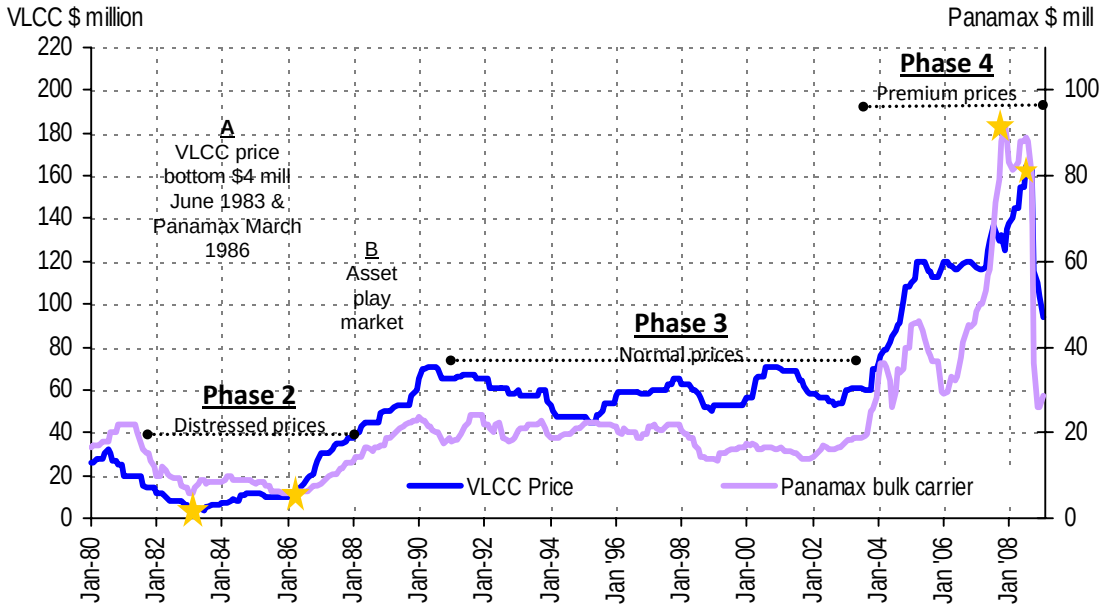


average outcome over a period of volatility.

Phase 2, the 1980s recession, consisted of a long deep trough lasting from 1982 to 1987. The index fell to $5,000/day, providing enough cash to pay operating expenses, but no contribution to capital. As cash was drained from the business, ships started to be sold at distress prices (see Figure 4). Asset prices for tankers bottomed in 1983, ten years after the crisis started, when modern VLCCs were sold for about $4 million and for dry cargo in 1986 when modern Panamax bulk carriers were sold for $6 million. Then things gradually improved as the industry moved into a recovery market between 1987 to 1989, leading to a peak in 1990. This three year recovery phase saw asset prices restored to replacement cost, creating a thriving "asset play" market on which ships were bought, traded for a few months and then sold for a profit. By 1990 the 5 year old Panamax bulk carrier was worth $22.5 million.

Phase 3 followed the peak the early 1990s, and the market was disappointing. Tanker owners had hoped for a boom in the middle of the decade as the 1970s tankers were scrapped, but it did not arrive until 1997 and was weak and short lived. The chart of asset

Figure 4: Asset Market for VLCC & Panamax bulker showing three phases of prices



Source: CRSL & Baltic Exchange

prices in Figure 4 shows that on average prices did not increase during this period and were broadly in line with replacement costs, in the sense that a 5 year old second hand ship typically sold for a 25% discount to the new price.

Phase 4 arrived with the Millennium was unexpectedly strong. It started with a peak in 2000 when rates went up to $24,000/day and this proved to be the "dress rehearsal" for the super boom. After a short, sharp downturn in 2001/2, the market moved into a period of consistently strong rates, with peaks in 2004 and mid 2009. During this period lasting almost 5 years, earnings were far in excess of those experienced during the previous 20 years. The relative strength of earnings and cash flow during this period fed back into second hand prices which rose well above replacement cost. For example the price of a 5 year old Panamax bulk carrier reached a peak of $88 million in June 2008, whilst the 5 year old VLCC peaked at $165 million in August 2008 (Figure 4). But then prices fell very sharply as the market collapsed in the Autumn of 2008.

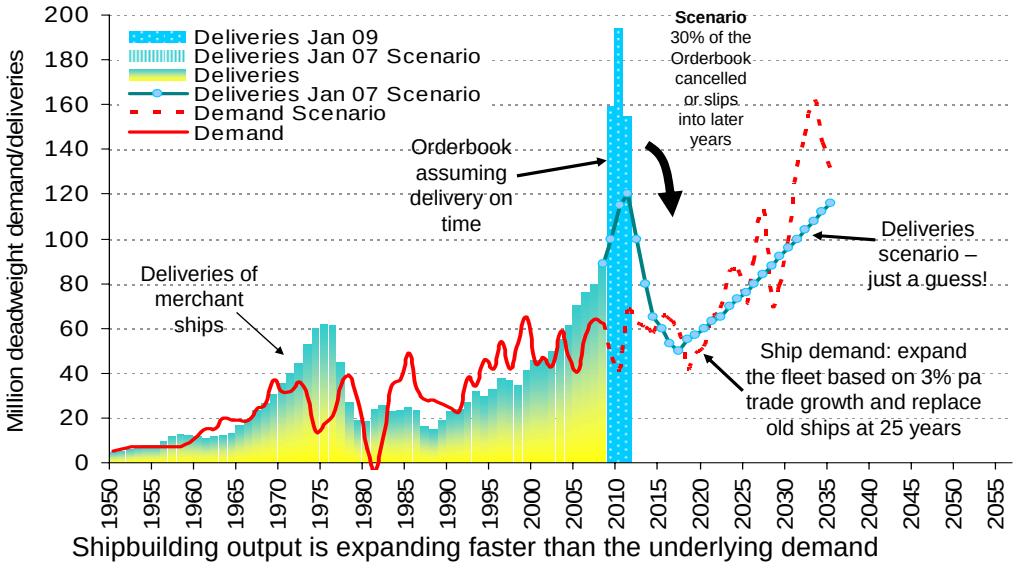
5. What happens next?

This period of extreme prosperity was the result of a prolonged boom in the world economy and the unexpected growth of China, especially in the dry bulk and container trades. On the supply side the replacement of the remaining ships built in the 1970s shipbuilding bubble reduced supply. Perfect conditions for a freight market boom. But after almost a decade of booming conditions, all three factors are going into reverse. The world economy is moving into deep recession; China has some economic and social problems to overcome; and shipbuilding production is expanding very rapidly. So, having

enjoyed the "Super Boom", prudent shipping companies should prepare to deal with a "Super Slump". [3]

A simple model comparing the demand for new ships with the supply from the shipyards shown in Figure 5 illustrates the scale of the problem (see Annex 1 for a brief description of the model). The red line shows the demand for new ships based on the growth of trade ("expansion demand") and the phasing out of old ships ("replacement demand"). This is a long term calculation, but reflects some year to year volatility caused by changes in the rate of trade growth. On average in recent years the annual requirement for new ships has grown by around 60 million deadweight per annum. The future demand scenario assumes trade grows at around 3% pa and that ships are scrapped at 25 years.

Figure 5: Shipbuilding Investment demand and actual deliveries scenario



The blue and yellow bars show the deliveries of merchant ships. When I first made a version of this chart in January 2007 projected deliveries in 2010 were 100 million deadweight, but many orders have been placed and scheduled deliveries for 2010 have increased to 190 m dwt. This graph demonstrates the striking similarity between the developments of the early 1970s and those of the last five years. Supply surged ahead of demand in the early 1970s, resulting in heavy deliveries just as demand collapsed in the mid 1970s due to the 1973 "Oil Crisis". Exactly the same thing started in 2005 and the orderbook reached a peak of 50% of the fleet just as the "Credit Crisis" struck.

But the position today is not exactly the same. In the 1970s almost all the orderbook was delivered but in today's disrupted financial climate we do not know how many of these orders will be delivered. It is a complex situation with several dimensions. Firstly the

[3] I must add one proviso. Shipping cycles are not regular, they are the result of an economic process through which the supply and demand of shipping capacity is controlled. So booms and slumps do not developed to pay a set pattern, they unfold and the park they follow can be influenced by a host of factors, some more predictable than others. One which deserves special attention is the role of the industry itself in managing the supply side of the market.

financial crisis and the fall in asset values shown in Figure 4 means some investors will have financial problems and others who remain sound may not be able to raise post delivery finance. This would mean ships being resold and possibly delivered much later than expected. Secondly the shipyards may have problems delivering so many ships on time, resulting in slippage of the orderbook. This will give the shipyards severe cash flow problems, which would trickle through to the equipment manufacturers. Thirdly, it is hard to judge how many ships will be ordered in the next three years. Some sectors will be less badly affected by the recession than others and they may provide additional orders to keep the shipyards producing. Finally there is the possibility of counter cyclical ordering, especially if shipyard prices fall.

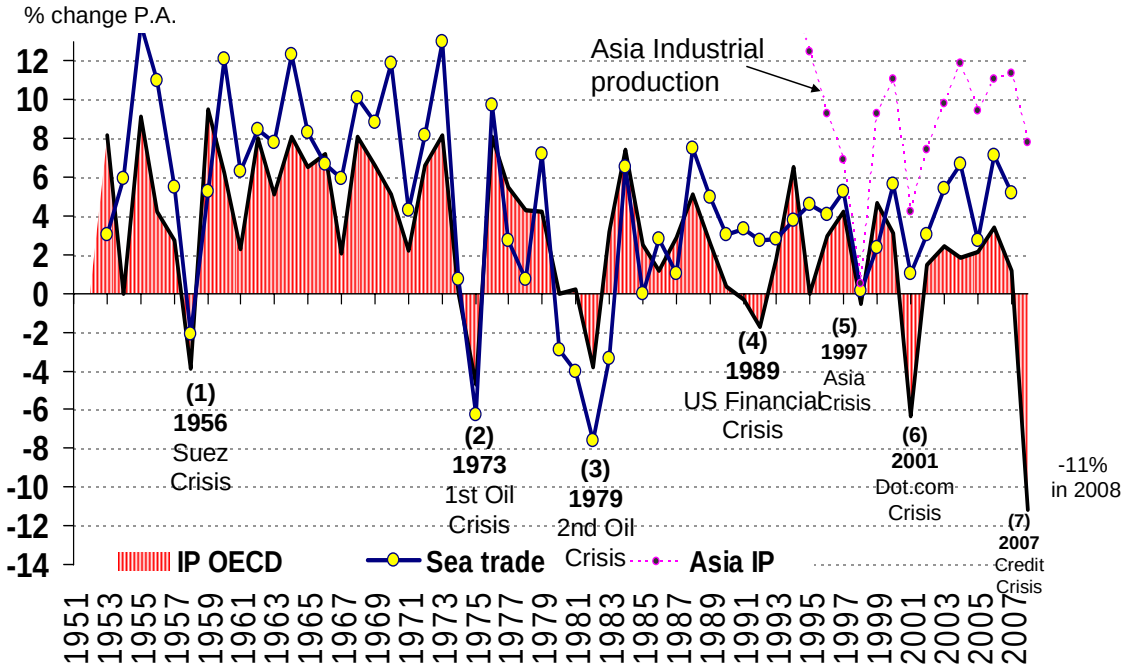
Against this background it seems unlikely that the orderbook will be built to the schedule shown by the orderbook bars in Figure 5. An alternative scenario is shown by the blue line, assuming that 30% of the orderbook is cancelled or slips forward beyond 2011, though given the complex mix of financial, commercial and technical factors which will control this development it is in reality little better than a guess. But at least it is a starting point for discussion.

7. Developments in ship demand

The big problem is that in early 2009 future ship demand is almost impossible to estimate with any real accuracy. The world economy is facing a deep recession triggered by the banking system, but spreading to steel, vehicles manufacture and the industrial sector. Consumers seem to be in a state of shock and this is creating enormous problems for business.

These problems are now working through into industrial production (IP), one of the most important drivers of ship demand. During the last 50 years the cycles in OECD industrial

Figure 6: Industrial production growth in the Atlantic and the Pacific



production shown in Figure 6 have been an important influence on shipping, as the comparison with the growth of sea trade demonstrates. The graph raises four general points about this relationship which are relevant in estimating the recovery path from the present slump.

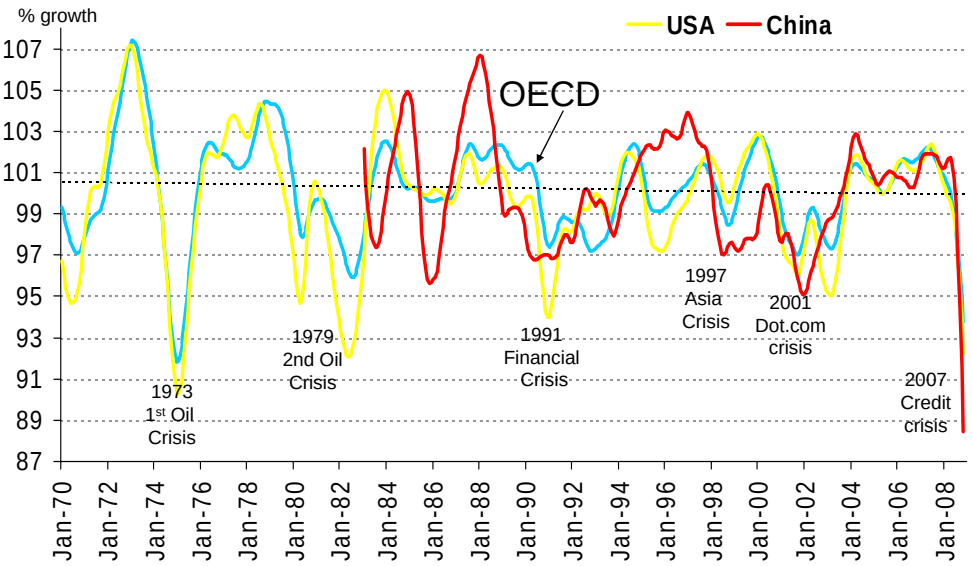
> *Firstly* over the last 50 years the average growth rate of OECD industrial production was 3% per annum, though in many years growth reached 5-6% pa.
> *Secondly* There is a close correlation between sea trade and IP. OECD IP explains about half the variability in sea trade. Since 1993 the chart shows the growth of Asian IP and the cycles follow the same pattern as the OECD, indicating that this is generally a global phenomenon.
> T*hirdly* all six deep recessions in IP and sea trade were triggered by an event severe enough to be called a "Crisis".
> *Fourthly* the IP slumps were generally short and sharp, with IP plunging from growth to deep decline, then bouncing back the next year.

The six crises dominate the chart and each had a different nature. The 1956 Suez Crisis was triggered by the nationalisation of the Suez Canal and the subsequent invasion of Egypt by the UK and France. Then things went quiet until the 1973 oil crisis which was triggered by the Yom Kippur war between Egypt and Israel. On October 15, 1973, the Organization of Arab Petroleum Exporting Countries (consisting of the Arab members of OPEC plus Egypt and Syria) implemented an oil embargo "in response to the U.S. decision to re-supply the Israeli military during the Yom Kippur war." In November they implemented a 25% production cut. The resulting oil shortages pushed the price of crude oil to $10 per barrel and triggered the industrial recession shown in Figure 6. In 1979, following the Iran revolution, the oil price increased to over $30 a barrel and the deep recession which followed triggered capacity problems in many industries. The US Financial Crisis in 1990 was caused by Junk Bond related problems and the Asia Crisis of 1997 effected Asia more than the OECD. Then there was the Dot.Com Crisis in 2001 when the stock markets melted down. Although each crisis was quite different, the main uniting feature is the fact that they were all shocked and upset consumers.

In 2008 we saw the beginning of the seventh slump, triggered by the “credit crisis”. In April the OECD growth rate of global industry was around 6% pa, but eight months later in December it had fallen to -11%. This decline is similar to the Asia Crisis in the Pacific, but much deeper in the Atlantic. One of the issues until recently was whether this would turn out to be an Atlantic crisis or whether it would spread to the Pacific. It is now clear that it has. Japan is having an appalling time with output down by over 20%. Elsewhere in Asia, Taiwan's IP was down 32% in 2008 and South Korea was down 14%. China is still reporting 5.7% growth, but the leading indicators are strongly negative. So it looks like the worst industrial recession since the Second World War.

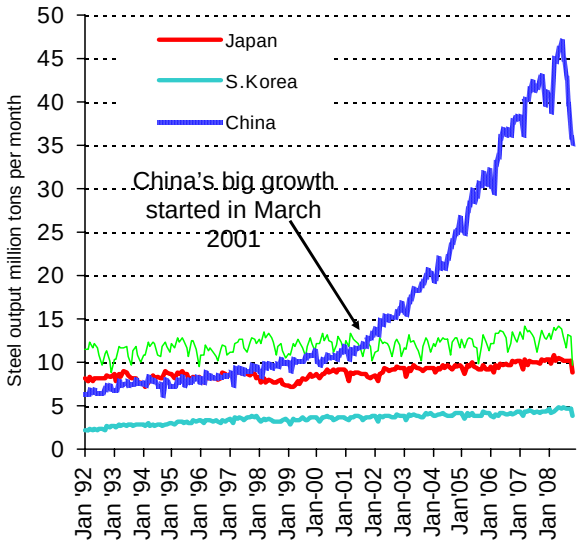
Looking ahead these severe developments in the world economy will impact on the shipping industry. If we take the Index of leading indicators as a guide (see Figure 7), the downturn in OECD is as sharp as the downturn after the 1973 Oil Crisis. It is likely to pull sea trade down with it.

Figure 7: OECD Index of leading indicators for OECD, USA and China



The downturn will be intensified by China which was a major driver of this boom, especially in the dry bulk and container markets where it accounted for two thirds of the growth in the last decade. The leading indicator for China in Figure 7 has dropped the most sharply of all, which is not really surprising given the speed with which the economy has grown over the last decade. China has a long way to go before it reaches the end of its development cycle, but the last 10 years has seen extraordinary developments, and a period of consolidation is long overdue and a normal part of the development path followed by capitalist economies. Their growth cycle seems to have turned into a bubble sometime in 2005 and this resulted in a capacity overshoot in many industries, particularly steel, causing an unsustainable surge of dry cargo imports, and excessive dependence on foreign export markets in the manufacturing sector. As noted above leading indicators suggest that the Chinese economy is slowing much faster than anyone anticipated and so is the steel industry whose production has fallen by 25% in recent months (Figure 8). This is feeding through into seaborne trade causing the collapse of the dry cargo market.

Figure 8: China's steel production in decline



So trade is likely to grow more slowly in the next few years (Figure 8). During the recent boom, in some years the growth rate surged to five per cent per annum, but the general growth trend is

3.5% pa. With a fleet of 1 billion tons, that would create demand for an extra 35 million deadweight per annum. But in 2010 the growth is likely to be much less.

Pulling all this together, a trade scenario in which the volume of seaborne imports falls in 2009 and possibly 2010 now looks the most likely working hypothesis. Taking the 1973 crisis as a guide, a fall in sea trade of up to 5% is possible.

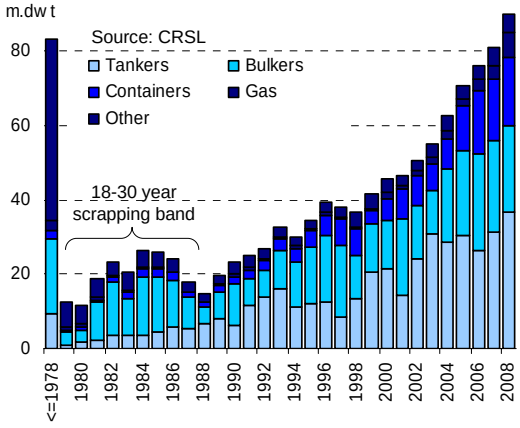
8. Developments in the supply of ships

Turning to supply, since 2003 new orders have drawn way ahead of deliveries and, as in the 1970s, the time lag before delivery allowed an investment bubble to develop. In 2007 three times as many ships for ordered (270 m dwt) as were delivered (80 m dwt). The order book in 1st January 2009 was 576.4 million dwt, 50 per cent of the fleet. Although there will be some scrapping, with the possibility of negative demand growth, this orderbook is far more than the market can possibly absorb.

The orderbook represents an obligation of approximately $500 billion on the balance sheets of various shipowners, principally in Europe (51 per cent) and Asia (26 per cent). The issues facing these investors are now daunting. Most of the ships on order today have been ordered since mid 2004 when the newbuilding prices increased, but with second hand prices falling, they now look expensive. Those keen to take delivery must raise finance and banks are reluctant to lend and the advance will relate to the current market price not the contract price. So it is a complex situation, the outcome of which is likely to depend on the small army of lawyers currently looking at the various legal documents associated with these orders.

Demolition would also help, but currently the age profile of the fleet is relatively young. The tonnage of ships built between 1979 and 1988 only averages 20 million dwt a year as can be seen in Figure 9 which shows the age profile of the world merchant fleet. For larger volumes of scrapping a great deal of market pressure would be needed and that takes time to build up. Investors must be drained of cash and convinced the recession will be a long one before they will scrap modern ships. This takes time.

Figure 9: World fleet age profile January 2009



9. The challenge for global shipping

The shipping market mechanism has not really changed very much over the last 125 years. In response to the acute shortage of ships over the last five years the market pumped in billions of dollars of cash, triggering a dramatic surge in investment, leading to the current 576 million dwt orderbook worth $560 billion. With an underlying requirement for about 60 million dwt of new ships a year, and probably much less in the next couple of years, a serious overshoot is likely leaving a considerable gap to be closed. So the game of "who pays for what" will probably be painful, expensive and in some

ways more like poker than shipping. Some factorsw to take into account are listed inm Annex 2.

10. Conclusions

Mr Chairman, Ladies and Gentlemen, now for my conclusions. We have had five years of record profits and 2008 was the best of the lot. So there is a much to celebrate. But an organisation with a 125 years of history knows that in shipping there are good times and bad times. If history is any guide, recruits to the industry must expect to spend 60 per cent of their working lives in recession!

Today we are entering a recession. I have argued that it will be a bad one because are on the downswing of a super cycle like the one in the 1970s. After such a strong boom we must expect a down-cycle on the same scale and it could be a good many years before we see such sustained and profitable markets again.

The problem lies in both supply and demand. On the supply side, in 2007 and 2008 investors lost all sense of perspective. The orderbook is ten times the underlying demand for new ships and extra capacity is being commissioned at great expense to build it. Demand is equally unfavourable. World industrial production is caught in a vortex of declining demand and de-stocking. As a result the core manufacturing industries such as steel, chemicals and vehicles which drive the bulk and container markets are cutting production and sea trade is likely to decline in 2009. The oil trade is stagnating. So much will depend on the extent to which the scheduled deliveries (over 300 million dwt scheduled for delivery in 2009/10!) are cancelled, deferred, or absorbed by demolition.

Now that the course is set we need realism. We cannot control the future, but we can prepare for it, which means keeping a close eye on what is happening and charting the best course through the rapids. It looks like a long and dangerous voyage, but the world of sea trade is so complex you can never be sure – remember how the market bounced back unexpectedly in 1999/2000?.

In conclusion Mr Chairman, navigating treacherous seas and equally treacherous shipping cycles is what shipowners get paid for. The Danish shipping industry has met both challenges many times before and I have no doubt it will take this super cycle in its stride. I wish you all good fortune on the voyage through the next 125 years.

Monday, 02 February 2009
4,300 Words

Annex 1 The shipbuilding supply/demand model

The long term shipbuilding supply and demand analysis used to prepare Figure 5 estimates the demand for new ships as the sum of two components, expansion demand and replacement demand.

Expansion demand is the tonnage of ships required to meet growth of trade, and was calculated by projecting the increase in trade during a year, in million tons, and converting that into ship demand, based on an estimate of how many tons of cargo the average ship will deliver each year[4].

Replacement demand is calculated by estimating the tonnage of ships which will be scrapped in each year. Adding expansion demand to replacement demand gives a total requirement for new ships. The replacement demand forecast is generally estimated from the age profile of the fleet. Merchant ships have generally scrapped at 25 or 30 years of age, and if the age profile of the fleet is known, the trend in scrapping due to old age or obsolescence can be estimated.

Annex 2 Financial dynamics of the trough

As the market progresses from peak, through collapse, into the trough the reaction of the shipping industry itself in terms of building new ships and scrapping old ships play an important part. These are few key variables to keep in mind: -

1. Speculative investment: the industry is probably holding several hundred billion dollars of cash assets and investors are searching for opportunities. If cheap second-hand ships are not available, which is often the case early in the recession, the shipyards often try to attract counter-cyclical investment by re-selling cancelled berths at a discount. Too much investment of this sort can prolong the trough.

2. Cash distribution: Cash is not evenly distributed between the companies in the industry. As the cycle unfolds, financial pressures increase and eventually some companies find themselves in distressed situations. The longer the recession continues, the more the pressure increases. They become the distress sellers.

3. Financial obligations: companies also move into the downturn with large obligations in the terms of newbuilding orders. Today that is probably around $500 billion of commitments of one sort or another which had been made to the shipyards.

[4] In this case 7.5 tons per dwt per annum, based on average productivity 1993 to 2006, a period when the market was roughly in balance. In a strong market productivity went up to 8.4 in 2000 and down to 6.5 in 1988, a weak year in the shipping market

4. Distress sales: Asset values go through a process of extreme adjustment. Although ship prices fall sharply, there may be little liquidity because nobody sells ships cheap unless they have to, and that only happens when financial distress develops.

5. Demolition: in the early stages of the trough very old ships whose life was extended to get them through the boom are scrapped. Then as financial pressures tighten, more modern tonnage may be scrapped, but only under conditions of financial distress when no other cash is available. For example in the early 1980s some tankers of less than five years of age were scrapped.

The challenge is to survive all these pressures, and to come out of the trough with a well-managed business which can take advantage of the recovery, when it arrives.