Forecasting - an impossible job? What will the global stimulus package do for shipping? Is it all about China? Are we heading for another dry bulk Bonanza?

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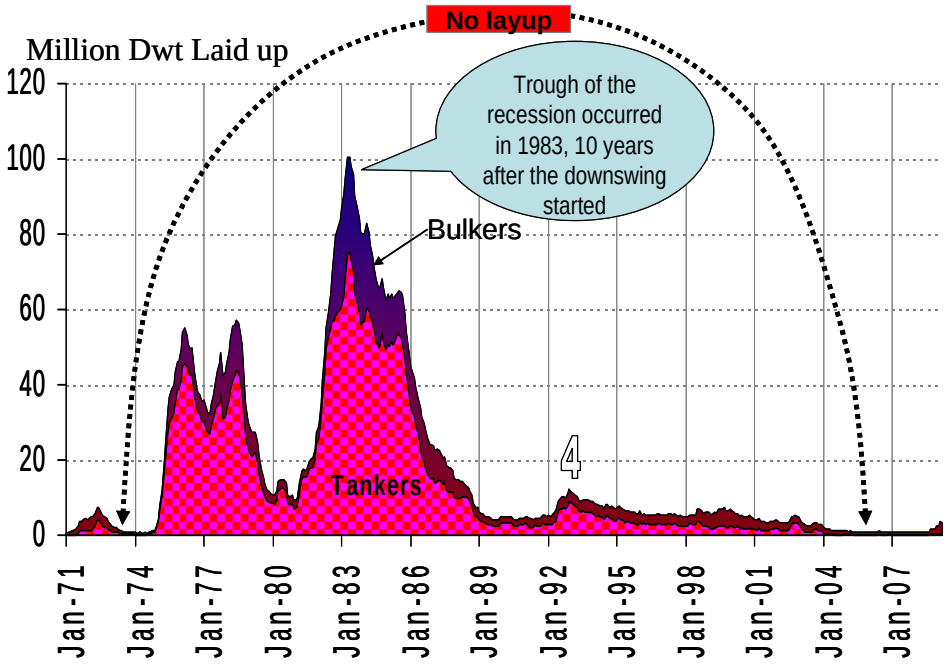
1. Introduction

Forecasting is not an impossible task. We all do it all the time and it works because many things in life are predictable. But trying to predict things which are unpredictable is a waste of time and unfortunately some of the most important things in our lives are unpredictable. For example how can we possibly know in advance whether the shipbuilders will deliver their order book? There are 9,500 ships and what happens depends on decisions by shipbuilders, shipowners, governments and bankers, most of which have not been made yet and people can always change their minds.

In these cases successful forecasting calls for a bit of "smoke and mirrors" and that is how earlier generations approached the problem. For example the *Delphic Oracle* in ancient Greece made prophecies while in a trance. The Oracle was located in a cave with an "eternal flame" and the chief forecaster, a priestess or Sybil known as Pythia, provided the prophecies[1]. The question was put to Pythia by the male priest and Pythia would answer in a trance induced by vapours from a crack in the ground over which she sat on tripod combined with the laurel leaves she was chewing. However her words were so garbled and unclear that

Figure 1: This shows the surplus tankers and bulk carriers laid up 1971-2009



[1] Questioners paid a levy for the service (called in Greek "pelanos") and sacrificed an animal at the altar

the priests had to decipher the answer.

It seems likely that the "eternal flame" was powered by natural gas[2] and the trance was induced by seepage of ethylene, a hallucinatory gas, into the cave where the Pythia made her forecasts[3]. So the Sybil was a sniffer. Incidentally here forecasts were almost always ambiguous and had to be "interpreted" by an intermediary. One of these famous ambiguous prophecies was given to King Croesus of Lydia who wanted to know if he should make war on the Persians. Pythia told him that if he did he would destroy a great empire. He went ahead and in 547bc was defeated – it was his empire that was destroyed.

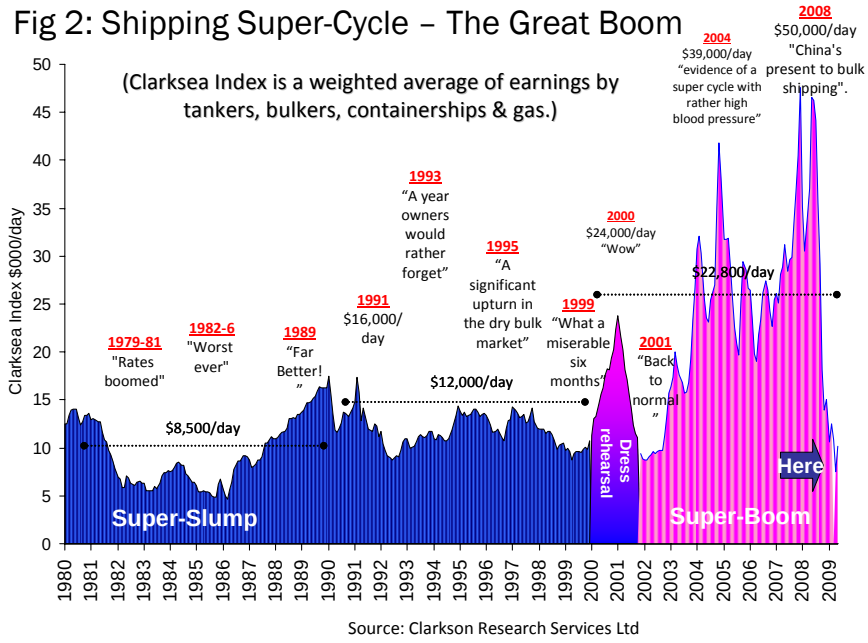
2. The Last Super-Cycle (1972-2003)

Anyway, back to modern business forecasting which I would argue is not so much about making precise predictions as suggesting how decision makers should weigh up their chances in the business battles that lie ahead. From this perspective my suggestions are that firstly we should view recent events in the shipping market as part of a *super-cycle* which has been going on since the boom in the early 1970s and secondly we should not view this cycle as a mystical sequence of "boom and bust", but as an economic mechanism - series of related periods during which capacity gradually adjusted in response to market forces.

The evolution of the last cycle is illustrated by the chart of laid up tonnage between 1971 and 2009 shown in Figure 1. This is the "skeleton" of the last stage in the super-cycle. At the beginning of the cycle, during the 1965-73 boom, the supply of ships was very tight with no layup and every single ship was at sea, but then for the next twenty years there was always a surplus, sometimes large and sometimes small.

In the late 1970s and the early 1980s the surplus grew very large. The recession following the 1973 Oil Crisis produced lay-up of 55 m dwt in 1975-8, followed by a much larger lay-up of 100 m dwt in 1983, in this case mostly tankers[4]. This was the period when some tankers went

Fig 2: Shipping Super-Cycle – The Great Boom



Source: Clarkson Research Services Ltd

[2] I discovered this when researching the LNG trade
[3] evidence of ethylene, a hallucinatory gas, has recently been found in the area
[4] Note that in addition to lay-up there was hidden surplus caused by slow steaming, storage, waiting time etc.

straight from the shipyard into layup. Then from the mid 1980s onwards the surplus slowly reduced and it was not until 2003 that it fell back to the level of 1973. So the super-cycle took 30 years to get from the tight market of 1973 to the tight market of 2003.

But although this cyclical sequence is clear, in retrospect at least, from the laid up tonnage "skeleton" of the cycle, it was much less obvious from a day-to day perspective of companies trading in the shipping market. During these three decades all they saw was a series of apparently unrelated and unpredictable markets with various degrees of surplus ships, which tended to depress rates, or keep returns low. In fact many ships were ordered and delivered during the long period of surplus, so we should not view stages in the super-cycle as extremes of total feast or famine, but as a mix of different market conditions.

This point becomes clearer when we look at what happened to freight rates during this long period. Figure 2 shows the ClarkSea Index, a measure of average earnings for tankers, bulk carriers, containerships and gas between 1980 and 2009[5]. The 1980s was appalling, with all earnings down at less than $5,000 a day for four years in a row, so there was a great outflow of cash from the industry. Over the whole decade of the 1980s the index only averaged $8,500/day. Charter earnings were only just enough to pay the operating costs of the ship, with no return to capital and no equity flowing into the industry. A period in which cash was gradually being drained out of the industry and the longer it went on the greater the cash shortage became.

Things got better in the 1990s, and earnings increased to $12,000/day, but returns were still low, averaging only 7-8% per annum, little more than the cost of borrowing. So in the 1990s the banks got paid, but the shipowners did not make much return on equity. This was a period when few shipping companies were able to raise capital in the public markets and those which were listed had a very difficult time with stock trading often at a discount to net asset value. During a period when the world stock markets were rising, this made shipping look an unattractive business and by the end of the 1990s even the most optimistic shipowners were becoming disillusioned.

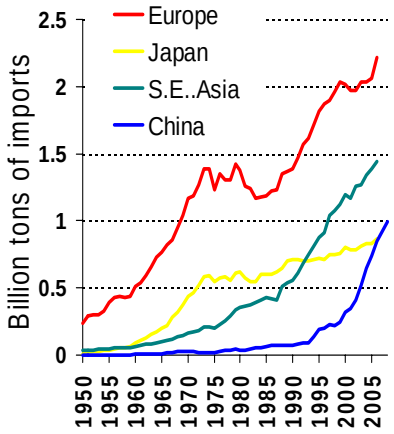
Finally in the 2000s the whole process took a massive step up. As the surplus of ships disappeared, it became a sellers market, a situation which had not occurred for such a long time that nobody recognised what was about to happen and the response from the industry was muted. As Figure 2 shows, freight rates soared to levels way above anything seen since the 1970s. Over the decade of the 2000s the ClarkSea Index averaged $22,000 per day, almost twice the earnings in the 1990s, with peaks ion 2000, 2004 and 2008. Cash poured into the industry in enormous quantities -- my rough estimate is more than $100 billion a year of cash during this period. I checked out the dry cargo statistics over the last 250 years and can find nothing quite as good. So eventually those shipping investors who struggled through 20 years of lousy markets were, much to their surprise, at last rewarded for their patience. Needless to say nobody predicted the scale of this turnaround.

3. The Drivers of the last Super-Cycle

There were basically three drivers of the last very long cycle an these provide the starting point for deciding what happens in the next cycle.
he *first driver,* was globalization. Over the last fifty years there has been a succession of surges in seaborne trade as different regions have industrialized, generally drawing heavily on seaborne raw materials and generating exports of manufactures. Figure 3 shows the growth

[5] Unfortunately the series does not go back to 1970 and the data 1980 to 1990 is tankers and bulk carriers only.

Fig 3: Regional seaborne import cycles



of imports by region and the pattern is clear enough. In the 1950s Europe modernized after the war and this involved surging imports of raw materials as the economy switched from low grade and depleted domestic resources to low cost supplied imported from overseas. Japan joined the party in the 1960s which became a very prosperous decade for shipping and the world economy. But it also created economic pressures leading to the two oil crises in the 1970s and extreme inflation which brought growth to a halt for almost a decade (particularly the oil trade was effected). The in the 1980s growth resumed with S.E. Asia growing very rapidly, followed by China in the 1990s. China's imports passed one billion tonnes in 2008. This helps to put China into context and my guess is that China has a way to go in terms of import and export growth. Looking ahead,, the globalization process is not complete, but its character may change in the modern world.

The *second driver* was the oil crisis in 1973 and the follow on crisis in 1979. The rapid expansion of the world economy in the 1960s had put pressure on world resources and a sudden increase in the oil price from $2 in 1972 to $10 in October 1973 came as a major economic shock. The blue bars in Figure 4 compare oil prices in 2007 dollars with the growth rate of sea trade and the decline in sea trade following the two oil price increases is easily seen. The 1973 oil price increase from $2/bbl to $10/bbl triggering a severe recession in 1974. Just as the world economy was recovering in 1979, the second oil price hike from $10 per barrel to almost $40 a barrel, caused by the revolution in Iran, triggered a second and even more severe economic down turn during which world GDP, which had been growing at 10% pa, declined in 1974 and the most severe slump in sea trade since the 1930s.

This was particularly bad for seaborne trade, because the demand for oil dropped sharply as power stations switched from imported oil to coal which often came from local sources (though there was some trade growth which favoured bulk carriers). As a result the crude oil

Figure 4: Major slow down in sea trade 1973-83

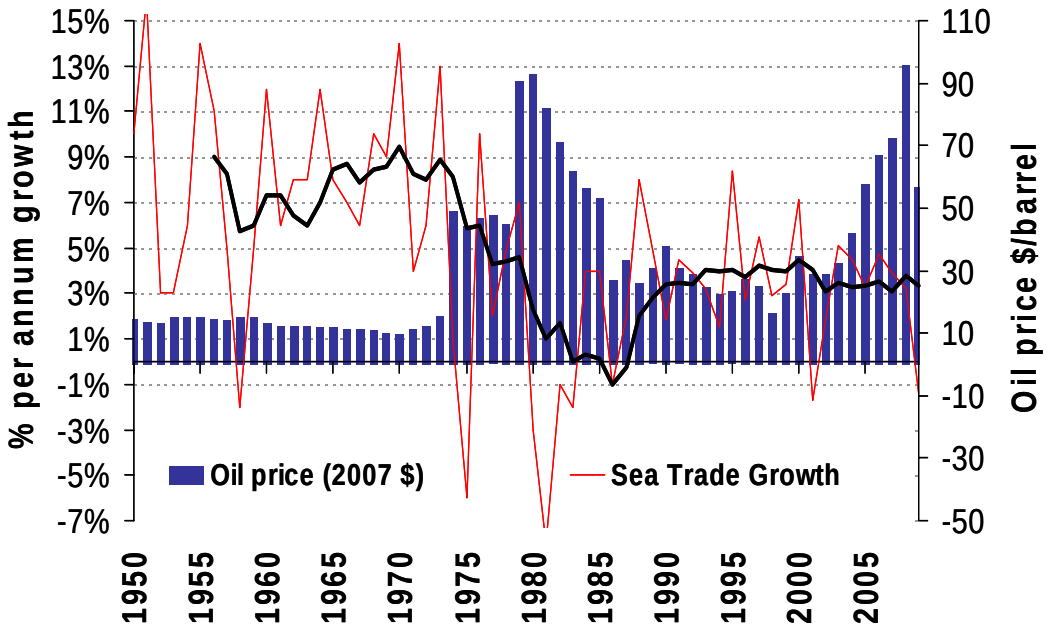
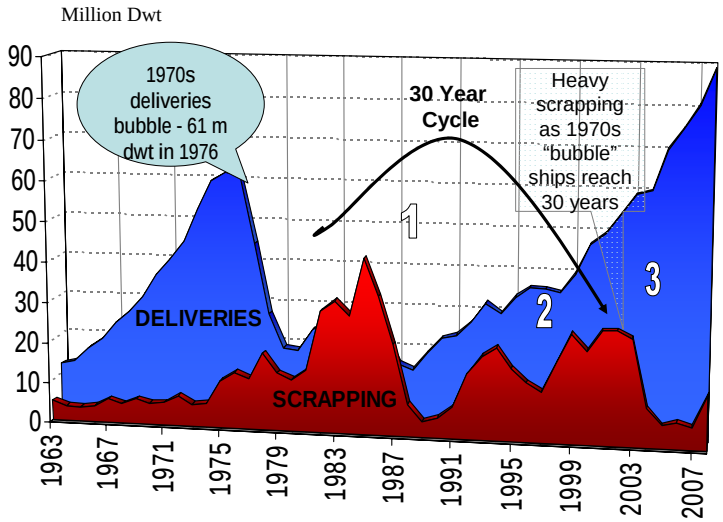


Figure 5: There was a 30 year cycle in ship deliveries and demolition



trade fell by 40% in four years. This, combined with the deep recession, caused the collapse of seaborne trade growth between 1973 and 1983. This is clearly shown by the red line in Figure 4 showing year by year growth rates of seaborne trade, and the seven-year average is plotted as a black line. Between 1970 and 1983 the 7 year trend fell from a peak of 9% growth in 1970 to -1% growth in 1983. Note that the trend was fairly stable at around 3.3% per annum over the last decade and we are waiting to see if the financial crisis causes the first major decline in sea trade since the 1970s.

The *third driver* was the 1970s shipbuilding bubble and the subsequent heavy scrapping which occurred when they approached 30 years of age in the late 1990s and early 2000s. The original shipbuilding bubble in the 1970s which is shown clearly by the blue area in Figure 5 – shipyard output surged from 15 m dwt in 1963 to over 60 m dwt in 1975 – was caused by the expansion of Europe and Japans imports. But twenty years later after two decades of low returns the shipping industry became disillusioned and cut back investment just as the 1970s "bubble ships" finally approached 30 years of age and had to be scrapped. The red area in Figure 5 shows demolition was very heavy between 1997 and 2003, soaking up more than half the deliveries, so ship supply was increasing by only 20 m dwt per annum. Since trade was growing faster than this, the supply and demand balance finally became very tight, which helped the market boom to "kick-off" in 2003.

With the last traces of laid up tonnage removed, as shown in Figure 1 the scene was set for the great boom.

4. Drivers of the next super-cycle

These three drivers apply as much today as they did 30 years ago but the balance is changing. Since 2003 the whole process has been reversed and over the last five years we have seen what might be the beginning of the next phase in the super-cycle.

On the demand side the booming trade driven by China is faltering; we have had an oil price shock on a similar scale to the 1970s, and a financial crisis which threatens to dampen growth in some parts of the world for years to come. All this is very similar to the 1970s. What we do not know yet is how severely the twin economic shocks of the high oil price and the banking crisis will affect seaborne trade going forward.

On the supply side five years of sustained high freight rates reversed the supply trend and created an even bigger shipbuilding bubble, with an order book almost half the fleet. Over the next five years scrapping has fallen, deliveries doubled and the fleet grew by 75 m dwt in 2008, three times as fast as in 2003. Based on the orderbook, deliveries will double again to 190 m dwt in 2010. So we need to look at how these elements of the cycle might develop in the years ahead.

5. The demand cycle

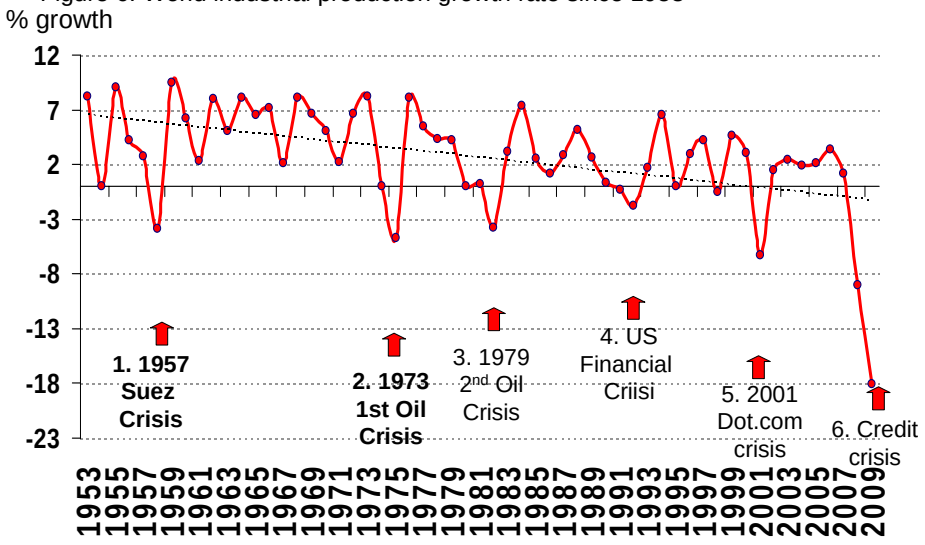
As usual, predicting the demand side of the cycle presents forecasters with some very major problems.

During the five years 2003 to 2008 the world economy, helped by China, grew at its fastest rate since the 1960s, with GDP averaging over 5% growth per annum. As in the 1960s, this phase of uncontrolled growth led to a shortage of natural resources and has ended with a series of economic crises which took the world by surprise.

On the resource side the surge of growth put oil supplies under pressure, with only 1 m bpd of spare capacity, triggering an oil price hike of similar proportions to the 1970s crisis. In real terms oil prices passed the 1980 peak in 2008 (see the blue bars in Figure 4). At the same time escalating asset values in many industries and parts of the world, notably the housing market in the United States and many European countries, created a period of potential instability. Finally in 2007 the financial crisis started, deepening in 2008, and producing some of the most drastic world economic statistics in 50 years.

How serious is it and are there tougher times ahead? Well, we have not seen a collapse in the world economic growth like this before, and certainly not since the Second World War. In march 2009 world GDP was two per cent down on 2008, the steepest fall in 50 years. But for shipping Industrial production is a better indicator and in April 2009 it was 16% down on last

Figure 6: World industrial production growth rate since 1953



year, easily the sharpest fall since 1953 (Figure 6). World steel production fell 35 per cent between June 2008 and April 2009. Although Chinese imports of iron-ore have recovered sharply, it is not enough to offset the decline in other areas, particularly Europe, Japan and S America. Oil demand is predicted by the IEA to fall by about 2.6 million barrels per day in 2009, following eight years during which demand increased in total by 9.4 million bpd. In 2009 the container trade is falling for the second year running.

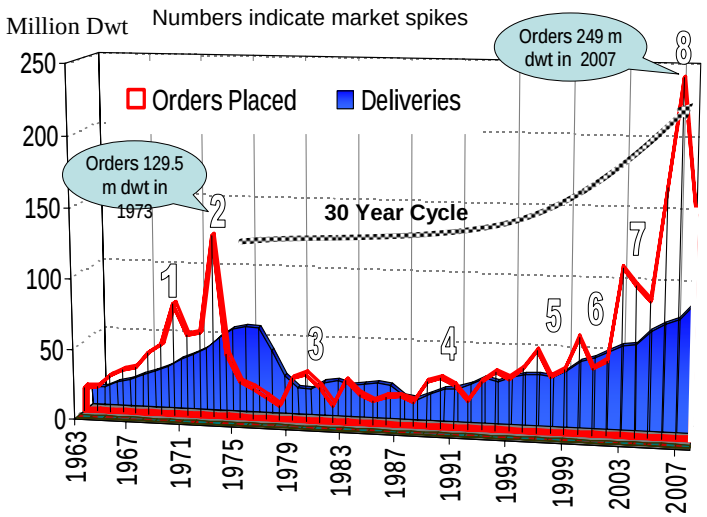
So although the world economic authorities have taken extreme measures, which if we are lucky will help bring the economy back into growth in 2010, it will still be necessary to tackle the various over-capacity problems in the heavy industrial end of the world economy which developed during the long boom. There is also a massive debt burden which will need to be unwound. This is bad news for the shipping industry and this year trade is likely to fall by 2-3% per cent at least. Nothing like as bad as 1980 when sea trade fell by 7%, but still very unhelpful.

Looking ahead the indicators look every bit as severe as those which led to a decade of dismal economic performance in the 1970s and early 1980s. But there are other positive factors. China, an enormous economy with a great capacity to shake off difficulties, could surge on to import 2 million tonnes of cargo in the not too distant future and the ASEAN countries and India all have a positive future ahead, so maybe this time things will not be as difficult as in the 1980s.

6. The supply cycle

When we turn to the supply side of the equation, we are dealing with the most discussed and analysed part of the shipping business today. The problem is simple enough. The order book the shipyards built up during the boom is the big brother of the shipyard bubble which triggered the long shipping recession of the 1970s and 1980s (Figure 7). If all these ships are

Figure 7: Shipyards expand in the 1970s boom & the 2000s Boom



delivered on time the merchant fleet will grow by over 8% per annum at a time when trade is either declining or not growing very much. We can debate endlessly how much of this order book will be delivered, but give or take a year, my guess would be that the greater part will actually make its way down the slipways, though not necessarily on time or to the original investor. After all, the contracts were placed in good faith and in many cases sealed with binding financial guarantees.

A very large proportion of this order book, approximately 50 per cent, is controlled by European owned companies. This is going to challenge the European industry, and is particularly worrying because the credit crisis is focused heavily in Europe, and it is here that normally the money would be raised. So European ship owning has an enormous challenge in managing this problem.

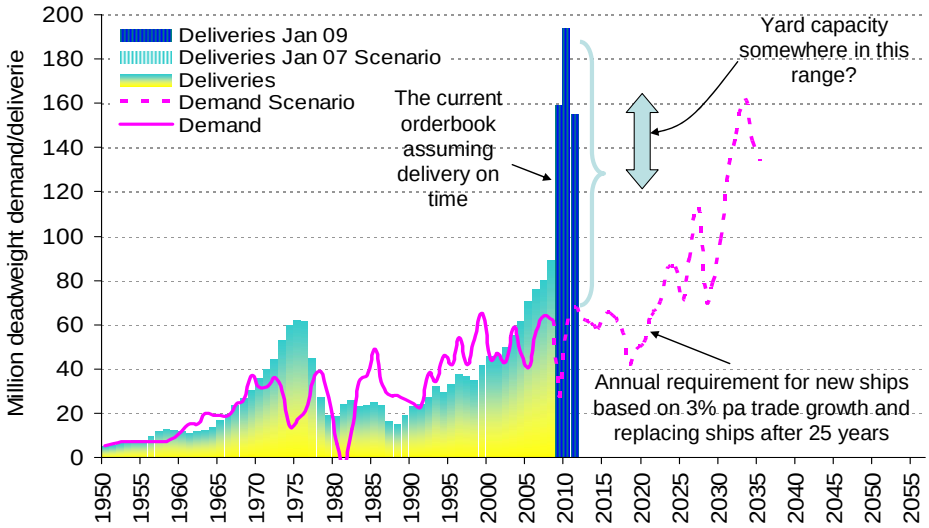
7. The conclusion

In looking ahead we are, as usual, at the great disadvantage that the economic evidence, like the Delphic Oracle, it is ambiguous. On the demand side we have another oil price shock, reinforced by a banking crisis. Their combined impact on the world economy is at least as severe as those experienced in the 1970s. But so far the moderate decline in trade suggests nothing so horrific as the slide which occurred in the early 1980s. With a little help from Asia, we might get away with a decline in trade this year and a recovery next year, leaving the industry with a "no net growth" scenario for 2011. That's the positive scenario, and the negative one can be whatever you read into the credit crisis.

On the supply side we have an order book and shipyard capacity capable of expanding the fleet by over 8% per annum, which is twice the average ship demand growth over the last decade. The world fleet is now relatively young and seaborne trade, even if things go well, is unlikely to grow by more than 3-4% per annum.

So we might end up with the sort of picture set out in Figure 7. The "most likely" annual trend requirement for new ships, shown by the red dotted line, is only 50—60 m dwt per annum, because global sea trade is only likely to grow at about 3% and we are now in the period when, 25 years ago, shipyard deliveries were only 25 m dwt per annum and there is not much replacement demand. Meanwhile shipyard capacity has surged to 160 m dwt pa and the great orderbook hovers. So the industry has a structural capacity imbalance, just as it did in the 1970s. Like Croesus, what happens next is in our hands. Shipping companies, shipyards, governments and banks could deal with the shipbuilding capacity problem. But I think we all know that life is not generally that easy. In fact the shipping cycle is the mechanism used by the market to resolve capacity problems that we cannot resolve for ourselves[6].

Figure 8: Shipbuilding Investment demand and actual deliveries scenario



Shipbuilding output is expanding faster than the underlying demand

Well, that's the "smoke and mirrors", so I'd better get on to the prophecy. To answer the questions raised at the beginning, forecasting is impossible, but taking a common sense view of what might happen is sensible and very necessary, especially in the extreme circumstances we face today. My feeling is that the government stimulus package was a part of a desperate attempt to stop the world economy bleeding to death and a long convalescence will be a while

[6] For a discussion of this point see Maritime Economics, 3rd Edition, Routledge Chapter 3 "Shipping Cycles and Shipping Risk" page 101

to get the world economy, especially the Atlantic, back to normal. That wonderful period where everything was growing in harmony is over for the time being.
But globalization has a way to go and hopefully free trade and global business will continue to evolve as it has in the last fifty years. China has been, and will continue to be an important positive influence on the shipping market, but not powerful enough to give us another dry bulk bonanza for a while.

So that's not a very positive outlook if you are looking for easy pickings in the short term. But life in a cyclical market like shipping is all about ups and downs, so the sooner we all get on with business in the new, probably tougher, environment the better.

Martin Stopford
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