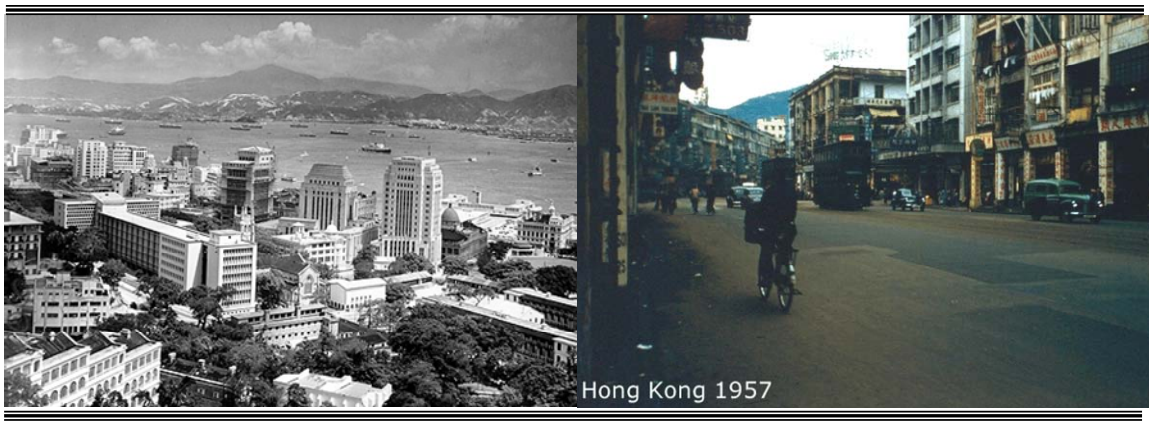
Hong Kong Shipowners Association

50th Anniversary Analysts' lunch, Conrad Hotel,
18th January, 2007

"Will the next 50 years be as Chaotic in Shipping as the Last?"

Dr Martin Stopford



Mr. Chairman, Ladies and Gentlemen, what a pleasure it is to be invited to address you on this important occasion. The fact that we have just experienced four years of the best shipping markets for fifty years, possibly much longer, adds extra spice to the occasion.

The Hong Kong Shipowners Association was launched in 1957 at the peak of a great tanker boom, but I doubt if anybody present at that time could have guessed what revolutionary changes lay ahead in the coming 50 years. But the seeds of change were already there and we can learn something about the future from looking back with the benefit of hindsight. I think this is what Winston Churchill meant when he said “the further backwards you look, the further forwards you see”. So in the next 30 minutes I will review those changes to see what they have to tell us about the future.

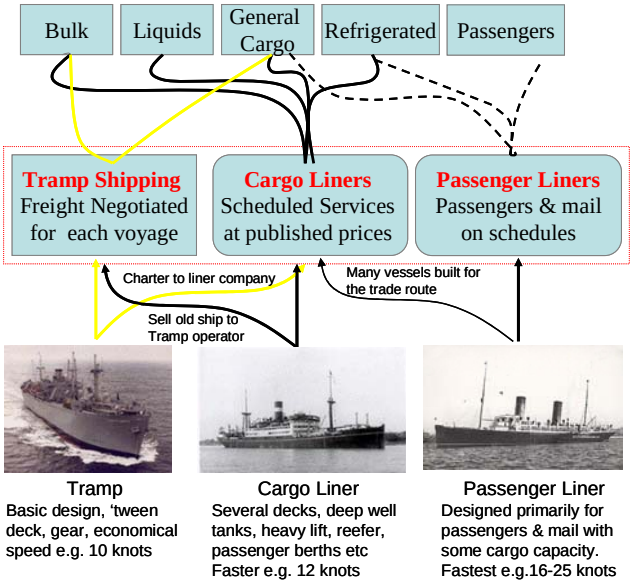
I will start with a reminder of what the world was like in 1957, then move on to review the signals that change was on the way and the effect it had on shipowners over the next

fifty years. Finally some comments about the signals of future change which are visible today.

1. What was the shipping industry like in 1957?

In 1957 the shipping business was very different. It was the tail end of the imperial system that had ruled shipping for a century. The European empires which still spanned the globe were in retreat, and the shipping industry was built around three segments, liners, tramps and passenger ships (Figure 1). This system was designed to meet the needs of the diverse but geographically focused Imperial trades, generally carrying a mix of general cargo out to the colonies and returning with semi manufactures and minor bulk cargoes. This required ships that were versatile and the Cargo liners were supplemented by tramps which could charter operate on charter in the liner trades or carrying bulk cargoes such as grain. The ships were versatile, with classic lines, but the system sacrificed efficiency to flexibility. The other major component of the trade was passengers. Passenger Transport between the continents was a leisurely business taking weeks not days. Air transport was only just getting started and communications were cumbersome - international calls had to be booked and waited for. In fact the world of 1957 was not all that different from the world of 1907.

Figure 1: The shipping system in 1957



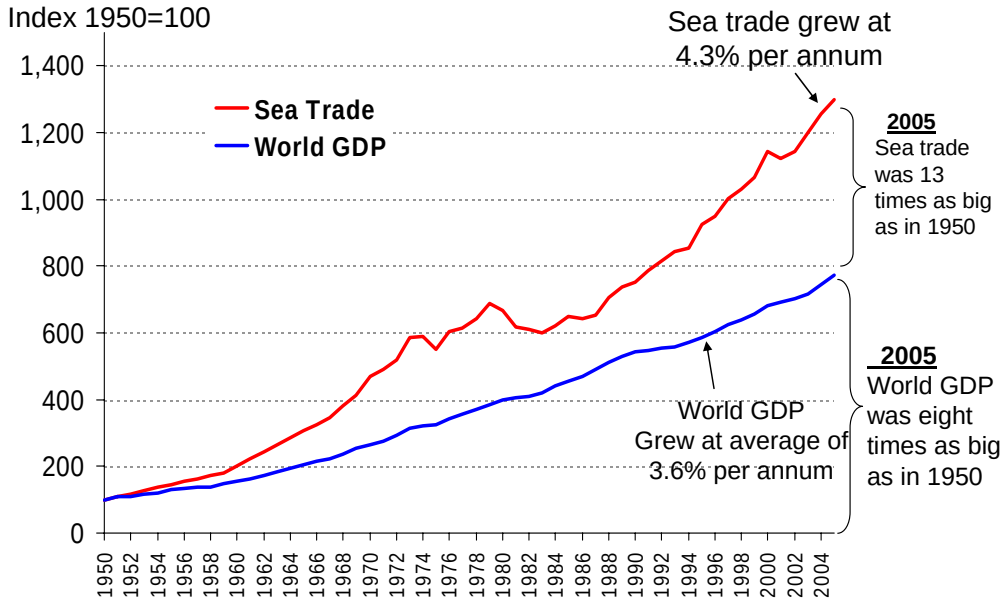
Source: Maritime Economics 3rd Edition Martin Stopford (forthcoming)

2. The signals of change in 1957

But 1957 turned out to be an economic crossroads and there were plenty of signals that things were changing. The imperial era, which had lasted for a century, was ending and it was the beginning of what we now refer to as "Globalization". After a century of neo-colonial stability the world was moving towards a new global free trade economy. Over the next fifty years five developments worked together to create a global economic system which produced 50 years of uninterrupted economic growth and by 2005 world GDP had expanded to almost eight times its 1950 level (Figure 2). Although the outcome of these changes was unpredictable, the signals of change were clearly visible in 1957 to those who troubled to look:-

1. **Global free trade policy**. The plan to replace the imperial world with a new system of free trade had been laid out a decade earlier at the Bretton Woods conference in 1944. Henry Morgenthau the US Treasury Secretary outlined the objective of creating "a dynamic world economy". The World Bank; the International Monetary Fund; and GATT were founded. As part of this process

Figure 2 Sea trade growth followed a different path from GDP

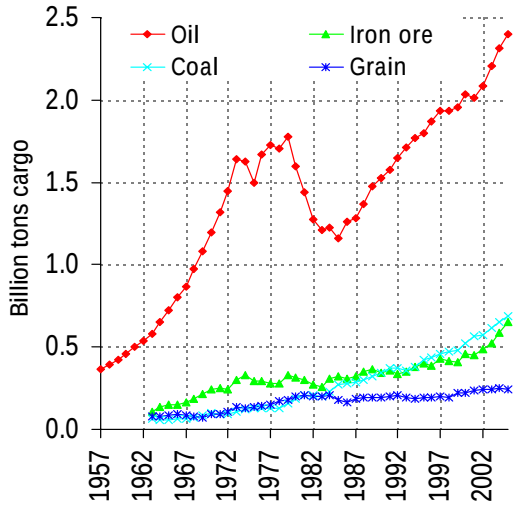


the European empires were dismantled and by 1957 it was clear that the colonial system was at an end. This opened up trade and created opportunities. As the empires were disbanded, multinational companies stepped in to fill the vacuum. This was already happening in the oil trade and the bulk trades as well.

2. **Communications Revolution**. Technology oiled the wheels of globalization. In the early 1950s telephones were primitive and cables remained the principal form of communication. But Telex appeared in the 1950s and communications were moving forward; broadcast telex and direct dialing international calls in the late 1960s; fax in the 1970s; and e-mail in the 1990s played an equally important part in opening up the trading world. The World Wide Web and a vastly improved fiber optic cable system added a new depth to this development and are very much in progress today. This made business easier and more flexible.

3. **Travel Revolution**: Fast travel was also crucial. Jet airliners appeared in the 1950s, reducing journeys which had previously taken weeks to a single day. By the mid-1960s airlines had wiped out the seaborne passenger trade, one the shipping industry's core activities. The world became more accessible as the cost of air travel fell.

Figure 3: Booming raw materials imports

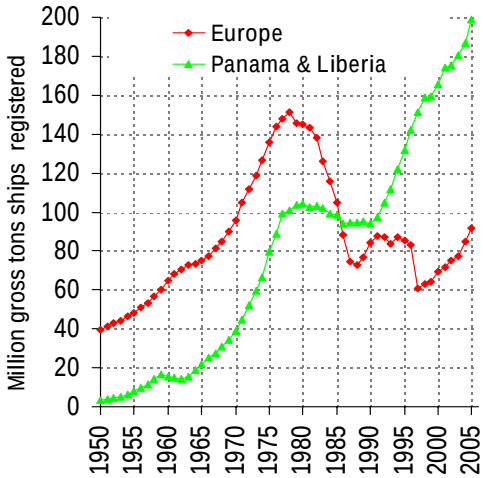


4. **Globalized materials & Markets supply**. The oil trade was the dominant commodity and proved to be very volatile. Reducing transport

costs played a major part in this process and mechanized cargo handling combined with bigger ships made remote areas of the world such as Brazil and Australia economically viable as suppliers of oil, iron ore, coal, bauxite, non ferrous metal ores and a host of other primary commodities. This produced the very rapid growth of the oil, coal and iron ore trades during the 1960s as shown in Figure 3. It was a bumpy ride and the resource pressures generated by this first wave of growth produced the oil crisis of the 1970s and a period of extreme turbulence. New global markets for manufactures were continuously developed

5. **New Sea Transport System**. A key part of the strategy for reducing transport costs was to outsource shipping to low cost ship operators. The shipping companies which had served the empire had a highly conservative mindset and were locked into trades and fleets which still seemed real, but were completely wrong for serving the new world of free trade. Bulk ship sizes escalated. Containerisation revolutionized the liner business, with the first containers shipped 50 years ago in April 1956, and today 1 billion tons a year of cargo is shipped in containers. So over the 50 years the shipping industry changed out of all recognition. A new generation of shipowners and shipping companies stepped in, taking full advantage of the newly-developed flags of convenience (FOCs) to cut their costs to levels that allowed them to offer long term timecharters at rates far below what the multinationals could provide themselves. The FOC fleet grew rapidly as a result (Figure 4). The timecharters they obtained were then used to raise finance in the rapidly growing Eurodollar market (the famous "other people's money" concept) to create a new type of shipping business. Entrepreneurial risk taking became the name of the game.

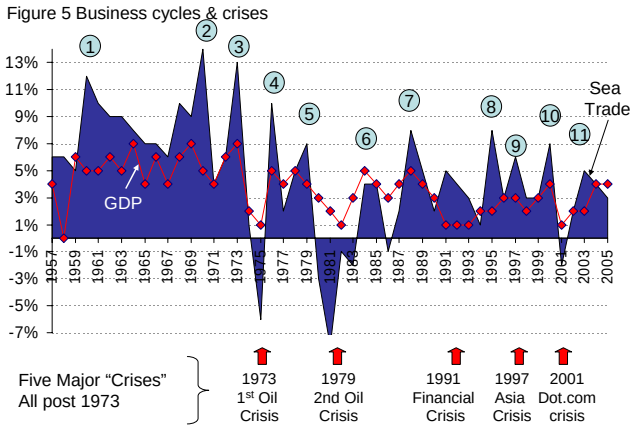
Figure 4: Offshore flags internationalise shipping



3. Impact of Globalization on sea trade

For all these reasons the 50 years since the Hong Kong shipowners set up their association were very prosperous. World GDP grew at an average of 3.8 per cent per annum. However world seaborne trade grew even faster, increasing to 13 times its 1950 level by 2005 (Figure 1). In the process almost every aspect of the

Figure 5 Business cycles & crises

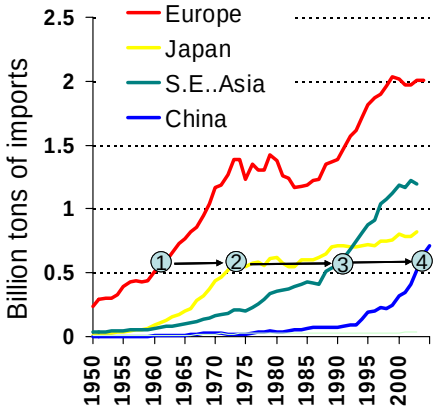


shipping business changed. But this growth did not follow a neat exponential pattern. In fact if we dig a little below the surface we find that shipping investors had to deal with cycles which seem to have been operating at *three* different levels.

First of all there were eleven *business cycles*, some of which were serious enough to be labeled "crises" (see Figure 5). None resulted in a decline in world GDP, but the five "crises" triggered a decline in sea trade which rattled the cage of shipowners – the two oil crises in the 1970s; the financial crisis of the early 1990s; the 1997 Asia crisis; and the so-called Dot.com crisis in 2001. All five occurred in the period since 1973 which works out at five crises in 30 years, or one every six years. 2007 is six years since the last one, but I will leave you to draw your own conclusions on what that means, if anything.

Delving deeper, a less visible sequence of cyclical growth in sea trade was driven by *regional development* as new countries and economic groups embarked on industrial development (Figure 6). In the 1950s Europe launched into a post-war reconstruction programme and its imports of oil and coal grew very rapidly as the European economies switched from low quality local reserves to imported oil, iron ore, bauxite and forest products. Japan followed about a decade later, then the Asian tigers in the 1980s and China in the mid-1990s. This is important because it puts things into perspective. China's recent impact has been massive, but that is only partly due to the size of the country. A more important contributory factor is the speed at which the Chinese growth evolved, especially in the construction industry and its related supply industries, steel and cement.

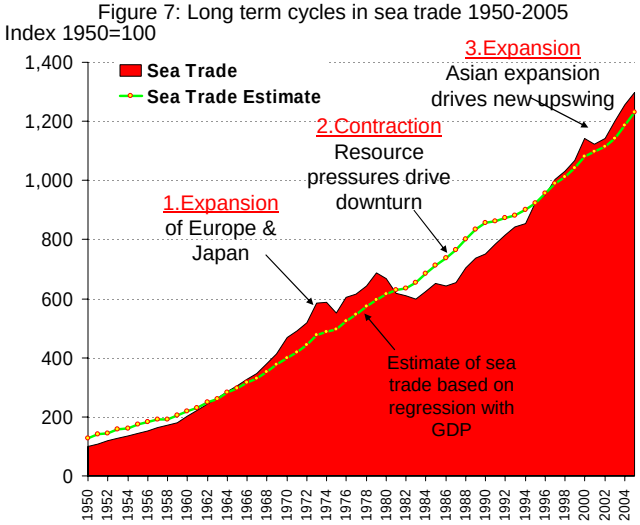
Figure 6: Regional development cycles 1950-2005



Bringing new regions into the trading system boosted the growth rate of seaborne trade but arguably it also introduced *long term cycles*. As we noted in Figure 1 sea trade grew 64 per cent faster than GDP over the 50 years, but it followed a different long term cyclical path. The dotted line in Figure 7 shows an estimate of seaborne trade using a simple regression on GDP. In other words it shows <u>how trade would have grown</u> if the only factor affecting it was the growth of world GDP. There are three clear phases:-

1. 1960-1975 seaborne trade was driven well above the GDP trend as Europe and Japan went through a raw materials intensive growth cycle

Figure 7: Long term cycles in sea trade 1950-2005



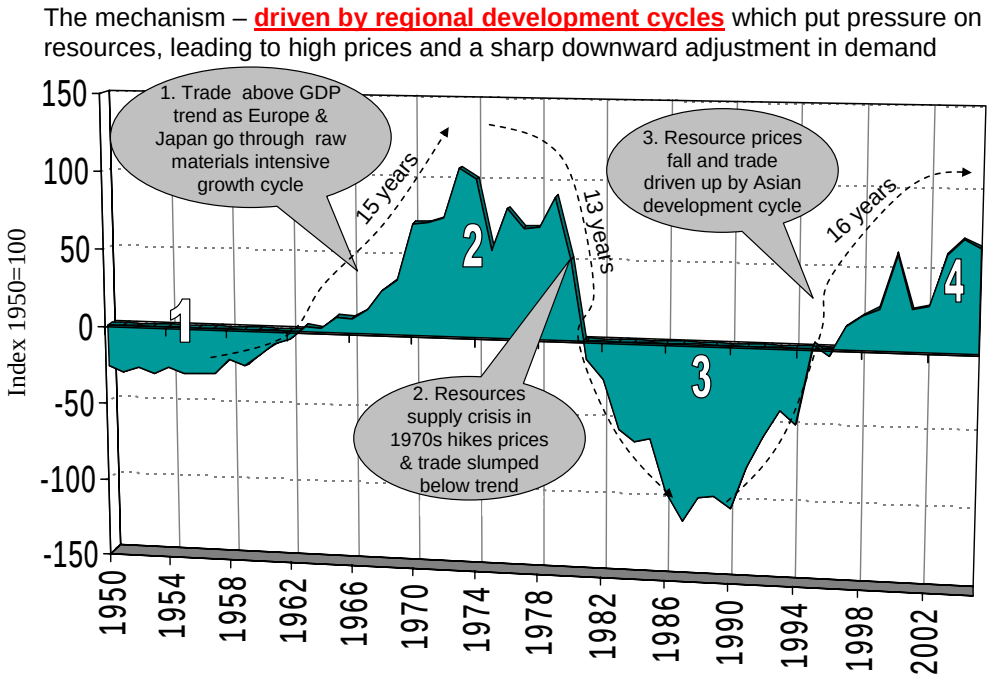
2. 1980-1996 it was below the GDP trend as the pressure on resources caused by the 1960s growth triggered the two oil crises of 1973 and 1979, plus commodity price inflation. This triggered a decline in trade coupled with a world economic recession.
3. 1997-2005 it was above trend as the world recovered from the 1970s crisis and the Asian growth cycle gathered force. It started with the Tigers, then China picked up in the late 1990s.

These long term cycles are linked to regional growth. The headlong growth of the European and Japanese economies in the 1960s eventually put pressure on world resources, resulting in the oil crisis of 1973 and commodity price inflation for many basic will materials in the years that followed. The result was a "boom and bust" scenario, driven particularly by oil.

By separating the fluctuations in seaborne trade from the GDP trend, we get the much clearer view of the cycles, as shown in Figure 8. The first point to make is how long they were. The first phase of expansion lasted 15 years, starting in around 1956, just when the Hong Kong shipowners were setting up their own association, and continued to 1973. Then trade moved into a down phase which started in about 1974 and continued, with a few wobbles, until 1987. That is another 14 year period. Finally the up phase lasted from 1988 to 2006. That is an 18 year expansion. Of course these long term cycles were punctuated by business cycles and crises discussed in the previous section, but there can no doubt that during these three periods the shipping industry faced very different circumstances in terms of ship demand. Two periods of expansion and one of contraction.

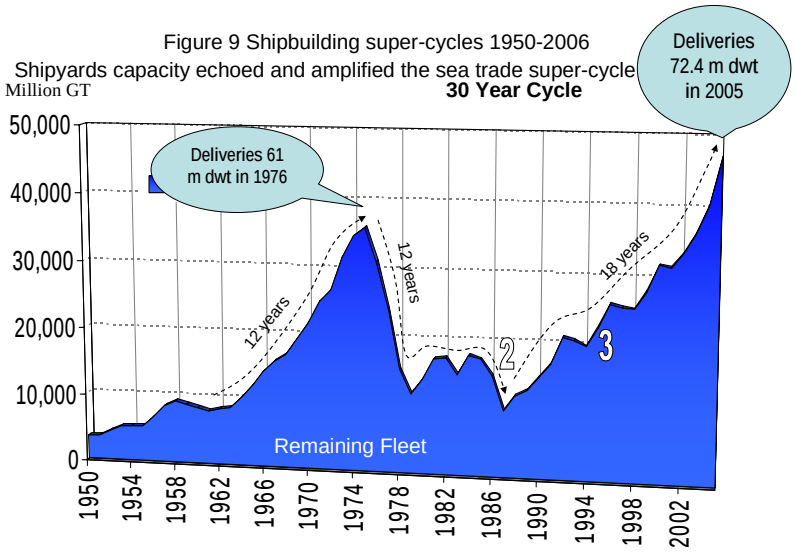
One other point. If we split the trade into oil and dry cargo we find that much of the volatility during this period stems from the oil trade, though the dry cargo trade was not

Figure 8 Seaborne trade cycles as deviation from trend1950-2005



totally exempt. The oil trade went through an enormous cycle of first overshooting the mark in the 1960s, followed by stagnation in the 1970s and a severe slump in the 1980s. The dry cargo trend was more stable, though this also was affected by the recession of the 1980s, though today the dry cargo growth is well above the GDP trend. That raises a note of caution for the future.

Figure 9 Shipbuilding super-cycles 1950-2006
Shipyards capacity echoed and amplified the sea trade super-cycle



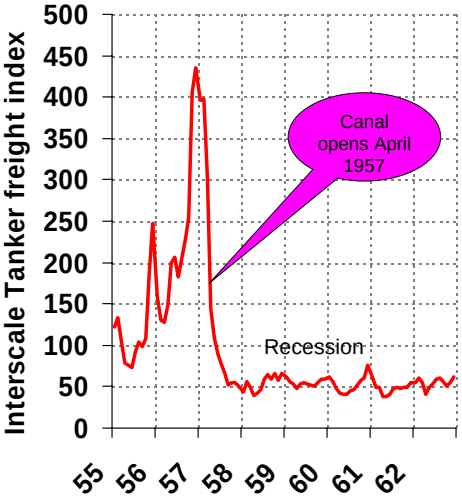
The final component in our discussion of the long shipping cycle is the pattern of shipbuilding capacity and deliveries shown in. Naturally the cycles in trade worked through into shipbuilding cycles and as a result the shipbuilding cycles over the last 50 years closely follow the trade cycles (see Figure 9). In the 1960s shipyard capacity grew very rapidly during the upswing in trade, and peaked in 1976, about three years after trade peaked. It then fell sharply during the decline phase, and started to grow again in 1988.

From a practical point of view these cycles in trade presented a structural problem for the shipping market for two reasons. Firstly the shipyards cannot just stop and start building ships. Once there they are likely to build ships regardless; secondly the "footprint" of the previous cycle is embedded in the age profile of the merchant fleet, resulting in large swings in replacement demand. For example the build up in deliveries in the last decade shown in Figure 9 will turn up as increasing replacement in 15 to 25 years. But today replacement is driven by the very low deliveries in the 1980s. This is briefly what happened:-

4. The Shipping Super Cycles 1957-2007

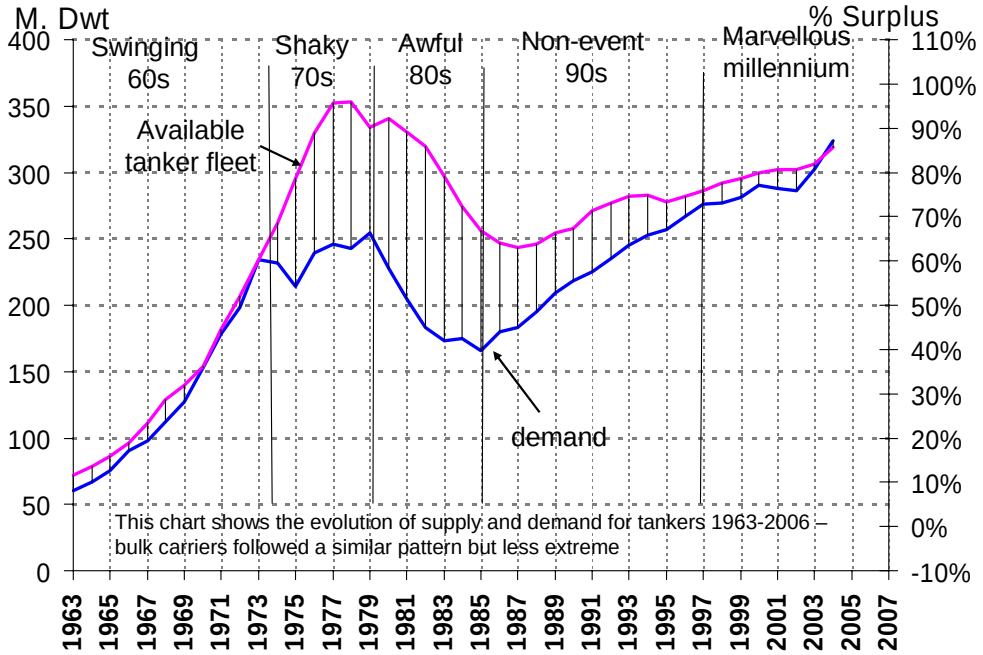
As a result shipowners were on the receiving end of some extreme volatility and the long cycles in sea trade together with the structural inflexibility of shipbuilding had a profound impact on the business climate, creating a sequence of market phases, each lasting more than a decade. The cycles are illustrated from the tanker market (see Figure 11) but the dry bulk market followed a similar pattern.

Figure 10 The 1956 tanker boom,



1. The 1956 Boom: The period began with one of the most spectacular cycles in shipping history (Figure 10). February 1957 was the peak of the tanker boom caused by the closure of the Suez Canal in June 1956. Rates surged from Interscale 62 to Interscale 456 in December 1956 and many believe that the market would last for four years; the time it was thought Egypt would take to reactivate the canal. They were wrong, and the canal reopened in April 1957,

Figure 11: Phases in the tanker market 1957-2006



just as the US economy slumped. The result was a collapse in tanker rates to into scale 60, where they stayed for the next four years.

2. The "Swinging 60s" (1960-73): In the 1960s sea trade was on an upswing and there was plenty of demand for ships and the fleet grew at almost exactly the same rate (see first part of Figure 11) so the market was pretty balanced. But during this decade the spot market did not really matter because most of the capacity was booked through timecharters, some up to 15 years. This was the era of "shikumisen[1]" and the Oil Majors and the Japanese Trading Houses were all keen to cut their transport costs by outsourcing shipping. The new generation of shipowners took contracts from major charterers, especially in the oil and steel business, and leveraged firm with commercial banks, using the time charter a security. It was a prosperous decade, with a bonus as the value of the ships escalated.

3. The "Shaky 70s" leading to the "Awful 80s" (1974-1987): The 1970s saw the trade upswing falter but shipbuilding deliveries continued to expand and this coincided with the 1973 oil crisis which halted the growth of tanker demand.

[1] Shikumisen is a practice developed in the 1960s where ship built by the Japanese shipping company for the purpose of chartering for a long period of time by introducing a foreign shipping company to a Japanese shipbuilding company.

The fleet grew to 350 million dwt in 1977, but demand only reached 250 million dwt causing a major dislocation between shipping supply and demand (Figure 11). Things got even worse in the 1980s, following the 1979 oil crisis and the collapse in the crude world trade which it triggered. One of the worst recessions on record was made worse by a double dose of shipyard overcapacity due to the downswing in trade and the 1970s bubble. The recession which bottomed out in 1986.

4. The "Non-event 90s" leading to the "Marvelous Millennium" (1988-2006): Things gradually recovered in the 1990s and the gap between the fleet and demand narrowed as surplus capacity was soaked up in about 1997 and the demand trend finally pulled ahead of supply, almost 25 years after the gap first opened in the 1970s. But the 1990s was plagued by the world business cycle, with three "crises" in 1991, 1997 and 2001. So it was only in the first years of the 21st century that shipowners finally saw a revival of their fortunes. So the bottom line is that 50 years of progress and prosperity in the world economy did not mean quite the same thing in shipping. One way and another it was a bumpy ride.

5. The Next Fifty years

I started with a the question of whether anybody present in 1957 when the Hong Kong shipowners set up their association could have guessed what would happen to shipping in the next 50 years. The answer is that the seeds of change were there, but it would have been a remarkable achievement to have visualized the business we have today. Anyway knowing the future is not necessarily an advantage. Shipowners get paid because the markets they deal with are uncertain - if they were not, the shippers would probably do it themselves.

So my first conclusion is that we should accept the volatility of our business, and concentrate on building new businesses which are able to deal effectively with this sort of change. That involves two principal goals, producing cheaper transport and managing risk which is basically what shipowners have spent the last 50 years doing.

The seeds of Change 2007-2057

Looking ahead, I do not see the shipping business today being at the same sort of crossroads which confronted shipping investors in 1957. On the contrary, I would say we are part way through a long period of global development which started at that time, and hopefully the next 50 years will see a continuation of this process (obviously the geopolitical environment is a crucial element of this scenario). Table 1 highlights the areas of change in the past and briefly comments on future developments.

1. *Trade*: On the trade front, globalization has a long way to go with countries like Vietnam, Malaysia and the Philippines in Asia; the Indian sub-continent; the countries of Central Asia; Russia and the East European states; Africa; and of course South America. So regional development is likely to continue in some form, though not necessarily as dramatic as the recent growth of China. In the short term, the biggest issue is just how far and fast the Chinese regional cycle will go. Seaborne imports have rocketed to 800 million tons, and will

Table 1 The Seeds of Change in Shipping 2007-57

Fundamental strategy area…	1957-2007 Main Trend…	2007-2057 Main Theme?
1. Trade	Globalization	More Globalization
2. Communications	Digital revolution	Intelligent digital/video
3. Travel	Mass air travel	Resource & environment
4. Material Supply	Globalized supply	More global supply
5. Sea transport	Specialization of ships	Much more logistics?
6. Shipping	Age of Independent	Corporatization?
7. Business cycles	6 cycles & 5 crises	More cycles & crises
8. Trade Super cycle	2 upswings 1 down	Downswing next?
9. Shipbuilding	Investment overshoot	Investment overshoot?

continue to grow, but much will depend on just how much raw-materials and energy the country is willing to import. My own feeling is that the steel industry is in the process of overshooting, whilst the Government is doing a valiant job in moderating oil imports. So the big surge could soon be over and after the Olympics in 2008 growth will probably slow.

2. *Communications and travel*; have developed enormously and this technology has much more to offer in the next 50 years. E-mail and the Web have helped the global economy develop, but we are still struggling with archaic legacy database systems, and the whole process is pretty unintelligent. On the communications side greater mobility and video are two possible developments. Transport is a risky issue for shipping because it dominates seaborne oil trades. Motor cars and airplanes have had an enormously successful run in the last 50 years, but could well have their wings clipped by global warming and dwindling resources in the next 50 years, which would not help the tanker business. The impact of higher energy prices is likely to continue as a major issue[2].

3. *Globalization of material supply*; also has a way to go. Oil and steel related industries are likely to increase their imports, but the greatest potential change is LNG. The resources of this particular fuel are located well away from the consuming areas, so if they're to be tapped, sea trade is inevitable. Maybe in 50 years' time we will be counting LNG tankers in thousands not hundreds as today.

4. *Sea transport*; technology is now pretty mature, though the evolution of ship sizes continues, with modest growth in bulk shipping at 2-3% per annum and container shipping growing three times as fast. The trend in the last 50 years

[2] 1. A recent study of oil price elasticity suggested that its medium term value is around - 0.7 (i.e. if the price goes up by 100%, demand will go down by 70%). In the short term the price elasticity is much lower, around 0.2. There is evidence that the high price of oil over the last two years is already having an impact. In the summer of 2005 the IEA predicted world oil demand would grow by 1.8 million bpd in 2006 they progressively revised this forecast down, despite near record growth of GDP in 2006, to only 800,000 bpd.

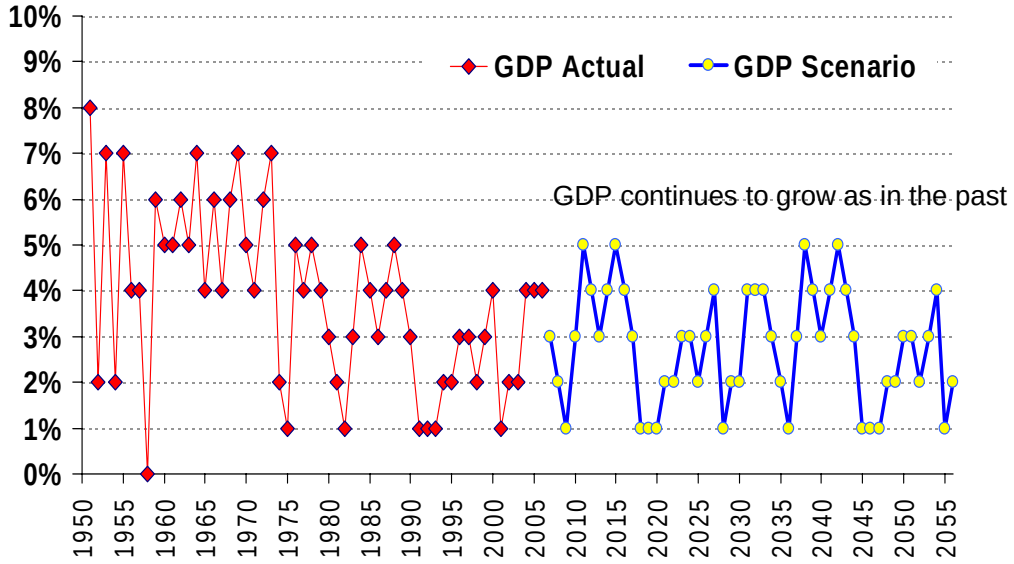
was towards specialized ships (flexible ships like combined carriers generally did badly). My own feeling is that the hardware side of the business has been pretty well dealt with, but in terms of logistics, there is much to be done. In this area there seems to be a gulf between the perception of the industry's achievements (every academic course now has a logistics module) and the reality of what goes on in the real world, which is often less sophisticated than might be supposed. So there is lots of potential in my opinion.

5. *Cycles*. Business cycles have been there for last 300 years, and I dare say they will continue. I leave it to you to guess when the next business cycle downturn or a "crisis" will take place. But the good news is most economists are pretty positive for 2007. The more daunting prospect is the trade "super cycle" and the risk that a downturn lies ahead. The mechanism here seems to be that the world goes through a phase of unbridled expansion which puts pressure on global resources. That in turn brings things grinding to a halt for a little while, to clear-out the system and get ready for the next phase of expansion. Today it looks as though we are getting close to the top of one of those trade cycles, but that is a matter for speculation. However the shipbuilding super cycle is much more clearly defined - it is built into the fleet. At the moment the demographics are not very helpful. Which suggests we could be edging towards an "overshoot" like the one we saw thirty years ago. But cycles are not generally that regular, so that offers a little comfort!

Future Long Trade-Cycles?

It is quite easy to run out a scenario which illustrates how the shipping super cycle might develop. Step 1 is to predict the trend in GNP business cycles. As a working scenario assume they develop along the lines of the recent past, as shown in Figure 12, which just reproduces the trend of the last 15 years – who knows if this will happen, but it's a starting point. If things develop this way and the relationship between Sea Trade

Figure 12 World GDP Scenario based on re-run of past cycles



and GDP remains unchanged from last 50 years, then by 2056 sea trade will have reached 27 billion tons (Figure 13).

Frankly so much trade sounds implausible to me, but let's accept it for the sake of moving the argument forward. If this happens, then the new shipping tonnage required each year will grow steadily. The growth path will depend on the cycles in the world economy and the green line in Figure 13 (which refers to the right hand axis on the graph), shows that the trend in demand for new ships will increase from around 30 mm dwt a year today[3] to around 90 million deadweight a year in 2055[4]. Of course the trade projection in Figure 13 is based on a GDP trend, and we know from the last 50 years that one of the major problems for shipping is caused by the fact that for prolonged periods the growth of trade may move above or below the GDP trend.

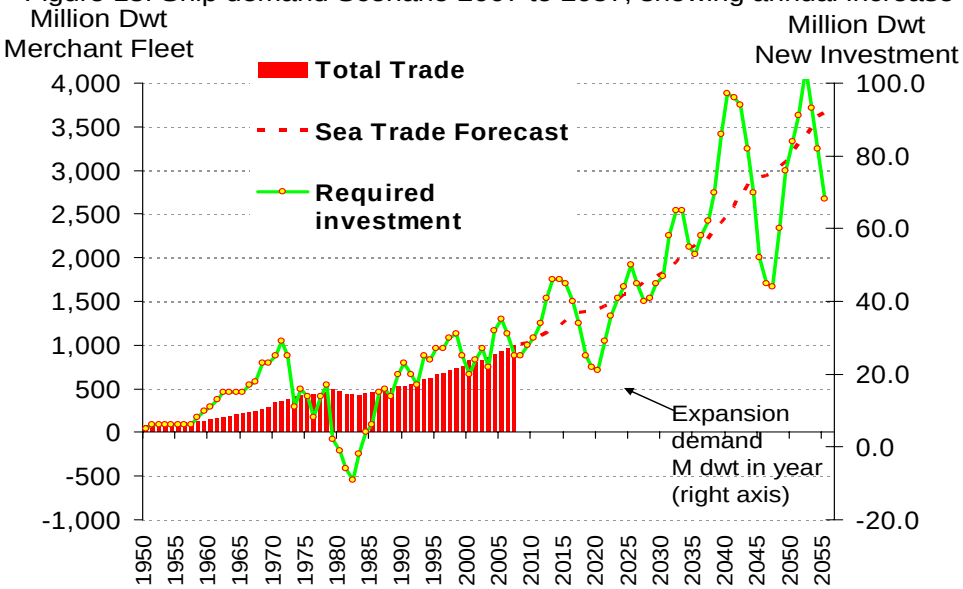
1. On the positive side, a process of globalization is not over yet. China has a way to go, and that could be quite substantial - maybe China will add another billion tons of trade in the next decade or so. Following on from China is India; Central Asia; Russia; the Baltic states; South America; and Africa. All have considerable development potential if the conditions are right. If we look at globalization as the spread of the modern consumer economy, then we could turn out to be only half way there are. So that could boost trade.
2. A less positive area is global resources. Globalization has put tremendous pressure on energy and raw materials reserves and that is likely to increase in future. There is reasonable evidence that oil reserves will peak out in the next decade, then start to decline. In the short term, that is good for the LNG trade, and maybe we will see thousands of LNG tankers in future. But in the longer term less resource intensive growth means less trade. Oil prices are now back up to the level experienced in the 1970s when the same sort of thing happened and we are starting to see the impact on oil demand. For example in 2005 the IEA was projecting world oil demand to grow at 1.8 million barrels per day in 2006. It now looks as though the growth was only 800,000 barrels per day. The shortfall is attributed largely to higher oil prices.
3. Thirdly there is the environment. Intensive use of the resources which dominate the shipping business, oil, coal and gas are causing environmental problems. Of course these are complex issues and not conclusive, but that does not really matter. If the population became convinced that the intensive use of energy is unacceptable that could also drive seaborne trade below the GDP trend.

In summary, over the next 15 years the trend growth of sea trade shown in Figure 13 could be increased by globalization, but could also be reduced by the various resource and environmental issues mentioned above.

[3] To put that in context, 33 million dwt of deliveries would increase the 2006 fleet of 966 m dwt by 3.4%. Between 2000 and 2005 sea trade grew at an average of 3.3% per annum (UNCTAD data).

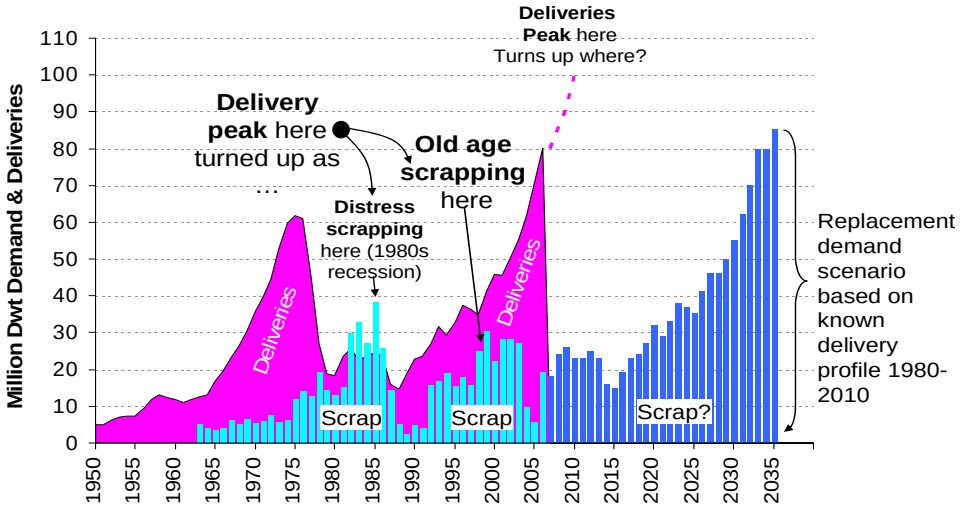
[4] NB: the "expansion demand" trend is based on trade growth and uses 5 year cantered moving average to smooth out business cycles, so it is not an accurate reflection of year to year movements about the 5 year trend.,

Figure 13: Ship demand Scenario 2007 to 2057, showing annual increase



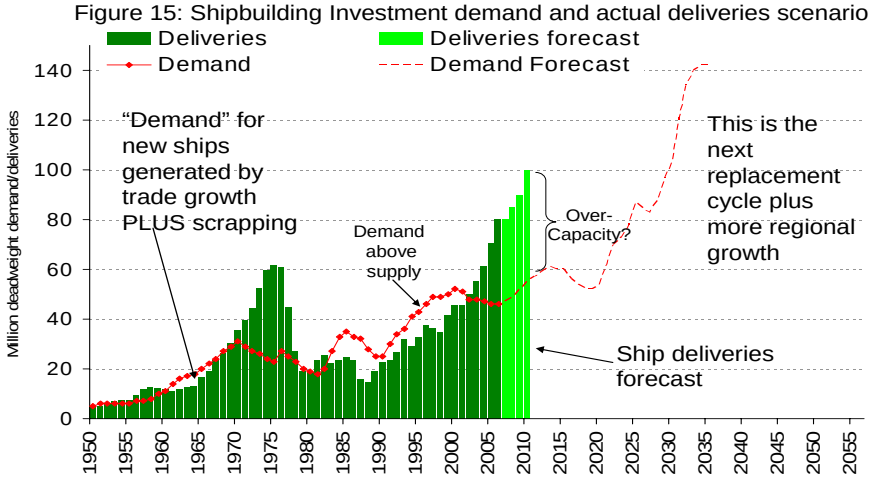
Ship Demand grows from 1 billion dwt to 3.7 billion dwt in 2055

Figure 14: Ship replacement scenario based on 25 year life



Ship Demand grows from 1 billion dwt to 3.7 billion dwt

Figure 15: Shipbuilding Investment demand and actual deliveries scenario



Shipbuilding output is expanding faster than the underlying demand

Future shipbuilding cycles

But there will also be an ongoing requirement to replace old ships, and this is where the shipyard replacement cycle comes in. Figure 14 shows how scrapping (the bars) interacts with the shipbuilding delivery cycle (the area). The Shipbuilding bubble of the 1970s resulted in heavy scrapping of around 25 to 30 million tons a year in the 1990s, though some of the scrapping had occurred early due to distress scrapping during the 1980s recession. Today's fleet age profile suggest that *replacement demand* will remain fairly low for fifteen years until we start replacing the ships built during the upswing in shipyard deliveries over the last decade. That is a bit of a problem because it means there will be not much growth in shipbuilding replacement demand over the next few years.

Figure 15 shows the total shipbuilding "demand" scenario, based on the expansion demand in Figure 13 and the replacement demand in Figure 14. In this chart the red line shows the "demand" for new investment based on growth of trade and replacement, whilst the green bars showing actual shipbuilding deliveries, plus projected capacity to 2010. There was an overshoot in shipbuilding deliveries in the 1970s, followed by a long period between 1985 and 2002 when shipbuilding deliveries lagged behind the trend investment "demand". When deliveries passed 50 million deadweight in 2003, for the first time they drew ahead of demand and if our forecast is right, deliveries will move up to 100 million deadweight by the end of this decade. However the demand projection does not reach 100 million deadweight until 2035 and all those environmental issues out there could delay it further. So the long-term super cycle is very much at work, and we could well be close to the top of a peak.

6. Conclusions

So let me pull all this together. 1957 was a turning point on the road to globalization and the last 50 years has seen enormous changes. Today the world is well along the road (maybe 60% there is my guess) and shipping has played a crucial and highly effective part in the process. Billions have benefited from the massive productivity improvements achieved by bulk, specialized and container shipping, none of which were there in 1957.

For shipowners this success was buried beneath cycles which kept them guessing. Some were very rewarding and some devastatingly awful. Viewed from the bridge the fifty years was chaotic and a bit of a nightmare. But investors took the risks, and for many it paid off handsomely - eventually.

Today we could well be at the peak of another super-cycle, and nobody is sure how long it will last. That is a matter for the global economy. What we do know is that on the supply side the footprint of the last super-cycle is programmed into today's shipbuilding capacity, which means we need to be careful.

In conclusion Mr. Chairman my prediction for the next 50 years is "more chaos and confusion". That can hardly be a surprise. Shipping companies, like ships, must be built to survive storms. It is up to the next generation to navigate through these treacherous waters and I have no doubt they will prove every bit as capable as the last. Ladies and gentlemen, I congratulate you on your achievements in the last fifty years and wish you good luck and a safe landfall in the next.

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