

CRISIS? WHAT CRISIS?

– THE EXPANSION OF NORWEGIAN SHIPPING IN THE INTERWAR PERIOD

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I. INTRODUCTION

The interwar period is often portrayed as two lost decades, where international relations were severed and the shipping industry had to bear the costs of a malfunctioning international economy. Yet – during these dismal decades – Norwegian shipping regained the momentum it had lost during the transition from sail to steam. By 1939 the country had acquired the world's fourth largest fleet. Moreover, Norway had the most modern merchant marine, with a disproportionately large share of state-of-the-art motorships and tankers.

The aim of this paper is to analyse the expansion of Norwegian shipping during the interwar period. Section II is a statistical exercise, where the development of the Norwegian fleet is detailed and compared with the international development. Section III looks more closely at the term 'crisis' and discusses whether or not this term is a suitable label for international and Norwegian shipping during the interwar period. In Section IV the Norwegian interwar experience is compared with the situation during the shipping crisis of the 1970s and 1980s, in order to gauge the magnitude of the 'crisis'.

II. THREE STRUCTURAL SHIFTS

Norway's share of the world fleet increased in the interwar period, and particularly so from 1929 to 1939. In the latter period the Norwegian tonnage increased by more than 40 per cent, whereas the rest of the world fleet actually declined. Table 1 shows the annual growth rates of some of the most important shipping nations.

Table 1. Development of major fleets, annual trend growth, per cent, 1923-39¹

Years	Greece	Norway	Germany	Japan	United Kingdom	United States
1923-30	9,86	6,12	7,49	2,32	0,93	-2,21
1930-39	3,53	2,20	0,09	2,27	-1,75	-2,85
1923-39	5,93	4,58	2,51	1,62	-0,76	-2,21
<i>Fleet 1939 (mill. grt)</i>	<i>1,77</i>	<i>4,82</i>	<i>4,42</i>	<i>5,61</i>	<i>17,88</i>	<i>8,90</i>

¹ The table is based on the gross registered tonnage of steam and motor vessels, as listed in *Lloyd's*. The data for the US fleet refer to the sea-going fleet, whereas UK data refer to Great Britain and Ireland. Trend growth refers to the slope of an OLS-based coefficient in order to neutralise the effect of unrepresentative start and end points. The countries represent the five largest fleets by 1939, as well as the fastest growing fleet 1923-39.

Table 1 shows that the Greek fleet growth – in relative terms – was higher than the growth of the Norwegian fleet. However, the Greek expansion started from a meagre base. The situation changes when we concentrate upon absolute growth, measured as the increase in gross registered tonnage. In such an analysis no country can dethrone Norway. The Norwegian fleet increased by almost 2,5 million grt over the period 1923 to 1939, compared with approximately two million in the case of Germany and Japan and slightly above one million in the case of Greece. The biggest ‘losers’ were the US, with a decline of almost 4,5 million grt, and the United Kingdom, with a decline of 1,2 million.

Table 2. Annual growth of shipping tonnage, 1000 grt, 1923-39²

Years	Norway	Japan	Germany	Greece	United Kingdom	United States
1923-30	187,4	102,9	237,7	93	173,9	-349,3
1930-39	130,4	148,3	30,1	47,1	-269,6	-191,6
1923-39	155,4	128,4	120,9	67,2	-75,6	-280,3

Although the data in Table 1 and Table 2 show the impressive Norwegian development, the high level of aggregation hides a number of important features. Norway’s increasing share of the world merchant marine reflected an improvement in the country’s competitive position. Moreover, changes in the structure of the Norwegian fleet amplified this advantage. In particular, three features stand out; the high share of tankers, the high share of motorships and the low average age of the vessels.

The gist of these three features is simple; by the end of the interwar period the Norwegian fleet primarily consisted of ‘the vessels of the future’ – modern motorships and tankers. In this respect, it is evident that Norwegian shipowners had been more successful than their competitors in transforming their fleets according to the changing geography of international seaborne trade.³

² Based on the same data as Table 1. The table refers the arithmetic average of the annual growth.

³ This paper primarily focuses on the tanker industry, which was the segment in which Norwegian shipowners excelled. Other transformations in the Norwegian shipping industry, eg the beneficial expansion within whaling and liner services, will not be addressed here.

FLEET STRUCTURE I – THE FOCUS ON TANKERS

The share of tankers in the Norwegian fleet, which had been approximately five per cent in 1920, had increased to more than 40 per cent by 1939. The growth was particularly strong in the last part of the 1920s and the early 1930s, with the volume of tanker tonnage increasing by 371 per cent over the five-year-period from 1926 to 1931.⁴

According to Sturmeij, “[t]he most important change in world trading patterns in the interwar years was the decline in the relative importance of the coal trade and the growth in the trade of oil with a consequent need for specialized tankers to transport the oil.”⁵ Parallel with the expansion of oil transports, the properties of the tanker market changed. The international oil majors outsourced a larger share of their transport requirements, paving the way for a considerable amount of independent tanker tonnage. Norwegian shipowners grasped this opportunity, and the shift in oil company policies was a necessary condition for the Norwegian foray into the tanker sector.

Table 3. Ownership structure of the world tanker fleet, per cent, 1900, 1923 and 1939⁶

Year	Oil companies	Independent owners	Governments
1900	80	10	10
1923	59	25	16
1939	54	39	7

In 1939 independent owners controlled some 6,4 million dwt of tanker tonnage.⁷ Almost 47 per cent of this fleet was owned by Norwegians.⁸ Although both the United Kingdom and the United States had tanker fleets that were larger than Norway’s, no major maritime nations had a larger *share* of tankers in the national fleet than Norway.

⁴ Based on data from Statistisk Sentralbyrå, 1968, pp. 363-364. The data in *Lloyd’s*, which are July-figures, show the slightly smaller growth of approximately 320 per cent.

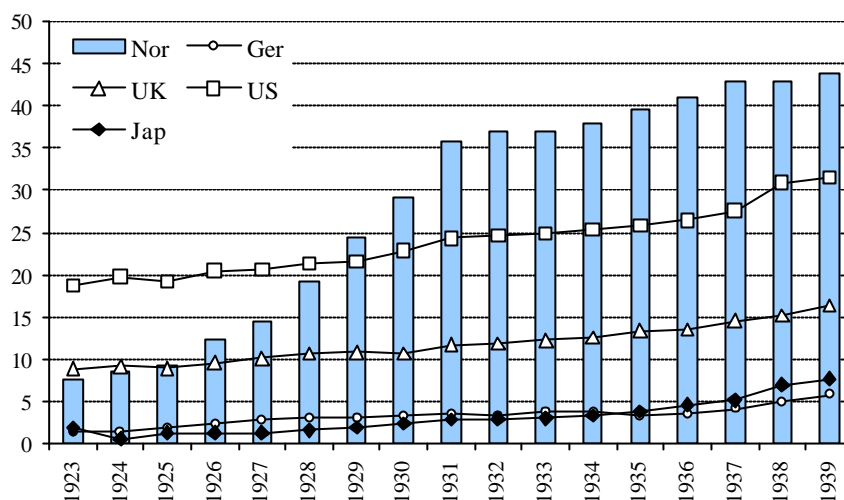
⁵ Sturmeij, 1962, p. 73.

⁶ Based on data from *BP Statistical Review of World Energy*, quoted in Middlemiss, 1996, p. 14. Nielsen, 1959, pp. 13-16 presents similar data, based on various sources. His entries for 1923 and 1939 are the same as those of Middlemiss, but his shares for 1900 are 62, 10 and 28 per cent respectively. This may be explained by the fact that tonnage owned by the smaller oil companies in 1900 has been allocated to the column ‘Governments’.

⁷ Nielsen, 1959, p. 16.

⁸ The Norwegian fleet has been adjusted by means of the 1939 *Veritas*-registry in order to correct for the five tankers that were oil company-owned.

Chart 1. Tanker shares of the major fleets, per cent, 1923-39⁹



The high shares of tankers in the UK and US fleets reflect the large amount of tonnage owned by oil companies. The growth of the Norwegian fleet occurred virtually without such tonnage.¹⁰ Rather, independent Norwegian shipowners managed to build up a substantial presence in the tanker market, controlling 18 per cent of the world tanker fleet by 1939.

FLEET STRUCTURE II – THE FOCUS ON MOTORSHIPS

In its 1935 edition *Brassey's Naval and Shipping Annual* pointed out that the “growth of the oil tanker fleet has been an important factor in stimulating the development of the motorship.”¹¹ By 1939 motorships made up an astonishing 88 per cent of the Norwegian tanker tonnage, compared with 42 per cent of the non-tanker tonnage.¹² In fact, the link was stronger in Norway than in other countries; whereas Norway controlled 18 per cent of the world tanker fleet, the Norwegian share of the world motor tanker fleet was 30 per cent. As a

⁹ The chart shows tanker tonnage in per cent of steam and motor tonnage, and is based on *Lloyd's*. The share of tankers is slightly underestimated, as the figures from *Lloyd's* refer to general ships above 100 grt, but have a lower limit of 1000 grt for tankers. The divergence is nevertheless so small that it is unlikely to have more than a miniscule effect on the shares. For instance, in 1926 tankers smaller than 1000 grt made up less than one per cent of the tanker fleet; see Robinson, & Ross, 1926, p. 137. In fact, the differences in the definition are likely to make the figures *more* representative of the countries' merchant marines. In 1938 no Norwegian tankers below 1000 grt were engaged in foreign trade, compared with more than 200 cargo ships in the 500-999 grt range.

¹⁰ In 1939 the only oil company-owned tonnage in the Norwegian fleet was five vessels owned by Texaco and managed by H.C. Mathiesen of Oslo; see *Veritas* 1939 and Middlemiss, 1996, p. 65. The basis for the growth of Norway's tanker fleet was also different from the largely government-orchestrated Japanese tanker expansion; see Chida & Davies, 1990, pp. 51-52.

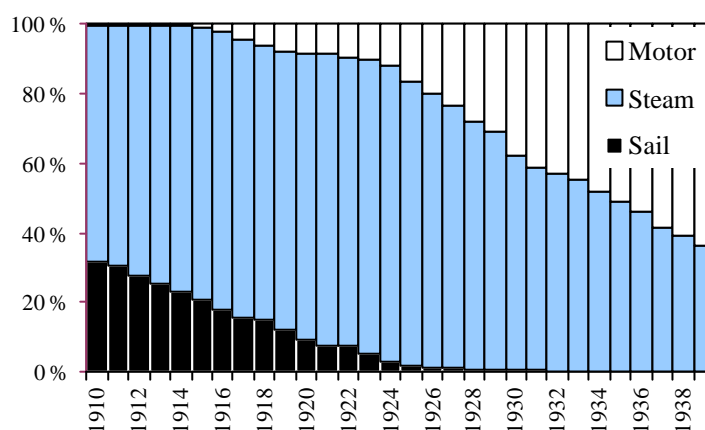
¹¹ Robinson & Ross, 1935, p. 104.

¹² Calculation based on Table 1 in *Veritas* 1939. Two sailing ships and 16 motor auxiliary vessels have been excluded from the data.

result, Norway had the world's largest motor tanker fleet in 1939.¹³

The Norwegian shipowners' rapid adoption of the motor engine technology is a stark contrast to their apparent hesitation during the transition from sail to steam. This shift – “from extreme backwardness to an avant-garde fleet in a timespan of twenty years” – has been plausibly explained by Andersen.¹⁴ He emphasises the strong link between motor propulsion and tankers and shows how a symbiosis between Norwegian shipowners and Swedish yards facilitated the transition to motor tonnage. In his opinion Norwegian shipowners' transformation from 'laggards' to 'leaders' is not a paradox. Rather, it reflects tradition – small and non-bureaucratic companies, tramp focus and capital constraints – and choices based on the limitations of this tradition.¹⁵

Chart 2. Propulsion of the Norwegian fleet, per cent of grt, 1910-39¹⁶



Throughout the period from 1923 to 1939 the share of motor tonnage in the Norwegian fleet was more than twice the international average.

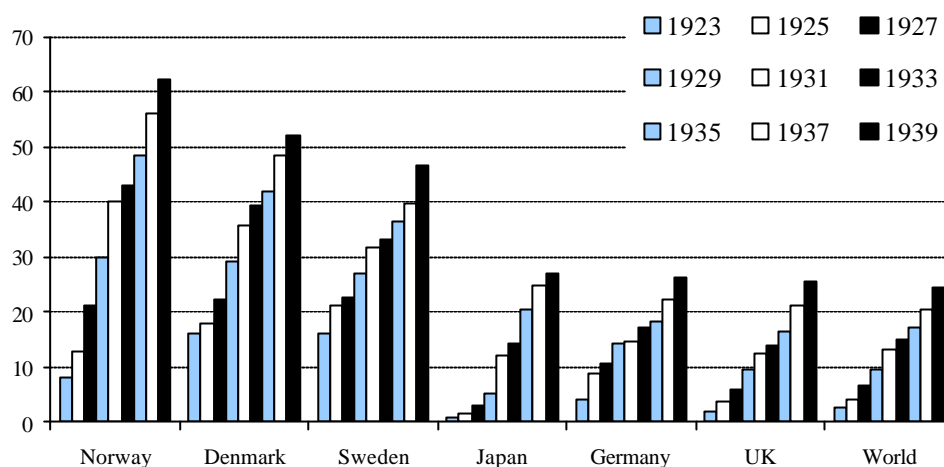
¹³ Det Norske Veritas, 1939, p. 51; see also Randulff-Uppsahl, 1946, p. 6.

¹⁴ Andersen, 1992; quote from p. 309.

¹⁵ Andersen, 1992, p. 330.

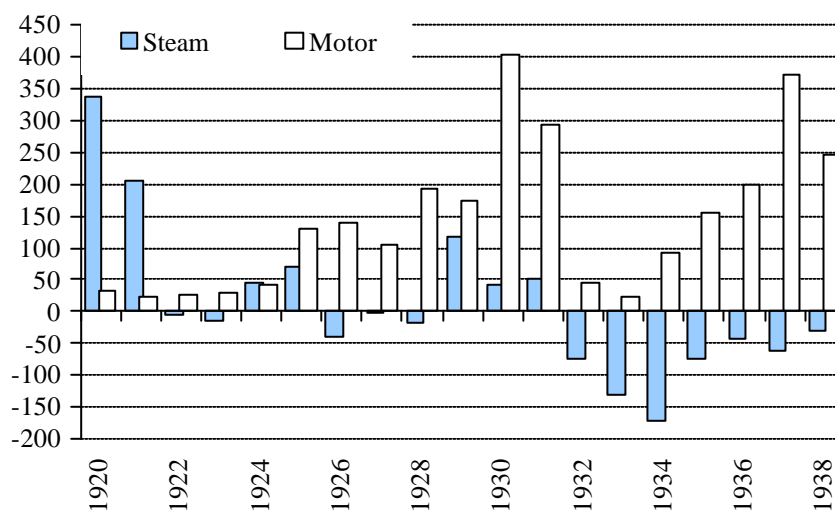
¹⁶ Based on data from Statistisk Sentralbyrå, 1968, pp. 363-364.

Chart 3. Diesel engine tonnage in major fleets, per cent of grt, 1923-39¹⁷



Although Denmark and Sweden stood out in the early part of the period, from 1929 onwards none of the major fleets had a higher share of motor tonnage than Norway. After 1925 the net growth of motor tonnage exceeded the steam tonnage growth, and from 1932 onwards the Norwegian steam fleet actually declined.

Chart 4. Net addition and reduction of steam and motor tonnage, 1000 grt, 1920-38¹⁸



The economic benefits of motor propulsion – for instance lower fuel consumption and higher speeds – are evident from Norwegian company data. A survey of the accounts of a substantial number of shipping companies in the second half of the 1930s illustrates that the profits

¹⁷ Based on data from *Lloyd's*, reprinted in Table 8 in Sturmeijer, 1962, p. 84.

¹⁸ Based on Det Norske Veritas, 1939, Table II of the Appendix (no pagination).

varied among the different types of tonnage and propulsion. The operating results of companies that had invested in motorships were substantially higher than those of steamship companies.

Table 4. Gross operating result of Norwegian shipping companies, *kroner* per dwt, 1935-39¹⁹

	1935	1937	1938	1939	Average number of vessels / companies included
Companies with steam tonnage	5,49	28,06	9,60	23,37	[185 / 109]
Companies with various types of tonnage	11,21	47,71	37,42	33,74	[119 / 16]
Companies with motor tonnage	19,32	35,64	19,90	31,30	[37 / 21]
Companies with tank tonnage	32,98	59,55	48,36	41,95	[68 / 51]
[Share of Norwegian fleet included]	[29%]	[48%]	[31%]	[30%]	

Although Table 4 shows large and consistent differences in the results from various types of engines, the efficiency element can of course not fully explain the divergence. Differences in demand between the various market segments also influence the operating results.²⁰ However, if we focus on a group of companies operating in the same market – and faced with similar demand – the pattern indicated above is still evident. Table 5 is an analysis of the 1937 accounts of 81 Norwegian tanker owners.

Table 5. Results of 81 tanker owners, *kroner* per dwt, 1937²¹

	Motor	Steam	Motor and steam
Gross operating result	65,82	22,55	46,03
<i>Interest payments</i>	4,26	2,19	2,58
<i>Ordinary depreciation</i>	15,76	11,57	11,06
<i>Taxes</i>	1,98	2,90	2,31
Net result	43,82	5,89	30,08
[Number of vessels / companies included]	[81 / 66]	[9 / 8]	[11+7 / 7]

The table is interesting in two respects. First, it shows that the companies with motor tankers had considerably better results than the steam tanker companies, with the ‘combination’ owners acquiring an intermediate position. Second, the figures indicate that the amount of

¹⁹ Data for 1935 from Paulson, 1937, p. 33 and for 1937-39 from Paulson, 1949, p. 284.

²⁰ For instance, steamships typically operated in the tramp market, whereas motorships were more common in the liner trade and the tanker segment.

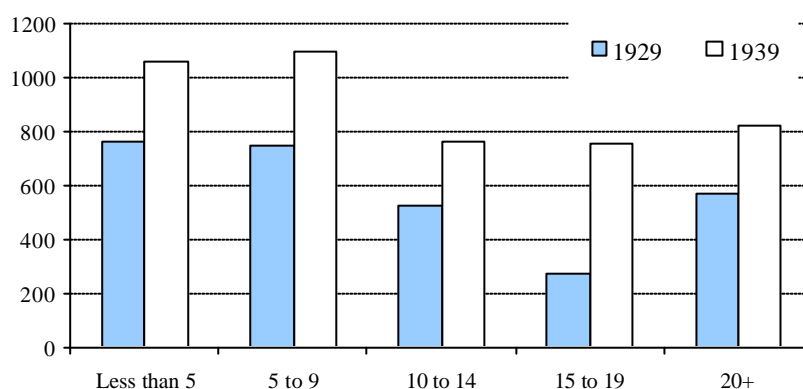
²¹ Paulson, 1949, p. 310.

taxes paid is inversely related to the results. This may partly be an effect of the fact that the most profitable companies had underestimated their tax duties in the books.²² However, it also reflects the fact that the Norwegian tax system has had a tendency to be particularly favourable for expanding companies with modern tonnage.

FLEET STRUCTURE III: AVERAGE AGE

The age profile of the Norwegian fleet apparently deteriorated from 1929 to 1939; in the latter year the share of new vessels was lower than in the former. However, if we take into account the tonnage growth, it is evident that the fleet had been substantially modernised. Indeed, in 1939 the amount of tonnage manufactured within the previous fifteen years was larger than the total 1929 fleet, as Chart 5 shows.

Chart 5. Age composition of the Norwegian fleet, 1000 grt, 1929 and 1939²³



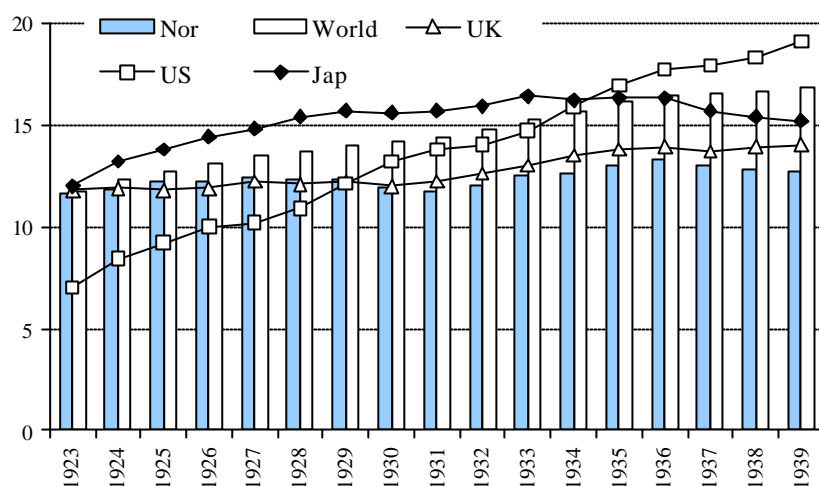
Although the age structure of the Norwegian fleet deteriorated during the last half of the interwar period, the development was positive in an international perspective.

In 1923 the average age of the Norwegian fleet was practically identical to that of the world fleet, at slightly less than twelve years, while the US fleet was extremely ‘young’, with an average age of seven years. By 1939 the average age of the Norwegian vessels had increased to 12,7 years, compared with 16,8 for the world fleet and 19,1 for the American fleet. The data on average age in Chart 6 indicate that the fleets of the other the major shipping nations ‘aged’ more rapidly than the Norwegian fleet in the period 1923-39.

²² Paulson, 1949, p. 311 comments that “the difference [in the net result] is nevertheless remarkably large”, even when the underestimation of taxes is adjusted for.

²³ Based on the *Veritas*-register. Ships below 500 grt have been excluded from the data set.

Chart 6. Average age of some major fleets, 1923-39²⁴



In the most extreme case, the US fleet ‘aged’ ten times as fast as the Norwegian fleet. Whereas the annual increase in the age of the Norwegian fleet was 0,073 years, the corresponding figure for the sea-going US fleet was 0,747 years.²⁵

Due to the massive expansion in the late 1920s and early 1930s, the age profile of the Norwegian tanker fleet was particularly favourable. In 1939 the average age of the Norwegian tankers was 9,9 years, and only 8,75 years if we adjust for differences in size.²⁶ Moreover, the Norwegian tanker fleet was advantageous with regard to size and speed. The average size of the Norwegian tankers in 1939 was 11.686 dwt, compared with 10.566 for the world fleet – implying lower building and operating costs per ton. The average speed of the Norwegian tankers was 11,33 knots, compared with 11,01 knots for the world fleet.²⁷

The Norwegian fleet development in the 1920s and 1930s went against the grain. Norway’s share of the world fleet increased and the country also witnessed substantial modernisation of the fleet. According to Olsson, “the Norwegian transformation from ugly duckling to swan” was based upon the exploitation of the fact that the industrialised countries had too much shipbuilding capacity “that could not be terminated, but had to be supported

²⁴ Based on data from *Der Wettbewerb in der Seeschifffahrt*, as reprinted in Fon, 1991, p. 14. During the 1930s the Japanese fleet in fact ‘got younger’, while the Norwegian fleet aged more rapidly than it had done during the period 1923-1930.

²⁵ The increase refers to the coefficient of an OLS-based slope.

²⁶ Based on *Veritas 1939*. The adjustment implies that we calculate the average age of each ton, rather than each ship. The fact that new vessels tend to be larger than older vessels gives a lower average age.

²⁷ Data on 1939 from the 1945 study “Growth of World Tankship Fleets 1900-1945” by Sun Shipbuilding and Drydock Co., quoted in Nielsen, 1959, p. 16.

through eg credits.”²⁸ This claim is supported by analyses of the nature of the growth of the Norwegian tanker fleet.²⁹

In a 1940 essay on the dislocation of world trade, commissioned by *Norges Rederforbund* [The Norwegian Shipowners’ Association], the shipping economist Johan Seland sums up the Norwegian interwar experience; “the Norwegian fleet has undertaken an ‘ideal’ adaptation to the qualitative (‘cargo-wise’) and geographical dislocation of world trade. The structure both with regard to assets and types of activity (tramp versus liner trade) has gone through a more rapid transformation than for the world fleet *per se*. [...] This indicates a very well developed ability to adapt among Norwegian shipowners, considerably larger than among the ‘average’ foreign shipowner.”³⁰ Even if we discard the generally imperious tone, the argument illustrates that our main point – the atypical, and positive, transformation of the Norwegian fleet – was evident even at the time. This favourable impression might imply that our view of the interwar shipping crisis should be modified.

III. CRISIS?

What does it take to justify the use of the term ‘shipping crisis’? An economic crisis or depression is usually associated with long periods of abnormally low economic activity, unusually high unemployment and (at least before the stagflation of the 1970s) falling prices. If we transfer these characteristics to the shipping sector, we should find:

- ‘abnormally low economic activity’ – subdued demand, which may be caused by a reduction of the volumes shipped or declining average shipping distances
- ‘unusually high unemployment’ – underutilisation of the fleet, characterised by overcapacity and high lay up-rates
- ‘falling prices’ – a reduction in the freight rate level

²⁸ Olsson, 1983, p. 196.

²⁹ In Tenold, 2005 a purpose-built database is used to analyse the expansion of the Norwegian tanker fleet in the period 1919-39. The analysis shows that new companies, for which shipbuilding credits were particularly important, were responsible for the majority of the growth of the Norwegian tanker fleet in the period 1927-39. Moreover, there was a close relationship between the fastest-growing Norwegian tanker owners and credit-granting yards in Sweden and the United Kingdom.

³⁰ Seland, 1940, pp. 168-169.

In his analysis of the shipping problems of the 1970s Victor D. Norman presents two characteristics that describe a shipping crisis.³¹ The first is enduring overcapacity, and this should be covered by the three factors described above. The second is the aging “of the fleet and the technology”, an element that may be associated with the Marxist definition of a crisis as “any situation where the process of renewal and expansion of capital [is] interrupted”.³² This combination of technological retardation and overcapacity – measured by activity (demand), lay-ups and prices – is used as the yardstick for the analysis of the crisis in the present context.

CHARACTERISTIC I: ABNORMALLY LOW ACTIVITY

The dismal development of world trade in the interwar period – and in particular during the Great Depression – is in itself not proof of ‘abnormally low activity’ in the shipping sector. First, the share of seaborne trade in total trade is not constant. Second, seaborne trade is a component of two factors – volume and distance – and reduced volumes may be outweighed by increased distances.³³ Consequently, total seaborne trade does not necessarily fall when trade volumes decline.³⁴ Moreover, some shipping segments may experience rapid growth even though aggregate seaborne trade declines.³⁵

Although the data on interwar seaborne trade are patchy compared with later periods, some plausible series of transport demand exist. Chart 7 shows that the various segments of the shipping market developed in different ways in the period 1923-38, and that the notion of a stagnant market is erroneous, at least for the tanker sector.

³¹ Norman, 1999, p. 162.

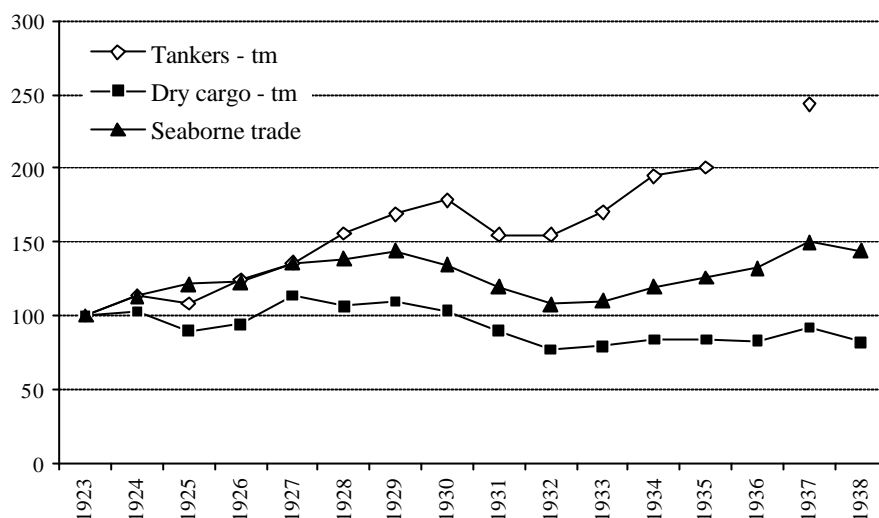
³² Quotes from Norman, 1999, p. 30 and the entry ‘Crises’ in Eatwell, Milgate & Newman, 1987, p. 724.

³³ Another factor that may influence the market balance is the need to go in ballast. Shifts in the structure of world trade in the interwar period – in particular the growth of tanker transport – appear to have led to increased use of ballast voyages.

³⁴ This argument can be taken one step further; a reduction in seaborne trade will not necessarily create economic difficulties for shipowners. If the carrying capacity of the fleet is reduced by a similar proportion as demand, rates are likely to be stable. However, reduced carrying capacity, eg as a result of limited investment and increased scrapping, usually reflects difficult economic conditions.

³⁵ It is often the case – at least in the short and medium term – that isolated segments remain profitable while the shipping industry in general is characterised by ‘crisis’. This facet will not be addressed here.

Chart 7. Interwar seaborne trade by segment (1923=100), 1923-38³⁶



According to Sturmeijer, world oil trade increased from five per cent of the total seaborne trade in 1913 to about 21 per cent in 1937. The subsequent two years the share – amidst falling world trade – was 25 per cent.³⁷ Although the effects of the growing tanker demand were met by an increase in tanker tonnage, this segment was significantly closer to equilibrium between demand and supply than other segments during most of the interwar period.³⁸

The demand for tanker transport increased considerably. Yet, this development was insufficient to fully neutralise the otherwise negative trend. If the demand for shipping increased at all, it was by very modest rates. Sturmeijer's index indicates that the 1938 transports were 35 per cent above the 1913-level, implying an annual average growth rate of 1,2 per cent.

Chart 7 shows that the use of the term 'abnormally low activity' may be questioned – the development rather seems to be characterised by boom and bust, with an underlying trend of modest growth. However, in a long-term perspective, even the boom periods are relatively

³⁶ The chart is based on the following sources; for tanker transport in ton-miles, Merkesdal, 1956. Merkesdal's data are based on Koopmans, 1939, but some important corrections have been made. The data for dry cargo in ton-miles have been estimated on the basis of the index in Beenstock & Vergottis, 1993, p. 17 and growth rates in Beenstock & Vergottis, 1993, p. 18. Data for total seaborne trade have been taken from Sturmeijer, 1962, p. 65, where a German index of world trade 1912-37, data from the League of Nations and data from the United Nations have been used to create a composite index. Sturmeijer does not indicate whether the data refer to tons or ton-miles, but comparison with other sources suggests that the former is more probable. Seland, 1940, p. 94 claims that the German indices exaggerate the growth of seaborne trade in the 1920s and understate it in the 1930s.

³⁷ Sturmeijer, 1962, p. 74.

³⁸ Yet, the tanker market was not without problems; see Thowsen, 1979 for an introduction to the various measures introduced during the deep crisis of the first half of the 1930s.

meagre. From the early 19th century until the middle of the 1970s, there was a strong upward trend in transport demand. The shipping industry catered for the needs of an increasingly globalised economy. The only major deviation from this trend was during the disintegration of the interwar period.

Table 6. Transport growth, annual compound average growth in various periods, per cent³⁹

	1913-38	1923-38	1948-73	1960-73
Seaborne trade (tons)	1,2	2,4	7,8	8,8
Tanker transport (ton-miles)		6,6		16,8
Tanker transport (tons)		6,4	9,1	10,0

Relative to the previous and subsequent periods, the interwar shipping market can be characterised by ‘abnormally low activity’. Although demand increased, the growth rates are dwarfed by those of the first postwar decades. Even the growth of the rapidly expanding tanker sector was only approximately two thirds of the postwar growth. The first of the conditions for the use of the term ‘crisis’, thus seems to be present.

CHARACTERISTIC II: UNUSUALLY HIGH UNEMPLOYMENT

Periodic overcapacity, with high lay up-rates, is a normal and recurring phenomenon in the shipping industry. This phenomenon should therefore be persistent in order to justify the use of the term ‘crisis’. Even during The Golden Age – the generally gilt-edged decades after World War II – lay-up rates at times reached more than seven per cent.⁴⁰ Temporarily high lay-ups should be considered a cyclical phenomenon and not necessarily a result of structural imbalances. In fact, owners may internalise the fact that absence of income during temporary downturns is outweighed by extraordinary premiums achieved during short-term booms.

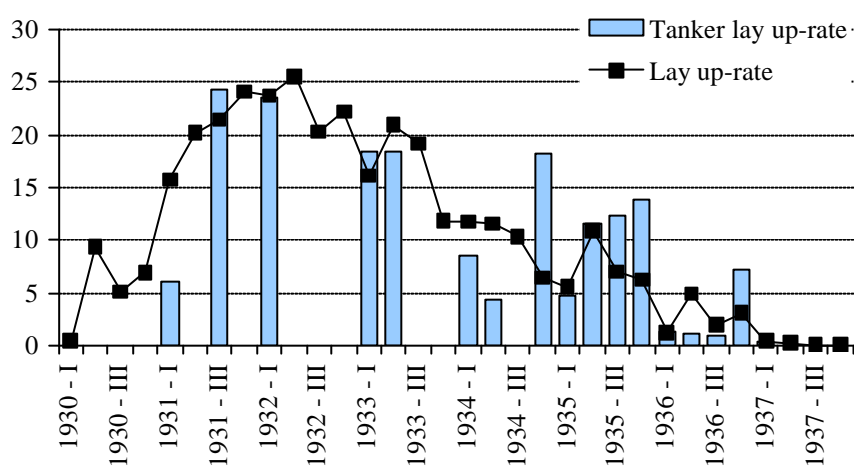
In the spring of 1921 “approximately one third of the Norwegian fleet and almost half of the world fleet were inactive”. However, the difficulties were short-lived and “most vessels

³⁹ Based on the same data as Chart 7, supplemented by data on the period 1948-73 (tons) from OECD, reprinted in Harlaftis, 1996, p. 250 and 1960-73 (ton-miles) from Fearnley & Eger’s Review, various issues. Interwar tanker transport-figures refer to the period 1923-37

⁴⁰ For instance, tanker lay-ups peaked at more than 12 per cent of the fleet in the second half of 1959; Seland, 1994, p. 112. In June 1959 Norwegian tonnage amounting to more than one million grt was laid up. Approximately 70 per cent of this was tanker tonnage; Statistisk Sentralbyrå, 1968, p. 383.

were trading before the end of the year.”⁴¹ Ten years later, high lay-ups characterised all shipping segments – including the previously buoyant tanker sector. The downturn did not match the former slump with regard to the magnitude of the lay up-rates, but the problems were more persistent. The Norwegian lay up-rate peaked in the spring of 1932 when more than one million grt – corresponding to more than a quarter of the Norwegian tonnage – was mothballed.⁴² For four years after October 1930 Norwegian lay-ups never went below 240.000 grt.⁴³ Chart 8 shows the Norwegian lay-ups as share of the fleet on a quarterly basis from 1930 to 1937.

Chart 8. Quarterly lay up-rates, Norwegian fleet, based on grt, 1930-1937⁴⁴



Although the share of the Norwegian fleet laid up never attained the proportions of the early 1920s, it is evident that Norwegian lay up-rates were high from the first half of 1930 until the end of 1935. However, in contrast with the previous slump, Norwegian lay up-rates were higher than the international average.

The question of how to treat the US reserve fleet makes an evaluation of international lay up-rates difficult. Yet, even if we disregard this tonnage, the period from 1919 to 1939 saw one longish period – the early 1920s – and one long period – the first half of the 1930s – with substantial lay up-rates. Although Norwegian data are not necessarily fully

⁴¹ Norges Rederforbund, 1977, p. 16. The latter claim is somewhat puzzling, given that Norwegian lay-ups only fell by 53 per cent between July 1921 and January 1922; Statistisk Sentralbyrå, 1968, p. 383.

⁴² Norges Rederforbund, 1977, p. 17 and Statistisk Sentralbyrå, 1968, p. 383.

⁴³ Based on quarterly data from Statistisk Sentralbyrå, 1968, p. 383.

⁴⁴ Data on lay-ups from Statistisk Sentralbyrå, 1968, p. 383. Data on total fleet, tanker fleet and tanker lay-ups from Thowsen, 1979, pp. 197-201. In order to get quarterly fleet figures, the growth/decline of the tonnage during the year has been evenly distributed.

representative of the international development, we may use these to say something about the overcapacity relative to the postwar period.

As lay up-rates are practically zero only during booms, we may set a lay up-rate of five per cent or more as the benchmark for 'unusually high unemployment'. By this yardstick, the Norwegian lay ups were unusually high in almost half of the quarters from Q1 1920 to Q2 1939. Even if we use the extremely strict benchmark of ten per cent, more than a fifth of the quarters still qualify for the term 'unusually high unemployment'.⁴⁵

We can compare this development with the period 1950-73. At the five percent level, the comparable figures are 11 per cent of the quarters for 1950-73 versus 47 per cent for the interwar period. With ten per cent as the benchmark, the difference is even more striking; one per cent of the quarters 1950-73 versus 22 per cent of the interwar quarters.⁴⁶

The Norwegian lay up-rates indicate that there was considerable – and persistent – unemployment in the shipping sector in the interwar period. The second of the conditions necessary to justify the use of the term 'crisis', is thus undoubtedly present.

CHARACTERISTIC III: FALLING PRICES

A reduction of the freight rate level *per se* does not necessarily affect shipowners negatively, as the price decline may be due to technological improvements and productivity increases. If cost reductions neutralise the freight rate decline, owners are not worse off at the lower freight rate level. Consequently, falling prices alone do not necessarily signal a shipping sector in crisis.

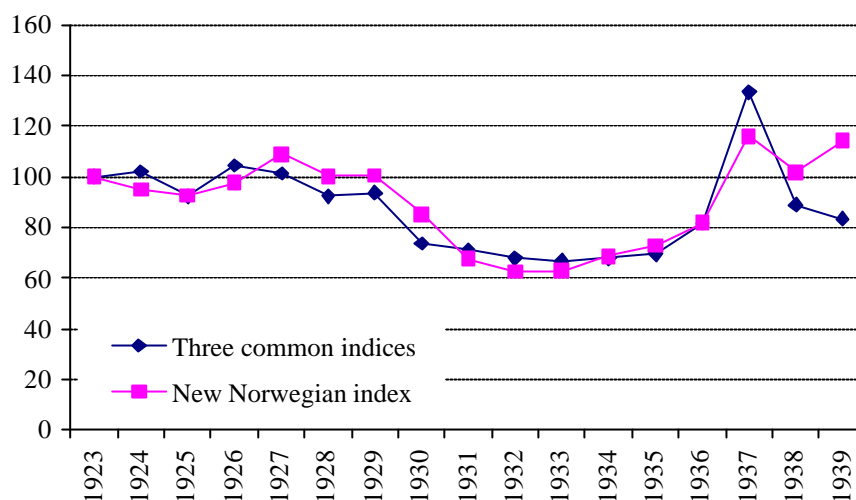
With the exception of two brief booms – one around 1920 and one in 1937 – the freight rate level was relatively low throughout the interwar period. Traditional presentations of the rate development indicate a seriously depressed freight rate level, as 1920 – a major freight rate peak – is often given the 'base' rate 100.⁴⁷ Chart 9 shows that if we use the more 'regular' year 1923 as basis, the depression appears less pronounced. Moreover, it is evident that it is primarily the first half of the 1930s that had particularly low freights.

⁴⁵ Calculations are based on Statistisk Sentralbyrå, 1968, p. 363 and p. 383.

⁴⁶ Statistisk Sentralbyrå, 1978, pp. 406-407.

⁴⁷ There seems to be a tendency to regard the base year level as 'normal'. Using 1920 – a boom year – as the base means that freight rate levels will only be between 15 and 40 per cent of this 'base' for the rest of the interwar period.

Chart 9. Freight rate development, 1923-39 (1923=100)⁴⁸



It is difficult – on the basis of freight rates alone – to evaluate whether the depressed freight rates in the first half of the 1930s are sufficient to put the ‘crisis’-tag on the interwar period, in particular when it is viewed against the general deflationary trend over the period. However, the high lay-ups and the rapid aging of the world fleet indicate that there was a substantial tonnage overhang throughout the period *and* only limited renewal of tonnage.⁴⁹ This indicates that the freight rate level was not sufficiently high to entice relatively inefficient ships out of lay-up or stimulate shipowners to invest in new capacity.

Economic models of freight rate determination suggest that tonnage oversupply means that freight rates are ‘determined’ by the supply curve – by the variable cost of a transport assignment. During booms, rates are ‘determined’ on the demand side – by what charterers are willing to pay. The persistently low level from 1923 to 1936 indicates that the former model, based on variable costs, suits the period. It could therefore be argued – by means of this ‘indirect’ evaluation of the freight rate level – that the third of the conditions necessary to

⁴⁸ The line ‘Three common indices’ refers to an unweighted average made up of (a) a composite index of the Chamber of Shipping trip and time indices (1920-37); (b) the Isserlis index (1920-36; see Isserlis, 1938) and (c) The Economist’s index. The line ‘New Norwegian index’ is a purpose-built index based on Norwegian gross freight earnings, divided by the size of the Norwegian fleet. The income per ton has then been converted to British pounds, based on the average exchange rate during the year. The new index seems to follow the market in general, except for the final two years. The 1938-deviation might reflect the fact that the Norwegian earnings were high due to a relatively high rate level in markets where Norwegian shipowners were overrepresented or as a result of beneficial charters signed in 1937. The deviation in 1939 reflects the fact that The Economist’s index is based on the period January-July only, whereas the Norwegian data refer to income throughout the year.

⁴⁹ Despite the limited amount of newbuilding there was, of course, substantial expansion of the fleet in particular segments – tanker shipping being a case in point.

justify the use of the term ‘crisis’, seems to be present.⁵⁰

CHARACTERISTIC IV: TECHNOLOGICAL RETARDATION

There is no easy measure to use in order to evaluate the degree to which the interwar period experienced aging “of the fleet and the technology”. The question of aging is, of course, relatively straightforward, and Table 6 showed that the average age of the world fleet increased by almost five years between 1923 and 1939.⁵¹ It is more difficult to deal with the question of the aging of the technology. The increasing share of tankers and motorships implies that there were substantial investments in vessels ‘on the technological frontier’. However, the extent to which the new technologies were adopted varied between different countries.

Perhaps a fruitful differentiation when it comes to the question of technological improvement versus retardation is to look at fleets at the national level. In this respect, it is evident that UK and US shipping was characterised by crisis – illustrated by increasing average age and diminishing fleets. “The renewal and expansion of capital” was interrupted throughout the period for the US. For the UK fleet, this negative development primarily occurred during the 1930s.⁵² At the same time, countries such as Japan and Norway had a relatively beneficial development of their fleets in terms of age, whilst, at the same time, managing to increase their share of the world fleet.⁵³

An analysis of the ‘technological retardation’ of the fleet at the national level might give an indication of the extent to which shipowners in different countries were adversely affected by the difficult shipping market. The analysis of Norwegian shipping in this paper, indicates that – regardless of the periodic difficulties – the average age of the Norwegian fleet increased only marginally and the tonnage became better suited to the changed structure of shipping demand.

Analyses of national fleets should not only address the question of ‘technological

⁵⁰ However, given that the instruments of our ‘indirect’ evaluation – lay up-rates and lacking investments – are included in the explanation elsewhere, this type of argumentation borders on the tautological...

⁵¹ If we use the years before 1923 as the starting point, the aging is likely to be even more pronounced. In the period 1919-22, the average age of the world fleet was particularly low, reflecting substantial war-losses of older vessels and the large amount of tonnage built during and immediately after the war.

⁵² Confer Table 2 and Chart 6. The UK fleet peaked in 1930, and this was also a trough with regard to average age.

⁵³ The two elements are of course related; high investments in new ships meant both more and more modern tonnage.

retardation' versus 'technological improvement', but also try to evaluate the basis for the different experiences of various countries. In the case of Norway, I have tried to do this in a parallel paper, where the basis for the expansion of Norwegian tanker shipping is examined in more detail.⁵⁴ A somewhat shorter explanation is given by Sir Osborne Mance; "The growth of Norwegian shipping has been fairly earned as a result of enterprise."⁵⁵ Although Mance's statement is flattering, it is necessary to elaborate his view in order to understand the basis for the Norwegian success and the difficulties of other nations.

V. COMPARISON AND CONCLUSION

The sluggish growth – and frequent collapses – of international trade during the interwar period had serious repercussions for the shipping sector. Nevertheless, structural demand shifts – in particular the strong growth of oil transports – created profitable segments. Norwegian shipowners were particularly adept at grasping the new opportunities and managed to improve their position in the shipping market during the difficult period. The title of this paper questions whether there was a crisis in the interwar period. A general conclusion may be that although Norwegian shipping experienced periodic problems, the balance sheet for the interwar period as a whole was indisputably positive. The Norwegian share of the world fleet increased, and by 1939 Norway's merchant marine was by all accounts modern. The average age was low, and the shares of tankers and motor ships were particularly impressive. For the non-Norwegian fleet, the 1930s were characterised by rapid aging and reinvestment that was too small to neutralise the scrapping of obsolete tonnage – typical indicators of a crisis.

Yet, there was a devastating crisis in Norwegian shipping as well. However, this crisis occurred in the 1970s and early 1980s. Chart 10 shows the development of the Norwegian fleet over the two periods 1928-39 and 1976-87. The aim is not to compare the two periods *per se*, but to analyse the effects of the calamities on tonnage and companies across two different 'crises'.⁵⁶

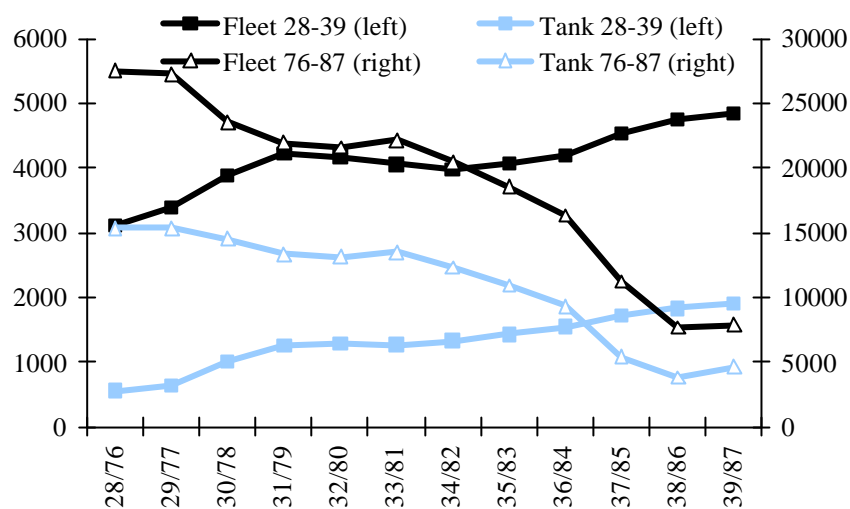
Both the data on the aggregate fleets and the data on the tanker fleets illustrate that whereas the crisis in the period 1976-87 led to a massive reduction in Norwegian shipping, the interwar period was characterised by expansion.

⁵⁴ Tenold, 2005.

⁵⁵ Mance, 1945, p. 81.

⁵⁶ For an analysis of the causes and effects most modern of these crises, see Tenold, 2000.

Chart 10. Development of Norwegian tonnage, 1000 grt, 1928-39 and 1976-87⁵⁷



In order to illustrate the dramatic repercussions of the shipping crisis of the 1970s and 1980s, I have analysed the fate of 105 Norwegian companies registered as tanker owners in 1939.⁵⁸ Impressively, approximately two thirds of these companies survived the turbulent period that spanned World War II and the first postwar decades. An interesting element is that the ‘survival rate’ to 1970 varied depending upon the type of propulsion in 1939. Almost two thirds of the companies that owned mainly or only steam tonnage in 1939 had disappeared by 1970, compared with less than 30 per cent of the companies that owned mainly or only motor tonnage.⁵⁹

Although practically two thirds of the Norwegian tanker owners survived the three decades from 1939 to 1970, there was serious bloodshed in the following years. Of the 105 Norwegian tanker owners registered in 1939, 69 had survived until 1970. However, during the shipping crisis, more than two thirds of these companies disappeared. Only 21 of the companies had tonnage registered in Norway by 1987. If we include vessels operated under Flags of Convenience, the number increases to 32. This nevertheless means that more than half of the tanker companies that had managed to weather all the storms in the shipping sector from 1939 to 1970, succumbed to the difficult market over the period 1970-1987.

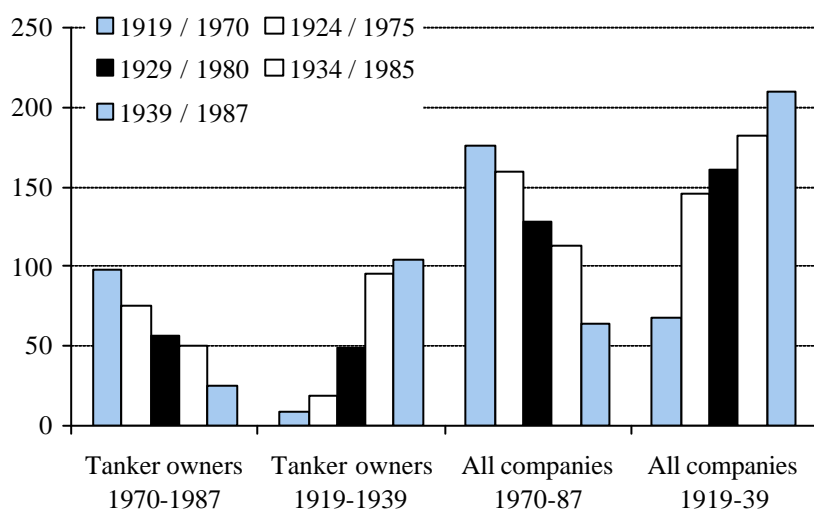
⁵⁷ Based on Statistisk Sentralbyrå, 1968, pp. 363-364 and 1994, p. 480.

⁵⁸ Two of the 107 companies registered as tanker owners in 1939 have been deleted due to subsequent mergers.

⁵⁹ This may indicate that conservatism – focus on obsolete technology – characterised the steam tanker owners and became their bane. Another influential aspect may be that the compensation paid for war-lost steam tonnage was insufficient to invest in new competitive vessels, and this disadvantage drove the steam owners out of business.

The differences between the interwar period and the crisis-ridden years in the 1970s and 1980s can also be illustrated by data on the number of Norwegian shipping companies. From 1919 to 1929 the number of Norwegian shipping companies with tanker tonnage increased from 10 to 49. The following decade – during the period that included The Great Depression – the number of Norwegian tanker owners more than doubled. In the period 1970-1987 the number of tanker owners fell from 98 to 25. The difference is striking. However, the tanker segment was a particularly vibrant part of Norwegian shipping in the interwar period and particularly severely affected by the shipping crisis of the 1970s and -80s. Data on tanker owners may thus not be representative for the general development. Chart 11 therefore also includes all Norwegian shipping companies. Again, it is evident that the interwar period was characterised by expansion – from 64 to 210 companies – while the crisis later in the century was characterised by a reduction in the number of shipping companies from 176 to 64.

Chart 11. Number of companies, 1919-1939 and 1970-1987⁶⁰



The previous analysis – the data on fleet growth and modernisation, as well as the increase in the number of shipping companies – implies that in the case of Norway the use of the term ‘crisis’ to characterise the interwar period should be questioned. This is particularly true when we compare the development with the 1970s and 1980s – the real 20th century crisis in Norwegian shipping.

⁶⁰ Based on the *Veritas*-databases. Data for the period 1970-87 refer to companies with vessels larger than 10.000 grt; for the earlier period the limit is 2000 grt. The database is based on ‘managing owner’, in order to neutralise changes in the organisation of ownership.

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