# The financing of North Sea oil 1975–1980

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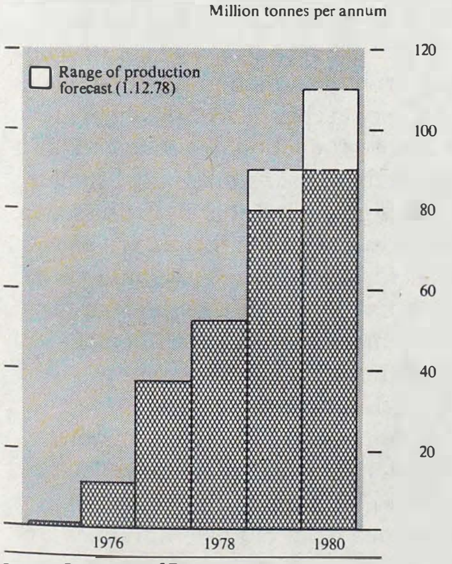
### Introduction

The development of North Sea gas and later oil resources has had a very significant impact on the UK economy over recent years. Whereas the capital investment programme in the gas fields in the southern part of the North Sea is now more or less complete, the investment required to develop the oil and associated gas from the more northern fields continues to be very heavy. Cumulatively it is expected to have quadrupled in volume terms over the five-year period 1975 to 1980. The massive demand for finance, which has emerged as a result, has been met by the oil industry and the financial sector without undue strain. This article aims to give an overall picture of capital investment in UK oil exploration and development on the UK continental shelf[1] in this period and of how it has been financed.

**North Sea oil production**




Source: Department of Energy

### Background

By 1980, UK off-shore oil production should be between 90 and 110 million tonnes, roughly equal to UK net consumption. The sharp build-up in production from almost nil in 1975 (see chart) has required heavy capital investment. In 1977–78 this expenditure was equivalent to about a quarter of industrial investment in the United Kingdom and a tenth of total gross domestic fixed-capital formation. The financing of North Sea oil and associated gas production has therefore made a large and sharply rising demand on financial resources. Production in the long term can only be maintained by further heavy capital investment. However, as production and revenue have built up, permitting substantial repayment of debt issued to finance initial development, the accumulated net investment in the North Sea, i.e. the outstanding net financing requirement from both inside and outside the industry, has now settled at about £7 billion.

The scale and variety of North Sea finance, and particularly the complexity of the associated financial flows across the current and capital accounts of the UK balance of payments, have led to close co-ordination and co-operation between the oil industry, the financial sector and government departments. To obtain early warning of any possible future strain on the UK financial system, or of any possible disruption of the North Sea programme because of financing difficulties, regular monitoring of the likely demand for North Sea finance has been undertaken by the Bank in conjunction with the Treasury and the Department of Energy. As a result, statistics on lending for oil development on the UK continental shelf are now collected annually from 307 banks in the United Kingdom, and figures for all categories of balance of payments transactions are collected quarterly and annually from 61 companies with licences on the UK continental shelf. These new statistics give a clearer picture of the sources of that finance.

There are, however, considerable difficulties in trying to align the statistics recording past North Sea development with estimates of current performance and the various forecasts of future costs. In this article an approximate overall picture for the years 1975 to 1980 is presented, giving, for the first time, an estimate of the finance required for North Sea oil exploration and development through this period.[2] It takes, as a starting point, the latest published forecasts for expenditure in 1977–80 and produces an estimate of the cumulative level of capital investment. The outstanding part of that investment which still has to be financed is then examined in the light of the difficulties in identifying precisely all sources of the finance. The results of the new annual returns from UK banks on North Sea lending over the last two years are then given and explained.

The article concentrates on the off-shore costs both of exploration and development of oil and associated gas[3] incurred by the various UK continental shelf

[1] This article includes the UK share of all fields extending across the median l ne, but excludes any UK investment in, or financing of, exploration and development in the Norwegian or other national sectors of the continental shelf.

[2] The figures in Tables A–C are presented to the nearest £0.1 billion. They are intended to give the order of magnitude and general pattern of capital investment and its financ ng. Given the tolerances of the estimates, the precise weight of any single figure w thin the tables should be treated with caution.

[3] The capital investment programme for the southern gas fields is almost complete. As new capital investment in the gas fields is now small and falling, and as its financing is provided almost entirely out of current revenue, all figures quoted have been adjusted where necessary to exclude expenditure on, or financing of, the southern gas fields.

licensees and on how these costs have been, and are likely to be, financed. It does not examine any of the secondary capital investment or secondary finance requirements associated with North Sea development, notably the capitalisation of the new and growing offshore supply industry in the United Kingdom, nor any related investment, e.g. in refining, petrochemicals or distribution.

**Capital expenditure**

Annual capital expenditure on the exploration and development of North Sea oil and associated gas reached about £2 billion in 1976, and there has been little real change in this rate since. Table A places recent published estimates for the past on the same basis as recent published official forecasts to give, with small interpolations, an approximate view of capital expenditure for the period 1975 to 1980. The continuation of such heavy investment each year would mean that the total amount invested by the industry would have almost quadrupled (in 1977 prices) from £3.7 billion in 1975 to £13.9 billion in 1980.

**Table A**

**Capital expenditure on exploration and development of oil and associated gas on the UK continental shelf**

£ billions at 1977 prices

| | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 |
|---|---|---|---|---|---|---|
| Capital expenditure on oil and gas production: | | | | | | |
| UK companies | 0.7 | 0.7 | 0.6 | 0.7 | 0.6 | 0.7 |
| Non-UK companies | 1.1 | 1.5 | 1.2 | 1.4 | 1.4 | 0.9 |
| | 1.8 | 2.2 | 1.8 | 2.1 | 2.0 | 1.6 |
| Adjustment to include all exploration costs and exclude capital expenditure on southern gas fields | -0.1 | -0.1 | +0.3 | +0.1 | +0.1 | +0.1 |
| Annual capital expenditure on exploration and development of oil and associated gas | 1.7 | 2.1 | 2.1 | 2.2 | 2.1 | 1.7 |
| Cumulative capital expenditure on exploration and development of oil and associated gas since 1965 | 3.7 | 5.8 | 7.9 | 10.1 | 12.2 | 13.9 |

Sources: *Development of the oil and gas resources of the United Kingdom*, Department of Energy reports 1977 and 1978 (HM Stationery Office), adjusted, where necessary, to match the estimates for 1977–80 quoted in 'The North Sea and the UK economy', *Economic Progress Report*, HM Stationery Office, October 1978.

Within total capital expenditure, by far the largest component has been the purchase and installation of production platforms and of their modules and equipment. The costs of exploration are, on the other hand, a relatively small part (£0.3 billion in 1976), and fluctuations in exploration activity so far have had only a minor impact on the total capital cost.

The volume of annual gross fixed investment in exploration and development on the UK continental shelf by UK companies has been broadly constant since 1975, and is expected to remain so until 1980. Capital expenditure by non-UK companies (almost all through UK subsidiaries), which in 1976–79 is estimated at two thirds of the total, is expected to fall from 1980, because the timing of the development of their particular fields will lead to a slower average pace. As a result, a more even balance between the cumulative amount invested by the UK and non-UK companies should gradually emerge.

Most of the capital expenditure on those fields in production before 1980 has now been incurred. Yet capital expenditure per barrel of production and current operating costs have risen in real terms, while lead times have tended to lengthen, as exploration and development have been extended steadily into more difficult locations and structures. The capital costs of new fields, developed to replace those where production will begin to drop as reserves are depleted, are likely to be much higher, even in real terms, than the costs of the earlier fields. Heavy capital expenditure is therefore likely to be required well beyond 1980, if production is to be maintained at a high level.

**The outstanding financing requirement**

As oil output builds up, and more of the companies with new fields in production are able to embark on their debt repayment programmes, the proportion of the total amount invested by the industry which requires financing is likely to continue to fall for some time.

The financing requirement of the North Sea programme, net of debt repayment and retained profits, can be calculated by taking estimates of capital expenditure year by year on each field and constructing a pattern of financing from information supplied by the companies. The repayment schedules of this debt are based on expectations of production, revenue and tax liability. An abstract of the most recent Bank estimate for the years 1975–80 is given in Table B, expressed in 1977 prices for comparison with the figures in Table A. In the Bank estimates for future years, assumptions of production, capital cost and the world oil price are kept within broad government estimates. They, together with the exchange rate, inflation and interest-rate assumptions, are consistent with those used in the Bank's own forecasting models of the UK economy. Capital market and other statistical material collected by the Bank provides useful information on the financing structure of each field, but where sources are deficient it is assumed that debt repayment will be spread over two years from a point three years after the debt has been incurred.

**Table B**

**UK continental shelf outstanding financing requirement**

£ billions at 1977 prices

| | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 |
|---|---|---|---|---|---|---|
| Commercial fields[a] | 3.2 | 5.1 | 5.2 | 6.4 | 6.4 | 5.7 |
| Probable/possible fields[b] | 0.1 | 0.1 | 0.2 | 0.2 | 0.5 | 1.5 |
| | 3.3 | 5.2 | 5.4 | 6.6 | 6.9 | 7.2 |

Source: Bank of England estimates, November 1978.

[a] Namely: Argyll, Auk, Beatrice, Beryl, Brent, Buchan, Claymore, Cormorant, Dunlin, Forties, Fulmar, Heather, Montrose, Murchison, Ninian, Piper, Statfjord Extension, Tartan, Thistle.

[b] Namely: Alwyn, Andrew, Beryl North, Brae, Bruce, Cormorant North, Crawford, Hutton, Magnus, Maureen, North West Hutton, Renee, Tern, Thelma, Thistle North.

Although the accumulated outstanding net financing requirement doubled in real terms between 1975 and

1978, it has now levelled out at around £7 billion. Indeed, by 1980, it is likely that the outstanding financing requirement will represent only about half the cumulative capital investment by industry up to and including that year (see Table A). By then, the rate of debt repayment from fields in production is likely to begin to outweigh the additional demand for capital from new and existing fields. After 1980, the outstanding financing requirement should therefore begin a period of decline in real terms.

### Sources of finance

Given the centralised cash flow of the larger multinational companies, it is not possible to identify that part of their North Sea financing which comes out of their world-wide borrowing separately from that part which is generated through their issues of equity capital or from their cash flow from total earnings. In the initial phases of North Sea off-shore development, the companies provided a very large part of the total capital requirement from these corporate resources.

As soon as the development of the first major oil fields was under way, specific project finance packages comprising euro-currency and/or sterling borrowing began to play an increasingly important part. The syndication of project finance among large numbers of banks in the United Kingdom provided the scale and flexibility required, and the application of government interest relief grants to North Sea lending was a significant stimulus. Since 1975, the share of UK banks in meeting the outstanding financing requirement has risen to between a quarter and a third (see Table C and the section on bank lending below). Many of the non-UK parent companies have borrowed—partly for North Sea purposes—directly from their own banks and raised equity capital from markets at home, particularly in the United States, but there is no way of identifying specifically the amount of finance raised through these channels. Other sources of finance remain relatively unimportant. Direct recourse to the UK equity market for capital has been modest. A number of UK companies have borrowed through the US commercial paper market, but only in the case of a small operation by the British National Oil Corporation (BNOC) could all the proceeds be specifically attributed to North Sea exploration and development. Direct recourse to British government finance has been limited to the initial funding of the BNOC. Private sector financing from oil company resources is therefore likely to continue to provide the bulk of the requirement through the period under review.

**Table C**
**Identified sources of outstanding North Sea finance**

£ billions at 1977 prices

| | Loans from UK banks | | Equity issues in the United Kingdom | Other company resources[a] | Total outstanding financing requirement |
|---|---|---|---|---|---|
| | In sterling | In euro-currency | | | |
| 1975 | 0.2[b] | 0.5[b] | — | 2.6 | 3.3 |
| 1976 | 0.5[b] | 0.8[b] | 0.1 | 3.8 | 5.2 |
| 1977 | 0.6 | 1.0 | 0.1[c] | 3.7 | 5.4 |
| 1978 | 0.7 | 0.9 | 0.1[c] | 4.9 | 6.6 |

Source: Bank of England.

[a] Mainly borrowing other than from UK banks and cash flow generated from North Sea oil and gas revenue or from other operations elsewhere (see text above).

[b] Estimate prior to collection of statistics.

[c] There have been no new equity issues of any size since 1976.

A feature of official UK policy towards investment in the North Sea has been to attract capital and technological resources from outside this country. As indicated earlier, some two thirds of capital investment on the continental shelf is currently being undertaken by non-UK companies which have tended to finance their operations in foreign currency rather than in sterling. The character of the euro-currency markets in London, and the use of the dollar for almost all international oil trading, has also facilitated the syndication of the main North Sea borrowing as euro-dollar loans. The UK companies, which account for much of the North Sea lending in sterling, have also borrowed heavily in euro-dollars.

### Bank lending

The results of the first and second annual surveys of identifiable North Sea lending are given in Table D below. Total lending by banks in the United Kingdom for off-shore exploration and development (£1.8 billion by August 1978) was fairly evenly divided between lending in sterling (44% of the total) and in foreign currencies, mainly euro-dollars. These figures cover the bulk of bank lending for North Sea exploration and development. They omit, however, first, that part of lending by UK banks to oil companies for general world-wide corporate purposes which finds its way into North Sea operations; and, secondly, that part of bank loans raised outside the United Kingdom for general corporate purposes which is then channelled into North Sea investment.

A very large number of banks in the United Kingdom have, through syndication, some share of North Sea lending. But in 1978 almost three quarters of the sterling loans and two thirds of the foreign currency loans had been granted by the American banks in the United Kingdom and by the London and Scottish clearing banks. The total share of the British and the consortium banks (the first three sectors in Table D) in North Sea lending fell slightly in the year to August 1978 from 40% to 38%.

Total North Sea lending at August 1978 represented 4.4% of all advances by UK banks to UK residents, 2.6% of sterling advances and 9.4% of foreign currency advances. As indicated in Table E, the American banks reported the highest proportion of North Sea lending in their total advances from offices in the United Kingdom (10% of their total sterling advances and 12% of their total foreign currency advances).

## Table D
## Loans and commitments by banks in the United Kingdom for North Sea oil development [a]

£ millions

| Sector | Loans outstanding: Sterling | Loans outstanding: Foreign currencies (£ equivalent) | Loans outstanding: Total | Additional firm commitments[b]: Sterling | Additional firm commitments[b]: Foreign currencies (£ equivalent) | Additional firm commitments[b]: Total |
|---|---|---|---|---|---|---|
| London clearing banks: | | | | | | |
| 17 August 1977 | 243 | 230 | 473 | 95 | 123 | 218 |
| 16 August 1978 | 263 | 231 | 494 | 152 | 102 | 254 |
| Scottish clearing banks: | | | | | | |
| 17 August 1977 | 24 | 52 | 76 | 15 | 28 | 43 |
| 16 August 1978 | 18 | 51 | 69 | 6 | 10 | 16 |
| Accepting houses, other British banks and consortium banks (excluding clearing banks' subsidiaries): | | | | | | |
| 17 August 1977 | 41 | 67 | 108 | 25 | 24 | 49 |
| 16 August 1978 | 42 | 89 | 131 | 42 | 8 | 50 |
| American banks: | | | | | | |
| 17 August 1977 | 229 | 409 | 638 | 32 | 215 | 247 |
| 16 August 1978 | 289 | 381 | 670 | 53 | 216 | 269 |
| Other overseas banks: | | | | | | |
| 17 August 1977 | 83 | 271 | 354 | 40 | 111 | 151 |
| 16 August 1978 | 184 | 268 | 452 | 47 | 65 | 112 |
| Total: | | | | | | |
| 17 August 1977 | 620 | 1,031 | 1,651 | 207 | 500 | 707 |
| 16 August 1978 | 796 | 1,020 | 1,816 | 300 | 401 | 701 |

Source: Bank of England/British Bankers' Association.

[a] Loans and commitments are included where lending is for an identifiable project or where it is reasonable to assume that the purpose of the borrower is to finance North Sea commitments. They include bill finance and loans to finance vehicle companies interposed between lenders and the ultimate borrowers.

[b] Firm commitments, in addition to actual loans outstanding, based on the existence of an agreed facility or of a loan not yet fully drawn down.

## Table E
## North Sea lending as a share of total advances to UK residents

£ millions: *percentage in italics*

| Sector | Banks in the United Kingdom: Total advances to UK residents as at 16 August 1978: Sterling | Foreign currencies (£ equivalent) | Total | North Sea lending as a proportion of total advances [a]: Sterling | Foreign currencies (£ equivalent) | Total |
|---|---|---|---|---|---|---|
| London clearing banks | 19,510 | 3,130 | 22,640 | *1* | *8* | *2* |
| Scottish clearing banks | 2,182 | 301 | 2,484 | | | |
| Accepting houses, other British banks and consortium banks (excluding clearing banks' subsidiaries) | 4,070 | 1,145 | 5,215 | *1* | *8* | *3* |
| American banks | 2,836 | 3,259 | 6,096 | *10* | *12* | *11* |
| Other overseas banks | 1,927 | 3,065 | 4,992 | *10* | *9* | *9* |
| All banks | 30,525 | 10,902 | 41,427 | *3* | *9* | *4* |

Source: Bank of England.

[a] Excluding bill finance and loans to non-resident finance vehicle companies.

## Conclusions

The regular monitoring of North Sea finance conducted by the Bank[1] has always concluded that, despite the technological uncertainties of North Sea development and the commercial risks involved, the financial sector would be able to find a way through the various problems; and that the provision of North Sea finance was unlikely therefore to prove either an obstacle to development or a strain on the financial sector.

In a comprehensive review of the period to end-1977, the working party on the Financing of North Sea Oil[2] concluded that investment in the North Sea and support industries did not seem to have been constrained by a shortage of funds and that it had found no evidence of any general shortage of equity capital for North Sea investment. The report drew attention to the large number of financial institutions involved in the syndication of North Sea finance, to the variety of interests of the companies ranging from the major multinational oil companies to many small, specialised companies, and to the many innovations made in adapting loan terms to meet these varied interests.

As UK oil production has built up, with self-sufficiency expected to be reached by 1980, many of the former technological uncertainties of the North Sea are being removed. Moreover, the cash flow from the twelve fields already in production itself provides an important new source of finance for further exploration and development. However, some questions and uncertainties remain. Further increases in costs and lead times would imply lower cover for bank lending and lower returns on companies' investment; such increases might be offset or enhanced according to fluctuations in oil price expectations and the record of discovery, appraisal and development. Nevertheless, to the extent that new, viable projects continue to come up for development, it is very likely that adequate finance from external and domestic sources will be readily forthcoming.

[1] See page 31.

[2] Committee to Review the Functioning of Financial Institutions (Chairman: Sir Harold Wilson) Research Report No.2 – *The Financing of North Sea oil*, published by HM Stationery Office, May 1978.