# Review

## FEDERAL RESERVE BANK OF DALLAS

January 1977

International Trade—
**Prospects for the OPEC Cartel**

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# Prospects for the OPEC Cartel

*By D. K. Osborne*

The Organization of Petroleum Exporting Countries (OPEC) was established in 1960 by the governments of Saudi Arabia, Iran, Iraq, Kuwait, and Venezuela. Its present membership supplies half of world crude oil production and owns more than two-thirds of proved reserves.

OPEC turns oil into money by two means. One is the direct sale of nationalized crude oil or oil products, though at a price largely determined by the second means. The second means is a production tax levied on privately produced crude oil. This tax, essentially an excise tax, varies with posted prices, royalty rates, and income tax rates, and combines with production costs (which are nominal) to provide a floor for the market price. Once this price is determined by the international oil companies, OPEC accepts it for nationalized oil.

Prior to the organization of OPEC in 1960, the governments negotiated with the companies over royalty and income tax rates, but left posted prices to the companies. Clearly, the governments wanted higher posted prices. But they were not united, and none could single-handedly force postings above the market value of oil without losing its concessionaires. After uniting in OPEC, they were able to negotiate postings and, indeed, to keep them somewhat above market prices. Still, possibly lacking confidence in their unity, they made no attempt before October 1973 unilaterally to post prices. In that month they seized the mantle and unilaterally raised the posted price by 70 percent. This action was effective, and it proved the power of their united front. In January 1974 they followed it with a further boost of 125 percent. Later that year they raised the income tax from 55 percent to 85 percent. The consequences are all too familiar.[1]

The cost of developing and producing OPEC's oil fields is about 25 cents per barrel, including a 20-percent rate of return on investment. This 25 cents, the price exacted by nature, is what OPEC oil would bring in a competitive market. OPEC takes $11.00 by excise tax or $11.51 by direct sale, thus exacting a yearly revenue of some $110 billion. Surely it is the greatest cartel in history.

Cartels have varied in their effectiveness and longevity. OPEC has certainly demonstrated its effectiveness, and it has already outlived a number of early forecasts of its duration.

Every cartel is to some extent free of the pressure of substitutes, OPEC remarkably so. But this freedom, while necessary for a long and profitable life, is by no means sufficient. Also necessary is the ability of the cartel to maintain joint action by its members even though such action may not be in their own immediate interest. In particular, a cartel must be able to enforce established quotas and/or prices upon its members. This is no easier for OPEC than for any cartel.

**All cartels face similar problems**

Cartels exist to raise the net returns to their members' activities. In proportion to their success they attract the external pressure of competition, which works to equalize net returns throughout

### How OPEC gets $11 or more for 25-cent oil

Let

$p$ = posted price, currently $12.40 for Arabian light crude,
$r$ = royalty rate, currently 20 percent,
$t$ = income tax rate, currently 85 percent,
$c$ = production cost, currently 25 cents.

Then (neglecting certain minor payments and discounts), the private international oil company must pay its host government

$$t(p - rp - c) + rp$$

for every barrel of oil it produces, irrespective of the price it gets or the profit it makes. This formula gives $10.70, to which the minor payments and discounts add another 30 cents for a total excise tax of $11.00 per barrel. Nationalized oil currently brings $11.51.

1. See, for example, Adrian W. Throop, "International Trade and Finance—Economic Consequences of the OPEC Cartel," *Business Review,* Federal Reserve Bank of Dallas, May 1975.

the economic system much as the wind works to equalize air pressure over all the earth. It is true that competition never completes its work. Hardly does it bring new resources into one high-return activity before new discoveries and changing preferences present it with another. But in this it is no different from the wind, to which the sun's heat and the earth's movements present one low-pressure region after another. High-return activities no more prove competition defective than low-pressure regions prove the wind so. Nature abhors a vacuum, and the economy abhors high-return activities. This is what vacuums and cartels are up against.

But between vacuums and cartels there is a crucial difference. Vacuums must only fight external pressure, while cartels must also deal with internal strain. This strain issues from self-interest and acts through breaches. In principle, it could endanger a cartel as much as external pressure does.

Though self-interest is the source of internal strain, and breaching is its agent, ignorance sets it free.[2] The hallmark of a cartel, or indeed any collusive agreement between sellers, is a price above incremental cost. Additional sales at or slightly below this price will add more to a member's revenue than to his cost. The question is whether he can get them. He can, if he does it secretly. The other members' ignorance thus enables him to breach profitably. But suppose that, contrary to his own interest, a member continues to honor the agreement; if he is ignorant of the other members' sales or prices, then he must fear their breaches. No one likes to be duped. Hence, whether out of greed or fear, members ignorant of each others' actions are tempted to breach; it is in their interest to do so. These temptations create a strain.

To counteract this strain, the cartel must find a way to detect breaches when they occur and deter them by threat of punishment. If it can do these things, a cartel can make breaches cost more than they are worth, thus putting self-interest to work for it rather than against it. Under an effective system of detection and deterrence, self-interest cements a cartel instead of straining it.

Detection is easier the greater is each member's knowledge of the other members' sales and the determinants of those sales. This knowledge varies with three groups of factors. First are the factors that concentrate or disperse the sources of information. The most important of these factors are the number of members, the number of shipping points, and the number of customers. While a small membership

2. Ignorance, of the best price or quota system, and self-interest, expressed through each potential member's desire for a large quota, also make cartels difficult to establish. See Bjarke Fog, "How Are Cartel Prices Determined?" *Journal of Industrial Economics* 5, no. 1 (November 1956).

**CRUDE OIL PRODUCTION AND RESERVES OF OPEC COUNTRIES, 1975**

| Country (Date of entry into OPEC) | Production | | | Estimated proved reserves (Year-end)[1] | | |
|---|---|---|---|---|---|---|
| | Total (Million barrels) | As percent of World total | As percent of OPEC total | Total (Billion barrels) | As percent of World total | As percent of OPEC total |
| Iran (1960) | 1,952.7 | 10.1 | 20.3 | 66.2 | 11.4 | 16.3 |
| Iraq (1960) | 809.5 | 4.2 | 8.4 | 35.0 | 6.0 | 8.6 |
| Kuwait (1960) | 670.9 | 3.4 | 6.9 | 70.2 | 12.1 | 17.3 |
| Saudi Arabia (1960) | 2,491.8 | 12.9 | 25.9 | 107.8 | 18.6 | 26.6 |
| Venezuela (1960) | 856.2 | 4.4 | 8.9 | 18.5 | 3.1 | 4.5 |
| Qatar (1961) | 160.3 | .8 | 1.6 | 5.2 | .8 | 1.2 |
| Indonesia (1962) | 476.8 | 2.4 | 4.9 | 12.0 | 2.0 | 2.9 |
| Libya (1962) | 540.1 | 2.8 | 5.6 | 24.0 | 4.1 | 5.9 |
| Abu Dhabi (1967) | 510.3 | 2.6 | 5.3 | 40.3 | 6.9 | 9.9 |
| Algeria (1969) | 344.5 | 1.7 | 3.5 | 10.0 | 1.7 | 2.4 |
| Nigeria (1971) | 651.5 | 3.3 | 6.7 | 13.0 | 2.2 | 3.2 |
| Ecuador (1973) | 58.7 | .3 | .6 | 1.3 | .2 | .3 |
| Gabon (1975) | 81.9 | .4 | .8 | .7 | .1 | .1 |
| All OPEC countries | 9,605.2 | 49.9 | 100.0 | 404.2 | 69.8 | 100.0 |

1. Proved reserves are the total of planned production from facilities already installed and paid for. Proved reserves are a small fraction of the oil that will ultimately be consumed, which, in turn, is a small fraction of oil in the ground.

NOTE: Details may not add to totals because of rounding.
SOURCE: *World Oil*.

concentrates information, it does not necessarily yield it well. Any member can keep two sets of books, one for decision-making and accounting and another for the cartel inspector. The inspector knows this as well as anyone, and will seek better information at the shipping points. The fewer these points the better the record. So the ideal is a single shipping point, which acts as a funnel for all shipments.

*OPEC has far more shipping points than members, and many more customers and receiving points. Its sources of information are scattered across the globe. And it does not deal mainly with government agencies, at least not yet.*

A small number of customers or receiving points also concentrate information but, again, yield it in a suspect manner. Customers can bar the inspector if they wish, and they or the shippers can blur the origin of shipments. It would be different if the customers were government agencies, with records open to all. Any cartel would find the information there concentrated very useful indeed. As for OPEC, it has far more shipping points than members, and many more customers and receiving points. Its sources of information are scattered across the globe. And it does not deal mainly with government agencies, at least not yet.

Second are the factors that speed or retard the flow of information from point to point. Obviously, these factors are important only when there is no single point through which all shipments pass. Failing that, the ideal is a small group of customers who deal with all members and who, by rushing to the lowest price, quickly if unintentionally inform the dupes. Such, indeed, is what OPEC has enjoyed until recently in its relationships with the large oil companies.

Third are the factors that affect the quality of information. If there are custom-made products, high transport costs, or typically large order quantities, recorded prices can hide discounts in artificial cost accounting, freight absorption, or favorable credit terms. And with irregular order flows or geographically varying demand changes, it is less easy to separate breaches from legitimate bulges in sales. As for OPEC, this cartel is badly placed with respect to the flow of orders and the importance of transportation and credit: orders vary greatly from day to day, even from week to week; and bulk, expense, and distance from the market increase the role of transport and finance. On the other hand, OPEC enjoys a good knowledge of the market and a highly standardized product.[3]

A cartel that can detect breaches can certainly deter them. All it needs is a way, and there are several. One is the fine. For example, the International Air Transport Association, though it has no fixed schedule of fines, tries to fit the punishment to the crime and, in 1974, fined its members $1.9 million.[4] The optimal fine is high enough to discourage cheating and low enough to attract members. It is never easy to find, and most cartels err on one side or the other. Fines are often combined with the withdrawal of part of the next period's quota. Typically, both the fine and the withdrawal increase with the magnitude of the breach.

A deterrent better than fines is the pool. The members pool their revenues and then share them according to a predetermined formula. Since they would get to keep only part of the revenue generated by sales in excess of quota but must bear all the extra costs, they have less incentive to cheat. Indeed, they have an incentive to sell *less* than the quota; they participate in the other members' revenues but escape their costs. To avoid the consequent mutual distrust and resentment, the cartel may distribute revenues according to output or pool costs as well as revenues; but in so doing, it weakens the deterrent. Nevertheless, the history of cartels clearly suggests that pools deter better than fines. For example, whereas the International Air Transport Association is plagued with endemic cheating in the North Atlantic business, for which there are no pools, British Airways and Air France prosper from their London-Paris business, which they operate by pool (of both revenues and costs).[5] Fines have not sufficiently deterred cheating in the North Atlantic business; they are not needed in the pooled London-Paris business.

Better still than the pool is retaliation in kind. Let each member threaten to retaliate to a breach of quota by increasing his own output by the same

3. Oil is not a homogeneous product (there are several grades, depending on sulfur content and gravity) but neither is it custom-made.

4. *Aviation Week and Space Technology,* October 6, 1975, p. 26.

5. Rigas Doganis, "Air Transport—A Case Study in International Regulation," *Journal of Transport Economics and Policy* 7, no. 2 (May 1973).

percentage as a breacher increases his. Then every member knows that his breach would provoke an increase in total cartel output and, therefore, a decrease in cartel profits (assuming they were maximized by the quotas)—a decrease from which he would suffer with everyone else.[6] Of course complete and rapid detection must be possible.

OPEC has no deterrents that we know of. It has not yet been put to the test. In any case, it must first improve its detection. Every cartel has more control over deterrence than over detection. Given the will, it can deter breaches if it can detect them. To detect them, it needs more than will; it needs a favorable environment.

**Nature helped the English coal cartel . . .**

The story of the English coal cartel well illustrates the importance of barriers to external competition and mechanisms for detecting internal breaches in prolonging the life of a cartel.[7]

This cartel evolved from a guild created in 1600, when Elizabeth I granted to the leading mineowners in the Newcastle region exclusive rights to the sale of coal to ships. Since hardly any Newcastle coal moved except by sea, to sell coal at Newcastle was to belong to the guild. In thus being free of local external pressure, the guild was able to set the Newcastle price at whatever height its members agreed to. This ability would have been worthless without a protected market, for by no means was coal confined to Newcastle. Plenty of coal existed in Wales, Cumberland, Westmorland, Shropshire, Lancashire, Yorkshire, Staffordshire, Derby, and Scotland. But the market was London, and while physically closer to all the preceding except Scotland, London was economically closer to Newcastle. No railroads, no canals, no navigable rivers connected London with any significant coalfield.

So great was the transport cost that inland coal, even from fields half the distance of Newcastle, supplied London only when sea coal was shut off. And sea coal meant Newcastle coal; no other coal port was even half as close to London. Thus to the artificial advantage granted by Elizabeth was joined the natural advantage conferred by the sea. The Newcastle guild had only to keep its price at a level that, with shipping costs added, was just below the London price of inland coal. This it managed to do, though with occasional failures, until it was abolished sometime between 1653 and 1665.

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The cartel followed fast upon the guild and endured, with sporadic interruptions, until 1844. The interruptions came largely from the external pressure of new sea coal from the Northeast, which was soon, however, incorporated by the cartel. Knowing the sea freight from the Northeast to London and the price at which inland coal could profitably supply London, the cartel simply set its price just under the London price of inland coal minus sea freight. It made that "limit" price stick by adjusting its production as required. The cartel thus easily overcame one kind of ignorance: it knew the profit-maximizing price.[8]

To conquer ignorance of whether members were actually adhering to their quotas, the cartel used a funnel provided by nature. For most of its life its coal passed through two ports, and never more than three (Newcastle, Sunderland, and, after 1833, Stockton). These three shipping points were so close together that they amounted to a single funnel. The cartel had only to station an inspector there to monitor the actual shipments and detect breaches as they occurred. Its information was concentrated, rapid, and clean.

Ordinarily, so large a cartel would have faced unduly high negotiation costs. But in the ports and their associated river districts the members found obvious lines along which to organize themselves into

6. Such a threat will be believable if and only if a member stands to lose less by retaliating than by standing pat. Under plausible assumptions it can be shown that he would indeed lose less by retaliating. See D. K. Osborne, "Cartel Problems," *American Economic Review* 66, no. 5 (December 1976).

7. The story is well told by Hermann Levy, *Monopolies, Cartels, and Trusts in British Industry* (London: Macmillan and Co., 1927), chapter 6, and T. S. Ashton and Joseph Sykes, *The Coal Industry of the Eighteenth Century*, 2d ed. (New York: Augustus M. Kelley, 1964), chapters 12 and 13.

8. It is not always true that the limit price is more profitable than a higher price that opens the market to outsiders, but clearly it was true in this case. A higher price would have drawn great quantities of inland coal into London. Nor is it always true that the limit price is more profitable than a lower price; it depends on the price elasticity of demand. Presumably, coal demand was sufficiently inelastic.

smaller groups. Total cartel production was first divided among the river districts, and then among members within each district. The cartel's managing committee met fortnightly to determine the next fortnight's total output. This the committee announced to the district representatives, who in turn allocated their shares to individual members in agreed proportions. A member exceeding his quota in any fortnight had to pay a fine and give up part of the following fortnight's quota.

Two things killed the coal cartel. One was external pressure. From about 1760 canals and railways had steadily eroded sea coal's advantage over inland coal. The limit price kept falling, and by 1840 approximated the competitive price. By 1844 this was plain enough for all to see. All saw it and abandoned the cartel.[9]

The other killer was ignorance of whether members were complying with their quotas. The cartel had frequently broken down under the pressure of neighboring sea coal but was able to repair itself each time by incorporating the new mines, thus surrounding the pressure. Why did it not also incorporate the mines of the Midlands and the West upon their connection to London by canals and railways? The answer is that breaches would have been too difficult to detect. The larger cartel would have sent its coal to market not through a few northeastern ports but by many canals and railways, as well as by sea. The funnel had gone, and with it went cheap monitoring. The larger cartel could not have delivered the profits. Everybody knew this, and saved themselves the trouble of trying.

**. . . but is not much help to OPEC**

As surely as primitive inland transport protected the coal cartel from external pressure, our current primitive energy technology protects OPEC. Oil, natural gas, coal, lignite, and sunlight, though plentiful in a physical sense, are in the economic sense as distant from the market as inland coal was from London. One day, like inland coal, they may come to market. They might even come long after the death of OPEC, for this cartel has yet to find a mechanism that will put self-interest to work for it.

OPEC lacks two of the things that helped the coal cartel: an obvious optimal price and a funnel for monitoring shipments. No one knows the optimal price or, more accurately, the optimal excise tax; and, in any case, it depends on one's time horizon. As long-run demand is more elastic than short-run, those who take the long view prefer a lower price than those who take the short. These differing opinions about the best price give OPEC a problem the coal cartel never had. Still, it is a problem similar in all relevant respects to disagreements over quotas (which, by the way, remain to be worked out), and it is likely to be settled by compromise. Far more serious is the lack of a detector.

The counterpart of a coal miner exceeding his quota is an OPEC government lowering its excise tax. The miner was sure to be caught when his coal passed through the funnel. The government cannot be caught this way because OPEC has no funnel. Until recently it has needed none, for it had something just as good.

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Except where oil is nationalized, it is produced in OPEC countries by consortia of international oil companies. Though generally each consortium operates in a single country, its members usually belong to several consortia operating in several countries. Thus companies X and Y belong to consortia A and B, Y and Z belong to B and C, and so on in a chain linking most of the countries of OPEC. Along this chain would pass the news of a tax cut granted by any single country. One or more companies, belonging as well to other consortia, would increase their production in the one country and decrease it in others. The other countries, if they were linked to the chain, would quickly learn the cause. Clearly, this chain is an admirable detector.[10] OPEC, however, has broken it.

Let the government of a country transform itself from a landlord into a producer by nationalizing all the local crude production. Then it can forgive part or all of the taxes on the national company and cut its price, but no other country will hear of it *automatically*. There will be no oil company consorts to rush away from the other countries to do business with the one, thus informing other buyers and sellers of the event. Moreover, the nationalizing country

9. Levy, *Monopolies, Cartels, and Trusts*, p. 163, mentions a few attempts at renewal after that date. None succeeded.

10. OPEC's chain was first explained by M. A. Adelman, *The World Petroleum Market* (Baltimore: Johns Hopkins University Press for Resources for the Future, 1972), pp. 207-10.

must now search out evidence of the others' compliance, for it has no concessionaires to rush away to breachers. Nationalization thus breaks a country's link to the chain that reveals breaches and registers compliance; it destroys a network that sends information so promptly and cleanly from one point to another that, in effect, the points are one.

OPEC has already nationalized its chain away. Obviously, Iran, Iraq, Kuwait, and Venezuela, having nationalized 100 percent of local crude oil production, have broken their links. Effectively, the remaining members with lesser percentages have too.[11] OPEC will have to find a substitute for the broken chain.

Against this large disadvantage, OPEC can claim only two advantages over the coal cartel. One is sovereignty. True, sovereignty in itself does not aid detection or provide a deterrence; but it confers more freedom of action. As Adelman has pointed out, the larger Persian Gulf nations can occupy any of their smaller neighbors found breaching.[12] Still, this threat reaches none of the large nations. Sovereignty permits only a small reduction in the number of information sources. It can only be a minor advantage.

The other advantage—more significant, but of uncertain duration—is help from other sovereign bodies. Whereas the British government neither hindered nor helped the coal cartel, governments of the main oil-importing countries are helping OPEC in several ways, to two principal effects.

First, these governments help contain the existing external pressures and impede their growth. This they do mainly by regulating the prices of domestically produced substitutes (for example, natural gas and "old" oil in the United States) and by standing ready to tax away as "windfalls" any profits obtained by the development of substitutes. These policies impede the search for substitutes by reducing its prospective payoff. However, these very same governments work to increase external pressure on OPEC to some extent by fostering research into energy.

Second, the governments help preserve OPEC's internal equilibrium by discouraging its customers' search for better bargains. This they do by "entitling" independent refiners and crude-deficit integrated companies to buy oil from the crude-surplus companies at prices below market; by allowing their integrated oil companies to offset against domestic income tax the fictitious income tax paid to OPEC, instead of treating the payment as the cost (excise tax) that it is; and by reserving a substantial portion of electricity generation to coal and uranium. These policies make pointless the hard bargaining by refiners and integrated companies that could lead first one then another OPEC country to cut its tax-or-price a bit for extra business.[13]

These aids may or may not endure. In any case, they are probably not enough to keep OPEC alive. They do not supply the missing detector.

**What will OPEC get from politics?**

In the long run, OPEC, like the coal cartel before it, will die. The only questions are how and when. If it gets a detector, it could survive until squeezed to death by external pressure. Such an end might come soon or late, as technology unpredictably yields its fruits, but it would not come suddenly. Pressure, even from the most significant technological discoveries, would not crush OPEC immediately; it would build up slowly and discontinuously, as new equipment is installed and new methods prove their worth. Oil would increasingly sell at discounts that themselves increase; contracts would grow increasingly short; the official price would grow increasingly irrelevant; and one day everyone would realize that the cartel had died. To avoid the quicker death from internal strain, OPEC must solve the urgent problem of its missing detector. For this it cannot turn to nature, which in providing so many shipping and receiving points has withheld a physical funnel. It can only turn to politics, which offers the promise of an economic funnel.

An economic funnel could take three principal forms. One is a central sales agency, an "OPEC Oil Company" to act as the exclusive agent in all the members' transactions. This body, in order to remove the need for deterrents and additional monitoring, would have to put the members entirely out of the sales business. With that accomplished, it could simply refuse any transactions in excess of quota or at terms below the agreed level.

11. It is estimated that Algeria has nationalized 80 percent of its crude oil production; Abu Dhabi, Libya, Qatar, and Saudi Arabia, 60 percent or more; Nigeria, 55 percent; Ecuador and Gabon, 25 percent; and Indonesia, 17 percent.

12. M. A. Adelman, "The World Oil Cartel: Scarcity, Economics, and Politics," *Quarterly Review of Economics and Business* 16, no. 2 (Summer 1976).

13. See Adelman, *World Petroleum Market*, pp. 224-56, and Edward J. Mitchell, *U.S. Energy Policy: A Primer*, American Enterprise Institute for Public Policy Research, National Energy Study no. 1 (Washington, D.C., 1974).

The second form of detector is an exclusive purchasing agency to represent consumers. Unlike the first, it could not be created by OPEC; it would have to be set up by the United Nations or at least the Organization for Economic Cooperation and Development (OECD). As an official body, it would keep records, open to all, of the purchases and payments of importing countries and the sales and receipts of exporting countries, thus completely and rapidly detecting any discounts to the main customers. For so good a bookkeeping funnel, OPEC can hold out the carrot of a $1 or $2 price reduction and shake the stick of embargo threats—weapons whose power none should doubt.

Third is a commodity agreement in oil. Something along the lines of the Tin Agreement, by which the representatives of exporting and importing countries settle the range within which the price can move, would admittedly be an imperfect funnel; but in recognizing the cartel's right to monopoly profits, it would raise OPEC's status from that of an outlaw to that of a duly established institution. Indeed, the outlaws would come to be those who sell and those who *buy* below the duly agreed cartel price. A commodity agreement is viewed favorably by the OECD and the U.S. State Department.[14]

None of these alternatives would funnel all of OPEC's oil. Clearly, they would miss the part that passes directly to OPEC refineries and petrochemical industries. But any of them would go far toward keeping the cartel alive. Whether OPEC will get one of them we cannot say. Possibly the need will have to be demonstrated by an outbreak of price cutting. More probably, it is already clear to everybody in OPEC, and explains their repeated calls for a commodity agreement. The importing governments need not listen. They can let OPEC solve its own problems.

14. Adelman, *World Petroleum,* pp. 224-56.

## New member banks

First National Bank, Rio Grande City, Texas, a newly organized institution located in the territory served by the San Antonio Branch of the Federal Reserve Bank of Dallas, opened for business November 29, 1976, as a member of the Federal Reserve System. The new member bank opened with capital of $600,000, surplus of $600,000, and undivided profits of $300,000. The officers are: Fredrick Erck, President, and Samuel L. Boyd, Cashier.

American National Bank, Wichita Falls, Texas, a newly organized institution located in the territory served by the Head Office of the Federal Reserve Bank of Dallas, opened for business November 29, 1976, as a member of the Federal Reserve System. The new member bank opened with capital of $400,000, surplus of $400,000, and undivided profits of $200,000. The officers are: Roy H. Smith, Chairman of the Board; Michael H. Fisher, President; John B. Stahler, Vice President; and June R. Welch, Cashier.

Anahuac National Bank, Anahuac, Texas, a newly organized institution located in the territory served by the Houston Branch of the Federal Reserve Bank of Dallas, opened for business December 20, 1976, as a member of the Federal Reserve System. The new member bank opened with capital of $400,000, surplus of $400,000, and undivided profits of $200,000. The officers are: B. M. Jenkins, Sr., Chairman of the Board; Leo Moon, President; and Richard N. McMinn, Cashier.

## New par bank

Libery Eylau State Bank, Texarkana, Texas, a newly organized insured nonmember bank located in the territory served by the Head Office of the Federal Reserve Bank of Dallas, opened for business December 3, 1976, remitting at par. The officers are: B. Stan Cook, Chairman of the Board; Basil S. Hoag, Jr., President; and Harold Dennis Crawford, Cashier.

Federal Reserve Bank of Dallas
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# Eleventh District Business Highlights

**SAVINGS INFLOWS SURGE**

Financial institutions in the Eleventh District have experienced sharp growth in savings inflows since June. Yields on alternative short-term market instruments have declined, making interest rates paid on time and savings deposits increasingly attractive. However, sluggish loan demand led many institutions to reduce rates paid on time deposits and to change other terms on these deposits.

Preliminary data for December indicate that total time and savings deposits at weekly reporting commercial banks in the District rose 11 percent in 1976. Most of the growth occurred in regular savings deposits, which increased a record 63 percent. Moreover, savings deposits at savings and loan associations in Texas increased nearly 20 percent during the first eleven months of the year.

Short-term market rates began to trend downward after reaching record levels in the third quarter of 1974. By December 1975, the rate on 91-day Treasury bills, for example, had fallen to 5.5 percent—a decline of 324 basis points from the peak level of August 1974.

Weak demand for short-term funds continued to exert downward pressure on short-term interest rates in early 1976, and for the first time since November 1972, the average rate on Treasury bills fell below 5 percent in January 1976. Rates on other short-term instruments made comparable declines.

With short-term market rates near or below rates which commercial banks and savings and loan associations were paying on savings deposits, a sizable volume of funds moved into savings deposits at these institutions.

Regulatory changes in late 1975 which permitted businesses to hold limited savings deposits at commercial banks also boosted the growth of savings deposits at commercial banks, particularly at the beginning of 1976. However, most of the increase in savings inflows from businesses largely reflected the relatively attractive interest rates available on savings deposits.

Market rates rose in the second quarter of 1976 following a surge in growth of real GNP during the first quarter. Short-term interest rates remained above the 5-percent level through the third quarter, and the inflow of time and savings deposits slowed considerably through the spring.

Market rates have declined steeply since June. The rate on three-month Treasury bills, for example, averaged 5.4 percent in June. During December, it averaged about 4.3 percent—a decline of 107 basis points. Moreover, the rate paid on three-month CD's fell 118 basis points to 4.7 percent in the same period.

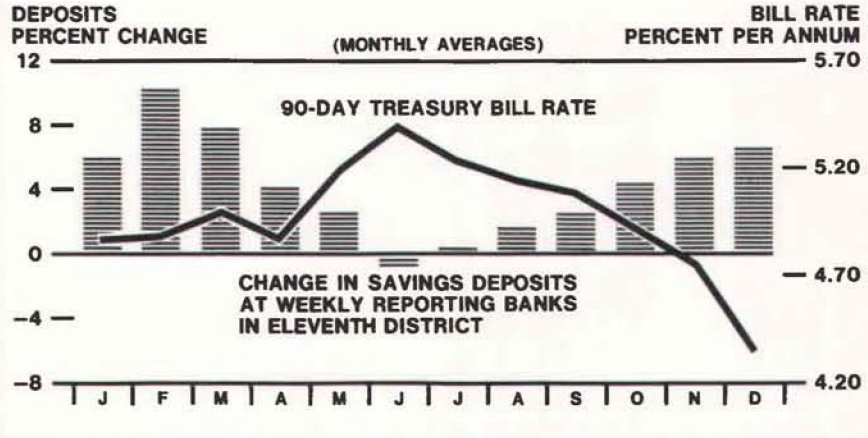
The decline in market rates was accompanied by successively larger net inflows of time and savings deposits to commercial banks and thrift institutions—particularly in the final quarter of the year. With interest rates on CD's and other money market instruments at levels near or below the rates paid on regular savings deposits, the volume of funds moving into these accounts continued to accelerate.

The rapid pace of savings inflows resulted in an oversupply of funds for many commercial banks and savings and loan associations. Overall loan demand in most areas was insufficient to absorb the accumulation of funds.

However, mortgage loan demand in Houston and El Paso has remained strong, and many institutions in these cities have continued to actively seek additional funds.

*(Continued on back page)*

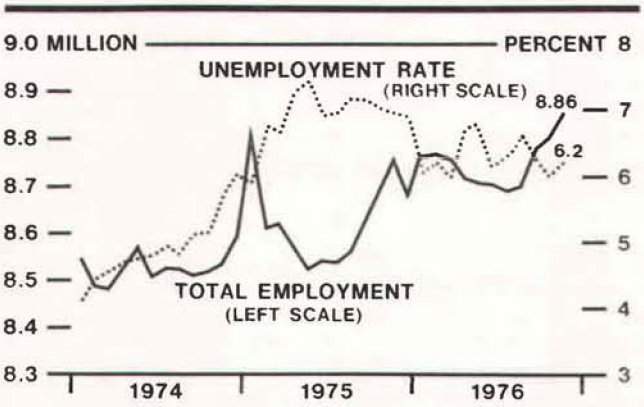
**SAVINGS DEPOSIT INFLOWS IN 1976 ACCELERATE AS SHORT-TERM YIELDS FALL SHARPLY**



## INDUSTRIAL PRODUCTION
(SEASONALLY ADJUSTED)

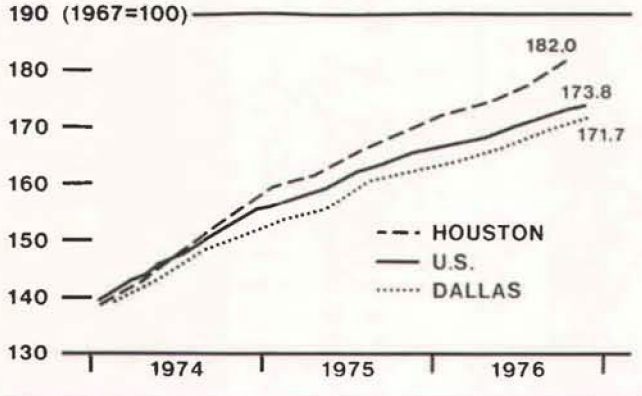

SOURCES: Board of Governors, Federal Reserve System.
Federal Reserve Bank of Dallas.

## EMPLOYMENT AND UNEMPLOYMENT
FIVE SOUTHWESTERN STATES[1]
(SEASONALLY ADJUSTED, BY FRB)



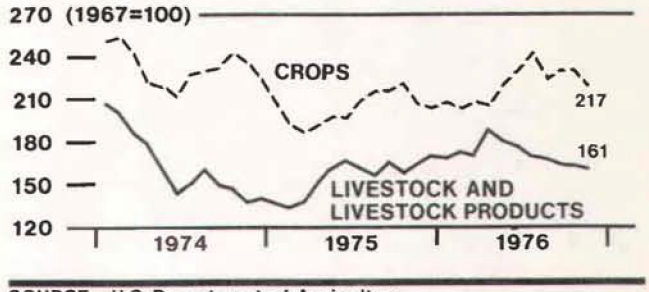

1. Arizona, Louisiana, New Mexico, Oklahoma, and Texas.
SOURCE: State employment agencies.

## CONSUMER PRICES



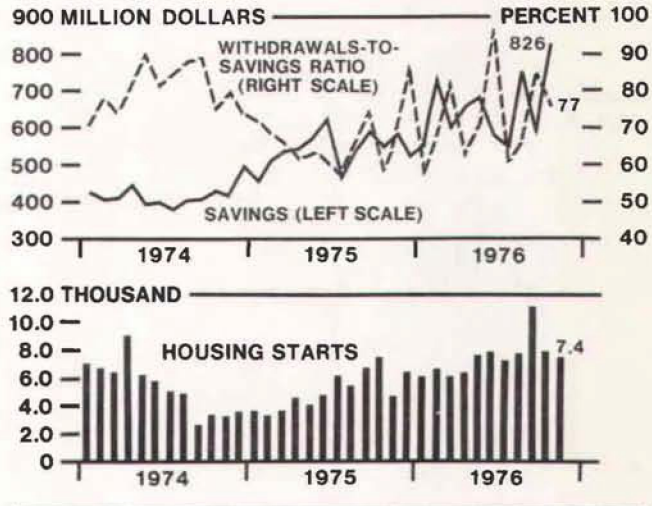

SOURCE: U.S. Bureau of Labor Statistics.

## PRICES RECEIVED BY TEXAS FARMERS




SOURCE: U.S. Department of Agriculture.

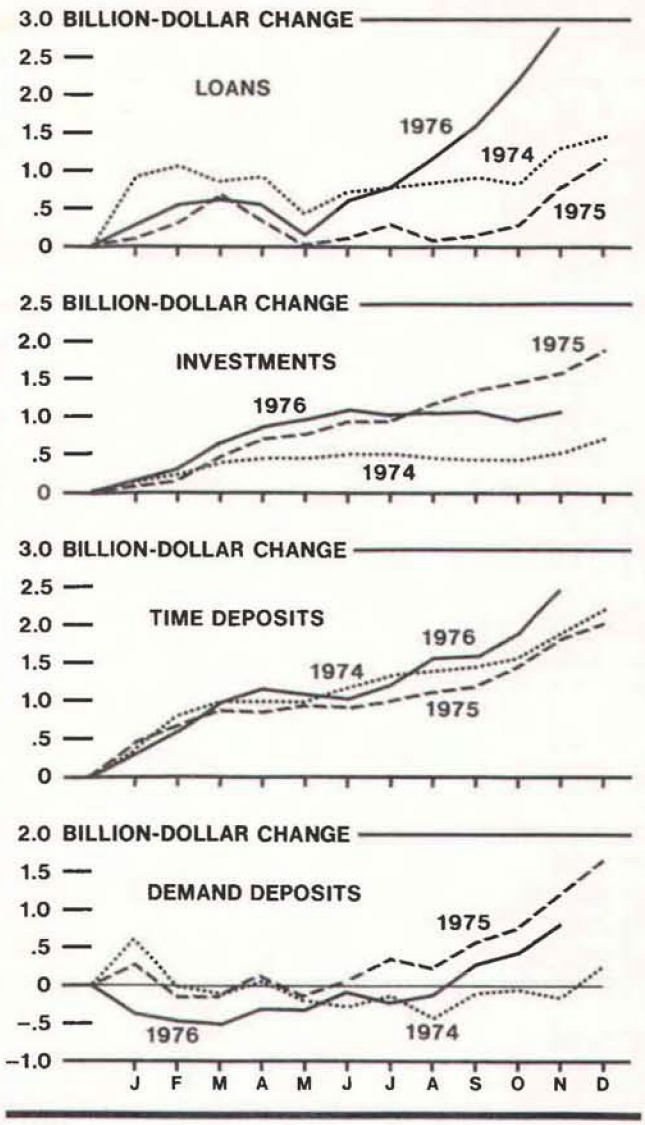
## SAVINGS AND LOAN ASSOCIATION ACTIVITY AND HOME BUILDING IN TEXAS
(SEASONALLY ADJUSTED, BY FRB)




SOURCES: Bureau of Business Research, University of Texas.
Federal Home Loan Bank of Little Rock.

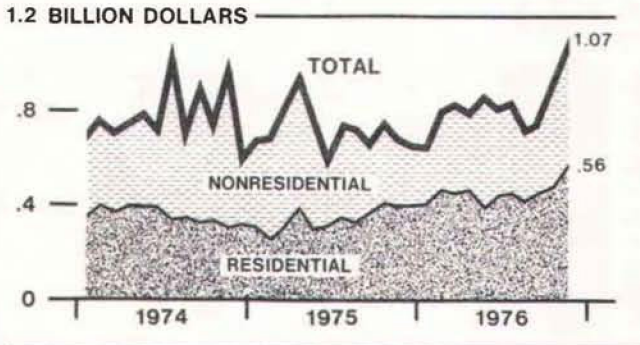
## CONDITION STATISTICS OF ALL MEMBER BANKS

ELEVENTH FEDERAL RESERVE DISTRICT
(CUMULATIVE CHANGES)




## BUILDING CONTRACTS

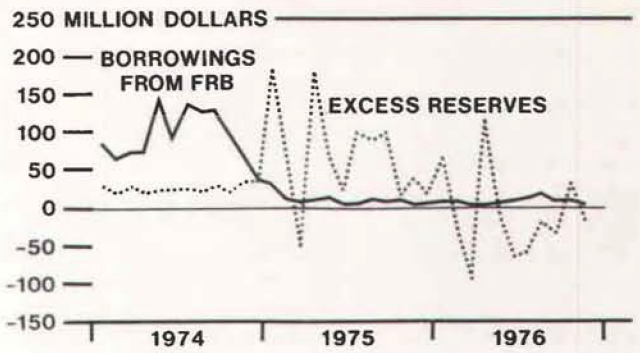
FIVE SOUTHWESTERN STATES[1]
(SEASONALLY ADJUSTED, BY FRB)




1. Arizona, Louisiana, New Mexico, Oklahoma, and Texas.
SOURCE: F. W. Dodge, McGraw-Hill, Inc.

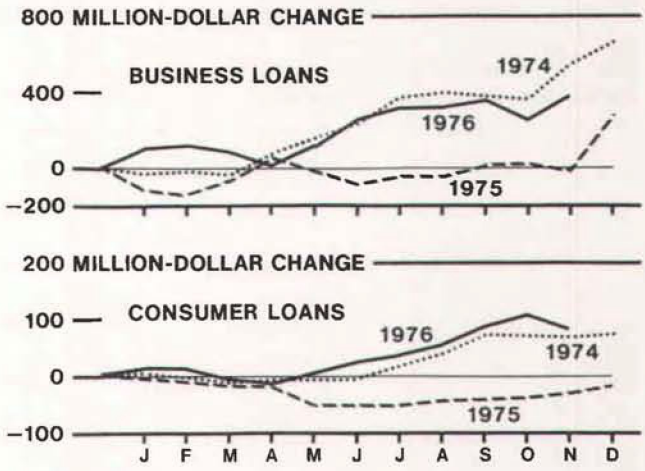
## RESERVE POSITION OF MEMBER BANKS

ELEVENTH FEDERAL RESERVE DISTRICT
(MONTHLY AVERAGES OF WEEKLY DATA)




## LOANS AT WEEKLY REPORTING BANKS

ELEVENTH FEDERAL RESERVE DISTRICT
(CUMULATIVE CHANGES)




## FOREIGN TRADE

HOUSTON CUSTOMS REGION
(SEASONALLY ADJUSTED, BY FRB)


SOURCE: U.S. Department of Commerce.

Thus, interest rates on their CD's have remained relatively stable.

Because the rate of return that could be obtained on alternative short-term investments was below their costs of funds, some commercial banks and savings and loan associations began to adopt policies in the second half of 1976 aimed toward slowing the rate of savings inflows. Early action taken by these institutions was to lower the rates of interest which they paid on most maturities of certificates of deposits. Rates on many short-term CD's were reduced from 5.9 percent to less than 5 percent.

At the same time, some institutions—particularly savings and loan associations—increased minimum deposit requirements on some CD's, lengthened some maturities, and eliminated some maturities that they had offered earlier in the year. These actions helped to slow the inflow of funds into time deposits. However, savings inflows continued to increase as a sizable portion of the proceeds of maturing CD's were placed in savings deposits.

Regular savings deposits are normally the means by which small depositors save for specific purposes such as to purchase big ticket items or for retirement. These funds usually remain in an account until the savings goal is achieved. Because small customers had been actively sought in the past, commercial banks and savings and loan associations have been reluctant to reduce rates on these accounts.

The sharp drop in market interest rates however, brought a sizable inflow of "hot money" which is highly responsive to differences in interest rates. In an effort to discourage these temporary funds, some institutions began to limit the amount which new investors could place in accounts.

Savings deposits have continued to grow rapidly despite the efforts to slow the inflow. Although commercial banks and savings and loan associations remain reluctant to reduce rates on passbook-type accounts, several are taking a closer look at the rates on these deposits.

**OTHER HIGHLIGHTS:**

- According to preliminary figures, the Texas industrial production index rose in November at a 5.5-percent seasonally adjusted annual rate. All of the rise was centered in the mining component, as factory output fell after four months of increase.

The gain in mining output largely reflected increased production of crude oil. Drilling activity rose for the sixth month in a row.

Reduced output in nondurable goods industries led the decline in production in total manufacturing. Production was off sharply in the chemical, food processing, apparel, and paper industries. In durable goods manufacturing, output declined in all major industries except fabricated metals, lumber and wood products, and furniture and fixtures.

- The unemployment rate for the five southwestern states rose in November to 6.2 percent of the civilian labor force from 6.0 percent a month earlier. The increase reversed a two-month decline in the jobless rate. Although unemployment rose sharply, total employment grew for the fourth consecutive month.

Nonagricultural employment climbed for the fifth month in a row. The largest gains were in contract construction, mining, and durable goods manufacturing. Nondurable goods manufacturing was the only major employment category registering a decline.

- The value of building contracts continued to grow in the five southwestern states in November. Residential building contracts reached an all-time high. And nonresidential construction contracts, bolstered by a $100 million contract for a manufacturing facility in Houston, increased at the fastest pace since April 1975.

Housing starts in Texas fell for the second month in a row in November. But at a level of 7,400 units, seasonally adjusted, housing starts in the state remain essentially on the plateau established last May.

- Credit at member banks in the Eleventh District rose moderately in November as loans increased for the sixth consecutive month and banks continued to expand investment portfolios. The increase in lending mainly reflected a sizable pickup in loan demand by producers of durable goods, particularly manufacturers of primary metals and machinery. The rate of increase in real estate loans slowed considerably, and consumer loans declined moderately—the first monthly decrease since April.
- The two-month lull in Texas cattle feeding ended in November—temporarily at least. Feeders placed 11 percent more cattle on feed than in the same month a year earlier. The increase was in response to strengthening slaughter cattle prices, declining grain sorghum prices, and firm feeder cattle prices.

The increase in placements more than offset an 8-percent gain in marketings from a year earlier. Cattle on feed in Texas on December 1 totaled slightly more than 1.7 million. That was up 4 percent from the previous month but down 5 percent from a year earlier. Continued strength in cattle feeding depends largely on further improvement in slaughter cattle prices.

- The consumer price index for Dallas rose 1.6 percent in the three-month period from August to November to a level 5.7 percent above a year earlier. The largest price increases were reported for gas and electricity, fuels and utilities, medical care, and women's and girls' apparel. Grocery prices for meats, poultry, fish, and fruits and vegetables posted declines.