EUROPEAN UNIVERSITY INSTITUTE, FLORENCE

LAW DEPARTMENT

E U I W O R K I N G P A P E R NO.85/163

THE DESIGN AND PERFORMANCE OF LONG-TERM CONTRACTS

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Printed in Italy in April 1985
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T.C. Daintith August 1984

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Besides offering general rationales for the legal recognition and enforcement of agreements (Romani, 1984), and seeking to explain particular rules and concepts used in contract law (Harris and Veljanovski, 1984), economic and social studies in the field of contract have also offered information and explanations about the use of contracts, or of given types of contracts. This paper aims to be a contribution to this class of contract literature: it is based on a study of the incidence, design and performance of long-term contracts ("LTCs") in the world iron ore market over the last 15-20 years. (1) The paper should be seen as a by-product of the study, whose main purpose is to produce information about effects of employing long-term contracts which may have practical relevance for policy-making in the field of international trade in primary commodities. It starts from the assumption that instability in such trade, in terms of wide and rapid changes in prices or quantities, has deleterious effects both for importers and exporters, and particularly for developing country exporters of such commodities. The acceptance of this view by policy-makers has since the Second World War led to the introduction of a variety of measures to stabilise markets or alleviate the effects of instability, requiring the intervention of governments or of international agencies in the operation of markets through such mechanisms as buffer stocks or schemes of

compensatory finance. It may be, however, that governmental interventions could be reduced, or could operate more effectively, if parties were to contribute to the stabilisation of their own trading environment through appropriate contractual arrangements. What is appropriate may vary with the commodity: futures markets may help in the case of homogeneous products with unambiguous prices, but are unlikely to develop where these qualities are absent (Streit, 1980). The initial assumption of the study was that, in the absence of such qualities, long-term contracts could have this stabilising effect. Testing this assumption has involved the construction of indices of stability of iron ore prices and quantities for each major exporting and importing country over the study period and over sub-periods within that time, and relating the results to the extent to which the iron ore trade of different countries at different times was conducted under long-term contracts, as opposed to being carried out on a short-term or spot basis. Simultaneously it has involved examining the contents of as wide a range of possible of long-term contracts, in order to check for significant variations (for example in the degree of price or quantity flexibility offered) over time and space; and examining performance of these contracts. These detailed investigations of contract terms and behaviour are vital to the correct interpretation of the statistical data. To take an extreme case, if it appeared that long-term contracts did not <u>in fact</u> constrain party behaviour in such matters as prices or quantities to any significant extent, then the reasons for any correlation between use of such contracts

and market stability would have to be sought among factors other than the legal relation installed.

Two lines of development in the contract literature already referred to are of particular relevance to this investigation and may, in turn, be furthered by its findings. The first is concerned with the use of long-term contract as a link in the production chain. It considers when and why enterprises rely on such contracts for the procurement of materials or semi-finished goods, in preference to other forms of economic organisation such as backward integration (ownership of supply facilities) or short-term contracts; and also considers what the results of such reliance might be. This kind of discussion has perhaps been furthest advanced in the writings of Williamson, whose work on employment (1975), inflation (1978) and firm structure (especially vertical integration) (1971, 1975) has more recently led him to attempt to identify relationships between certain forms of contract and a characterisation of economic relations in terms of uncertainty, recurrence of transactions, and specificity of related investment (1979).

Drawing on the work of McNeil (1974, 1978, and see also 1981), who has developed the notion of "relational contracting" as counterweight and contrast to the "discrete single transaction" contract model of classical contract law and neoclassical economics, Williamson arranges contract forms along a spectrum ranging from the classical model at one end to what he calls "unified governance" (i.e. vertical integration) at the other. He

expects to find classical contracting, as an expression of market governance, efficiently associated with recurrent or occasional transactions where no buyer-specific supplier investments are involved; where, however, investment is, or becomes, highly specific to transactions between the supplier and a given buyer ("idiosyncratic"), and these transactions are recurrent, Williamson expects to see "unified governance" occurring. As might be imagined, the area of greatest interest lies somewhere between these two extremes: here Williamson distinguishes a class of investment of mixed non-specific and idiosyncratic character (for example where the object of transaction is "customized" equipment or material) and suggests that occasional transactions of this type may be best subjected to "trilateral governance" contracts which make provision for third party determination of disputes, as by architects, arbitrators etc., while recurrent transactions may be the object of "bilateral governance", that is to say, of contracts or sequences of contracts which the parties will themselves take pains to maintain and to adjust to changing circumstances.

While the transaction-specific character of the investment, leading to its greatly reduced value in other applications, is the main factor which explains these departures from a classical contract model in which significant breach of contract terms leads naturally to litigation, or termination, or both, Williamson also attaches importance to other elements such as economies in communication costs between the parties (in terms of both knowledge and trust) which steadily increase as the contractual

relation continues. Finally, given our concern with market stability, we should notice Williamson's view that within the framework of "bilateral governance" (which, I shall argue, is most relevant to the long-term contracts under examination), adjustments to contract quantities are normally much less problematic than adjustments to prices. He bases this both on the general observation that

> "price adjustments have an unfortunate zero-sum quality, whereas proposals to increase, decrease, or delay delivery do not" (1979: 251)

and on the idea that where the product is specialised, the costs involved in switching supplies mean that there is little risk of opportunistic quantity adjustments, by buyers who have found cheaper suppliers elsewhere or sellers who have found better sales opportunities.

The characteristics of the iron ore market make it an excellent arena in which to work over Williamson's theories.(2) Iron ore is an indispensable raw material for steel-making. You cannot make steel without it: at the same time there is virtually no other use for iron ore. Deposits of ore are distributed throughout the world. Broadly speaking, ore is sold in three broad categories: lumps, fines, and pellets. Lumps, as the name indicates, are lumps of ore, from pea-size up, which can be used directly in the iron furnace. Fines are smaller particles, which require to be sintered, that is, fused by heat, before they can be so used. By reason of the fragility of sinter, sintering normally takes place at the steelworks, though the Japanese mills have

recently thought it worthwhile to construct sintering works in the Phillipines to process Australian fines before onward carriage to Japan. Obviously lumps are a higher value product, but they can only be produced by mines with an ore body of sufficient purity. Pellets are a bonded form of ore, sometimes manufactured at the mine, which contains additives and generally reduces processing costs at the furnace stage. Pelletisation is one solution to the marketing of ore from a low-grade but large and easy-to-work body of ore; the construction of pelleting plant, however, involves substantial additional investment. It is quite possible for individual steel-makers to vary their inputs as between lumps, pellets and sintered fines, though process readjustment costs will be incurred in the substitution of one type of ore for another, and in particular, steel-makers will hesitate before closing down their own sintering plant in order to use lumps or pellets.

In addition to these differences in physical presentation, ores from different mines will vary widely in terms of chemical composition. A key factor is obviously the richness of the ore, that is, the percentage of iron (Fe), and prices will normally be expressed on the basis of minimum and normal percentages of Fe per ton, or at so many cents per Fe percentage unit per ton. The presence of other elements such as manganese, alumina and silica, and their relative quantities in the ore, and of impurities such as phosphorous and sulphur, will also be important. Each steel-maker's facilities will operate best on a particular chemical "mix"; he will therefore seek to balance ores of different

provenance and composition in order to maintain this mix. Two steel-makers with similar quantitative needs may thus be prepared to pay significantly different prices for the same cargo of ore.

This pronounced physical and chemical differentiation of the product by reference to the needs of individual buyers has prevented the emergence of reference grades, standards or contracts on which a commodity exchange type of trading could be based. Also militating against this type of open trading (and hence against stabilisation through futures markets) are the low value per ton of the product, the high costs of storage and, due to the evolution of the market in terms of the location of buyers and sellers, the high proportion of prices represented by freights. In 1982, for example, the price of 65 per cent Fe Brazilian ore c.i.f. at North Sea ports was $25.90 per tonne, while spot freights per cargo tonne for this journey averaged $5.40, a relatively low figure.

The steel industry, as already noted, is the iron ore industry's only significant customer. It grew up, first in Western Europe and later in the United States, round workable deposits of iron ore and coal. Steel mills controlled their own iron ore sources. There was little commercial trading in iron ore, and virtually none on an inter-regional basis. This situation continued until after the Second World War, from which time the depletion of US and West European ore reserves, and the emergence of Japan as a major steel-maker with inadequate domestic

ore supplies, caused a rapid expansion of new sources of supply, with the exploitation of reserves in India, West Africa, Brazil and Australia. In 1955, 85 per cent of iron ore production took place in Europe, the United States and Canada; by 1977 this proportion had fallen to under 55 per cent. Most of the growth in this period has been in Australia and Brazil. In 1955 these two countries together accounted for under 2 per cent of world production and 3 per cent of exports. By 1980 these figures had risen, respectively, to 20 and 40 per cent. Trade in ore from these new sources has very largely - though not exclusively - been conducted with the Western countries, Japan, and one or two "new" steel-making countries like Korea. Despite a large increase, over the period since 1955, in its steel production, both in absolute terms and as a proportion of world production, the Communist world has remained self-sufficient in iron ore, East Europe drawing on steadily expanding Russian supplies and China being self-sufficient.

To summarise, with a first attempt at relating these facts to Williamson's transactions categories, we may say that this is a market of recurrent transactions in which there is a significant, but perhaps not determining, degree of investment specialisation. In such circumstances we might expect to find classical market contracting and relational contracting with bilateral governance as competing models for the industry. Also to be taken into account, however, is the virtually closed character of the market - the product has no alternative uses, the buyer has no

alternative product - and the very small number of actual, and even potential, participants in that market. One of them has described the ore market as "intimate", a term which captures the small number of participants, their long-term interdependence, the closeness of their relationship and the discretion with which it is conducted. This feature appears in recent times to have shifted the balance firmly in favour of relational, as opposed to market contracting, as we shall see.

A second line of work was originated by Macaulay's pioneering 1963 paper, "Non-contractual Relations in Business: A Preliminary Study". In this paper, based mainly on a survey of firms operating in Wisconsin and of some lawyers advising them, Macaulay posed the question of the extent to which businessmen used contract law. He found that the amount of planning by businessmen for various contingencies was highly variable; that planning for legal sanctions, and treatment of defective performance, in particular, were minimal; that exchanges were commonly made without any agreement on terms and conditions being reached (especially where the parties were using standardised forms), or on legally unenforceable terms, so that there was no binding contract at all - and that parties frequently knew this, and were indifferent to it; that performance difficulties were regularly resolved without reference to contractual obligations; and that dispute settlement through litigation was extremely rare. In the heavily-lawyered society that is the United States these empirical findings seemed to need some explanation, which Macaulay found

mainly in the availability of effective alternatives to contract: standardised or pre-tested products, for example; insurance; non-legal sanctions, such as intra-firm pressures for quality by salesmen on production staff, loss of future business, loss of trade reputation. He also stressed the heavy costs, both in money and in business relations terms, that might be involved in creating a detailed contract and, still more, in litigating to enforce one. In the light of all these factors, Macaulay found it necessary to conclude by explaining why contract should be used at all, stressing such points as the value of a detailed contract as a communication device within the buyer or seller enterprise, or in cases where there was a likelihood that significant problems would arise (as where complex performance over an extended period was called for); the existence of special relationships, such as the manufacturer-dealer franchise, in which the normal non-contractual controls might not operate; and the possible interest of third parties, like government, in seeing a formal contract concluded.

Subsequent empirical studies, in different legal cultures, have tended to confirm these findings (Beale and Dugdale, 1975; Kurczewski and Frieske, 1977). Reflecting on this later, Macaulay (1977) pointed out that despite all this empirical evidence to suggest the irrelevance of the classical contract process to the real world, the classical view of contract continued to dominate. What functions, then, did it serve? Two of his suggestions deserve mention here: the thought that contract's role ;ay be as

"the foundation for strategic manoeuvres in the game of negotiated settlement" (1977: 515), and the idea that contract law might "crystallize business customs and provide a normative vocabulary, affecting expectations about what is fair" (1977: 519).

The relevance of this line of work might at first sight appear to be limited, since it is clear that those engaged in the iron ore trade have for the most part conducted their business under quite detailed formal contracts. Macaulay gives us grounds to suspect, however, that the link between contractual stipulations and trading behaviour may be weak, and that factors other than a sense of contractual obligation may be determinant. In examining contractual performance in the iron ore market - which, as already explained, is a necessary step in relating market stability to long-term contract - we thus have the chance to test these suspicions in a new arena: that of major international raw material contracts.

THE INCIDENCE OF LONG-TERM CONTRACTS

We have seen that in the early days of the steel industry the normal mode of procurement of iron ore was through the ownership of the mine. As economic local supplies became exhausted, and mills began to look overseas for supplies, mill ownership of overseas mines became quite common: in the late nineteenth century, Swedish and Spanish mines were developed in this way by

the British steel industry. United States mills undertook this kind of development in Canada and, later, in South America, and British mills were developing mines in Canada and West Africa in the middle years of this century. Most of these developments, however, did not involve 100 per cent ownership and management of the mine by a single mill: full vertical integration was seldom sought. The pattern of ownership and management was in fact often highly complex, particularly where United States mills were concerned. Mills formed themselves into consortia for the ownership of mines; individual mills would commonly have a less-than-controlling interest, and functions of mine management would often be undertaken by merchanting companies, which had carved out an important specialised role for themselves in the American industry, in such spheres as financing, transportation, sales, and mine management. This system was exported to South America also, though here it became more common for a single mill or, sometimes, a single merchanting company, to have a controlling share of the mining enterprise, as with Bethlehem Steel in Venezuela or Marcona in Peru.

In the post-Second World War expansion, ownership by steel mills played an even less important role. To be economic, the new mines needed to be large. Their output might considerably exceed the needs of any individual steel company; their financing might be beyond its capacity, which was in any event strained throughout the industry by the need to finance new production facilities. Other factors militating against procurement via

normally set up a joint sales agency company to which they sell their production and from which they buy their needs, rather than relying on direct separate disposal as is common in the oil industry.

In the phase of major development of the industry in the nineteen-sixties and early nineteen-seventies, the overwhelming preference, apparently of both buyers and sellers, was for procurement through long-term contracts: that is to say, contracts in which the quantities to be supplied (and normally the prices also) were fixed over a period of years. The traditional pattern of dealing in Europe for ore supplies other than those owned by steel companies - principally, supplies from Sweden - was one of short-term or spot contracts. The Japanese, when they entered the market, wanted greater security of supply than these contracts could provide, but as has been noted, were not anxious to invest heavily overseas in acquiring new mining capacity. Their preferred vehicle was the long-term supply contract, though the mills sometimes found it necessary to take small participations in mining consortia either themselves or through the Japanese merchant companies which acted as their trading agents. This mode of acquiring supplies quickly spread from the Japanese market so as to dominate non-socialist world iron ore trade, so that a safe estimate might now be that not less than 80 per cent of the ore entering such trade is sold on this basis. Such contracts appeared to offer advantages to all classes of buyers and sellers. For sellers, they offered a secure avenue for

the disposal of output in a period of proliferation of supply sources. Where sellers, as was frequently the case, were undertaking new mine development, they also provided collateral for mine finance. For buyers, who in the nineteen sixties and early seventies were looking forward to a period of continuing growth in steel demand, they guaranteed secure supplies of the right type through periods when the market might become very constricted, should mine development lag behind steel demand.

We may summarise these considerations in economic terms by saying that the reduction of uncertainty as to availability of appropriate supplies and access to appropriate markets in a time of expansion of both milling and mining capacity provided the main motivation for this massive resort to long-term contracting. By itself, the idea of buyer-specific investment seems insufficient to explain the dominance of this method of trade: appropriate mixes of ore inputs could be maintained by judicious short-term and spot buying, and the Swedish company LKAB showed over a long period that iron ore mining could prosper on the basis of such short-term arrangements. While in theory short-term contracting might have offered an alternative trading framework for the expanding industry, once long-term arrangements became established in a significant portion of this "intimate" market the attractiveness of short-term arrangements rapidly diminished due to the restriction of the variety and quantity of ore available on such terms. A snowball effect was thus initiated, which has continued, despite the vicissitudes that will be described, to the

present day (even LKAB is now selling some ore on contracts extending over several years), and which it is hard to see being reversed in the absence of a complete breakdown of the LTC system.

On one view it may seem a little surprising that no such breakdown has taken place. Parties reduce uncertainty through long-term contracts by foreseeing a range of future possibilities and determining in advance their trading behaviour in such circumstances. One problem with this technique is the limited capacity of contracts to cope with future changes of circumstances of a kind or intensity which the parties did not foresee. If contracts are rigid enough to eliminate foreseen uncertainties they may break under the strain of unforeseen events. As we shall see in the next section, the LTCs of the late sixties and early seventies were rigid contracts. Since that time, moreover, the course of events affecting the iron ore market has been different in two fundamental respects from the expectations of the contracting parties.

In the first place, parties chose the U.S. dollar as the numeraire, or money of account, in their contracts. Given the gold convertibility of the dollar and the international nature of the market one would not have expected anything else. In 1971, however, the gold convertibility of the dollar was suspended and the dollar later devalued against most other currencies. Within a short time most currencies were floating freely against one

another. This introduced a quite unexpected element of instability into the economic balance of the contracts, whose effects were exacerbated for most producers by a strong world inflation in the same period which exerted disproportionate pressures on their costs.

Secondly, in the nineteen-sixties and early seventies steelmakers were anticipating a lengthy period of continuing growth of demand for steel. But from 1970 to 1982 virtually no growth occurred: world production of crude steel in 1970 was 599.1 MT, in 1982 645.4 MT. The 1982 figure is lower than that for 1973. Moreover, during this period there has been significant growth in the steel output of new steelmaking countries (e.g. Korea, 1.16 MT in 1973, 11.76 MT in 1982; Taiwan, 0.54 MT in 1973, 4.15 MT in 1982), which has meant that the market shares of the large traditional buyers of iron ore in Europe and Japan have been squeezed even further. Japanese steel production declined from 119.32 MT in 1973 to 99.55 MT in 1982, EEC production in the same period from 151.11 MT to 111.28 MT. Steel companies, therefore, found themselves in need of far less iron ore than they had anticipated when concluding their LTCs in the sunny days of the nineteen-sixties and early seventies.

CONTENT AND STRUCTURE OF THE LONG-TERM IRON ORE CONTRACT

To appreciate the nature and seriousness of the effect of these developments on the operation of LTCs we need to examine the

structure and contents of such contracts. This is not easy: the industry is sensitive on questions of confidentiality, and a number of companies approached or interviewed refused even to disclose individual clauses of a technical character (e.g. force majeure, or arbitration) used in their contracts. Nonetheless, a substantial number of individual and pro forma contracts have been collected, on the basis of which it is possible to discern the general pattern to which the contracts conform, normal ways of dealing with common contractual issues and the range of variations around such norms, and, not least important, the way in which the framing of contracts has changed over time, in response to the developments of the nineteen-seventies which have been summarised above. There is certainly no such thing as a standard contract in the iron ore industry, and it is doubtful whether it can even be said that there is a "typical" one. To convey a fair impression of contractual contents, therefore, I propose first to identify and classify the main clauses which will appear in virtually every contract, and then to analyse in more detail those which are of particular interest here: the key commercial stipulations as to quantity and price on the one hand, and what I shall call "lawyers' law" stipulations on such matters as dispute settlement on the other. To illustrate this detailed examination, examples will consistently be drawn from two specific contracts. The first, which will be referred to as Contract A, is an actual contract operative from the late sixties, and thus concluded before the unpredicted disturbances of the next decade. The second, Contract B, is a model contract drafted for use in the

nineteen-eighties, that is, with the benefit of experience of this period. Naturally, where these contracts provide unusual solutions to the problems they confront, this will be indicated.

Contract clauses in general

All long-term iron ore contracts will provide for the following matters:

(i) Term, quantity and price: these are examined in detail below.

(ii) Specification or quality: this will be expressed in terms of the chemical analysis of the ore, usually by reference to a minimum Fe content and maximum levels for impurities such as potassium and sulphur; to its maximum moisture content; and to its physical composition (size of particles). Non-conformity with specification will normally be dealt with by price adjustments (which may be on scales specified in advance in the contract), rather than by allowing the buyer any right of rejection. The buyer may, however, have the right to suspend shipments in the event of repeated quality failures.

(iii) Weight, sampling and analysis: cargoes need to be weighed, and sampled to ensure compliance with specification. For these purposes parties commonly, though not invariably,

make reference to independent agents, such as draft surveyors. Recourse to an independent analyst, as umpire, is almost invariably provided for in the case where parties disagree as to the results of analysis. Actual reference to such third party decision in this field is regarded as a matter of routine, and not as a sign that a real dispute has arisen between the parties. Detailed terms of contracts in this area may also vary according to whether the ore is being shipped FOB (buyer's vessels) or C & F (seller's vessels).

(iv) Shipping arrangements: these will be set out in considerable detail, in the contract itself or in a schedule. Most contracts are on FOB terms: the buyer provides his own shipping. The contract will therefore stipulate arrangements for the scheduling and access of buyer's vessels, permissible delays in loading, and so on. FOB terms also mean that the buyer, rather than the seller, has de facto control over what quantities are taken and when. In the rarer case of C & F shipping, sellers will be concerned to ensure that their ships can discharge cargo speedily at buyer's nominated ports.

(v) Title, risk, and insurance: these provisions do not reflect the shipping arrangements made, but are a matter of negotiation. In an FOB contract, for example, risk may

pass to the buyer on loading but title remain in the seller as security for payment.

(vi) Payment: payment by the establishment of an irrevocable letter of credit against which the seller can draw is probably the most usual form, though contracts calling for cash payments are not uncommon.

(vii) Force majeure, arbitration, assignment, notices: these "lawyers' law" clauses are more fully discussed below.

In concentrating, for the purposes of more detailed analysis, on term, quantity and price clauses, and on the lawyers' law clauses, I would stress that this does not indicate the unimportance of the other types of clause, which might be compendiously labelled "technical". Such things as specification, sampling, shipping arrangements, and mode of payment are of great importance to the parties. Broadly speaking, however, these clauses will be similar in content - for transactions between identical parties - whatever the duration of the contract (with the exception of spot sales of single cargoes, which may be accomplished on the basis only of a telephone call and exchange of telexes). The clauses may well be drafted with greater care in LTCs and enter into greater detail. They may also be performed somewhat differently: buyers under a short-term contract may be readier to exercise a contractual right of cancellation for repeated sub-specification cargoes (if given) than buyers under

LTCs, who may prefer to co-operate with sellers to remove the cause of the defect. Their general character, however, is not affected by the type of contract in which they are found. The opposite is true of the term, quantity and price clauses now to be analysed. Together, these characterise the LTC and express its essential features.

The term and quantity clause

In both the sample contracts, term and quantity are stipulated in close conjunction in the same clause. Contract A, provides as follows:

> QUANTITY
>
> Seller hereby agrees to deliver to Buyer 1,667,000 dry long tons (one long ton to be 2,240 pounds) of Sized Lump Ore and 1,667,000 dry long tons of Iron Ore Fines (hereinafter sometimes collectively referred to as "Ore") during the period commencing October 1, 1969, and terminating September 30, 1979, according to the following annual delivery schedule:

Contract Year (Commencing on October 1 in any year and ending Sept. 30 in the next succeeding year)	Quantity (Dry Long Tons) Sized Lump Ore	Iron Ore Fines
1969	166,700	166,700
1970	166,700	166,700
1971	166,700	166,700
1972	166,700	166,700
1973	166,700	166,700
1974	166,700	166,700
1975	166,700	166,700
1976	166,700	166,700
1977	166,700	166,700
1978	166,700	166,700
Total	1,667,000	1,667,000

Buyer shall have the option to increase or decrease the annual delivery quantities referred to above for each contract year, except for 1968 contract year, by up to 15 per cent. Buyer shall notify Seller of any exercise of such option at least three months prior to the commencement of each contract year.

Buyer shall use its best efforts to exercise such option in a manner which will maintain an even ratio between Sized Lump Ore and Iron Ore Fines in any contract year.

Notwithstanding the above option to increase or decrease the annual delivery quantities, Buyer shall receive the total contract quantity for each grade by September 30, 1979.

Contract B provides :

QUANTITY

SELLER shall sell and deliver to BUYER, and BUYER shall buy, accept and pay for during the period beginning January 1st, 198 and ending December 31st, 198 , the following annual quantities of iron ore in metric tons:

198 through 198 annually:

BUYER shall have the right to decrease the quantity of to be delivered and accepted during the following year by up to 10 per cent, provided BUYER exercises this option by giving SELLER notice in writing before August 1st of each preceding year.

The close association of term and quantity is no accident: it is the predetermination of their relationship which distinguishes the LTC from other arrangements. A long-term supply contract may be defined as one which stipulates the delivery of a given quantity of product over a given period of years. What period qualifies as "long" will depend both on the product and on the current circumstances of trade. In the oil industry today one year is long. In the iron ore market in the nineteen sixties and early

seventies "long" generally connoted a span of at least ten years; now the consensus is the industry is rather for five, and this is the figure used in this paper as the minimum which justifies calling a contract long-term. Excluded from the category of LTCs for the purposes of this enquiry, therefore, are requirements and run-of-mine contracts, under which, respectively, the seller agrees to provide the whole or a given proportion of the buyer's requirements over a fixed period, and the buyer agrees to purchase the whole or a given proportion of the seller's mine output over such a period. Quantity obligations under such contracts will vary freely according to requirements and output respectively. They are not in fact encountered in arm's length iron ore trade, though the current mode of performance of iron ore LTCs is, as we shall see, hard to distinguish from that which would follow from requirements contracts.

Also excluded by definition (even though they are occasionally encountered) are evergreen contracts - that is, contracts which are automatically renewed unless one of the parties decides otherwise - with an initial fixed term of less than five years. Such contracts, even if their initial duration is as short as one or two years, may in fact last for very long periods; but by reason of the opportunities they provide for renegotiation on renewal they neither offer the security, nor impose the constraints, of the true LTC as above defined. The same is true, a fortiori, of short-term contracts not expressed to be evergreen, but which in fact succeed another in time within

the framework of a long-term course of dealing between the parties: a much commoner pattern of trading in this market. Where evergreen contracts are used, or where such succession occurs, we may conveniently speak of long-term relations between the parties in question. Whether there has, in fact, been any difference between the behaviour of parties to LTCs and in long-term relations is a key element in the answer, in this context, to our general question about the significance of legally-binding obligations.

The fixed-term character if iron ore LTCs is generally quite stark, in the sense that a majority of contracts provides neither for a discontinuation of the contract before the expiry of the term for any reason other than continued force majeure nor for the renewal of the contract. The force majeure clause of contract A (below, p. 32) is in fairly common form in providing that the party advised of (i.e. not invoking) force majeure may terminate the contract if the force majeure continues for 12 months. Contract B, unusually, does not even provide for termination even under such circumstances. Both contracts are unusual in providing explicitly - even if not in rigid terms - for a possible renewal:

> Contract A
>
> EXTENSION
>
> It is the intention of both parties to extend this agreement to provide for delivery of additional Iron Ore beyond the contract period, subject to mutual agreement on price, tonnage and other terms and conditions for an extended period.
>
> Contract B

Clause 1 - Quantity

This contract runs for the period January 1st 198 to December 31st 198 . On or before March 31st 198 , BUYER and SELLER shall negotiate the quantities and period for which the contract could be extended.

In contrast, ways of expressing quantity stipulations are well represented by our two examples. While contract B fixes an annual quantity only, contract A fixes both total quantities of lumps and fines over the whole contract period, and a year-by-year schedule of quantities. Each contract also gives the buyer, only, an option to vary these quantities within specified limits: in B, down by 10 per cent in any year; in A, up or down by 15 per cent in any year. All contracts will have some such provision for limited variation of quantities in a given year at buyer's option (the fourchette)., Where a total quantity is specified, as in contract A, the fourchette enables the buyer to smooth his intake of ore to reflect temporary surges or depressions in demand, to match the availability of shipping, and so on. In contract B the absence of an overall quantity provision means that the buyer may end up taking up to 10 per cent less than the cumulated annual totals provided. While this offers less security to the seller than the arrangement in contract A, there is an offsetting advantage in the absence of any upward revision option: with the normal two-way fourchette the seller is effectively compelled to install capacity sufficient to satisfy the full utilisation by the buyer of the upward option, capacity which may never be used.

Obviously the desire of buyers will be to obtain the greatest flexibility possible, but the width of the fourchette, and its impact on total quantities to be taken, will in the case of new mine developments be limited by the need for the contract to offer sufficient security to serve as collateral, de jure or de facto, for the raising of development finance. Lenders for iron ore development projects seem, however, to have been satisfied with a considerably weaker commitment on the part of buyers to take the contract quantities than has been the case in other mineral markets, notably that of natural gas, where it is common for lenders to insist on the inclusion in the contract of a "take or pay" provision whereunder buyers must pay the price of the commodity even if they choose not to take it. In the light of the experience of contract performance of quantity stipulations in the last decade, lenders may now be more demanding: LTCs relating to the biggest current iron ore development, at Carajas in Brazil, include an express warranty on the part of the buyer that in any year he will take at least 80 per cent of the nominal contract quantity. In other cases, where contracts are not lined to mine finance (e.g. renewal contracts for supplies from established mines), the opposite result in terms of contract provision has followed from this experience: buyers have secured the insertion of a "tonnage flexibility" clause permitting the unlimited downward revision of contract quantities in a given year either at the buyer's request, if he has difficulties with production or sales, or at the seller's, if he has difficulties in delivery. A form of the clause is reproduced as an Appendix. In most, if not

all contracts such reductions affect total contract quantities also. In present circumstances of slack steel demand and substantial overcommitment on LTCs by some buyers (see below), this clause benefits only the buyer. If total quantities can be reduced by invoking the clause, it arguably changes the whole nature of the contract, converting it from a fixed-quantity LTC into a requirements contract. The significance of this change will be discussed in the concluding paragraphs of this paper.

The price clause

Here contracts A and B present an important contrast which reflects the date of their design.

> Contract A
>
> PRICE
>
> Sized Lump Ore: US-$9.21 per dry long ton FOB spout trimmed, Fe 64.00% base
>
> Fines: US-$7.52 per dry long ton FOB spout trimmed, Fe 64.00% base
>
> The above-mentioned prices and terms specified hereunder shall be applicable to 833,333 dry long tons of Sized Lump Ore, 833,333 dry long tons of Iron Ore Fines stipulated in paragraph 2 hereinabove. The price and terms applicable to the remaining contract quantity of each grade shall be decided by mutual agreement by September 30, 1973.
>
> Contract B
>
> PRICE
>
> The purchase price or prices C & F hold of vessel at those ports of discharge designated by BUYER applicable to annual deliveries of iron ore hereunder shall be determined from year to year by mutual agreement between the parties hereto. During the last quarter of each

year, representatives of BUYER and SELLER shall meet to establish in good faith the prices at those ports of discharge designated by BUYER which will be effective as to all deliveries called for under this contract during the following calender year.

In order to establish said competitive prices the parties hereto shall, in good faith, take into account the worldwide price trends for ores comparable, from the standpoint of quantity and quality, with the ores to be delivered under this agreement, the effective or potential availability of said comparable ores at the ports of discharge designated by BUYER, the FOB prices of said comparable ores and the ocean freight from their ports of origin to the ports of discharge designated by BUYER. Bunker escalation clause shall also be discussed during this meeting. It is understood, however, that BUYER cannot ask to be granted a lower price, if said lower price for the same delivery period had previously been offered by SELLER and was not accepted by BUYER. SELLER is also free to sell trial shipments not exceeding 100,000 tons per customer without the necessity to adjust the price established between BUYER and SELLER. As soon as agreement on price has been reached, BUYER and SELLER shall execute a Supplemental Agreement hereto setting forth the C & F price or prices and discharging conditions applicable to deliveries to be made under this Contract during the following year.

All dues, duties and taxes relating to the iron ore or transportation levied in the country of origin shall be for the account of SELLER. All dues, duties and taxes relating to the iron ore or transportation levied in the country of destination and/or country through which iron ore shall pass at BUYER's request shall be fore the account of BUYER. For the definition of C & F, wherever mentioned in this contract, the INCO terms are applicable.

Contract A, concluded in 1968, has a fixed price, subject to adjustment for quality, for half of the contract quantity of lumps and fines respectively. The price for the remainder is to be fixed by agreement not later than half-way through the contract period. Such a provision is common in LTCs concluded up to around 1974-75. Sometimes prices were fixed for a period of years (3-5 years), rather than by reference to a proportion of total

quantity; sometimes more complex arrangements were made, with split prices for proportions of each year's quantities. Indexation has been rare, though some contracts have had prices tied to the price of a basket of ores, to pig iron prices, and so on. Contract B shows the effects of the instability of the nineteen-seventies: prices are to be negotiated annually. This contract sets out negotiating procedure and criteria more fully than most, but is silent on the important question of what happens if the parties fail to agree a price before the date when deliveries for a given year are due to start. In the absence of a specific provision, the price once agreed will presumably apply retrospectively to shipments made before agreement. The contract may however provide that where the price cannot be agreed, shipments for that year may be cancelled; or that, pending agreement, shipments are to continue at the previous year's price, with the new price, once agreed, being applied retrospectively only to a proportion of the so shipped. Some contracts smooth out annual fluctuations in prices by providing for review of the price of half the contract quantity every other year (the "brick pricing" system).

"Lawyers' law" clauses

Clauses of this type are few and simple in iron ore LTCs. Part of the reason, undoubtedly, is the small part played by lawyers in the design of these contracts, and, indeed, the limited value attached to legal advice by company personnel responsible

for their negotiation and performance. Despite our advance indication of an interest in specifically legal questions, such as the design of force majeure clauses, lawyers were present at only three of the fifteen company visits so far conducted in the research for this study; in only one of the other cases did company representatives make any spontaneous reference to legal advice. The low visibility of lawyers in this business confirms impressions collected by the earlier investigations of Macaulay (1963) and Beale and Dugdale (1975) into contracts mainly of engineering firms in Wisconsin and Bristol respectively, but is perhaps more surprising in view of the international character of the market and the very large sums of money involved.

Two possible reasons may be suggested. First, though the iron ore market is worldwide in scope, the total number of companies operating as buyers or sellers within the main currents of trade is small, probably not more than fifty. Within these companies negotiations are conducted by senior people who develop close personal relationships. They may be able re rely more heavily on personal trust and on industry mores, and feel less need of legal protection, than operators in larger, more impersonal markets . Second, although the existence of an iron ore LTC probably signifies a degree of interdependence between the parties (adjustment of processing facilities to product specification, construction of suitable loading and unloading facilities, acquisition of necessary shipping, etc.) closer to that involved in a capital-sharing joint venture than in a spot sales

transaction, the form of the LTC appears to have developed as the simple extension in time of the annual or spot contracts which were quite recently, as we have seen, the only arm's-length mode of trading. It consequently shares their simplicity and their heavy reliance on general rules and principles, whether legal or custom of the trade, for guidance in the unlikely event of dispute. Whatever the reasons may be, the simple form of this part of the LTC requires that we consider both the clauses that are found and those which we might expect to find, but do not.

It is hard to imagine an LTC without a force majeure clause. The purpose of the clause, it should be remembered, is to ensure, within limits, the continuation of the contract in circumstances which, under general law, might constitute a breach on the part of one party, might terminate the contract by reason of impossibility or unforeseen onerousness of performance, or warrant its ex post facto adjustment by a court. To avoid these uncertainties Contracts A and B each contains a force majeure clause, as follows:

> Contract A
>
> FORCE MAJEURE
>
> Either party shall be relieved of and excused from its obligations to perform hereunder, during any period that its performance (including any performance required of Receivers, and/or vessels nominated and accepted under this contract) is prevented or delayed by inability to obtain a proper export or import license, act of God, war or threat of war, governmental restrictions or regulations, strike, fire, flood, or any other cause beyond the reasonable control of such party. In the event that such a force majeure condition occurs or is anticipated, the party directly affected shall advise

the other by cable as promptly as possible and then submit a written advice of the force majeure condition, with evidence and proof if possible, within ten days after occurrence of such force majeure condition. Deliveries that would otherwise have been made hereunder during the period in which performance by either party is prevented shall be made by mutual agreement as soon as practicable following termination of this force majeure condition; provided, however, that if any such period continues for more than one hundred eighty (180) consecutive days, the party advised of the force majeure condition may, at its option, cancel the tonnage that would otherwise have been delivered during such period; also provided, however, that if any such period continues for more than twelve (12) months, the said party may, at its option, cancel the remainder of this contract.

Contract B

In the event that performance of this Contract by either party is delayed, interrupted or prevented by reason of Force Majeure including strikes, lockouts of any kind or other causes beyond the control of the party which is unable to perform, then the party concerned shall be excused from the performance of this contract while and to the extent that such party is delayed interrupted or prevented; it being understood that in the event of any such occurrence, both parties shall perform such of their respective duties and obligations as conditions may reasonably permit, and so far as reasonably practicable deliveries and receipts of the grade or grades of ore affected shall be prorated with other existing foreign obligations of SELLER and BUYER as the case may be, provided that any quantities of iron ore not delivered and accepted as a result of such occurrence shall be cancelled except as the parties ;ay otherwise agree in writing.

The party whose performance is affected by any such occurrence shall immediately notify the other party of the commencement hereof, defining exactly and precisely the nature of such occurrence and the expected duration and cessation.

These clauses excuse failure to perform in defined circumstances, and stipulate the results of such a failure: cancellation of tonnage under contract B, while contract A provides for postponement of tonnage, cancellation of tonnage and, finally, cancellation of contract, according to the length of time for

which the force majeure condition prevails. The definition of force majeure events, while varying in particularity in the two contracts, is in both cases quite conventional and would exclude any possibility of claiming force majeure on the basis of major market changes as in cost of supply or level of product demand such as have in fact upset the economy of LTCs in the last decade.

With one exception only, all the contracts seen or discussed so far in this investigation have had an arbitration clause. These can vary quite widely in content, as our two examples show.

Contract A

ARBITRATION

Any dispute which may arise hereunder and which cannot be disposed of by mutual agreement shall be decided by arbitration in the United States of America, in accordance with current American Arbitration rules and procedures. Arbitration may be initiated by either party by giving thirty (30) days' notice in writing to the other of commencement of arbitration proceedings. Thereupon, a board of three (3) arbitrators shall be appointed, one of whom shall be chosen by Buyer, one by Seller, and a third by two (2) so chosen. If either Buyer or Seller fails to choose an arbitrator within fourteen (14) days after receiving notice of commencement of arbitration proceedings, or if the two arbitrators so chosen cannot agree upon a third arbitrator within fourteen (14) days after they have been so chosen, the American Arbitration Association shall, upon request of either party, appoint the arbitrator or arbitrators required to complete the board. The decision of the majority of the arbitrators shall be final and binding upon both parties.

Contract B

ARBITRATION

Any claim, dispute or controversy, with the exception of non-agreement on price, arising out of, or relative to this Contract, the activities performed under its terms or the breach thereof, that cannot be settled by mutual

> agreement between the contracting parties, shall be subject to arbitration in Paris in accordance with the rules of the International Chamber of Commerce, Paris, France.
>
> Whenever the provisions of this Clause shall apply then the matter shall be referred for decision to three referees who shall be persons fitted by the possession of expert knowledge for such decision.
>
> Each of the parties hereto shall be entitled to appoint one referee and the third one shall be nominated by mutual agreement between the parties or failing such agreement by the President for the time being of the International Chamber of Commerce. All such referees shall be deemed to be acting as experts and not as arbitrators and their decision shall be final and conclusive.
>
> The parties hereby expressly state that this Clause shall be binding upon them despite the fact that it does not provide detailed guidelines for the decision of the referees.

Normally this clause will cover all save quality disputes, which have their own specialised settlement procedure (though note that contract B excludes arbitration on price matters, and will provide for a "neutral" arbitration in a third country, often according to International Chamber of Commerce or UNCITRAL rules. Arbitration is regarded as a last resort: we are not aware of any arbitration taking place under an iron ore LTC.

While assignment and notice clauses require no particular attention, a word should be said about two types of clause which one would ordinarily expect to find in any modern long-term international contract. The first is a governing law clause. Given that the parties to the contract inhabit different jurisdictions one would expect them to specify what system of law should govern their contractual relations. This might be a

national system, whether of one of the parties or of a third country, or some "self-designed" law such as "the principles of law common to the legal systems of both parties" and other such formulae. Failure to specify a system will mean that the arbitrators, or any court before which a dispute is brought, will need to determine the question, applying rules which may vary from court to court and are far from predictable in their application. Contract A contains such a clause, under which substantive law of the State of California is to govern the construction and performance of the agreement. Contract B, by contrast, omits any mention of governing law and such omission is in fact common in iron ore LTCs. In these cases, I think, parties consider the risks of litigation too remote to justify the risks of difficulty in reaching agreement inherent in the attempt to choose a governing law.

The second type of missing clause is a hardship, or general adjustment clause. Such clauses represent an attempt by parties to plan, on a broader scale than is offered by the traditional force majeure clause, for supervening events which may impede contract performance. Frequently, this attempt takes the form of provision of a mechanism for adjusting the contract (whether by negotiation or otherwise) in the event of hardship to one of the parties. A recent example is in the following form:

> "15. MUTUAL COLLABORATION
>
> Both Buyer and Seller recognise a long-term relationship requires mutual collaboration and assistance should either Buyer or Seller suffer hardship or unfairness.

> Both Buyer and Seller agree that they will make their best efforts to solve any problem due to any such circumstances in the spirit of mutual understanding and collaboration."

Even after the disturbances of the last decade, clauses like this appear to be unusual. A number of companies take the view that such an understanding has always been an unexpressed, but vital part of their relationships with their opposite numbers under LTCs, and that its contractual expression would not strengthen its force. At the same time even those companies which express this view most strongly - the Japanese, for example - have recently been anxious, where circumstances permitted, to formalise arrangements for dealing with certain types of "difficulty", such as collapse of finished product markets leading to lack of need for contracted quantities (the "tonnage flexibility" clause above referred to: see Appendix). The unilateral and discretionary character of this latter clause, however, arguably disqualifies it from consideration as a real hardship clause, and rather represents, as suggested earlier, a basic change in the nature of the contract.

PERFORMANCE UNDER IRON ORE LTCs

The pre-1975 iron ore LTC, therefore, as represented here by Contract A, was a simple, rigid agreement not well adapted to survive the major disruptions of the market which have occurred in the last decade. The previous section, and Contract B, convey some impression about how parties drew lessons from this

experience which they have applied, or will apply, in the drafting of new contracts. Already in the early nineteen-seventies, however, LTCs were in force which would cover a very high percentage of total iron ore demand up to 1985 or even beyond. The crucial question, therefore, is what happened to these contracts as a result of the collapse of the numeraire and the collapse of the steel market. Were they terminated? amended? breached? or, somehow, duly performed?

Currency instability and inflation

The dollar devaluation of 1971 occurred at a time when a substantial number of major contracts including, in particular, the first contracts covering the development of large Australian iron ore deposits, were in their first few years of operation under fixed price regimes. Between 1970 and 1974 the Australians were doubly hit: by a rapid domestic cost inflation (the Australian index of manufacturing prices rose 37 per cent in this period) and by US-dollar devaluation of 25 per cent by reference to their own currency. Other sellers were luckier in that the devaluation of the dollar, in own currency terms, was small or even negative. It appears that the currency changes were recognised, on all sides, as a matter for industry concern. We do not have information about how all parties behaved, but the pattern in the Australia-Japan trade appears to have been as follows. The mines continued to deliver, while indicating that they must have higher prices if they were to be able to continue

to operate. After negotiations the Japanese mills (which deal separately with each mining company, but negotiate as a cartel) agreed in 1973 to a price adjustment. This price adjustment was on the same basis for all sellers: in fact it did not fully compensate the Australians for their currency-related losses, and over-compensated the Indians, who were already receiving currency gains because the rupee had depreciated even faster than the USdollar. This adjustment was "covered", in the case of the Australian contracts, by a hardship memorandum signed the following year, whose central provisions are virtually identical to the "mutual collaboration" clause above cited. In the words of the Memorandum

> "Buyer and Seller hereby reconfirm the same spirit of mutual co-operation and assistance and agree that in the event of future hardship or unfairness resulting from abnormal circumstances, as compared with those in existence at the time of the signing of the contracts, the two parties shall meet promptly and exert their best efforts to reach a solution to alleviate such hardship or unfairness, taking into account all relevent factors."

The 1973 price adjustment, and a further adjustment made in 1974, were incorporated as formal amendments to the contracts, but the hardship memorandum, it should be noted, was not. It appears to have been important to the buyers, at this stage, not to enter into such a legally binding commitment.

After another year it became clear that the inflationary pressures and currency instability which had brought about these

adjustments were not quickly going to disappear. The Japanese, after a general contractual review, agreed to formalise the de facto situation by moving to a system of annual negotiation of prices, usually according to the "brick" system. The common procedure, incorporated in 1976 into already existing contracts and still persisting, is for the parties to agree, in respect of half the annual contract quantity, at the end of year 1, the price that will apply in years 2 and 3 and the date by which (and perhaps the broad criteria according to which) the price for years 4 and 5 should be agreed. A similar agreement will be reached at the end of year 2 in respect of the other half of the annual contract quantity. These agreements are then treated as amendments to the original contract. Though part of its raison d'être has been removed by this process, the hardship memorandum, where concluded, is still regarded as being in force so long as the original contract has not expired.

Steel market collapse

Before the steel market began to crumble in the mid-seventies it was the policy of European mills to acquire some 65-70 per cent of their needs under LTCs, either from their own mines of from third party sellers. The Japanese were even more committed to LTCs: in 1971 three major mills had a total intake of 80 MT of iron ore and were committed to LTCs with a total basic tonnage of 73.6 MT. Not surprisingly, therefore, when steel demand fell away, LTCs immediately came under stress. Buyers began to claim

that they could take only quantities falling below (in some cases far below) the bottom limits of their contract fourchettes, or even to seek to cancel contracts completely. The degree of their distress of course varied, according to the weakness of their own market, the degree to which they were able to reduce their ore intake by cutting back on purchases under short-term contracts, their desire to protect their investment in captive mines, and their capacity, if buying as traders, to sell on excess ore on a spot or short-term basis. Also varying, it would appear, was the degree of their attachment to their existing LTCs, with European buyers (who were admittedly harder hit by the steel crisis in the first instance) much quicker to suggest radical solutions like cancellation.

In the face of this chorus of hardship, the overriding concern of all sellers was to keep their contracts alive. They strongly, and largely successfully, resisted buyers' proposals to terminate contracts or to suspend them indefinitely. A few contracts were unilaterally terminated - for example when a lucky buyer found that he could successfully allege continuing breach of specification - but for the most part what emerged was a situation in which buyers took what quantities they could, when they could, under their LTCs. Over the last five to ten years this has meant that most buyers are normally taking less than the minimum annual contract quantities. To indicate the current dimensions of the problem, in 1982 the three Japanese mills already referred to together took 69.25 MT under LTCs, as against a basic tonnage for

these contracts of 111.8 MT and a minimum permitted tonnage of 101.6 MT.

Buyers will normally indicate to their sellers, at the beginning of the annual price negotiation, how much they intend to take, a figure which they may, or may not, adhere to in the course of the year (it will be remembered that most sales are FOB so that the buyer controls shipping). The tonnage which is "lost" in this way may be taken in a later year - this has rarely happened; it may be postponed to the end of the contract period, so that at this moment the contract is, in effect, extended in time; or it may simply be cancelled. The parties will not necessarily be explicit as to which of these alternatives is to operate. In contrast with the situation on prices, contracts have not been amended, other than on renewal (see below), to reflect this crisis situation. Sellers do not appear to regard buyers' failure to take a contracted annual quantity as in itself a significant breach of the contract, if indeed they regard it as a breach at all, but (with rare exceptions) they refuse to endorse the taking of lesser quantities by contract amendment or even by informal agreement, preferring to await the last years of the contract for a negotiation in which they will seek to recuperate "lost" tonnage through contract extension or quantity increase. So far, to my knowledge, cancellation of quantities has been agreed only in the context of a partial extension of a contract.

When Japanese mills came to renew their contracts, from about 1978 onwards, they insisted on formalising the de facto situation on liftings through the insertion of the "tonnage flexibility" clause (Appendix). We have already noted that whatever the quantities and fourchette written into the contract, this clause in effect turns the contract into one for requirements, rather than for fixed quantities. This is the factual situation obtaining even in those cases where the clause does not operate. One buyer, indeed, went so far as to say in interview that it was an unwritten rule that the buyer can only be asked to lift the tonnage he can reasonably be expected to consume, whatever his contractual commitments may be. Another such rule, which would certainly command widespread acceptance, is that every buyer must operate his programme of tonnage reductions fairly as between his different suppliers under LTCs. Fairness does not mean that all takings must be cut pro rata: sellers accept, within limits, the propensity of buyers to favour captive mines among their long-term sellers, and their need for appropriate mixed of ores for economical furnace operation. This principle of fairness is incorporated into the tonnage flexibility clause as a contractual obligation.

CONCLUSIONS

The experience of the iron ore industry in the last decade presents a wide range of lessons for the student of international trade and of contract law. Here I propose only to relate this

experience to the ideas about contract advanced by Williamson and Macaulay, by briefly making a few points connected with the legal force of contracts and the utility of legally binding obligations.

1. The modern operation of the iron ore market seems in general terms to correspond to Williamson's expectations about the use of relational contracting. As already noted, however, the remarkable dominance of long-term contracting at the present time cannot be attributed solely to his key factor of recurrent idiosyncratic transactions, which is present in the iron ore industry, but in a fairly weak form. The origins of this dominance lie in the preference of some major actors in this intimate market for relational contracting, as opposed to unified governance (acquisition of mines), as a means of reducing supply uncertainties in a period of rapid growth; its consolidation we may trace first to the difficulty of maintaining viable short-term trading arrangements in a truncated market, and second to the reduction of total demand in the market to the point where many major buyers needed less ore than the minimum provided for under their LTCs. These elements of market structure and dynamics are touched on only lightly in Williamson's 1979 paper, and it would doubtless be helpful to examine other markets involving large recurrent transactions among a small number of actors to see if one can generalise as to the effect on contract choices of such additional factors.

2. The LTCs concluded in the early nineteen-seventies and before were a remarkably rigid set of documents, notwithstanding their importance in financial terms, and the length of the commitments they created. This rigidity is not wholly explicable by the need to use many of these contracts as collateral for financing purposes: contracts from other sectors, such as gas, while stricter in their "take or pay" obligations, usually attempt to provide in a controlled way for future changes in circumstances (see, e.g., Kemp (1983)). Williamson's suggestion that where parties are conscious of uncertainty they will react by providing an "elaborated governance apparatus, thereby facilitating more effective, sequential decision making" (1979: 254) perhaps overrates the rationality of the parties. More specifically, one may offer an answer on a superficial level, in line with the general conclusions of Macaulay (1963), by pointing to the minimal role of lawyers in the design of these contracts and their direct evolution from simple short-term contract forms. More profoundly, this absence from the scene of the conflict specialists that lawyers are suggests that the perspective of the parties at the time of conclusion of the contracts was one of co-operation rather than conflict, coupled with the assumption that such co-operation would of itself, without contractual stipulation, suffice to resolve any difficulties which might arise from changed circumstances. The presence of arbitration clauses in all these contracts at first sight suggests foresight of conflict or even Williamson's category

of "trilateral governance", but experience shows that parties do not in fact resort to arbitration as a mode of settlement. Incorporation of an arbitration clause, I would suggest, shows only that the parties wish to avoid the possibility that a dispute will come before the ordinary courts.

3. Despite their rigidity and lack of sophistication, iron ore LTCs are, with rare exceptions, still in place after a very violent shake-up in the industry. This remarkable result has been achieved at the expense of an almost total change in the character of the contracts in question. From fixed-term, fixed-quantity, fixed-price contracts, they have been converted into requirements contracts which may, through extension, have an indefinite term, with annually negotiated prices. This has been formally reflected in contract amendment only in regard to price, save where tonnage flexibility has been introduced through contract extension. In most cases, today, the parties are performing a relationship different from that written in the contract, in which non-contractual norms, like fairness in quantity reductions, may be more important than contractual ones. This experience may be interpreted in terms of Williamson's argument as manifesting the desire of parties to maintain as many elements of their long-term contractual relations as possible, even while altering some fundamental ones, in order to enjoy continuing advantages in terms of mutual knowledge and other "relational" values. The apparent desire of parties

to provide formally for price negotiations, while leaving quantity negotiations to operate contrary to formal contractual requirements, could be seen as an interesting empirical demonstration of his feeling that quantity adjustments were less problematical than price ones (above, p. 5).

Other types of explanation might, however, also be offered. It could be argued that the pattern of contractual behaviour reflects changes in the relative bargaining strength of buyers and sellers. Buyers were forced to accede to sellers' demands for prices in excess of contract levels in 1973 and 1974 out of fear of a drying up of supplies in a market that still seemed to be in a phase of growth. Subsequent extra-contractual quantity reductions, and the arrival of tonnage flexibility, may be seen as expressions of the dominant position of buyers in a shrinking market, a position reinforced by the introduction - again at buyers' behest - of annual price negotiations as the means of securing price adjustments, rather than any kind of indexing system. The leading buyers - the Japanese and, to a lesser extent, the Germans - have thus attained a position where they can bargain on price with the threat of exercise of their contractual or extra-contractual discretion to reduce quantities, a discretion constrained only by non-discrimination requirements of a type commonly associated, in domestic or Community law, with dominant enterprises. This

situation, in which it has become artificial to make a rigid separation of quantity and price negotiations, offers ample scope for what Williamson would call "opportunistic" behaviour. In this connection it is worth noting that the Japanese mills appear to have deliberately enlarged their freedom of manoeuvre in the last few years by continuing to undertake new long-term purchase commitments even while taking below the minimum on existing contracts.

4. In the current - and continuing - state of the steel market, the only iron ore contracts likely to be performed strictly according to their terms are those incorporating annual price revisions and a tonnage flexibility clause. There must, however, be serious doubt about the practical enforceability of these contracts in the event of breach. Say a buyer refuses, in breach of his non-discrimination obligation, to take any ore in a given year from a particular supplier under such a contract. In order to measure the seller's loss the court, or the arbitrator, will need to determine both what price the parties would (or should) have fixed and what quantity the buyer would (or should) have taken. Some courts and arbitrators might accept this double challenge: others might not. Without caricaturing too much we might say that the performable contracts may be unenforceable and the enforceable contracts may be unperformable. Yet in this unpromising situation, in which one might think that a series of annual contracts would serve the interests of the parties

just as well, sellers cling tenaciously to the maintenance of existing LTCs and the creation of new ones, and the attitude of the major buyers is complaisant. Sellers and buyers alike, moreover, are very sensitive to questions of nomenclature, and clearly distinguish contractual elements in their relationship (agreements) from non-contractual ones (side letters, memoranda, and so on): they show none of the indifference to the existence of an identifiable contract manifested by some of the manufacturers interviewed by Macaulay, or by Beale and Dugdale. How are we to explain this attachment to contractual form? I would make three suggestions.

First, the LTC facilitates the dealings of buyer and seller with important third parties. It reassures lenders - even today, as the Carajas development shows. It offers tidy answers to governments anxious for a fair return on their natural resources.

Second, it provides a fairly comprehensive set of parameters for the parties' regular - or irregular - dealings and discussions. If problems arise, say on a matter like quality, the LTC offers a series of elements - price, quantity, , shipping etc. - which, at least at the beginning of the negotiation, are fixed points of reference. In this way the contract may provide, albeit in a rather weak form, "the foundation for strategic manoeuvres in the game of negotiated settlement" to which Macaulay refers (Macaulay, 1977: 515).

Third, and most important, the LTC creates a privileged trading relationship between the parties, which is of great importance in times of difficult markets, of glut or scarcity, in the sense that it reinforces, by rendering unambiguous, each party's claim to remain in business relations with the other. It thus gives better, but not absolute, security to the trading position of each party.

For this purpose, however, the legal quality that counts is not enforceability, but formality. By using this legal form the parties sanctify their intentions. As one seller puts it: "The legal contract ... reinforces our moral position." In a glutted market for a product substantially interchangeable with those of one's competitors, and with a single, restricted set of buyers, a reinforced moral position must be a very valuable asset.

APPENDIX

TONNAGE FLEXIBILITY

"5. Quantity Flexibility:

(1) In the event difficulties prevent Buyers from receiving deliveries of the tonnage to be delivered under the Extension Contract, or in the event that Seller is unable to effect the delivery of the tonnage under the Extension Contract, Buyers may request Seller or Seller may request Buyers, forty-five days prior to the commencement of each contract year, to reduce the tonnage to be delivered in the said contract year, and the party receiving the request shall comply.

Furthermore, at the times when Buyers submit to Seller the tentative monthly shipping schedules covering the next quarter, Buyers or Seller may request for a revision of such reduction in tonnage and the party receiving such request shall give it serious consideration in recognition of the long-term contractual relationship between the parties in a spirit of mutual cooperation and assistance.

(2) In the event of a reduction in tonnage to be delivered under the Extension Contract in accordance with item 5(1) hereof at the request of Buyers, Buyers shall ensure that Seller is treated fairly so that no discrimination or disadvantage in the tonnage reduction shall occur compared with other major suppliers and shall exert their best efforts so as not to bring about any reduction in the Seller's share of iron ore purchases by Buyers from major suppliers which are each supplying iron ore to Buyers under similar conditions.

Similarly, in the event of such reduction being effected at the request of Seller, Seller shall ensure a fair treatment of Buyers so that no discrimination or disadvantage shall occur as compared with other users."

Notes and references for Daintith, The Design and Performance of Long-Term Contracts

Notes:

1. This study has been conducted jointly with Christopher D. Rogers, Senior Lecturer in Economics at the University of Dundee, Scotland, and has been financed by the United Kingdom

Economic and Social Research Council under grant no. HR 7907/1. Factual information in this paper about the iron ore market and industry is based on Christopher Rogers' contributions to the study. Information on contracts and their performance is based on contracts communicated by participants in the market, on questionnaire responses, and on interviews.

2. For another positive empirical test see Palay (1984).

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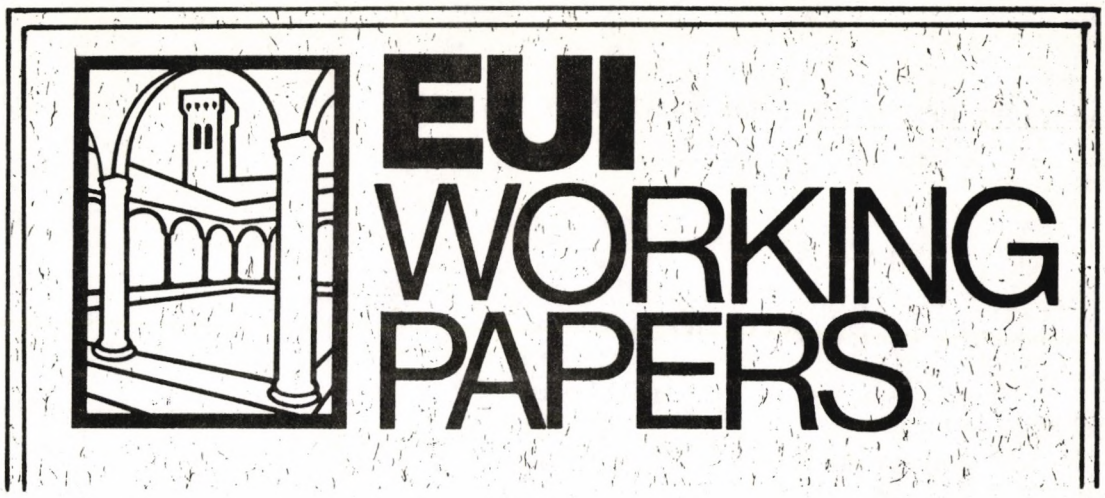

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