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Joint Dominance and Tacit Collusion: An Analysis of the Irish Vodafone/O2 Case and the Implications for Competition and Regulatory Policy.

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Joint Dominance and Tacit Collusion: An Analysis of the Irish Vodafone/O2 Case and the Implications for Competition and Regulatory Policy.

Abstract: The paper takes as its starting point the Irish telecom regulator ComReg's finding of joint dominance by two firms in the mobile phone market in Ireland. The paper argues that the regulator's decision was inconsistent with the facts in the case. However, it argues that the case raises wider questions about the whole concept of joint dominance as it has evolved under EU competition law which in our view is confused. We regard the approach of the ECJ in trying to use a single approach to joint dominance in merger analysis and in competition analysis as unjustified, misguided and at odds with economic analysis.

1: Introduction.

The starting point of the present paper is the decision of the Irish communications regulator – ComReg- that Vodafone and O2 enjoyed significant market power (SMP) in the market for mobile access and call origination within the Republic of Ireland, i.e. that they were jointly dominant. The paper argues that ComReg's decision was not supported by the evidence in the case.[1] More importantly the paper suggests that the case raises wider issues about the concept of joint (collective) dominance as it has evolved in EU competition law and its applicability in competition and regulatory cases.

The concept of joint dominance has emerged through various EC Commission decisions and European Court judgments under Article 82 and the EC Merger Regulation. Such decisions and judgments reflect primarily a matter of findings as to market structures and developments in those market structures. Whish (2003, p.581) describes the application or non-application of Article 82 and the Merger Regulation to "so-called" collective dominance as *"[O]ne of the most complex and controversial issues in Community competition law…*"

The concept of joint dominance has been extended to the regulation of the telecommunications sector throughout the EU. Under the legislative framework for the sector introduced in July 2003, national regulatory authorities can only intervene in telecommunications markets were one or more operators are found to possess SMP where SMP is defined as corresponding to the competition law concept of dominance.

The balance of the paper is structured as follows. The Vodafone/O2 case is described in the following section. Section 3 then describes what is meant by the concept of joint dominance, how it emerged in EU competition law and the way in which regulators and courts have defined what is or is not joint dominance. The problems involved in this process are also described. Section 4 reviews the economic literature on joint dominance... In Section 5 we consider the extent to which there is a need for the concept

[1] The authors were advisers to Vodafone (Ireland) in the appeal. ComReg agreed that the decision should be annulled following an appeal.

of Joint Dominance (as opposed to collusion) in competition and merger analysis and regulation. The final section briefly states our conclusions.

2: Summary of the Vodafone/02 Case.

In July 2003 a new legislative framework for telecommunications services throughout the EU came into force. The key feature of the new regime was that it involved a shift away from *ex ante* regulation of telecommunications towards a more competition law based approach. Under the new regime *ex ante* regulatory controls can only be imposed on firms that are deemed to have SMP. The concept of SMP is defined as equivalent to the concept of dominance under EU competition law. The rules also provide that standard competition law approaches to defining markets are to be used to identify relevant markets in telecommunications.

ComReg subsequently found in 2004 that the two largest mobile network operators in the Republic of Ireland, Vodafone and 02, enjoyed SMP, i.e. they were jointly dominant. ComReg published its preliminary findings in a consultation document published in January 2004 and sought submissions from interested parties. (ComReg, 2004a) Prior to adopting a final decision ComReg consulted with both the Competition Authority and the EU Commission neither of which objected to its conclusions, although the Authority indicated that it might take a different view to ComReg with regard to retaliatory mechanisms. (ComReg, 2004b, Appendix A). ComReg subsequently published its response to submissions received in December 2004 restating most of the preliminary findings set out in the earlier consultation document (ComReg 2004b). The document identified three main issues:

1. Vodafone and O2 were collectively dominant;
2. There were strong indications of a lack of effective competition at the retail level; and
3. The joint dominant position would not be diluted in any meaningful way without *ex ante* regulatory measures.

ComReg (2004b para 1.18) stated:

> "*In practice, ComReg believes that the evidence supports the view that O2 and Vodafone are tacitly colluding in this market.*"

Following publication of the Response to Consultation document, ComReg adopted a formal decision that Vodafone and O2 were jointly dominant in the market for Mobile Access and Call Origination.

Both Vodafone and O2 along with a third mobile operator, Meteor, appealed ComReg's decision to the Electronic Communications Appeal Panel (ECAP). After the first day of the appeal hearing, ComReg agreed that the decision should be annulled and to pay the costs of the appellants. ComReg's decision appears inconsistent with the facts in several respects.

1: **ComReg argued that the market shares of Vodafone and O2 were symmetric and stable.** At the time Vodafone's market share was falling but was still 44% greater than O2's. ComReg subsequently modified its argument somewhat stating:
"....that, while the market shares of O2 and Vodafone are not identical, the size of O2's share of the market, especially given the overall size and structure of the market, is sufficiently large to indicate that it has an incentive to engage in behaviour that gives rise to coordinated effects." (ComReg, 2004b, Para 4.43).

2: **ComReg cited evidence that Vodafone and O2 both recorded a high return on capital employed (ROCE)** to support its view that that both Vodafone and O2 enjoyed supernormal profits although it was aware that ROCE is not a good measure of profitability.[2]

3: **ComReg argued that Irish mobile phone charges were excessive** on the basis of evidence that Ireland had one of the highest levels of average revenues per user (ARPU) in Europe. ARPU is not a measure of price: it is the product of service unit price and quantity of service demanded per user. ComReg (2004b) recognised that high ARPUs may therefore be the result of high prices, high usage (minutes of use, MOU) or a

[2] ComReg (2004a and 2004b) cited Oxera (2003) which had pointed out the shortcomings of ROCE as a measure of profitability. In its ROCE calculations, ComReg excluded O2's cash balances which had increased quite significantly during the course of 2003, as it did not believe that "a ROCE on cash is appropriate." This reduced the measure of capital employed and thus boosted ComReg's estimates of ROCE for O2.

combination of both. It also noted that international price basket comparisons showed that pre-pay mobile tariffs in Ireland were the fourth lowest in the then EU 15, although post-pay tariffs were above the European average.3 ComReg (2004a, para 4-59), nevertheless, stated that it was “unconvinced that high ARPUs in Ireland are due to high MOUs”. ComReg (2004b) pointed to the fact that Ireland did not have the highest MOUs within the EU and that other Member States had higher MOUs and lower ARPUs.

4: **ComReg argued that neither of the other mobile network operators, Meteor and 3, would pose a competitive threat to Vodafone and O2 sufficient to undermine their joint dominance (tacit collusion) over the period of the review** largely because of Meteor’s low market share, assumed to reflect the problems of mounting an effective challenge to Vodafone and O2.[4] Meteor’s failure to secure a large market share could be explained by the fact that its initial entry had been delayed by a protracted legal challenge to the award of its licence, while restrictions imposed in response to the subsequent outbreak of foot and mouth disease in Britain further delayed the roll-out of its network. However, its market share increased from 4.8% in the last quarter of 2003, to 9% by the final quarter of 2004. ComReg might reasonably have expected Meteor to further increase its market share over the review period in light of two significant developments. The first was the introduction of full number portability in late 2003, on foot of regulatory intervention by ComReg designed to reduce switching costs and increase customer switching.[5] The second was the conclusion of a national roaming agreement between Meteor and O2 in September 2004 enabling Meteor to use O2’s network infrastructure in areas where it did not have coverage, thereby removing another perceived impediment to its expansion.

ComReg’s approach to the question of joint dominance in the relevant market was, therefore, a mixture of structural and behavioural assertions, both successfully challenged.

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[3] Approximately 75% of mobile phone customers are pre-pay customers.
[4] The EU legislation required NRAs to take a view as to developments over a three to five year period ahead.

The main difficulty with ComReg's finding of joint dominance, however, is not that it was inconsistent with the facts, but that ultimately the finding of joint dominance was based on ComReg's (mistaken) belief that the market displayed various characteristics known to facilitate tacit collusion rather than any evidence that tacit collusion had occurred. This approach, however, seems consistent with established EU case law on joint dominance.

3: EU Case Law on Joint Dominance.

The development of EU case law on collective dominance is described by Whish (2003). He notes that the European Court of Justice judgment in *Hoffmann La Roche*[6] appeared to exclude the possibility that tacit collusion could be addressed under Article 82. The Court of First Instance decision in *Italian Flat Glass*[7] re-opened the issue and has been further clarified in a number of subsequent judgments, most notably in *Compagnie Maritime Belge des Transports*.[8] According to Rey (2002, p.3):

"The development of the concept of collective dominance fills an important gap in European competition policy, since threats to competition can arise even in the absence of any single dominant firm. This is particularly the case when firms engage in what economists refer to as tacit collusion, since their behaviour may then approach that of a single dominant firm."

Jenny (2001) states that a cooperative oligopolistic equilibrium occurs where the oligopolists are linked by a tacit agreement not to compete. That might be considered to be a tautology. However, in considering the development of EU case law on joint dominance he points out that the jurisprudence suggests that some link (although not necessarily structural) between oligopolists seemed to be a pre-requisite for a finding of collective dominance, at least in the early joint dominance cases such as *Italian Flat*

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[5] By the time of Meteor's entry, the level of mobile phone penetration in Ireland was relatively high so that in order to gain market share it had to recruit customers from the existing operators. High switching costs due to the lack of number portability thus represented a significant barrier to expansion for Meteor.

[6] *Hoffmann-La Roche v. Commission [1979]* ECR 461

[7] *Societa Italiana Vetro SpA and Others v. Commission (re Italian Flat Glass)* (T-68/89, etc.) [1992] ECR II 1403.

[8] *Compagnie Maritime Belge Transports v. Commission* Case C396/96 [2000] ECRI-1365, [2000] r CMLR 1076.

Glass and *Almelo.*[9] In those cases the Court of First Instance and Court of Justice respectively emphasised the importance of the existence of an economic link between the oligopolists as a characteristic of a collective dominant position. In *Gencor* the Commission stated that joint dominance can occur where competition is restricted among the oligopolists themselves or between the oligopolists as a group and other firms in the industry even though "active" collusion may not exist.[10] (Jenny, 2001). "Active" here, presumably, means overt collusion.

Compte et. al (2000) claim that the Commission had been seeking to expand the scope of the merger regulation and used *Nestle/Perrier* as a test case to put forth a new interpretation of the regulation as not only prohibiting mergers which created or strengthened a dominant position but also as prohibiting mergers which create or strengthen an "oligopolistic dominance". Whish (2003) points out that, unlike Article 82, the Merger Regulation contained no explicit reference to a dominant position enjoyed by "*one or more undertakings*".

Compte et.al. (op. cit) point out that the outcome approved by the Commission in *Nestle/Perrier*, involving the divestiture of the *Volvic* brand to BSN, increased the likelihood of collusion. They suggest that the Commission's failure to prohibit the transaction outright may have been prompted by concerns that its attempt to expand the scope of the merger regulation to the case of joint dominance might have been overruled.[11] Motta (2004, p.283) argues that the merger should have been prohibited arguing that industry characteristics "strongly suggest that the firms have been able to tacitly collude over time."

In its *Airtours* decision the Commission seemed to broaden the definition of collective dominance to include a non-cooperative oligopolistic equilibrium. In its decision it stated

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[9] *Almelo v. NV Energiebedriif Ijsselmij* (C-393/92) [1994] ECR I-1477

[10] *Gencor/Lonhro* Case no IV/M.619 (1987).

[11] The European Court of Justice rejected arguments that the Merger Regulation only applied to cases of single firm dominance in the *Kali und Salz* cases. *France v. Commission,* Cases C-68/94 and C30/95 [1998] ECR I-1365, [1998] 4 CMLR 829.

that it:

"...does not consider that it is necessary to show that the market participants as a result of the proposed merger would behave as if there were a cartel, with a tacit rather than explicit cartel agreement. In particular, it is not necessary to show that there would be a strict punishment mechanism. What matters for collective dominance in the present case is whether the degree of interdependence between oligopolists is such that it is rational for the oligopolist to restrict output, and in this sense reduce competition in such a way that a collective dominant position is created."[12]

That implies that something less than joint profit maximization (the presumed goal of a cartel) will be treated as an incidence of joint dominance in so far as joint dominance is treated as "non-cooperative collusion". Indeed, the absence of what is normally seen as a necessary condition for a successful strategy of increasing profits above a "competitive" level (a "strict punishment mechanism") implies a much wider application of joint dominance as a concept. This view was rejected on appeal by the Court of First Instance which set out three necessary conditions to establish joint dominance:

- **The market must be sufficiently transparent** for each member of the oligopoly to monitor the behaviour of other members;
- **There must be a clear incentive for individual members of the oligopoly not to cheat** by departing from any common policy on the market. Therefore, there should be adequate deterrents to ensure long-term compliance;
- It must be established that **the reactions of any actual or future competitors, customers or consumers will not be able to jeopardize the results** expected from the common policy.[13]

According to Motta (2004), the CFI judgment was welcome in two respects. First he argues that had the Commission decision been upheld it might have prohibited other mergers where joint dominance was far from unambiguous. Second because this judgment, along with two others where its decision was overturned, forced the

[12] *Airtours/First Choice* OJ L93/1 (2000) at para 150.
[13] *Airtours plc v. Commission,* case T-342/99, judgment of 6 June 2002.

Commission to fully reconsider its merger policy, in particular with respect to unilateral effects.

The European Court of Justice addressed the issue of joint dominance at some length in *Compagnie Maritime Belge des Transports*. The Court indicated that *the test of collective dominance was the same under both Article 82 and the Merger Regulation.* As will be seen later, we argue that this is a difficult position to support. It ruled that the existence of an agreement or of other links in law is not indispensable to establish joint dominance and that such a finding

"... may be based on other connecting factors and would depend on an economic assessment and, in particular, on an assessment of the structure of the market in question."[14]

The Commission subsequently applied the concept of joint dominance in the telecoms sector. In its Notice on Access Agreements, the Commission stated that a necessary, although not sufficient condition for joint dominance was the lack of effective competition between undertakings. It argued that a lack of effective competition could be the result of links between undertakings in the form of cooperation or interconnection agreements but then continued:

"The Commission does not, however, consider that either economic theory or Community law implies that such links are legally necessary for a joint dominant position to exist. It is a sufficient economic link if there is some kind of interdependence which often comes about in oligopolistic situations. There does not seem to be any reason in law or in economic theory to require any other economic link between jointly dominant companies." (Para 79)

Annex II of the Framework Directive states:

"Two or more undertakings can be found to be in a joint dominant position within the meaning of Article 14 if, even in the absence of structural or other links between them,

[14] Para 45.

they operate in a market the structure of which is considered to be conducive to coordinated effects."[15]

The Commission elaborated its approach in its Guidelines on Market Analysis and SMP which state:

"It follows from the Gencor and Compagnie Maritime Belge judgments that, although the existence of structural links can be relied upon to support a finding of a collective dominant position, such a finding can also be made in relation to an oligopolistic or highly concentrated market whose structure alone in particular, is conducive to coordinated effects on the relevant market."[16]

The Guidelines list a number of market characteristics that are conducive to coordinated effects including the existence of retaliatory mechanisms but go on to state:

"Depending on the circumstances of the case, the fact that one or another of the structural elements usually associated with collective dominance may not be clearly established is not in itself decisive to exclude the likelihood of a coordinated outcome."[17]

In effect, therefore, it appears from the foregoing that it should not be necessary to prove the existence of a retaliatory or punishment mechanism in order to establish joint dominance.

More recently, however, the Commission (DG Competition, 2005) has set out its thinking on Joint Dominance in its Discussion Paper on Article 82 which sought to establish a more economics based approach to its implementation.[18] This suggests a shift in approach. It states:

"It is not sufficient for each undertaking to be aware that independent market conduct is profitable for all of them, because each undertaking will be tempted to increase its share of the market by deviating from the common strategy". (p.17)

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[15] Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services, 7 March 2002 (Framework Directive).

[16] Commission Guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services, OJ C165 (2003) at para 94.

[17] Para 98.

[18] For an outline of the case in favour of a more economics based approach see Vickers (2005).

Accordingly it restates the tests set out by the Court of First Instance in *Airtours*:

1. The market must be sufficiently transparent for all parties to know sufficiently precisely and quickly of each other's actions.
2. There must be a sufficient deterrent mechanism.
3. Coordinated action must not be capable of being undermined by others whether existing market operators or new entrants.

4: Joint Dominance in Economics.

The concept of joint dominance has been the subject of some debate in the literature. Phlips (1995) argues that a fundamental difference between EU and US competition law is that a collusive outcome that is achieved by non-cooperative behaviour does not legally constitute collusion in the US. He argues that the traditional approach adopted by the EU Commission and EU Courts in Article 81 cases exclude any reference to non-cooperative equilibrium. Rather he argues the approach taken under EU law implicitly assumes that the only conceivable oligopolistic outcome is a collusive one. Competition is therefore only possible as a result of cheating and this must be encouraged which is best done by creating or maintaining imperfect information among competitors. He points out that game theory implies that non-collusive equilibria are possible so that there is competition (in the sense of an outcome that yields lower profits than collusion) although no firm actively fights its competitors. **Thus he argues that normal competition should be defined as, and have the properties of, a Nash equilibrium**. On that basis he concludes that explicit collusion aims at putting participants at the joint profit maximising point on the profit frontier. Tacit collusion sustains profits above the level implied in the simple (one shot) non-cooperative Cournot-Nash equilibrium and includes the possibility of joint profit maximisation. Thus from an economic viewpoint explicit and tacit collusion are quantitatively rather than qualitatively different in terms of their implications.

Joint dominance is usually interpreted as meaning tacit collusion or coordinated effects. Tacit collusion in the game theoretic sense means an outcome that is preferred by the players to the Nash equilibrium in a one-shot game. (Slade, 2004). Jenny (2001) defines the non-cooperative outcome as typically being an intermediate between the monopolistic and the competitive outcome. He points out that all non-cooperative oligopolistic equilibria constitute departures from the competitive equilibrium but cautions that

"... from a standpoint of economic analysis it is difficult to consider that some non-cooperative equilibria are anti-competitive while others are not." (p.367)

Phlips (1995) and others have pointed out, however, that, if the discount rate is sufficiently high, the outcome of non-cooperative behaviour in an oligopolistic market may be the same as the coordinated outcome. See also Shy (1995). On the other hand, Jenny (2001) argues that the legal definition of single firm dominance and the need for consistent definitions of single and joint dominance imply that it is questionable whether a non-cooperative equilibrium can be characterised as a collective *dominant* position since in a non-cooperative equilibrium the pricing of each oligopolist is constrained by the pricing of the other oligopolists. Jenny (2001, p.368) points out that:

"We know that a retaliation mechanism is a necessary (but not a sufficient) condition for an oligopolistic cooperative equilibrium. Thus if it is not necessary to establish the existence of a retaliation mechanism to demonstrate the existence of a collective dominant position, it means, as the Commission states, that situations where there is no tacit agreement (where the cooperative equilibrium is not reached) can be characterized as a collective dominant position."

Rey (2002) suggests that the existence of multiple means of retaliation and collusion creates a potential for collusion in many industries. He goes on to observe, however, that even in situations where collusion is sustainable, firms may end up competing if they expect rivals to do so. *Thus the fact that collusion may be sustainable does not mean that it will actually occur*. This obviously raises the question of the appropriate regulatory response.

Cable et. al. (1994) argue that as non-cooperative adaptive behaviour can take the form of mutual market share maximisation it is questionable whether such behaviour should be treated differently under competition law to explicit collusion. They go on to state that evidence of market share interaction should invariably lead to a negative finding, whether or not implicit agreement can be inferred. In fact this would appear to be precisely the position adopted in the UK Competition Commission (2002 para 2.141) report on SME banking services which concluded:

"In such a concentrated structure, it is to be expected that there will be a recognition, however independently, on the part of the companies concerned that price competition is likely to be damaging to them. A price cut that generates little or no increased sales would not be profitable. One that does increase sales, at competitors' expense, is likely on that account to trigger price cuts by competitors, such that all would end up less profitable than they previously were. In such circumstances there would be a strong disincentive to price cutting. In consequence price competition will be weakened, and largely limited to any segment of the market where such considerations do not apply."

The Competition Commission recommended the introduction of a form of price controls[19] in SME banking as a transitional measure

"... to give the level of prices a decisive and significant shift toward what we considered to be competitive levels". (Para 1.13).

These were subsequently removed in December 2007 on the grounds that an adequate level of competition had emerged in the market.

The difficulties with such an approach are summarised by Rey (2002, p.24)

"In the absence of any hard evidence of explicit agreements, it is difficult if not impossible to directly fight collusion per se. There might actually be a debate as to whether antitrust authorities should take actions against purely tacit collusion, where by definition firms set prices non-cooperatively. In the end, the best way to determine whether collusion took place would be to contrast profit margins with cost and demand conditions. Such actions, however, would come close to regulating prices, something that competition authorities and courts are generally reluctant to do."

[19] A number of banks were obliged to pay interest on SME current accounts or to offer SMEs the option of free banking services.

Scheffman and Coleman (2003) point out that there is relatively little in the literature on how to analyse the potential for mergers to create, enhance or preserve effective coordinated action. Thus actual evidence of coordinated behaviour is far more informative of the presence or potential for coordinated behaviour as a result of a merger than any check-list of factors that facilitate coordination. Shapiro (1995, p.5) also states that

"*... there is no single accepted method of quantifying the increased likelihood of collusion attendant to a merger.*"

In similar vein Jenny (2001, p.365) observes "there is no structural set of circumstances that will constitute a sufficient condition for expecting parallel pricing by the oligopolists." Game theoretic models' predictions of how changes in market structure affect incentives to collude are very fragile. (Slade, 2004).

5: Implications

(i) : What is meant by joint dominance?

The concept of joint dominance has never been formally, operationally and conclusively defined for competition policy implementation, even at the level of the definition of dominance as offered in *United Brands.*[20] As a consequence there is considerable confusion as to what constitutes joint dominance and when it can be held to exist. One could argue that it is really a statement about a structure of a market that is such as to facilitate to the point of making probable or even possible a level of tacit collusion between the small number of large players that form the supply side of the market, or the bulk of the supply side. From this perspective, actual behaviour or even evaluation of

[20] Which is inadequate, to say the least: *"For example, a popular definition in the legal literature describes dominance as "the ability of firms to act independently of the market". This is neither a meaningful definition nor one that is operational for practical policy. The definition is not meaningful since no firm can ever act "independently" of the market.....From the economic perspective dominance is nothing else but a significant degree of market power. More precisely, it is a position of the firm in the market, in which the price can be raised significantly above marginal costs towards the price the firm would set were it a monopolist offering all products in the market."* (Kühn, 2001, p.4). However, the same author does not add much to the debate by stating later: *"...we have to define joint dominance as the ability of firms to jointly exercise market power ....This is nothing else but asking the question to what extent collusion between a given set of firms in the industry is feasible."* (op. cit., p.10)

possible behaviour by players is of secondary (if any) importance in reaching a determination that joint dominance exists, or may exist. From a merger control perspective that makes perfect sense, since merger control is aimed at regulating market structures on a forward looking basis. Clearly restrictions on mergers or acquisitions that result in a significant reduction in competition encompass a situation in which the opportunity for collusion, tacit or explicit, is enhanced. There is a likelihood of a significant reduction in competition, and this suffices to support a negative finding in relation to a merger. Structural consequences and probable behavioural consequences of the acquisition determine the appropriate regulatory response.[21] The joint dominance test from a mergers regulation perspective is essentially a structural matter.

(ii) : Defining and testing for joint dominance: horses for courses

However, if the matter is considered from the perspective of enforcement of Articles 81 (ex-85) and 82 (ex-86) structure-based definitions may be irrelevant other than as an exclusionary device (it can't be an agreement or an abuse because the structure observed is inconsistent with such behaviour as rational outcomes of firm level decision-making). By definition collusive behaviour or abusive behaviour cannot be observed if the structure rules it out. That, unfortunately, leaves unanswered the question as to what constitutes behavioural joint dominance when the observed structure makes it possible, unless we state that if the structure makes collusion possible that constitutes joint dominance, so that we are back to defining joint dominance in terms of objective characteristics of market structure. Articles 81 and 82 regulation concerns *behaviour*, and this in turn requires deciding what *behaviour* is offensive as constituting abuse of a position of joint dominance or as evidence that undertakings are acting jointly in a position of joint dominance.

This requires that we define joint dominance in behavioural terms, while accepting

[20] "In the context of merger control, the primary task is not to distinguish between individual rivalry and tacit collusion when they occur but, rather, to assess the competitive impact of a proposed merger, and therefore the likelihood that they will occur in the future." Ivaldi et al, (2003b), p.5. At the same time, it should be noted that recent work on the competition implications of structural consequences of an

certain structural features of a market as a necessary pre-condition. That in turn requires that we reach a testable means of characterising joint dominance in behavioural terms where structure implies the plausibility of assuming interdependence in decision-making. Does joint dominance exist once interdependence exists? Or does the concept apply only to a sub-category of such situations. It is clear that the literature is unclear on that issue. The jurisprudence is no better. Whatever the response to these points, this indicates the basis on which we observed that there is a problem with the ECJ view that the joint dominance test is the same whether mergers or other actions by undertakings are being considered (see our comment on the ECJ decision on *Compagnie Maritime* above).

Then there is the question of findings of joint dominance in a regulatory environment. In the Vodafone O2 case, the Irish regulator argued initially from market shares and structure, and added to that a finding that pricing behaviour was consistent with joint dominance in that the price structure supported an unusually high level of profitability. The market was extremely concentrated, prices were higher than elsewhere and profitability as measured by the return on capital employed was exceptionally high. On that basis there existed significant market power on the part of the two largest players and that constituted joint dominance, which in turn warranted *ex ante* regulation. Thus, the Irish regulator was not (superficially) making a finding as to joint dominance based simply on the structural aspects of the market (entry conditions, transparency, market shares and so on). Instead, it sought to base the finding on indicia of behaviour in a context where, it alleged, structural conditions made joint dominance possible. As it happened, ComReg's findings on structural and behavioral aspects of the market were strongly challenged as a consequence of which the finding was withdrawn before the appeals panel could decide on the matter.

(iii) : Defining and testing: lessons from the ComReg case

Arising from the Irish experience in the Vodafone O2 case, it is our view that it is timely and necessary to suggest that the question of joint dominance for the purposes of Article

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acquisition in a concentrated markets (e.g., on share symmetry) have made it more difficult to make a priori decisions on those implications and consequently on the acquisitions. See Ivaldi et al (2003a)

81 and 82, and regulatory intervention be formally defined in terms of economic theory and objectively testable criteria. We believe that such a methodology is in fact available. Our starting point is to consider the matter from the point of view of competition among the few, and to suggest that a terminological confusion needs to be cleared up.

At the beginning of Section 2 above we noted that in *Hoffman Laroche* , the ECJ appears to have found that tacit collusion could not be dealt with under Article 86 (now 82). In the absence of a concept of joint dominance that makes perfect sense, since neither player in tacit collusion has single firm dominance. Tacit collusion, if an offence, has to be dealt with under Article 85 (now 81) as an agreement between undertakings. The comment of Rey (2003, p3, cited subsequently) indicates that the concept of joint dominance is an important development because

"…when firms engage in what economists refer to as tacit collusion,…their behaviour may …approach that of a single dominant firm."

If, of course, there is some form of agreement between them then the joint dominance concept is unnecessary, since such an agreement will fall under Article 81. If the *Woodpulp*[22] decision is to be regarded as indicative of competition law, parallel behaviour without some form of conscious agreement to support it does not qualify as an offence under article 81. Hence the importance of joint dominance lies in the possibility that firms' behaviour may mimic collusion without their being any agreement at all, and (possibly) fall within the remit of Article 81. This is described (unfortunately) in the economics literature as "tacit collusion" or "non-cooperative collusion", an oxymoron if ever there was one. The problem lies in the use of the terms "collusive" or "cooperative" as descriptors of this behaviour in this context. Instead, we believe, there should be explicit recognition that what is involved is the consequence of market structures for repeated game outcomes compared with single shot games

(iv) Joint dominance, competition and regulation: the benchmark approach

[22] [1993] 4 CMLR 407

If this is accepted, what is involved in the concept of joint dominance (non-cooperative collusion) is simply the difference between independent (non-cooperative) decision making in a one-shot game and similar behaviour in a repeated game. On this basis, an alternative interpretation of the *Hoffman Laroche* decision is that the outcome of independent decision-making by firms cannot be held to be anti-competitive, since anti-competitive behaviour engaged in by a group of firms requires an agreement of some sort (collusion). From a regulatory or Articles 81 and 82 perspective joint dominance is, therefore, a conceptual device to include the consequences of independent decisions by undertakings in conditions of recognised interdependence as behaviour that is within the set of actions prohibited by EU competition law under some circumstances but not under others.

A recent theoretical paper offers some support for this way of looking at joint dominance (Martin, 2006). It seeks, *inter alia*, to model collusion in a manner that distinguishes between collusion and "non-cooperative collusion". This is shown to mean that a model that analyses collusive behaviour based on express agreements yields qualitatively different outcomes and predictions from those given by independent decision-making when there is recognized interdependence in a repeated game, with both of these being bench-marked against the outcome in a single shot non-cooperative game with interdependence. This last is treated as the "competitive" outcome, since with independent behaviour it defines a Nash equilibrium contingent on the market structure, or, roughly, the closest feasible approximation to an outcome in which there is no interdependence effect on decision making.

It is well known that in a concentrated market where interdependence is recognized, and where entry conditions support it, the outcome of independent decision-making *may* differ depending on whether or not it is a single shot or a repeated game. If it may be assumed that the outcome of the single shot game, repeated because, for example, of the absence of transparency or the possibility of entry, constitutes the competitive baseline, the time path for output or prices under circumstances that enhance interdependence and lead to "tacit collusion" will involve values for these that are closer to the joint profit maximizing values. In the model analysed by Martin, the repeated game has players that adopt the "grim trigger" strategy, whereby they will revert from any given output lower than the one shot game output to the one shot game output if observed price falls below some threshold price. This yields an expected level of output higher than the joint profit level, but lower than that of a repeated one shot game. Martin describes this as the non-cooperative collusion equilibrium output. The key conclusion relevant to this paper of the Martin model (and subject to some structural assumptions, but reasonably general) is summed up by the author as follows:

"A trigger strategy allows firms to restrict output.... and to increase value compared with repeated play of the one-shot game Nash-Cournot equilibrium. It does not allow firms to restrict output to the joint profit-maximizing level; to make defection unattractive, firms expand total output above that level that would be offered by a monopoly supplier..." (p.1307)

Thus, the "non-cooperative collusion" equilibrium in this model excludes the values associated with explicit collusion.

Assuming that a regulator or competition authority has access to adequate data on costs and demand, it is possible to compute plausible values for the base-line competitive output, and, as result, to evaluate the hypothesis that the observed values for output or price reflect "non-cooperative collusion", or that there is joint dominance (see, for example, Slade (2004) or Dodgson et al. (1993) for good examples of this approach to empirical testing of firm behaviour in concentrated markets).

Following, then, Ivaldi et al (2003a) we identify joint dominance with firm behaviour that is described as "tacit collusion", where the latter reflects individual firm choices of actions that are covered by the following description as a necessary condition:

"Tacit collusion….. requires that a firm make a choice which would not be in its interest if it assumed that other firms would be uninfluenced by its choice" (p.6).

By this is meant that future actions of other firms are unaffected. It is of its nature forward looking. It must, therefore, involve a modification of the actions chosen by the firm in the context of a one shot game, and the equilibrium value of output or price must be different from the Nash equilibrium value in a one shot game. For tacit collusion to be a dominant strategy for players it must be the case that the expected outcome from tacit collusion is preferred to choosing any other strategy. The one shot game value for price or output is the lowest value (price) or highest value (quantity) consistent with rational behaviour when each firm rationally must take into account the demand and cost parameters facing other firms and in making its decision. Tacit collusion, to be observed, must offer the players profits that are higher than following a strategy of adopting the relevant one shot game. This implies that a finding of joint dominance as a matter of probability requires an ability to show that prices/outputs/profits lie between the one shot game value and the hypothetical monopoly value.

An interesting aspect of this approach is that it suggests that a regulator faces a more difficult task when adopting policy measures on firm behaviour than when examining market structure. Specifically, the implications of the concept of joint dominance for a utility regulator (such as Ireland's ComReg) are more demanding than those facing a merger/acquisition regulator or a competition authority seeking to enforce the provisions of Articles 81 or 82. Put another way, joint dominance operationally has a different meaning for merger regulation from the meaning to be applied in the case of regulation or competition law. This is why we disagree with the ECJ "single approach fits all cases" argument.

6: Conclusions

The literature and the EU jurisprudence on the subject of joint dominance are confused and confusing to the reader. We note, but do not address, the issue raised by Phlips (1995) as to whether (as in the EU) behaviour that falls into the category of non-cooperative collusion should be regarded as potentially illegal, as opposed to the US where it is treated as the imperfect outcome in an imperfect market. We regard the approach of the ECJ in trying to use a single approach to joint dominance in merger analysis and in competition analysis as unjustified, misguided and at odds with economic analysis. In the case of regulatory supervision, a finding of joint dominance, a trigger for *ex ante* regulation, requires analysis of market performance rather than simple reliance on structure in the broadest sense. For this purpose we suggest that the approach required is to benchmark actual market performance against a hypothetical one-shot game equilibrium. Contrary to what is sometimes said, recent developments in industrial organisation analysis offer regulators a methodology for undertaking such exercises, and it is reasonable to assume that a competent regulator can obtain the necessary data sets for such exercises. The collapse of the case brought by Ireland's ComReg illustrates the consequences of a failure to take these steps.

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