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**The Scope of Conflict in
International Merger Control**

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ABSTRACT

The Scope of Conflict in International Merger Control

by Damien J. Neven and Lars-Hendrik Röller*

In this paper, we analyse the scope for conflict between national merger control agencies which assert jurisdictions simultaneously. We consider a positive model of merger control in which market definition and the analysis of dominance are both explicitly specified. We find that conflict in international merger control is less likely to occur when economic integration is high. Hence, “globalisation” should alleviate rather than exacerbate conflict. In addition, we observe that conflict is less likely to arise between countries of different size and for extreme policy rules (very lenient or very strict) towards dominance.

ZUSAMMENFASSUNG

Die Konfliktmöglichkeiten bei internationaler Fusionskontrolle

In diesem Beitrag werden die Konfliktpotentiale zwischen Kartellbehörden untersucht. Die Analyse basiert auf einem positiven Ansatz der Fusionskontrolle, in dem die Kartellbehörde explizit modelliert wird. Es zeigt sich, daß Konflikte bei der internationalen Fusionskontrolle weniger wahrscheinlich sind, wenn Unternehmen auf integrierten Märkten konkurrieren. In diesem Sinne führt eine „Globalisierung“ der Weltwirtschaft zu einer Reduzierung des Konfliktpotentials zwischen Wettbewerbsbehörden.

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1 Introduction

A number of high profile cases, like *Aerospatiale/de Havilland*, *Boeing/Mc Donnell-Douglas* or *Gencor/Lonrho* have recently underlined potential conflicts between countries in the implementation of antitrust rules. Antitrust authorities have responded to the situation by entering into or upgrading bi-lateral co-operation agreements which are meant to reduce the scope for conflict by sharing information and providing incentive for building consensus¹. Still, these arrangements are now regarded as insufficient by both the US and European antitrust authorities. According to the (former) U.S. Assistant Attorney General Joel Klein (2000), the advance of "globalisation" in the years to come will only enhance the scope for conflict and further integration of antitrust proceedings across jurisdictions will be necessary. Similar conjectures have been put forward by the EU Antitrust authorities which in the words of its Director General for Competition favours various new initiatives including a "multilateral or bilateral arbitration mechanism which would allow ...to go beyond the necessity for each competition authority to take primarily into account the consumer interests in its territory" (Schaub, 1998).

As emphasised by Bacchetta et al. (1998), the presumption that the scope for conflict is (quantitatively) important and likely to increase further is hardly supported by a formal analysis. This paper, as well as a companion paper (Neven and Röller (2000a) attempt to provide the rudiments of such analysis. In the companion paper, we first noted that the scope for conflict should in principle be affected by the rules governing the assertion of jurisdictions. We observed that most jurisdictions now adhere to the so called "effects principle" such that any country will assert jurisdiction when its interest is affected (whether consumers' interest, firms' interest or both)². This paper also concluded, using a formal analysis of merger control, that the allocation of jurisdiction matters surprisingly little for the outcome of merger control. That is, we found that the circumstances where delegation to a single centralised authority or devolution to a single national authority would lead to a different outcome from the simultaneous assertion of jurisdiction may not be that frequent.

This paper focuses on a positive analysis of conflict. We assume, in line with current practice, that all countries affected by a merger will assert jurisdiction, and that each country has effectively a veto power on any proposed merger. We specify a simple model of merger control which accounts for the essential features of the procedure followed by the main antitrust agencies. In particular, we explicitly model both the decision taken by the agencies on market definition and their analysis of dominance.

We assume that the objective of antitrust authorities is to defend consumers' inter-

¹See for instance Montini (1998)

²See Mavroidis and Neven (1999) for a discussion of this issue.

ests. This assumption is a fair description of the objective which is currently assigned to both US and EU agencies in charge of merger control. For instance, Art. 2 of the merger regulation stipulates that the merger task force should be solely concerned about restrictions of competition and that efficiency benefits should only be taken into account in so far as consumers are not hurt. Hence, it would appear that the merger regulation is concerned about consumer surplus. The US antitrust legislation has a similar focus on consumers (see e.g. Gellhorn and Kovacic, 1994). Such a narrow objective can also be rationalised in the presence of regulatory failures³.

In this context, we characterise both the scope and the type of conflict that may arise, for a given distribution of mergers in terms of their sales across countries.

We find that whenever national antitrust agencies define the global market as relevant, no conflict can ever emerge. In addition, we observe that a positive correlation of market shares for the merged entity across jurisdictions reduces the potential for conflict. These two observations certainly suggest that "globalization", rather than exacerbate, may actually alleviate conflict. In addition, we find that conflict is less likely to arise between countries of different size and for extreme policy rules (very lenient or very strict thresholds) towards dominance.

The paper is organised as follows. Section 2 presents the model. The scope for conflict is analyzed in Section 3. Section 4 concludes.

2 A Model of Merger Control

Consider a two-country model⁴ with countries, $i = 1, 2$ and a homogenous commodity. Denote N as the proportion of consumers located in country 1 (with $1 - N$ located in country 2), with $N > \frac{1}{2}$, so that country one can be seen as the "large" country. Each consumer is endowed with a downward sloping demand curve for the homogenous good which is written $q(P)$. Consumers can buy from either country. If prices in the two countries are identical, all consumers will choose to buy in their own country⁵.

³See for instance Besanko and Spulber (1993) or Neven and Röller (2000b)

⁴The framework considered here differs from the usual model of international trade and economic integration where markets are segmented. In such models, consumers buy only in their domestic country (either from a domestic supplier or imports) and there is no room for demand substitution across markets. In this sense, the standard model of economic integration is not consistent with the approach used by antitrust authorities in the assessment of the relevant market. What is required in order to make these approaches consistent is an explicit model of consumer choice across countries (like an arbitrage constraint). A critique of the traditional approach in international trade, as well as an alternative model, can be found in Horn et al. (1994).

⁵This is effectively what defines a country in this model.

Consumers will switch as a function of relative prices. Denote $n(P_1, P_2)$ as the proportion of consumers buying in country 1 with,

$$\frac{\partial n}{\partial P_1} = -\frac{\partial n}{\partial P_2} = a < 0 \quad (1)$$

That is, consumers will respond to price differences and the higher is the price difference, the higher is the proportion of consumers buying from the country where the price is lower. The rate at which consumers switch across markets is also independent of the price level. The demand in markets 1 and 2 can then be written as,

$$\begin{aligned} q_1 &= n(P_1, P_2)q(P_1) \\ q_2 &= (1 - n(P_1, P_2))q(P_2) \end{aligned} \quad (2)$$

At this point, it is worth mentioning that the above reduced form demand model encompasses several specifications. For instance, it would include a spatial model where consumers select a place of purchase according to delivered prices. It would also include a model where consumers bear a cost of switching across markets and where the switching cost varies across consumers⁶.

In terms of equilibrium prices, we will assume that firms can produce and sell in both countries. For our purposes, we do not need to specify the competitive interactions between firms, but simply assume that there is a pair of equilibrium price – one for each country - before the merger takes place which is denoted (P_1^E, P_2^E) . We also assume that there is a competitive price which is identical for both markets and is denoted by P^c .

We will now specify the actions of the antitrust agency in each country. Assume that there is a merger task force in each country which evaluates mergers by first delineating the relevant market and subsequently deciding to allow or ban the merger on the basis of the market share of the merging parties in the relevant market.

Market Definition: In terms of defining the relevant market, the agency uses the so-called SSNIP test – i.e. asks whether a hypothetical monopolist could increase price profitably by x % above the competitive level. The extent to which a hypothetical profit maximising monopolist would increase price by x % is inversely proportional to the elasticity of demand. Hence, ignoring the difference between the profit maximising increase in price and a profitable increase in price, the relevant market can be determined by the elasticity of demand. The agency will thus consider market i as the relevant

⁶See for instance the model of Klemperer (1987).

market for the sake of antitrust analysis, if the elasticity of demand evaluated at the competitive price, say ε_i , is below some benchmark, say K .

We therefore need to derive the elasticity of demand for the above model. Using (2) the elasticity of demand (ε_i) faced by a monopolist at the competitive level P^c can be written as,

$$\varepsilon_1 = -P^c \left[\frac{\partial q(P^c)}{\partial P_1} \frac{1}{q(P^c)} + \frac{\partial n(P_1^c, P_2^E)}{\partial P_1} \frac{1}{n(P^c, P_2^E)} \right]$$

and

$$\varepsilon_2 = -P^c \left[\frac{\partial q(P^c)}{\partial P_2} \frac{1}{q(P^c)} - \frac{\partial n(P_1^E, P_2^c)}{\partial P_2} \frac{1}{(1 - n(P_1^E, P^c))} \right]$$

The elasticity of demand in market 1 will thus be lower than the elasticity faced in market 2 as long as,

$$n(P^c, P_2^E) > (1 - n(P_1^E, P^c))$$

which implies by (1) that

$$N + a(P_2^E - P^c) > (1 - N) + a(P_1^E - P^c) \quad (3)$$

Note that (3) holds for large enough N . As we argued above, we assume that country 1 is the larger country. Consequently, we will assume that N is large enough such that (3) holds, which implies that,

$$\varepsilon_1 < \varepsilon_2$$

Note that when equilibrium prices are identical in the two countries (3) holds for any $N > 1/2$.

It is important to note that in this framework different antitrust authorities could take different views on the relevant market. In particular, when $\varepsilon_1 < K < \varepsilon_2$, the antitrust authority in the large market will decide that its own jurisdiction is a relevant market, whereas the antitrust authority in market 2 will decide that its own jurisdiction is too small (a hypothetical monopolist would not be able to profitably raise price) and hence will consider the combination of the two markets as the relevant market for the analysis of dominance.

As we will see below, an important parameter will be the relative size of the two countries. Denote s as the share of demand in country 1 relative to total demand, where demand is estimated at the equilibrium level⁷. Thus,

$$s = \frac{q_1(P_1^E, P_2^E)}{q_1(P_1^E, P_2^E) + q_2(P_1^E, P_2^E)}$$

Assessment of Dominance: With respect to the analysis of dominance, we assume the simplest possible rule namely that if the market share in the relevant market of the merging parties is higher than B (the "threshold"), the merger is banned. Otherwise, it is allowed. In other words, a larger B corresponds to a "softer" standard. Denote the market share of a proposed merger in country i by MS_i . Using our definition of s , the market share of the proposed merger in the combined two-country market is then, $MS_t = sMS_1 + (1 - s)MS_2$. Which market share is used in the assessment of dominance will depend on the market which is considered relevant.

In terms of outcome, we will assume that there is simultaneous assertion of jurisdiction with effective veto power. In other words a merger is blocked if and only if at least one of the national agency decides to block the merger⁸. As a result there will be conflict between agencies whenever one agency blocks the merger, while others would have allowed the merger.

3 Analysis of Conflict

We are now ready to analyze the emergence of conflict. Recall that each jurisdiction has veto power in the sense that it can block the merger independently of what the other agency decides. We assume that when a merger is banned by a particular jurisdiction, it cannot take place in a reduced form in another jurisdiction. That is, we neglect the possibility of having partial deals or remedies for particular jurisdictions. This assumption tends to reinforce the importance of external effects across jurisdictions and the prospect for conflicts.

In particular, we will analyze under what circumstances one country would like to allow the merger, while the other blocks it. In principle, there are two possibilities: first, the merger is blocked by country 2 (the smaller country), even though country 1 (the

⁷In principle, it is possible that $s < 1/2$, even when N is such that (3) holds. This might occur when equilibrium prices are very small in the small country. In what follows, we will exclude this case and assume that $s \geq 1/2$.

⁸There are no side payments.

larger country) would allow the merger. Second, the merger is blocked by country 1, even though country 2 finds the merger beneficial.

The analysis of conflict can be structured into three cases.

3.1 Global Markets

The first case emerges whenever $\varepsilon_1 > K$. In this scenario, a competition authority in market 1 (the large market) will conclude that the relevant market is the combination of both markets. Given that $\varepsilon_1 \leq \varepsilon_2$, the competition authority in the small country will reach the same conclusion. As a consequence, both authorities will consider MS_t in the analysis of dominance and we have the following remark.

Remark 1 If $\varepsilon_1 > K$, then there is no conflict.

Therefore, it appears that contrary to received wisdom, “global” industries are not those where the conflict between jurisdiction should arise. The intuition behind this observation is that any subset of a relevant market is, from a competition point of view, a reduced scale version of the broader market. The fact that conflicts actually often arise in such industries can then be associated with the pursuit of objectives that antitrust authorities are not supposed to pursue.

3.2 National Markets

The second case is when $\varepsilon_2 < K$. According to the behavior of the agencies, both authorities recognize that each country is a separate relevant market and take a decision on the basis of dominance in its own national market. Therefore, conflict will arise whenever one agency blocks the merger while the other allows it, i.e. when $MS_2 > B > MS_1$ or $MS_2 < B < MS_1$. In order to analyze the probability of conflict, we proceed by specifying the distribution of market shares. In other words, we assume that the rules of the agency are fixed (i.e. market definition through K and the threshold through B), while the market shares vary across the proposed merger cases.

Let us assume that the market shares in each country are identically and independently distributed in the $[0, 1]$ interval with a cumulative density of $F(MS_i)$. The independence assumption might not be realistic but serves as a useful benchmark. We will return to this point below. Define P_1 as the probability that the merger would be allowed by country 1, but banned by country 2, conditional on $\varepsilon_2 < K$. Similarly, the conditional probability that country 1 would ban the merger when country 2 would allow it is denoted as P_2 . Given that P_1 and P_2 are mutually exclusive, the probability of either conflict emerging is $P_1 + P_2$. Using this, we have the following simple Lemma.

Lemma 1 *When market shares are independent, $P_1 = P_2$. The probability of conflict is concave in the threshold B and achieves a maximum at $F(B) = 0.5$.*

Proof: The conditional probability of conflict P_1 is defined as $P_1 \equiv P(MS_2 > B > MS_1 \text{ \& } \varepsilon_2 < K)$. Given the independence of market shares across markets and given that the market definition is independent of the market shares, we can write $P_1 = F(B)(1 - F(B))$. Similarly, $P_2 \equiv P(MS_2 < B < MS_1 \text{ \& } \varepsilon_2 < K)$ which is equal to P_1 under the maintained assumptions. Thus, both P_1 and P_2 are concave in B and achieve a maximum at $F(B) = 0.5$. Given that P_1 and P_2 are mutually exclusive, the joint probability of either conflict emerging is $P_1 + P_2$, which is also concave in B and achieves a maximum at $F(B) = 0.5$. \&

Note that both the individual as well as the joint probabilities of conflict are concave in B , achieving their maximum at the same threshold level. We therefore have the following remark.

Remark 2 *When relevant markets are national, both lenient and strict merger thresholds lead to lower conflicts. Country size does not matter.*

The remark indicates that either strict or soft merger control (in terms of thresholds) lowers conflict. Interestingly, this also implies that conflicts are less likely to arise when efficiency benefits are taken into account. The reason is simply that an evaluation of mergers which consider efficiencies will apply different dominance benchmarks depending on the level of efficiency benefits accruing to the merger. Higher efficiencies will be associated with higher thresholds. Hence, any policy which considers efficiency will consider more dispersed thresholds and will lead to less conflicts relative to a policy which considers a unique threshold that reflects *average* efficiency gains⁹.

It is also worth pointing out that the relative difference in country size as measured by s has no impact on the probability of either conflict. In this sense, countries are indifferent with whom they share simultaneous jurisdiction with veto power.

Another issue, which we have not addressed so far is the possibility of market shares being correlated across countries. Given the definition of P_1 and P_2 above, it is clear that a positive correlation in market shares across markets will lower the probability of conflict. We therefore have the following remark.

Remark 3 *When relevant markets are national, a positive (negative) correlation in market shares across markets lowers (raises) the probability of conflict.*

⁹For a procedure that takes efficiencies explicitly into account see Rölller, Stennek, and Verboven (2000).

Whether market shares are positively or negatively correlated depends on the precise characteristics of the merger. For instance, if firm size is associated with efficiencies and if efficiencies are correlated across countries, one would expect in a Cournot like model to observe a positive correlation in the distribution of firm size across countries. On the other hand, in a model where firms suffer from a cost or demand disadvantage in selling abroad, a negative correlation would emerge in the case of a merger between domestic firms. However, an international merger would still produce a positive correlation.

In sum, one might argue that integrated economies will lead to market shares that are positively correlated across countries. In that sense, a more integrated market should also lower the probability of conflict between antitrust agencies.

3.3 Global Markets and National Markets

We now consider the last case, where there is a conflict over the definition of the relevant market such that the authority in market 1 considers its own market as relevant, whereas the authority in market 2 considers the combination of the two markets as relevant. That is, in this last case, $\varepsilon_1 < K < \varepsilon_2$.

As before there are two types of conflict. First, the probability that the merger would be allowed by country 1 but banned by country 2, which is defined as $P_1 \equiv P(MS_t > B > MS_1 \mid \varepsilon_1 < K < \varepsilon_2)$. Intuitively, this case will arise when the market share of the merged entity in market 2 is “very” large so that despite the small weight of country 2, the aggregate market share exceeds the threshold (even though the market share in country 1 does not). Second, the probability that country 1 would ban the merger while country 2 would allow it, which is defined as, $P_2 \equiv P(MS_t < B < MS_1 \mid \varepsilon_1 < K < \varepsilon_2)$. This is consistent with very low market shares in country 2.

Given these definitions, it is clear that the realisation of P_1 will be associated with a low MS_1 together with a high MS_2 . Analogously, the realisation of P_2 will be associated with a high MS_1 and a low MS_2 . Hence, given the definition of P_1 , P_2 , and MS_1 we have the following remark.

Remark 4 When there is conflict over market definition, a positive (negative) correlation in market shares across markets lowers (raises) the probability of conflict.

Comparing this result with that in the previous section, we find that a positive correlation in market shares lowers the potential for conflict independently of the market definition. In that sense, a more integrated market should also lower the probability of conflict between antitrust agencies.

In order to obtain closed-form solutions, we assume henceforth that the market shares in each country are distributed uniformly in the $[0, 1]$ interval and independently across

countries. To calculate P_1 it is convenient to refer to Figure 1a, which represents the parameter range for which a conflict could arise. The market share of the combined entity in market 1 and 2 are respectively on the horizontal and vertical axis. A merger could be banned by country 2 and allowed by country one when $MS_1 < B$ and when $MS_2 > B$, i.e. in the top left hand area. However, only very “ high” values of MS_2 can lead to $MS_t > B$. Using the definition of MS_t , the ”market share constraint” is given by $MS_2 > \frac{B}{1-s} - \frac{s}{1-s}MS_1$, which is represented as the straight line originating at the point (B, B) . Only market shares above this line will lead to a conflict. Note that whenever $B > 1 - s$ the constraint crosses the upper part of the box at MS_1^* given by $B = sMS_1^* + 1 - s$.

Calculation of the shaded area yields the probability of the first type of conflict, that is

$$P_1 = \frac{1-s}{2s}(1-B)^2 \text{ if } B > 1-s$$

Analogously, whenever $B < 1 - s$ the market share constraint for which conflict could arise crosses the left hand side of the box . However, in this case an additional constraint on the emergence of conflict will be relevant. More precisely, the distribution of market shares across markets needs to be consistent with the market definition and thus with the assumption that market 2 is not a relevant market. The fact that market 2 is too small to be a relevant market implies that a firm with a 100 % market share would not be able to exercise significant market power in that area. Of course this implies that if the aggregate output of the merged entity in the broader market does not exceed the output of this monopolist, it should not allow the merged entity to exercise market power either. Hence, all joint values of MS_1 and MS_2 which do not make up for the size of market 2 would be inconsistent with the view that market 2 is not a relevant market.

This ”relevant market constraint” can be expressed as $MS_2 + MS_1\frac{s}{1-s} > 1$, i.e. all values above this constraint are consistent with market definition. Note that when $B < 1 - s$, the relevant market constraint is more binding than the market share constraint. Hence, we only need to consider the market share constraint¹⁰. The relevant market constrain is represented as the solid lines in Figure 1b, where $MS_2^* = 1 - \frac{Bs}{1-s}$. For the case of $B < 1 - s$ the area of conflict is thus given by the area above the relevant market constraint, which is given by

¹⁰Note that in the previous case of $B > 1 - s$, the market share constraint is binding.

$$P_1 = \frac{s}{2(1-s)}B^2 \text{ if } B < 1-s$$

Let us now turn to the probability that country 1 would ban the merger when country 2 would allow it. This is defined as, $P_2 \equiv P(MS_t < B < MS_1 \mid \varepsilon_1 < K < \varepsilon_2)$. This is consistent with very low market shares in country 2, i.e. the market share constraint is given by $MS_2 < \frac{B}{1-s} - \frac{s}{1-s}MS_1$. As before, we need to distinguish two parameter regions. When $B < s$, the market share constraint crosses the bottom of the box at the point MS_1^0 given by $B - sMS_1^0 = 0$, which is represented in Figure 2a.

Market shares below this line will lead to a conflict and we have that

$$P_2 = \frac{1-s}{2s}B^2 \text{ if } B < s$$

Whenever $B > s$, the market share constraint crosses the right hand side of the box at $MS_2^0 = (B-s)/(1-s)$ (see Figure 2b) and the probability of conflict is given by the area below the constraint, that is,

$$P_2 = \frac{2B(1-B) - s(1-B^2)}{2(1-s)} \text{ if } B > s$$

The magnitude of the two types of conflict probabilities can be characterised as follows.

Lemma 2 $P_2 > P_1$ if and only if $B > 1/2$.

Proof: We first show that $B > 1/2 \Rightarrow P_2 > P_1$. Let $B > 1/2$ which implies that $B > 1-s$ since $s > 1/2$. We therefore have that $P_1 = \frac{1-s}{2s}(1-B)^2$. Consider the region where $B < s$, such that $P_2 = \frac{1-s}{2s}B^2$. We have that $P_2 > P_1$ since $B > 1/2$. Consider the region where $B > s$, such that $P_2 = \frac{2B(1-B) - s(1-B^2)}{2(1-s)}$. Using these expressions it can be shown that $P_2 > P_1$ if and only if $s\frac{1-s}{1-B} > 1/2$, which is satisfied for $B > s$.

We now show that $B < 1/2 \Rightarrow P_2 < P_1$. Since $B < 1/2$, we must have that $B < s$, which implies that $P_2 = \frac{1-s}{2s}B^2$. Consider the region where $B < 1-s$, for which $P_1 = \frac{1-s}{2s}(1-B)^2$. Comparing yields that $P_2 < P_1$ since $B < 1/2$. Finally, consider the region where $B > 1-s$, for which $P_1 = \frac{s}{2(1-s)}B^2$. Comparing yields that $P_2 < P_1$ whenever $\frac{1-s}{s} < \frac{s}{1-s}$, which is satisfied since $s > 1/2$. \forall

The Lemma shows that the smaller country (country 2) is more likely to get vetoed than the larger country (country 1) when the thresholds are high, i.e. when the merger standard is soft and vice-versa. The intuition is as follows: assume that the standard is stringent (B is low) and that the merger is allowed by the large country; the values of the market share in the large country for which this occurs are thus relatively small and for each one of them, there is still a wide range of the distribution of the market share in the small country which will ensure that the overall market share (a weighted average) falls above the threshold. By contrast, if the merger is banned by the large country, the range of market shares in the large country for which this occurs includes relatively large values of market shares. For any single one of them, the range of market shares in the small country that will flip the overall market share on the other side of the threshold will be relatively small. Hence, the former event is more likely than the latter.

The same reasoning applies *mutatis mutandis* for a lax standard (B is high). Assume that the merger is banned by the large country. This arise for relatively high values of the market shares and for each one of them, there is a wide range of the distribution of the market share in the small country which will ensure that the overall market share fall below the threshold. By contrast, if the merger is allowed in the large country, the range of market shares in the large country for which this occurs will include relatively low values. For any single one of them, the range of market share in the small country which will flip the overall market share on the other side of the threshold will be relatively limited. This later event is thus less likely than the former.

Using the above expressions for the probability of conflict we can now derive the comparative statics with respect to s and B of the probabilities of conflict, which are given in the next Lemma.

Lemma 3 (i) $\frac{\partial P_1}{\partial s} \leq 0$ and $\frac{\partial P_1}{\partial B} \leq 0$ if and only if $B \geq 1 - s$
(ii) $\frac{\partial P_2}{\partial s} \leq 0$
(iii) $\frac{\partial P_2}{\partial B} \geq 0$ if and only if $B \leq \frac{1}{2-s}$

Figure 3a summarizes the previous two lemmas with respect to s for the case where $B > 1/2$. As can be seen, both veto probabilities are declining in s . This implies that both countries are less affected by simultaneous jurisdiction whenever the countries are of very unequal size. On the other hand, the more similar in size the countries are, the higher the probability of conflict.

Figure 3b allows for $B < 1/2$. As can be seen, the probability that the larger country gets vetoed by the smaller country is now concave in s with a left minimum at $s = 1/2$. In other words, for $1/2 < s < 1 - B$, the veto probability of the larger country is

increasing in s , which implies that for this range the larger country increases its veto probability the more unequal the countries are. Nevertheless, the veto probability P_1 is clearly lowest for a sufficient large s . More precisely, let the critical value \bar{s} be defined as $P_1(s = 1/2) \equiv P_1(\bar{s})$, which implies that $\bar{s} = (1 - B)^2 / (B^2 + (1 - B)^2)$. Then, any $s > \bar{s}$ will ensure lower P_1 , and P_1 continues to fall for higher s (see Figure 3b). The following remark summarizes these findings.

Remark 5 When there is conflict over market definition, countries of unequal size have more of an incentive to integrate their competition policy through simultaneous jurisdiction with veto power than countries of similar size.

Figure 4 summarizes the results with regard to the threshold B . As one can see, both conflict probabilities are concave. We find that for relatively strict merger policies ($B < 1 - s$), both conflict probabilities are rising in B , while for relatively soft merger policies ($B > 1/(2 - s)$) both are falling. Moreover, there is an intermediate region ($1 - s < B < 1/(2 - s)$) where the impact of B is different across the types of conflicts. Nevertheless, we have the following remark.

Remark 6 When there is conflict over market definition, both lenient and strict merger thresholds lead to the lowest probabilities of conflict.

A related question is to ask under what circumstances any type of conflict arises, i.e. $P_1 + P_2$. For the region of $1 - s < B < s$ we have that $P_1 + P_2 = \frac{1-s}{2s}((1 - B)^2 + B^2)$, which is u-shaped in B with a minimum at $B = 1/2$. Overall, $P_1 + P_2$ is thus not concave and it has a local minimum at $B = 1/2$. In fact, this local minimum also arises when the probabilities are identical, i.e. $P_1 = P_2$.

In sum, the results of this section indicate that conflict is less likely to emerge when national antitrust agencies define the global market as relevant and when there is a positive correlation across jurisdictions in market shares. In addition, when the relevant market is not perceived not global by both countries, the threshold matters and either low or high thresholds reduce the scope for conflict. Finally, the difference in country size matters only when there is conflict over the relevant market, i.e. when one country defines the global market as relevant while the other country considers the national market as relevant. In those circumstances we find that countries of unequal size have lower probabilities of conflict.

4 Conclusion

In this paper we address the issue of conflict that might arise between antitrust agencies in the area of international merger control. It is worth emphasizing again that our analysis is merely positive. We are interested in determining the scope for conflict as well as the circumstances under which such conflict is more likely to occur.

We find within the context of a simple positive model of merger control that the scope for conflict in international merger control might be rather limited. In particular, whenever national antitrust agencies define the global market as relevant, no conflict can ever emerge. In this sense, internationalization of the economy cannot explain why national agencies disagree. A second robust finding is that a positive correlation across jurisdictions in market shares of the merging parties lowers the potential for conflict. To the extent that market integration produces correlated market shares, a more integrated market is subject to less conflict between antitrust agencies.

The thresholds, which describe the policy stance towards mergers, only affect the scope for conflict when the relevant market is not perceived as global for both countries. However, whether countries agree on market definition or not is irrelevant. In both instances, either low or high thresholds reduce the scope for conflict. That is also to say that a policy which takes efficiency into account explicitly - and hence allows for a variety of thresholds around the average - is less likely to generate conflict.

Finally, we show that the difference in country size matters only when there is conflict over the relevant market, i.e. when one country defines the global market as relevant while the other country considers the national market as relevant. In those circumstances we find that countries of unequal size have a lower probability of conflict.

Since both correlated market shares and global market definitions are associated with an open and integrated economic area, it appears that the scope for conflict in international merger control is less likely to occur when economic integration is high. We therefore interpret our results to suggest that "globalization" should not be seen as the source of conflict between national antitrust agencies, but should rather help alleviate such frictions. Of course, our model assumes that national agencies follow their mandate and protect consumer interests. This raises the suspicion that conflict in international merger control may well be associated with the pursuit of other objectives, like the defense of national champions.

References

Bacchetta, M., H. Horn and P. Mavroidis, (1998), Do negative spillovers from nationally pursued competition policies provide a case for multilateral competition rules, in Elhermann and Laudati (eds), *European Competition Law Annual 1997: objectives of competition policy*, Hart Publishing, Oxford

Besanko, D. and D. Spulber, 1993, Contested mergers and equilibrium antitrust policy, *The Journal of Law, Economics and Organisation*, 9 (1),1-29

Horn, H. and H. Lang, S. Lundgren, (1994), International integration of oligopolistic markets with interrelated demands, mimeo, Stockholm University

Klein, J., (2000), Time for a global competition initiative ?, mimeo, Department of Justice, Washington D.C.

Klemperer, P., (1987), The Competitiveness of Markets with Switching Costs, *Rand Journal of Economics*, Vol. 18 (1). p 137-50.

Montini, M., (1998), Globalization and international antitrust cooperation, mimeo, University of Sienna

Mavroidis, P. and D. Neven, (1999), Some reflections on extraterritoriality in international economic law. A law and economic analysis, *Mélanges offerts à Michel Waelbroeck*, Vol 1 International Law, Presse Universitaire de Bruxelles, Brussels

Neven, D. and L.-H. Röller, (2000a), The allocation of jurisdiction in international antitrust, *European Economic Review*, Papers and Proceedings, 44, 845-856

Neven, D. and L.-H. Röller, (2000b), Consumer surplus vs welfare standard in a political economy model of merger control, CEPR Discussion paper, forthcoming

Röller, L.-H., J. Stennek and F. Verboven, (1999), Efficiency gains from mergers, Report for EC Contract II/98/003, EU Commission, Brussels

Schaub, A., (1998), International co-operation in Antitrust matters : making the point in the wake of the Boeing/MDD proceedings, *Competition Policy Newsletter*, 1, 2-6

Figure 1a

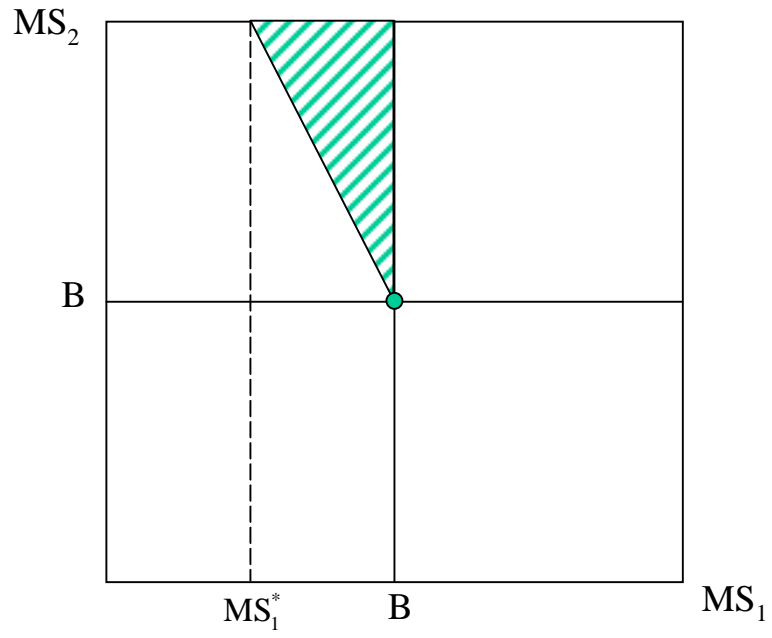


Figure 1b

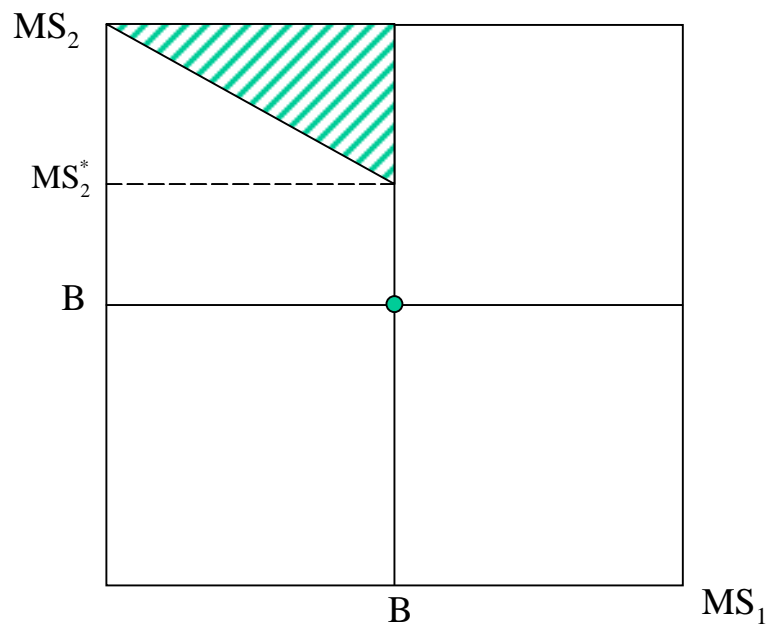


Figure 2a

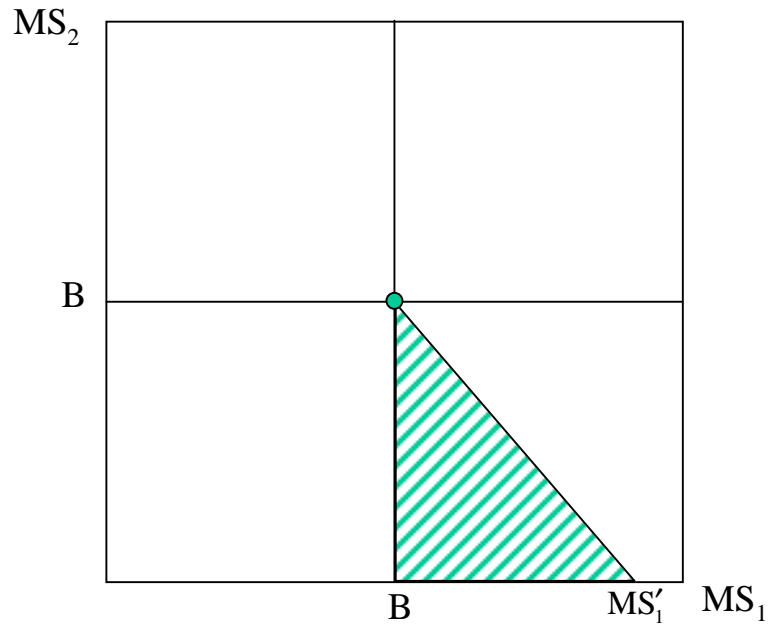


Figure 2b

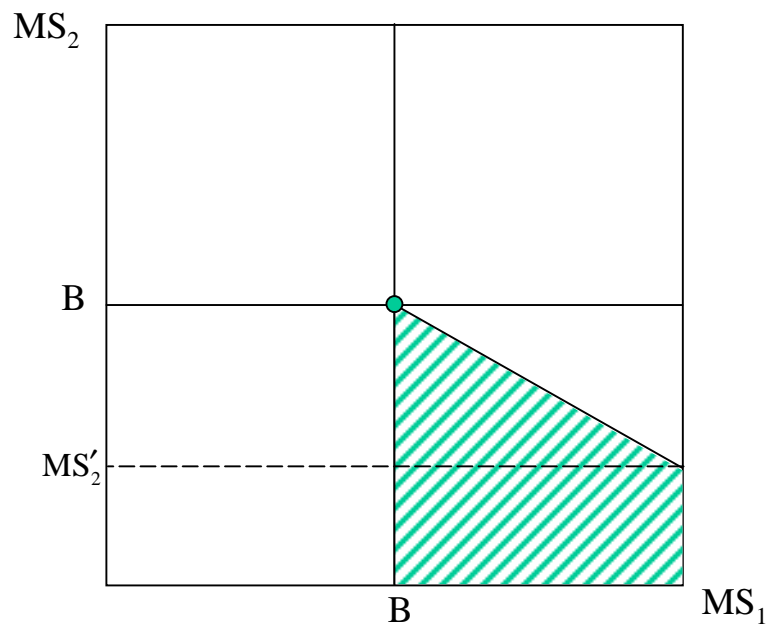


Figure 3a

Comparative Statics with Respect to S: $B > 1/2$

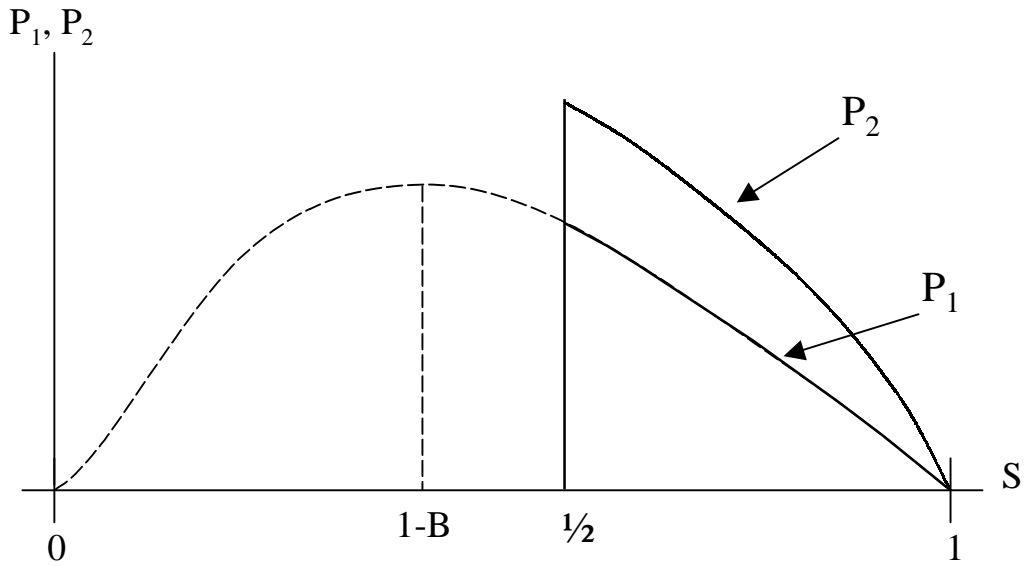


Figure 3b

Comparative Statics with Respect to S: $B < 1/2$

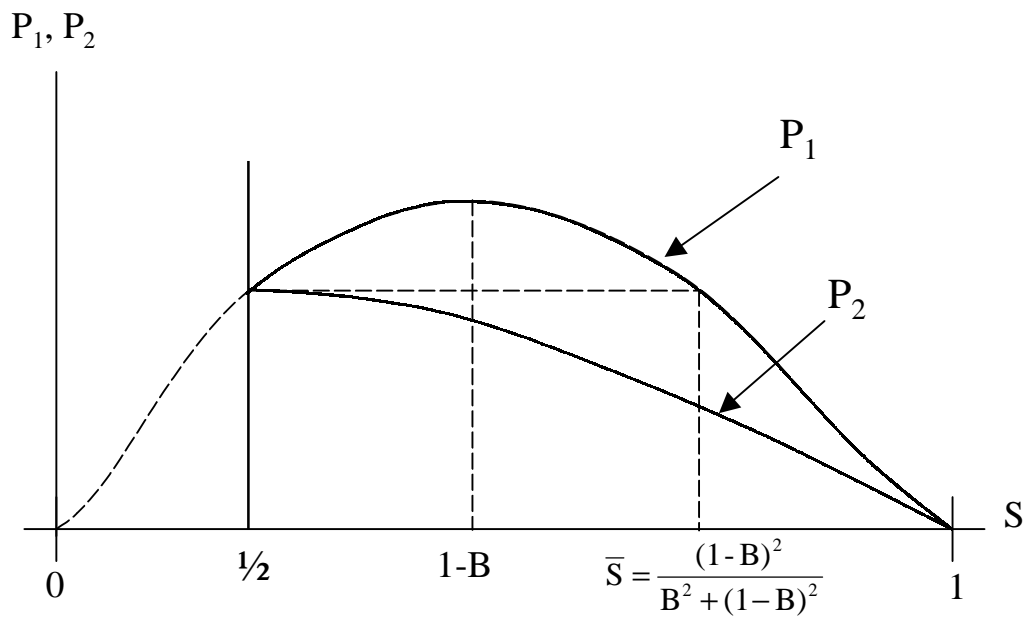


Figure 4
Comparative Statics with Respect to B

