National champions and globalization

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Abstract
In this paper, we offer an explanation why globalization (falling trade costs) may increase the government incentive to block foreign takeover of domestic firms and increase its incentive to allow mergers among national firms. This creation of "national champions" occurs not only because the government may have a bias against foreign takeover, but also because consumer welfare gains associated with foreign acquisitions decrease with globalization. Endogenizing the government bias through lobbying efforts of the domestic firms, the paper shows that the bias does not need to be very strong before the government promotes domestic champions provided that barriers to trade are low.

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1) Introduction

In this paper we offer an explanation why falling trade costs ("globalization") can reinforce the case for promoting *national champions* in merger policy. We set up an oligopoly model where two domestic and one foreign firm compete in the domestic country. The foreign firm wants to take over one of the domestic firms in order to improve its market access by saving on trade costs. Alternatively, the two domestic firms can merge to become a national champion which captures market shares from the foreign rival. Any change in the ownership structure must be approved by the domestic government. In the decision process of whether to support or reject the merger proposals government maximizes national welfare, but may be subject to an endogenous bias against the foreign takeover. This bias is rooted in a political economy framework where domestic firm owners make contribution payments in order to put forward their respective preferred merger policy. Our central insight is that once trade costs have fallen to a critical level, further integration induces the government to block the foreign takeover request and instead to promote a national champion. While a certain government bias is required for this to occur, that bias need not be very strong because the associated consumer and welfare gains of the foreign takeover already decrease with globalization.

This result of our model may explain why the *national champion* debate has recently loomed high on the policy agenda in several countries. On the one hand it is a well-established fact that foreign mergers have become vastly more important during the last decades.[1] Yet, despite this general development, there have also been a number of recent cases that reveal a somewhat opposite trend: The increased effort by governments to defend domestic firms against acquisition attempts from abroad. A particularly clear example is the widely known *SUEZ/ENEL/GAZ DE FRANCE* (*GdF*) case. The French government has heavily opposed the announced takeover of the national electricity and gas company *SUEZ* by the Italian competitor *ENEL*. Instead it favoured a merger of *SUEZ* with *GdF*, in order to create one of the largest gas providers worldwide with headquarters based in France.[2] This policy approach of creating national champions is clearly confined to specific circumstances where foreign corporations train their sight on prominent and large domestic target firms which are often active in sensible sectors of the economy. Still, the cases where governments have intervened in multi-

[1] Cross-border M&A are the dominant form of foreign direct investment, far more important than greenfield investments. During the 1980s they accounted for roughly 77 per cent of all FDI flows among developed countries, whereas this share grew to almost 90 per cent in the period 1998-2000. International mergers also account for a substantial and growing share among all M&A activities. For an overview of recent trends in cross-border M&A and the relation with falling trade costs, see Hijzen et al. (2008).

[2] Further recent examples which follow a roughly similar pattern include *EON/Endesa/GasNatural*, *ABN-Ambro/Antonveneta*, *Arcelor/Mittal*, *Autostrade/Albertis*, or *Danone/Pepsi*. See Sorgard (2007) for a policy-oriented discussion of the national champion debate.

national takeover battles and pushed domestic mergers have attracted huge public and business attention, which suggests that the national champion debate is one of the key issues in current industrial and competition policy.

The previous theoretical literature on cross-border M&A (e.g., Horn and Persson 2001; Norbäck and Persson 2004, 2005) has mainly focussed on an explanation for why globalization triggers foreign mergers. It has little to say about why globalization may also increase the government incentive to push national mergers. In our model this possibility arises because the domestic government can have a bias against foreign takeovers. There is ample evidence for nationalistic biases in industrial policy (Brülhart and Trionfetti, 2001), and more specifically for reservations against acquisitions of domestic firms by foreign corporations. Governments tend to favour domestic ownerships, because the management is then more likely to commit to production in the home country, since politicians find it easier to interact with (and eventually to tax) domestic owners, and so on. A foreign acquisition, in contrast, raises concerns that relationships with local inputs suppliers may not be maintained or that domestic workers are laid off. Apart from these "real" concerns, the aversion against foreign acquisitions may also be due to lobbying effort of well organized domestic interest groups.

In our model we consider a nationalistic bias that endogenously results from a political economy mechanism, similar as in Motta and Ruta (2008). The owners of the domestic firms have access to the relevant politicians and engage in lobbying to put forward their respective preferred merger policy. Whereas firm 1, which would become the outsider in the MNE scenario, lobbies for a blockade of the foreign acquisition,[3] the target firm 2 seeks for a policy where the foreign acquisition is implemented at the highest possible takeover price. The strength of the endogenous government bias, and thereby the final equilibrium ownership structure depend crucially on how much the politicians care about national welfare relative to lobbying contributions. When the government cares only (or almost only) about welfare it would implement the cross-border merger, as this type of M&A is associated with more socially beneficial synergy effects. This choice is reinforced by the lobbying efforts of the target firm. Yet, the associated consumer welfare gains of the foreign takeover are smaller at high levels of trade openness, as there are fewer trade costs to be avoided. Hence, when the government cares sufficiently strongly about bribes, it may actually decide to be biased beyond a certain stage of globalization and to promote the national champion.

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[3] Firm 1 has an incentive to engage in lobbying in order to avoid the profit loss that is associated with the MNE formation. Furthermore, an effective exclusion of the foreign bidder (firm 3) from the takeover battle will leave firm 1 as the only potential buyer. It can then buy the target (firm 2) at a much lower price than without the government blockade, in which case the acquisition price is determined in an open bidding process between firms 1 and 3, where the target firm 2 reaps most of the takeover gains.

1.1. Related literature

Our paper adds to the literature on foreign direct investment (FDI), which has strongly focused on greenfield FDI but devoted relatively little attention to M&A. There are, however, a few notable exceptions.[4] Horn and Persson (2001) develop a cooperative merger formation game in a two-country model with four symmetrical firms. They find that trade integration makes cross-border mergers more likely, as compared to the formation of national mergers. A similar result arises in Norbäck and Persson (2004) where a state-owned asset is auctioned off between a domestic and a foreign firm. The foreigner can decide to enter the market either by acquiring that asset or by a greenfield investment. If greenfield entry costs are high and M&A is the preferred entry mode, both firms bid more the higher trade costs are. The anti-competitive ("preemptive") motive of the domestic bidder dominates at high trade costs, leading to the national acquisition. Norbäck and Persson (2005) extend this analysis and compare a protectionist policy (allowing only the domestic acquisition) and a national treatment policy that also allows the foreign acquisition. A welfare-maximizing government would not be protectionist, since the foreigner's acquisition price is sufficient to compensate the negative externality for the domestic firm while generating additional positive effects for consumers.

Our model makes similar predictions in the case where the government is unbiased. This leaves open the question, however, why the national champion debate has become so prominent recently while trade costs are on a further declining trend.[5] The main contribution of this paper is to analyze the effect of declining trade costs on the pattern of national vs. cross-border mergers in a model with an endogenous government bias that results from political economy mechanisms. Furthermore, in contrast to Norbäck and Persson (2004, 2005) we do not consider a privatization scenario where the sole motive for the domestic bidder is to prevent foreign market entry. In our setting the target firm is a competitor of the bidders and the domestic merger is endogenously efficient due to synergy effects. This generates some subtle differences in the outcome of the takeover battle as discussed below.

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[4] Further recent contributions to the literature on cross-border mergers, yet with a somewhat different focus, include Bjorvatn (2004), De Stefano and Rysman (2009), Haufler and Nielsen (2008), Head and Ries (1997), Lommerud et al. (2006), Neary (2007), Nocke and Yeaple (2007), Norbäck and Perrson (2008, 2007) and Suedekum (2008). More specifically, Huck and Konrad (2004) and Horn and Levinsohn (2001) show how merger policy can be used strategically in open economies in order to shift rents towards the home country, and how this interacts with other policy instruments such as tariffs or subsidies to domestic firms.

[5] Norbäck and Persson (2005) also analyze the effects of "local equity requirements (LERs)", where the government retains a certain percentage of the asset after privatization. Provided the foreign acquisition still occurs the LER raises domestic welfare as the country participates from the profit gains of the foreign firm. However, the LER makes the acquisition less attractive for the foreign bidder and can, thus, lead to the domestic merger in some constellations. In particular this is likely to occur at low levels of trade costs. We obtain consistent results for the case of a biased domestic government, but in contrast to Norbäck and Persson (2005) we explicitly analyze the motives for adopting such biased policies rooted in a political economy framework.

The impact of lobbying activities on merger policy has recently been studied by Motta and Ruta (2008). They consider a setup with three firms (potentially located in different countries) where two firms are about to merge. Both insiders and outsider engage in lobbying activities and try to push or, respectively, to prevent a merger, provided that competition policy can be influenced by elected politicians and is not carried out by an independent authority. We extend their analysis is two main directions. Firstly, we embed political economy in an explicit takeover auction. The government can crucially affect the strategic position of the bidders in this auction as well as the final takeover price. Secondly, trade costs are assumed away in Motta and Ruta (2008) whereas they play a key role in our model.

2) The model

We consider a setup with three firms that produce a homogeneous good. Entry is restricted. Each firm possesses an intangible and non-reproducible asset like managerial skill which is needed to produce at all in that industry. Firms 1 and 2 and their shareholders are located in the domestic country "H". Firm 3 and its shareholders are located in some outside country.

Competition takes place in market H only, which is populated by a huge mass of consumers. For firms 1 and 2 unit costs of production are constant and normalized to one. The foreign firm 3 has constant unit production costs $0 < c \leq 1$. That firm also faces iceberg trade costs for servicing the market: from every unit shipped to country H only a fraction $0 < g < 1$ arrives, where g represents the level of trade openness capturing all sorts of impediments. Effective marginal costs for the foreign firm are thus $c/g > 0$. Starting from this initial situation, where all three firms act independently, we consider the following four-stage game that will be solved by backward induction for the sub-game perfect Nash equilibrium:

First stage: The domestic firms can make contribution payments to the government and the strength of the bias against the foreign takeover is determined

Second stage: The shareholders of the firms 1 and 3 bid for the domestic target firm 2 in a takeover auction. The firms submit their merger proposals to the government

Third stage: The domestic government approves or rejects the merger proposals; the change in the market structure is implemented

Fourth stage: Firms compete non-cooperatively à la Cournot in the product market

Firm 2 is the pre-designated acquisition target. It is "in the air" that the foreign corporation 3 (call it *ENEL*) is only interested in taking over firm 2 (*SUEZ*), but not at all interested in buying firm 1 (*GdF*), for reasons such as an incompatibility of corporate cultures. We further focus our attention on two possible ownership structures that can emerge:

1.) The formation of a national champion through a merger of the domestic firms 1 and 2

2.) A takeover of firm 2 by the foreign firm 3

We do not consider the case that one of the domestic firms tries to buy the foreign competitor, and we rule out that all three firms merge to a monopoly on the domestic market. Also we will assume that both types of M&A give rise to sufficiently strong "synergy effects", i.e., reductions in post-merger production costs, so that *some* merger will clearly arise in equilibrium.[6] We now derive the market outcomes for the three possible ownership structures in this model.

2.1. Initial situation without M&A

To obtain closed form solutions we assume that demand in country H is linear and given by

$$p = a - b \cdot H \qquad\qquad a > 2, b > 0 \tag{1}$$

p denotes the price, and $H = x_1 + x_2 + g \cdot x_3$ the total consumption quantity of the commodity. This consists of the domestic production by firms 1 and 2 (x_1, x_2), and the production of the foreign firm net of transport losses ($g \cdot x_3$). The three firms solve the following profit maximization problems by choosing, respectively, their quantities x_1, x_2 and x_3:[7]

$$Max\ \pi_i = \left(a - b\left(x_i + x_j + g \cdot x_3\right)\right) \cdot x_i - x_i \qquad\qquad i, j = 1,2;\ i \neq j \tag{2}$$

$$Max\ \pi_3 = \left(a - b\left(x_1 + x_2 + g \cdot x_3\right)\right) \cdot g \cdot x_3 - c \cdot x_3 \tag{3}$$

This standard asymmetrical Cournot game yields the following equilibrium quantities (x_i), price (p) and profits (π_i) in the initial situation, which are superscripted with "*pre*":

$$x_1^{pre} = x_2^{pre} = \frac{a + c/g - 2}{4b}, \qquad x_3^{pre} = \frac{a - 3c/g + 2}{4bg}, \qquad p^{pre} = \frac{a + c/g + 2}{4} \tag{4}$$

$$\pi_1^{pre} = \pi_2^{pre} = b\left(x_i^{pre}\right)^2 = \frac{\left(a + c/g - 2\right)^2}{16b}, \qquad \pi_3^{pre} = b\left(g x_3^{pre}\right)^2 = \frac{\left(a - 3c/g + 2\right)^2}{16b}$$

We impose parameter restrictions to ensure that the foreign firm is active on the domestic market ($x_3^{pre} > 0$). This requires the effective marginal costs c/g to be sufficiently low, or in turn trade freeness to be sufficiently high: $g > g_{min} \equiv 3c/(a+2)$. For the welfare evaluation we use the standard concept of total national surplus, which is the sum of consumer surplus $CS^{pre} = \left(H^{pre}\right) \cdot \left(a - p^{pre}\right)/2$, and profits of the national firms: $\Omega^{pre} = \left(\pi_1^{pre} + \pi_2^{pre}\right) + CS^{pre}$.

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[6] This assumption, which is clarified formally below, is needed to deal with the well known "merger paradox" (Salant et al. 1983). In the absence of synergy effects mergers are typically not profitable for the participants in Cournot models but benefit the outsiders. If synergy effects are sufficiently strong mergers become profitable to insiders, lower consumer prices and hurt the respective outsider (see Motta 2004).

[7] All essential results of this paper remain robust under Bertrand competition where firms produce heterogeneous goods, but the notation becomes much more complex. Results also remain robust when assuming linear transport costs instead of the iceberg specification. Results on these issues are available upon request.

2.2. National champion

When the national champion is formed we have an asymmetric Cournot duopoly in the fourth stage. We denote the single national firm by $\{1+2\}$. Profit maximization problems are now

$$Max\ \pi_{\{1+2\}} = \left(a - b\left(x_{\{1+2\}} + g \cdot x_3\right)\right) \cdot x_{\{1+2\}} - s \cdot x_{\{1+2\}} \tag{5}$$

$$Max\ \pi_3 = \left(a - b\left(x_{\{1+2\}} + g \cdot x_3\right)\right) \cdot g \cdot x_3 - c \cdot x_3 \tag{6}$$

Post-merger costs of the national champion are equal to *s*, where $0 < s < 1$ represents the synergy effect. The following variables, superscripted with "*nat*", pertain to this scenario:

$$x_{\{1+2\}}^{nat} = \frac{a + c/g - 2s}{3b} \qquad x_3^{nat} = \frac{a - 2c/g + s}{3bg} \qquad p^{nat} = \frac{a + c/g + s}{3} \tag{7}$$

$$\pi_{\{1+2\}}^{nat} = \frac{\left(a + c/g - 2s\right)^2}{9b} \qquad \pi_3^{nat} = \frac{\left(a - 2c/g + s\right)^2}{9b}$$

Profits $\pi_{\{1+2\}}^{nat}$ are divided among the domestic shareholders. This division will play an important role in the takeover battle below, but for the welfare evaluation of this ownership structure only the aggregate national profits matter. Total national surplus is now given by

$$\Omega^{nat} = \pi_{\{1+2\}}^{nat} + CS^{nat} = \frac{\left(a + c/g - 2s\right)^2}{9b} + \frac{\left(2a - c/g - s\right)^2}{18b} \tag{8}$$

Comparing (7) and (4) we can establish some useful preliminary results. The proof and the definition of the threshold levels can be found in appendix A.

Lemma 1

(a) $\pi_{\{1+2\}}^{nat} > \pi_1^{pre} + \pi_2^{pre}$ *requires* $s < \tilde{s}_\pi$, *(b)* $CS^{nat} > CS^{pre}$ *requires* $s < \tilde{s}_{CS}$, *where* $\tilde{s}_{CS} < \tilde{s}_\pi$.

The national champion is profitable for the participants if the synergy effect is sufficiently strong ($s < \tilde{s}_\pi$), reminiscent of the well known "merger paradox" (Salant et al., 1983). Yet, consumers benefit from it only with a stronger efficiency gain, $s < \tilde{s}_{CS} < \tilde{s}_\pi$, so that prices fall despite the increase in market concentration.[8] It is also instructive to consider the effect on the foreign outsider firm. Using (7) and (4), we can compute the following merger externality:

$$\pi_3^{nat} - \pi_3^{pre} = \frac{1}{144b}\left[16\left(a - 2c/g + s\right)^2 - 9\left(a - 3c/g + 2\right)^2\right] \tag{9}$$

[8] The thresholds for s are lower the lower the production cost advantage of the foreign competitor is, the better the market H is sheltered through trade costs, and the larger market size *a* is. The intuition is that the domestic firms have a stronger position on the market H the higher c is and the lower g is. Farrell and Shapiro (1990) show that horizontal mergers among strong firms are less likely to be profitable than among weak firms.

By decomposing (9) it can be shown that this term is negative with $s < \tilde{s}_{CS}$. That is, if the synergy effect is strong enough to imply lower consumer prices (a condition that is assumed to hold below), a negative externality for the foreign outsider firm follows.

2.3. Foreign takeover

The alternative scenario is that firm 3 takes over firm 2 whereas firm 1 stays as an independent competitor. Operating profits of the newly created MNE henceforth accrue to the foreign headquarter location. A takeover price λ is paid from abroad, which is received as a capital gain by the domestic shareholders of the target firm 2. In the fourth stage of the game this scenario gives rise to an asymmetric Cournot duopoly between the MNE and the domestic outsider firm 1. Trade costs play no role any longer, because the MNE can draw on the existing distribution network and facilities of firm 2. In addition, we assume that the takeover gives rise to synergy effects of identical *absolute* strength in production. That is, post-merger unit costs of the MNE are equal to $0 < c - (1 - s) < 1$, which implies a parameter restriction $c + s > 1$.[9] The profit maximization problems are now

$$Max\ \pi_1 = \left(a - b\left(x_1 + x_{MNE}\right)\right) \cdot x_1 - x_1 \tag{10}$$

$$Max\ \pi_{MNE} = \left(a - b\left(x_1 + x_{MNE}\right)\right) \cdot x_{MNE} - \left(c - \left(1 - s\right)\right) \cdot x_{MNE}\,, \tag{11}$$

and imply the following solutions that are distinguished by the superscript "*int*":

$$x_1^{int} = \frac{a + c + s - 3}{3b} \qquad x_{MNE}^{int} = \frac{a - 2c - 2s + 3}{3b} \qquad p^{int} = \frac{a + c + s}{3} \tag{12}$$

$$\pi_1^{int} = \frac{\left(a + c + s - 3\right)^2}{9b} \qquad \pi_{MNE}^{int} = \frac{\left(a - 2c - 2s + 3\right)^2}{9b} - \lambda$$

With (12), (7) and (4) we can establish three useful results regarding the foreign takeover in comparison with the pre-merger scenario. These results are proven in appendix B.

Lemma 2

If $s \le \tilde{s}_{CS}$ *it follows that:* *(a)* $\pi_{MNE}^{int} + \lambda > \pi_2^{pre} + \pi_3^{pre}$, *(b)* $p^{int} < p^{pre}$, *(c)* $\pi_1^{int} < \pi_1^{pre}$

The lemma states that if the synergy effect is strong enough to render the national champion profitable and efficient from the consumer perspective (if $s \le \tilde{s}_{CS}$), then the international takeover must also be profitable in the sense that gross profits of the MNE (excluding the takeover

[9] Note that this implies stronger cost synergies of the international takeover in *relative* terms if the foreign firm has an initial cost advantage ($c < 1$). Recently, Bertrand and Zitouna (2008) and Qui and Zhou (2006) have argued that cross-border M&A are in fact likely to yield stronger total synergies than national mergers.

price) exceed the pre-merger profits of the participating firms 2 and 3. Under the same parameter restriction the takeover also implies lower prices for the domestic consumers. The reason is that trade cost savings arise as an additional effect on top of the general synergies.[10] Finally, the lemma implies that the international takeover induces a negative externality on the (now domestic) outsider firm when the parameter restriction $s \le \tilde{s}_{CS}$ holds.

We assume from now on that the general synergy effect is, in fact, strong enough to ensure that *both* merger types are profitable and efficient from a consumer perspective, so that s*ome* change in the market structure will surely arise in equilibrium. More specifically, we do not only require that $s \le \tilde{s}_{CS}$ holds, but for notational convenience we assume the following strength of the synergy effect (see eq. A4 in appendix A):[11]

Assumption 1: *The synergy effect is given by* $s = \tilde{s}_{CS}\left(g = g_{min}\right) = \frac{1}{4}\cdot\left(6 - a - \frac{c}{3c/(a+2)}\right) = \dfrac{4-a}{3}$

2.4. Equilibrium ownership structure without government involvement

Before moving to the third stage where the domestic government acts, it is useful to illustrate a benchmark version of this game in which there is no merger policy at all. For this *laissez-faire* case we only need to analyze the takeover auction. The pre-designated target firm 2 is assumed to set some initial reservation price r, and the two potential buyers (firms 1 and 3) then engage in a simultaneous bidding process. The firm that places the higher bid wins the takeover battle, and the respective merger is implemented without further complications.[12]

Let $\tilde{\lambda}_3$ denote the maximum price that firm 3 is willing to pay for the target. This price can be derived by comparing net profits of the foreign takeover (π_{MNE}^{int}) with the profit level that firm 3 would earn otherwise under the national champion scenario (π_3^{nat}). Using (12), (7) and assumption 1, $\tilde{\lambda}_3$ is the price λ that solves $\pi_{MNE}^{int} - \pi_3^{nat} = 0$. It is given by

$$\tilde{\lambda}_3 = \frac{1}{81b}\left[\left(5a - 6c + 1\right)^2 - \left(2a - 6c/g + 4\right)^2\right] > 0 \qquad (13)$$

[10] $s < \tilde{s}_{CS}$ is only a sufficient but not a necessary condition for a profitable foreign takeover. Gross profits of the MNE may increase compared to the pre-merger scenario even without any direct synergy effects (i.e. even with $s = 1$), purely as a result of trade cost savings. Additional synergy effects reinforce this effect.

[11] All results in the remainder of this paper would hold under the weaker restriction $s \le \tilde{s}_{CS}$, but notation would become considerably more complicated. Notice that this choice of s implies as parameter restrictions $a < 4$ and $c > c_{min} \equiv \left(a-1\right)/3$ in order to warrant $s > 0$ and $c + s > 1$. See also appendix C on these restrictions.

[12] This setup is similar to the takeover auction among symmetrical firms that Inderst and Wey (2004) have modelled in a closed economy. Note that our assumption 1 ensures that (i) the merger insiders strictly gain, (ii) the respective outsider strictly loses, and (iii) overall industry profits strictly increase. These properties guarantee that some takeover will clearly occur (see Inderst and Wey 2004, proposition 1.2).

The domestic firm's maximum bid (denoted $\tilde{\lambda}_1$) follows implicitly from the division rule of the profit level $\pi_{\{1+2\}}^{nat}$, given that the relevant threat is the outsider position in the foreign takeover scenario (π_1^{int}). The maximum claim on the national champion's profits that firm 1 is willing to allow for firm 2 is given by $\pi_2^{nat} = \pi_{\{1+2\}}^{nat} - \pi_1^{int}$, so that the residual claim $\pi_1^{nat} = \pi_{\{1+2\}}^{nat} - \pi_2^{nat} = \pi_1^{int}$ just leaves firm 1 indifferent between the two merger scenarios. The maximum bid $\tilde{\lambda}_1$ that follows from (12) and (7) is, thus, given by:

$$\tilde{\lambda}_1 = \pi_{\{1+2\}}^{nat} - \pi_1^{int} = \tfrac{1}{81b}\left[\left(5a + \tfrac{3c}{g} - 8\right)^2 - \left(2a + 3c - 5\right)^2\right] > 0 \qquad (14)$$

If $\tilde{\lambda}_1 > \tilde{\lambda}_3$ the national champion is formed in this scenario without government involvement, and the takeover price that flows between the domestic shareholders is $\lambda = \tilde{\lambda}_3$. Similarly, if $\tilde{\lambda}_3 > \tilde{\lambda}_1$ the foreign takeover is implemented for the price $\lambda = \tilde{\lambda}_1$. Comparing the maximum bids in eqs. (13) and (14), we can prove the following results (see appendix C):

Proposition 1

a) *The national merger always takes place ($\tilde{\lambda}_1 > \tilde{\lambda}_3$ for all $g \in [g_{min}, 1]$) if the foreign firm has no productivity advantage (if $c = 1$)*

b) *The foreign takeover always takes place ($\tilde{\lambda}_3 > \tilde{\lambda}_1$ for all $g \in [g_{min}, 1]$) if the foreign firm's productivity advantage is strong enough (if $c_{min} < c < \tilde{c}$).*

c) *With an intermediate productivity advantage ($\tilde{c} < c < 1$) the foreign takeover takes place for high levels of trade openness (for $\tilde{g} < g < 1$) and the national merger otherwise (for $g_{min} < g < \tilde{g}$). The threshold level of trade openness $\tilde{g}$ beyond which the foreign takeover takes place is lower, the stronger the productivity advantage of the foreign firm is ($\partial\tilde{g}/\partial c > 0$) and the larger the market size is ($\partial\tilde{g}/\partial a < 0$).*

Figure 1a below illustrates this latter case. The thin solid line and the broken line illustrate the maximum bids $\tilde{\lambda}_3$ and $\tilde{\lambda}_1$, respectively (neglect the thick sold line at the moment). Both curves are downward sloping in g, as can be seen directly from (13) and (14). The foreign takeover is more profitable for firm 3 at low trade openness, because a larger chunk of trade costs could be avoided. Due to this "tariff-jumping motive" firm 3 is willing to place a higher maximum bid $\tilde{\lambda}_3$ the lower g is. At the same time the domestic firm 1 has a stronger incentive to prevent the foreign takeover, and thus an incentive to place a higher maximum bid $\tilde{\lambda}_1$ the lower g is. The reason is that the negative merger externality is more severe the better firm 1 is initially sheltered through the trade cost barrier.

To understand why the foreign firm outbids the domestic rival at high trade openness, consider the case with perfectly free trade ($g = 1$). Firm 3 has a productivity advantage ($c < 1$) that effectively translates into a higher bidding power. It wins the auction and even realizes a takeover rent $\tilde{\lambda}_3 - \tilde{\lambda}_1 = \frac{2}{3b}(a-1)(1-c) > 0$ at $g = 1$. Moving to the left on the $g-$axis, the bidding power of the foreign firm still prevails for high enough levels of g. Yet, the initial advantage due to $c < 1$ is exhausted if g is low enough (to the left of point Z in figure 1a), because this raises effective marginal costs and lowers the bidding capacity of the foreign firm. Thus, for low enough levels of g firm 1 manages to prevent the foreign takeover.

Qualitatively, proposition 1 implies that "globalization" triggers the foreign takeover in the absence of government involvement. This result is in line with Norbäck and Persson (2004), yet with the important difference that in our model the foreign firm can only win the auction at high trade openness if it has *some* initial productivity advantage.[13]

3) The government approval decision

We now move to the interesting case with an active domestic merger policy. The role of the government in the third stage is to approve the merger proposal that yields the higher domestic welfare gain, given the strength of the bias against the foreign takeover determined in the first stage of the game, and the firms' takeover offers determined in the second stage.

Welfare in the foreign takeover scenario consists of the domestic consumer surplus (CS^{int}), profits of the domestic outsider firm (π_1^{int}), and the takeover price λ that is received as a domestic capital gain: $\Omega^{int} = \pi_1^{int} + CS^{int} + \lambda$. Government then simply deducts some $\mathrm{B} \geq 0$ from this proper level of welfare, where B measures the strength of the government bias. Using (12) and assumption 1, government evaluates the foreign takeover scenario as follows:

$$\Theta^{int} \quad = \quad \Omega^{\mathrm{int}} - \mathrm{B} \;=\; \frac{(2a+3c-5)^3}{81b} + \frac{(7a-3c-4)^2}{162b} + \lambda - B \qquad (15)$$

This expression in (15) is compared with the welfare level that would result under the alternative national merger scenario (Ω^{nat}). If $\Theta^{int} - \Omega^{nat} < 0$ for the price λ, government rejects the

[13] Norbäck and Persson (2004) assume that unit costs of production are the same for the domestic and the foreign firm. Furthermore there are no general merger synergies unrelated to trade costs. In their model, focussing on the case with high greenfield costs to which our setup corresponds, the foreign bidder wins the auction when trade costs are low. In our model this is not true if *c=1*. The reason for this difference is that the domestic firm has not only a "preemptive", but also an efficiency-seeking motive in our model. If foreign market entry were completely ruled out the domestic firm still has an incentive to buy the target in our framework, but not in Norbäck and Persson (2004).

foreign takeover and approves the national merger. Notice that this decision is independent of whether or not firm 3 has placed a higher takeover offer than firm 1 in the preceding auction. That is, provided $\Theta^{int} - \Omega^{nat} < 0$ holds, the national merger also occurs if firm 3 has placed a better offer than firm 1, since government would block the foreign takeover request. Analogously, if $\Theta^{int} - \Omega^{nat} > 0$, government blocks the national merger and approves the foreign takeover *even if* firm 1 has placed the better offer.

Using (8), (15) and assumption 1 we can compare the two merger types in terms of domestic consumer surplus (ΔCS) and operating profits ($\Delta \Pi$). Furthermore we can derive the minimum price λ_{min} which ensures that the foreign takeover outperforms the national champion in terms of the potentially biased definition of domestic welfare:

$$\Delta CS \equiv CS^{int} - CS^{nat} = \tfrac{1}{162b}\left[\left(7a-3c-4\right)^2 - \left(7a-3c/g-4\right)^2\right] \geq 0 \qquad (16)$$

$$\Delta \Pi \equiv \pi_1^{int} - \pi_{\{1+2\}}^{nat} = -\tilde{\lambda}_1 = \tfrac{1}{81b}\left[\left(2a+3c-5\right)^2 - \left(5a+3c/g-8\right)^2\right] < 0 \qquad (17)$$

$$\Theta^{int} - \Omega^{nat} = \Delta CS + \Delta \Pi + \lambda - B \qquad (18)$$

Using (18): $\Theta^{int} \geq \Omega^{nat} \Leftrightarrow \lambda \geq \lambda_{min} = -\left(\Delta \Pi + \Delta CS\right) + B$, hence

$$\lambda_{min} = \tfrac{1}{162b}\left[\left(7a - \tfrac{3c}{g} - 4\right)^2 + 2\left(5a + \tfrac{3c}{g} - 8\right)^2 - \left(7a-3c-4\right)^2 - 2\left(2a+3c-5\right)^2\right] + B \qquad (19)$$

The following results hold and are proven formally in appendix D:

Lemma 3

a) $\partial\left(\Delta CS\right)/\partial g < 0$ *with* $\Delta CS\left(g=1\right)=0$. *b)* $\partial\left(\Delta \Pi\right)/\partial g > 0$ *with* $\Delta \Pi\left(g=1\right) < 0$.

c) $\lambda_{min} > 0$ *with* $\partial \lambda_{min}/\partial B > 0$. *The sign of* $\partial \lambda_{min}/\partial g$ *is ambiguous, but it can be shown that* $\lambda_{min}\left(g = g_{min}\right) > \lambda_{min}\left(g=1\right)$. *Furthermore, provided* $c > \tilde{c}$, *we have* $\partial \lambda_{min}/\partial g < 0$, *where* $\tilde{c}$ *is defined in eq. (C1) in appendix C.*

Equation (16) shows that, as long as $g < 1$, the foreign takeover is superior from the point of view of domestic consumers due to the trade costs savings. The difference in domestic operating profits (eq. (17)) is clearly negative, because profits of the acquired target now accrue to the foreign country and the domestic outsider firm suffers a profit loss. The minimum price λ_{min} is such that the profit loss $\Delta \Pi < 0$ is compensated, while taking into account the associated consumer gain and the potential government bias. Even if government is unbiased the consumer gain alone is not sufficient to compensate the profit loss, hence λ_{min} is strictly positive even if $\mathrm{B}=0$. Then, the larger B is, the higher is the minimum price that firm 3 needs to pay in order to get government approval for the takeover.

As for the impact of trade integration, when trade becomes completely free the two merger types are equivalent from a consumer perspective ($\Delta CS = 0$ at $g=1$). There is still a profit loss associated with the foreign acquisition due to the negative merger externality, hence $\lambda_{min} = -\Delta\Pi + B > 0$ at $g=1$. For lower level of trade openness g both the consumer gain and the profit loss of the foreign takeover are more substantial, but the latter effect is more severe, which explains why λ_{min} is larger at low than at high levels of trade openness.[14]

Lastly, observe that the domestic profit loss is equivalent to firm 1's maximum valuation for the target: $\Delta\Pi = -\tilde{\lambda}_1 = \pi_1^{int} - \pi_{\{1+2\}}^{nat}$. Assuming $\mathrm{B}=0$ for the moment, we thus have $\lambda_{min} < \tilde{\lambda}_1$ for $g<1$ and $\lambda_{min} = \tilde{\lambda}_1$ for $g=1$, since $\Delta CS \geq 0$. This is shown in figure 1a, where the thick solid line depicts the minimum price λ_{min}. That curve is decreasing in g, and runs below but converges to $\tilde{\lambda}_1$ as g increases until the two curves collapse at $g=1$. The consumer gain ΔCS moderates the profit loss $\Delta\Pi = -\tilde{\lambda}_1$ for $g<1$, hence λ_{min} must be flatter in g than $\tilde{\lambda}_1$.

4. Takeover auction and determination of the takeover price

It is important to note that the behaviour of the two bidders and the outcome of the takeover auction crucially change with an actively involved government, compared to the reference scenario without merger policy (see section 2.4). In particular, as long as $\tilde{\lambda}_3 \geq \lambda_{min}$ holds, firm 3 always succeeds in implementing the takeover for the price $\lambda = \lambda_{min}$ regardless of whether $\tilde{\lambda}_3$ is higher or lower than $\tilde{\lambda}_1$. Thus, in cases where $\lambda_{min} < \tilde{\lambda}_1 < \tilde{\lambda}_3$ the foreign firm now bids *less* for the target and retains a larger rent $\left(\tilde{\lambda}_3 - \lambda_{min}\right) > \left(\tilde{\lambda}_3 - \tilde{\lambda}_1\right)$ compared to the laissez faire case, as firm 3 can capitalize the consumer gain in a lower tender. With $\tilde{\lambda}_1 < \lambda_{min} < \tilde{\lambda}_3$ government involvement leads to a higher actual takeover price ($\lambda = \lambda_{min}$ instead of $\lambda = \tilde{\lambda}_1$). Finally, with $\lambda_{min} < \tilde{\lambda}_3 < \tilde{\lambda}_1$ there is now the foreign acquisition since government would block the national champion, despite the fact that firm 1 offers a higher price.

The behaviour of firm 1 is also affected by the presence of the government, since the foreign bidder is de facto excluded from the takeover auction if $\tilde{\lambda}_3 < \lambda_{min}$ holds. In that case only firm

[14] We cannot rule out that λ_{min} is U-shaped over the range of g, but λ_{min} is always larger at minimum trade openness than with free trade. If the foreign firm is not too strong we find that λ_{min} is generally decreasing in g. In figure 1a the required sufficient condition $c > \tilde{c}$ holds, which also ensures that the foreign firm is not able to outbid the domestic firm at all levels of trade openness (see proposition 1).

1 is left as a potential buyer, and the national merger surely arises in equilibrium. The actual takeover price is now irrelevant for the government, as welfare Ω^{nat} depends only on the aggregate domestic profits. In these constellations, regardless if $\tilde{\lambda}_1 < \tilde{\lambda}_3 < \lambda_{min}$, $\tilde{\lambda}_3 < \tilde{\lambda}_1 < \lambda_{min}$ or $\tilde{\lambda}_3 < \lambda_{min} < \tilde{\lambda}_1$, the target firm 2 cannot credibly commit to a take-it-or-leave-it reservation price r that retains all of the takeover gains. The two domestic firms would rather engage in a Nash-bargaining about the division of the national champion's profits, where the threat point is the pre-merger profit level. We make the following assumption:

Assumption 2: *When $\tilde{\lambda}_3 < \lambda_{\min}$ holds, the two domestic firms merge and divide the profits $\pi^{nat}_{\{1+2\}}$ such that $\pi_1^{nat} = \nu \cdot \pi^{nat}_{\{1+2\}} > \pi_1^{int}$ with $0 < \nu < 1$, and $\pi_2^{nat} = (1-\nu) \cdot \pi^{nat}_{\{1+2\}}$.*

A natural choice for the parameter ν that measures the bargaining power of firm 1 is $\nu = 1/2$, since the two domestic firms are ex-ante identical. With $\nu \geq 1/2$ we clearly have $\pi_1^{nat} > \pi_1^{int}$, which follows directly from lemmas 1 and 2. We do not rule out $\nu < 1/2$, but in these cases we assume that ν is sufficiently large to ensure that the exclusion of the foreign bidder from the auction leaves some takeover rent for firm 1 ($\pi_1^{nat} > \pi_1^{int}$).

4.1. Equilibrium ownership structure with an unbiased active government (B=0)

Consider first an active domestic government that is not biased against the foreign takeover ($B = 0$). Proposition 2 summarizes the equilibrium outcome for this case (see appendix E):

Proposition 2

Given that the government has no bias against the foreign takeover (B=0),

a) With a productivity advantage of the foreign firm that is sufficiently strong (for $c_{min} < c < \tilde{c}$) the foreign takeover is always implemented for the price $\lambda = \lambda_{min}$. The foreign firm could always outbid the domestic firm ($\tilde{\lambda}_3 > \tilde{\lambda}_1 > \lambda_{min}$ for all $g \in [g_{min}, 1]$).

b) With an intermediate productivity advantage ($\tilde{c} < c < c_x$, where $c_x < 1$) the foreign takeover is always implemented for the price $\lambda = \lambda_{min}$. Even though the domestic firm could outbid the foreign firm at low levels of trade openness ($\tilde{\lambda}_3 < \tilde{\lambda}_1$ for $g_{\min} < g < \tilde{g}$), government would always block the national merger as $\tilde{\lambda}_3 > \lambda_{min}$ for all $g \in [g_{min}, 1]$.

c) With a weak productivity advantage ($\tilde{c} < c_x < c \leq 1$) the foreign takeover is implemented for the price $\lambda = \lambda_{min}$ at high levels of trade openness ($\tilde{\lambda}_3 > \lambda_{min}$ for $g \in [g_x, 1]$, where $g_x < \tilde{g}$), and the national merger is implemented otherwise ($\tilde{\lambda}_3 < \lambda_{min}$ for $g \in [g_{min}, g_x]$).

Figure **1a** illustrates the case b). To the left of point Z the domestic firm would in principle outbid the foreign rival, but in contrast to the laissez faire case the national merger is now blocked. In case c), which is not shown in figure 1, the productivity advantage of the foreign firm is small. If, at the same time, trade openness is low the foreign firm has high effective marginal costs c/g, and as a consequence of its weak market position firm 3 is not able to make an offer that matches the required λ_{min}. Thus, in this range the national merger arises and the division rule applies that is specified in assumption 2.[15] Then, once trade openness rises beyond g_x we again have $\tilde{\lambda}_3 > \lambda_{min}$, i.e., the foreign acquisition for the price $\lambda = \lambda_{min}$.
Summing up, with an active, unbiased domestic government the foreign acquisition either results over the entire range of trade openness, or at least – if the foreign firm is weak – when trade is sufficiently free. This result is consistent with the scenario without merger policy that has been discussed above. Yet the introduction of active unbiased merger policy, which recognizes the socially beneficial trade cost savings, tends to increase the parameter range where the foreign takeover occurs, and it tends to decrease the actual takeover price.

4.2. Equilibrium ownership structure with a biased government (B>0)

Increasing the strength of the bias leads to a parallel upward shift of λ_{min} in figure 1 but does not affect $\tilde{\lambda}_1$ or $\tilde{\lambda}_3$. If B is large enough $\tilde{\lambda}_3 < \lambda_{min}$ holds throughout, and the foreign takeover is always blocked. In this case, illustrated in figure **1b**, assumption 2 applies. The grey dotted line illustrates the profits of the target firm 2 in this constellation (using $\nu = 0.5$), and can be interpreted as the actual takeover price. This price is lower than under laissez faire or with an unbiased government (except if $c > c_x$ and $g < g_x$ where the same price would result): The exclusion of the foreign bidder squeezes the takeover gains that the target firm can reap. It also generates an economic rent for firm 1. When firm 3 is excluded through the bias, firm 1 can buy the target at the low price $\lambda = (1-\nu)\cdot \pi^{nat}_{\{1+2\}}$ and thus earns $\pi_1^{nat} = \nu \cdot \pi^{nat}_{\{1+2\}} > \pi_1^{int}$.
The most interesting case arises with a government bias of intermediate strength. As shown in figure **1c** the foreign takeover now occurs only in an intermediate range of trade openness, between Y and Y'. Only in this range there are enough trade cost savings to warrant a sufficiently large takeover offer $\tilde{\lambda}_3$ by the foreign firm that covers the bias capitalized in λ_{min}. What is the intuition for this result? Start at point Z (where $\tilde{\lambda}_3 > \lambda_{min}$ is satisfied) and move to the left on the $g-$axis.

[15] It can be shown that in this range $g_{min} < g < g_x$ where $\tilde{\lambda}_3 < \lambda_{min}$ holds, we must have $\tilde{\lambda}_3 < \lambda_{min} < \tilde{\lambda}_1$.

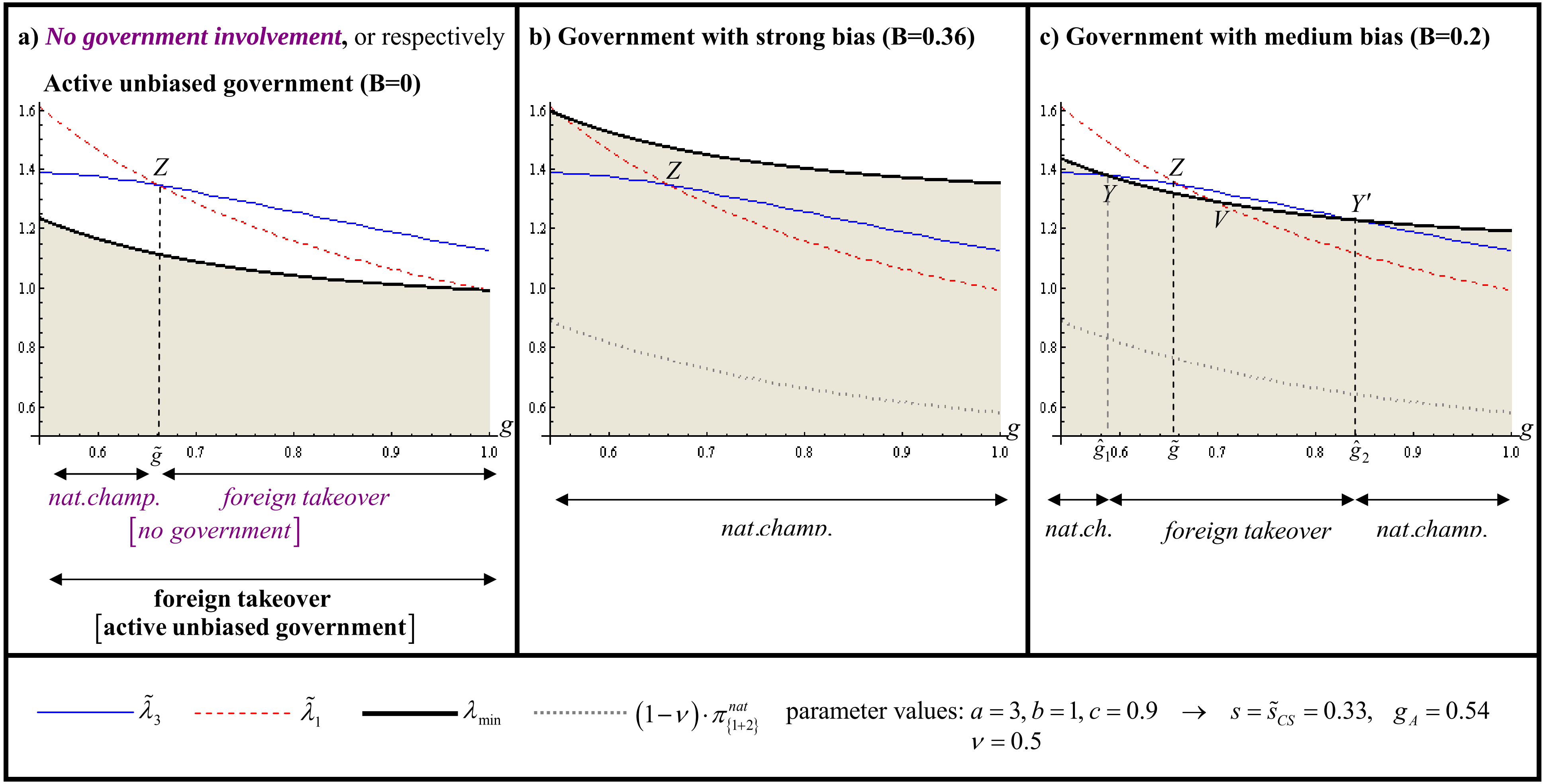

Figure 1

Globalization (g↑) and the equilibrium ownership structure with different government types

The foreign firm's interest in the acquisition per se becomes stronger ($\tilde{\lambda}_3$ increases), but the required minimum price λ_{min} increases even faster. The increase of λ_{min} as g decreases reflects the domestic profit loss that becomes successively stronger than the associated consumer gain (see lemma 3). Hence, as λ_{min} is shifted upwards by the bias B, at low enough levels of g the takeover request is rejected because the profit loss becomes too severe. Now move to the right on the $g-$axis starting at point Z. Both $\tilde{\lambda}_3$ and λ_{min} fall, but the decrease of the latter is relatively flat. This reflects the vanishing consumer gain ΔCS in the course of trade integration. Eventually we have $\tilde{\lambda}_3 < \lambda_{min}$, i.e., beyond a certain level of openness government blocks the MNE, because the consumer gain becomes too small. More formally, we can state the following proposition (see appendix E):

Proposition 3

Given a government bias of intermediate strength ($\overline{B} > B > \underline{B}$), the foreign takeover is implemented in an intermediate range of trade openness only ($\tilde{\lambda}_3 > \lambda_{min}$ for $g \in [\hat{g}_1, \hat{g}_2]$, where $g_{min} < \hat{g}_1$ and $\hat{g}_2 < 1$), and the national champion is implemented otherwise ($\tilde{\lambda}_3 < \lambda_{min}$ for $g \in [g_{min}, \hat{g}_1]$ and for $g \in [\hat{g}_2, 1]$). An increase in the strength of the bias decreases the parameter range where the foreign takeover is implemented ($\partial\hat{g}_1/\partial B > 0$, $\partial\hat{g}_2/\partial B < 0$).

In other words, if trade openness is already high (at $g \approx \hat{g}_2$), further trade integration reinforces the policy option to block the foreign takeover and to promote the national champion.

4.3. Remarks

Let us briefly consider how variations on our assumptions about government behaviour and the players' knowledge would affect our main results. Firstly, one may argue that it is difficult for the firms to foresee the size of the government bias, and to adjust their own price offers accordingly. To analyze this scenario, suppose that firms do not anticipate λ_{min} but simply aim at overbidding their rival (as in section 2.4). Then, after the (irrevocable) submission of the merger proposals, government perceives the bids and applies λ_{min}. In figure 1a we would still always have the foreign takeover, but the lack of knowledge about λ_{min} inflates the takeover price to $\lambda = \min[\tilde{\lambda}_1, \tilde{\lambda}_3] > \lambda_{min}$. A similar result emerges in figure 1b, and in figure 1c to the left of Y and to the right of Y': The national merger continues to occur, but firm 1 now pays a higher price for the target as it fails to recognize the exclusion of the foreign bidder due to $\tilde{\lambda}_3 < \lambda_{min}$. Finally, in figure 1c we now have the foreign takeover only between Y and V, as firm 3 submits an insufficient proposal $\lambda = \tilde{\lambda}_1 < \lambda_{min}$ between V and Y'.

Secondly, returning to full anticipation of λ_{min}, one may argue that government would never consider blocking the national merger. In that case, if the domestic firm is able to outbid the foreign rival (if $\tilde{\lambda}_1 > \tilde{\lambda}_3$), the national champion would pass even if $\tilde{\lambda}_3 > \lambda_{min}$. The foreign takeover on the other hand only occurs if $\tilde{\lambda}_3 \geq \max[\tilde{\lambda}_1, \lambda_{min}]$. We now generally have the national champion to the left of point Z, as this merger would no longer be blocked. Between Y and Z in figure 1c the domestic firm now has to pay $\lambda = \tilde{\lambda}_3$, whereas the low price $\lambda = (1-\nu)\pi^{nat}_{\{1+2\}}$ is paid to the left of Y. In the range between Z and Y' the MNE is formed. Between Z and V firm 3 must now pay $\lambda = \tilde{\lambda}_1$ in order to actually outbid firm 1, and between V and Y' it pays $\lambda = \lambda_{min} > \tilde{\lambda}_1$ in order to get government approval. Our main result remains robust under both alternative specifications of this game, however: Government would block the foreign takeover if trade openness becomes sufficiently high.

5.) Optimal choice and endogenous origin of the government bias

In this last step of the analysis we discuss how the government endogenously decides on the level of its bias. As argued in the introduction a bias may result from real economic or from political economy considerations. If the bias is driven by the former type of concerns, the term B in (19) would represent further negative repercussions on domestic welfare that come with the foreign acquisition. Following this reasoning would require an extension of the model where, due to some further asymmetries between firms, the foreign acquisition leads to an additional welfare loss other than the profit loss of the outsider firm 1 that is incorporated in our framework. To get government approval firm 3 would have to compensate this additional externality with a larger takeover price, and it may or may not be willing to do so.[16]

In this paper we shall focus, however, on a political economy mechanism to rationalize the existence of the bias, following recent research by Motta and Ruta (2008). We focus on two lobbyists only, the domestic firms 1 and 2, which pay bribes in order to substantiate their respective preferred merger policy. Neither the domestic consumers nor the foreign firm can engage in lobbying, as the former lack a coherent organizational structure and the latter have no access to the relevant domestic politicians. How the preferred policies of the two lobbyists

[16] An example could be a two-period version where the merger insiders decide on an investment which may take place domestically or abroad. If the national merger leads with a higher probability to a domestic investment this may induce the government to require a higher compensation λ_{min} for the approval of the foreign takeover.

look like is clear from the previous analysis: Firm 1 prefers a strongly biased merger policy, which effectively leads to the national champion at the low acquisition price $\lambda = (1-\nu)\cdot\pi_{\{1+2\}}^{nat}$. The target firm 2 instead prefers the merger policy that maximizes the actual takeover price. To avoid undue case distinctions, we focus from now on constellations where $\tilde{g} < g < 1$ holds, which implies $\tilde{\lambda}_3 > \tilde{\lambda}_1$. The preferred policy of firm 2 is then to implement the foreign takeover and to adjust B such that $\lambda_{min} = \tilde{\lambda}_3$ holds, in which case all takeover rents are "taxed away" from the foreign corporation and accrue as a domestic capital gain.[17]

The lobbying stage proceeds in two steps: In the first step firm j=1,2 truthfully commits on an amount ℓ_j to be paid to the government if it implements the respective preferred policy, and an amount of zero otherwise. Bribes ℓ_j are paid in the third stage of the game and will not be re-negotiated. Then, in the second step, government optimally sets the bias B. In doing so, it essentially chooses its policy from a binary set $z = \{0,1\}$, where $z = 1$ indicates the preferred policy of the target firm. That option is associated with payments $\ell_1 = 0, \ell_2 > 0$, and with a welfare level $\Omega^{int} = CS^{int} + \pi_1^{int} + \tilde{\lambda}_3 = \Omega^{nat} + \Delta\Omega^*$, where $\Delta\Omega^* = \tilde{\lambda}_3 + (\Delta CS + \Delta\Pi) > 0$ denotes the proper welfare gain of allowing the foreign takeover for the price $\lambda = \lambda_{min} = \tilde{\lambda}_3$ which more than offsets the domestic profit loss (since $\tilde{\lambda}_3 > \tilde{\lambda}_1$ holds). If the preferred policy of firm 1, indexed by $z = 0$, is implemented we have welfare Ω^{nat} and bribe payments $\ell_1 > 0, \ell_2 = 0$.[18] The government objective function $\Theta(z)$ is assumed to be a weighted sum of standard domestic welfare and the sum of bribe payments,

$$\Theta = \eta\cdot\left[\Omega^{nat} + z\cdot\Delta\Omega^*\right] + (1-\eta)\cdot\left[z\cdot k_2\ell_2 + (1-z)\cdot k_1\ell_1\right] \qquad \text{with} \quad z = \{0,1\}, \tag{20}$$

where $0 \le \eta \le 1$ measures the government's benevolence, i.e., the weight attached to welfare. We allow for differences in lobbying technologies. A higher value of $k_j \ge 0$, which scales the impact of the bribe payments ℓ_j, indicates that firm j is a more efficient lobbyist. This may represent better informal contacts with the politicians, better networking abilities, or the like. The final policy choice can then be inferred from the following variable:

$$\Delta\Theta \equiv \Theta(z=1) - \Theta(z=0) = \eta\cdot\Delta\Omega^* + (1-\eta)\cdot(k_2\ell_2 - k_1\ell_1) \tag{21}$$

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[17] Admittedly this requires detailed information on the part of the government, as the level of B has to be fine-tuned. Alternatively we could consider a scenario where the target firm's preferred policy is the laissez-faire approach described above, which would lead to $\lambda = \tilde{\lambda}_1 < \tilde{\lambda}_3$. In this case firm 2 offers lower contribution payments, as the rents at stake are lower than with $\lambda = \tilde{\lambda}_3$, and it becomes more likely that firm 1 can induce *z=0*.

[18] The preferred policy of the target firm is therefore in accordance with a standard welfare-oriented merger policy, which stems from the fact that the capital gain λ is counted as domestic welfare.

When $\Delta\Theta > 0$ government chooses $z = 1$, whereas $\Delta\Theta < 0$ implies $z = 0$. Equation (21) immediately reveals that a more welfare oriented government (higher η) is more likely to pursue policy $z = 1$, since $\Delta\Omega^* > 0$. The policy choice of a strongly bribe-oriented government depends on which firm is able to make higher effective contribution payments $k_j \ell_j$.

Turning to the determination of the bribes, we characterize the economic rents that the two lobbyists have at stake in eqs. (22) and (23). These rents μ_j are equivalent to the profit gains that arise when the respective own preferred merger policy is implemented, as compared to the implementation of the rival's preferred policy:

$$\mu_1 = \nu \cdot \pi_{\{1+2\}}^{nat} - \pi_1^{int} = \tfrac{1}{81b}\left[\nu \cdot \left(5a + \tfrac{3c}{g} - 8\right)^2 - \left(2a + 3c - 5\right)^2\right] > 0 \qquad (22)$$

$$\mu_2 = \tilde{\lambda}_3 - (1-\nu)\pi_{\{1+2\}}^{nat} = \frac{1}{81b}\left[\left(5a - 6c + 1\right)^2 - \left(2a - \frac{6c}{g} + 4\right)^2 - (1-\nu)\left(5a + \tfrac{3c}{g} - 8\right)^2\right] > 0 \quad (23)$$

The maximum bribe that firm j is willing to pay is, thus, given by $\ell_j = \mu_j - \kappa_j$, where κ_j can be understood as a net of contribution benefit that will be optimally adjusted if an effective payment $k_j \ell_j < \mu_j$ suffices to induce the respective preferred policy. Using (22) and (23) in (21) we obtain the following result that applies when $k_2 \geq k_1$:

Proposition 4

When the target firm 2 has the better lobbying technology ($k_2 \geq k_1$), the government always chooses the preferred policy of the target firm ($z = 1$).

The proof follows immediately, because policy $z = 1$ generates higher welfare *and* more bribes than $z = 0$. This can be seen by noting that $\tilde{g} < g < 1$ implies that firm 2 has higher rents at stake than firm 1, $(\mu_2 - \mu_1) = \left(\tilde{\lambda}_3 - \left(\pi_{\{1+2\}}^{nat} - \pi_1^{int}\right)\right) = \left(\tilde{\lambda}_3 - \tilde{\lambda}_1\right) > 0$ by proposition 1.[19] Thus, firm 2 can effectively offer higher bribes, and this effect is reinforced by $\Delta\Omega^*$.

Results change when we assume that firm 1 is sufficiently more productive in its lobbying technology. This assumption seems quite plausible when bearing in mind that the goal of firm 1's lobbying effort is to avoid an actual profit loss, which may come with plant closures, mass layoffs, etc., in practice.[20] The goal of firm 2 on the other hand is a maximization of the own capital gain that, moreover, is generated by selling a national asset abroad. It is easy to con-

[19] Notice that this is true irrespective of the distribution parameter ν. A higher ν increases both μ_1 and μ_2, and it does not affect the aggregate bribe payment $\left(k_2\ell_2 - k_1\ell_1\right)$ if $k_2 = k_1$ and raises it if $k_2 > k_1$.

[20] See Baldwin and Robert-Nicoud (2007) for a recent model (not directly on M&A) why prospective losers may be more efficient lobbyists than prospective winners.

ceive that this may stigmatize the owners of firm 2 in the eyes of the general public, and grants firm 1 with a superior access to the politicians who strive for re-election.

With $k_1 > k_2$ there is now an actual trade-off between the consumer/welfare gain $\Delta\Omega^*$ under policy $z = 1$, and the larger (effective) bribes with policy $z = 0$. To see this most clearly, let us focus on the most extreme case where *only* firm 1 is able to lobby ($k_1 = 1,\ k_2 = 0$). Clearly, if the government does not care much about bribes (for large enough values of η) we would still always have $\Delta\Theta > 0$, hence $z = 1$. For small enough values of η we would now always have $\Delta\Theta < 0$, hence $z = 0$. The most interesting case arises for intermediate values of η, which is covered in the final proposition of this paper (see appendix F):

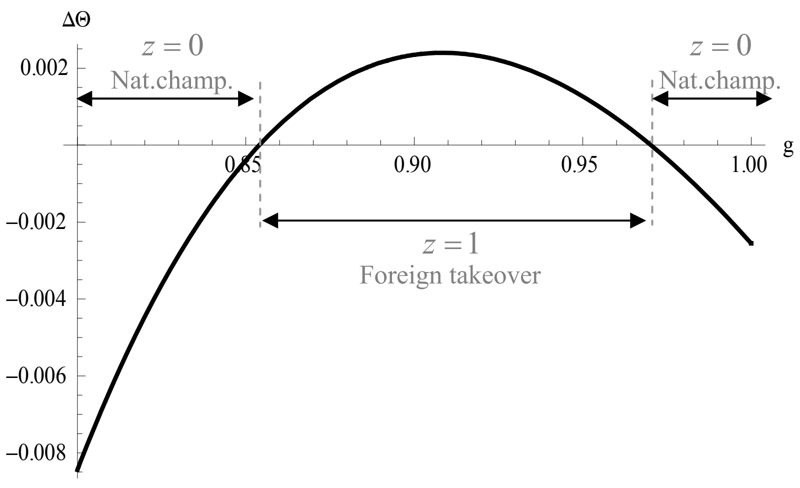
Proposition 5

Given that only firm 1 is able to engage in lobbying ($k_1 = 1,\ k_2 = 0$), and that government preferences for welfare and contribution payments are balanced ($0 < \underline{\eta} < \eta < \overline{\eta} < 1$), the government chooses the foreign takeover policy ($z = 1$) in an intermediate range of trade openness ($\Delta\Theta > 0$ if $g_k < g < g^*$ with $g^* < 1$). Once trade becomes sufficiently free it chooses to be biased and to pursue the national champion policy $z = 0$ ($\Delta\Theta < 0$ if $g^* < g < 1$).

These results carry over to the analytically more complex cases where the target firm 2 is able to do some lobbying, but not as efficiently as firm 1 (where $k_1 \gg k_2 > 0$). Figure 2 illustrates one example of such a scenario. Except for the difference in lobbying efficiency ($k_1 = 1.66, k_2 = 1$) the adopted parameter constellation is quite symmetric, with equal weights attached to welfare and bribes ($\eta = 1/2$) and with equal bargaining power of the two domestic firms when the foreign firm is excluded ($\nu = 1/2$). As can be seen, $z = 1$ is chosen for intermediate values of g, while if g is sufficiently small or sufficiently large government chooses to be biased, hence, to promote the national champion.

What is the intuition for this result? It turns out that the welfare gain $\Delta\Omega^*$ that comes with $z = 1$ is hump-shaped in g. If g is low, the domestic profit loss is substantial and the excess compensation through $\lambda = \tilde{\lambda}_3 > \tilde{\lambda}_1$ is small. If g is high, $\Delta\Omega^*$ is small because the consumer gain ΔCS is small. The second component that affects $\Delta\Theta$ is the aggregate bribe payment. Both μ_1 and μ_2 are decreasing in g. With $k_1 \gg k_2$ the policy $z = 1$ implies foregoing fewer bribes the higher g is. Still, these foregone bribes have a relatively stronger impact than the prospective (small) welfare gain, hence $z = 0$ is chosen at high enough levels of g.

Figure 2) Final policy choice



Legend
Chosen parameter values are
$a = 3, b = 1, c = 0.9$
$\nu = 1/2, \eta = 1/2$,
$k_1 = 1.66, k_2 = 1, \kappa_1 = \kappa_2 = 0$.

Hence, $\Delta\Theta > 0$ for
$0.853 < g < g^* = 0.971$

While $\Delta\Theta < 0$ for
$\tilde{g} = 0.662 < g < 0.853$ and for
$g^* = 0.971 < g < 1$

$\sup(\Delta\Theta) > 0$ at $g = g_k = 0.9$

Increasing the welfare weight η or the lobbying efficiency k_2 shifts up $\Delta\Theta$ and expands the parameter range where policy $z = 1$ is chosen. Vice versa, higher values of ν or k_1 raise the effective bribes by firm 1 and would, thus, shift down the curve $\Delta\Theta$.

6) Conclusion

In this paper we have studied an oligopoly model where either a national merger between two domestic firms is formed, or where one domestic firm is taken over by a foreign corporation. We have analyzed which merger type arises in equilibrium for different levels of trade costs, and for different strengths of the endogenous government bias against the foreign takeover.

Our model leads to the (potentially testable) prediction that trade integration reinforces the national champion formation in countries that fulfil all of the following three conditions. Firstly, political economy must matter for merger policy in these countries, because if government cares only (or almost only) about welfare it would not consider blocking the foreign takeover. Secondly, the prospective losers of the takeover scenario must be more talented lobbyists than the potential domestic winners (the target firm). Finally, integration only induces government to opt for the national champion in countries where trade costs are sufficiently low, because the consumer gain of the takeover then becomes negligible.

Taking this theoretical prediction to the data poses several conceptual difficulties, since government objectives and lobbying efficiencies of single firms are not easily measurable. Up to date there exists no comprehensive empirical study (at least to our knowledge) that quantifies the importance of the national champion phenomenon and that links the extent of government support for domestic mergers to observable country or firm characteristics. Most policy contributions on this issue actually suffice with a collection and discussion of case studies. Well known examples include EON/Endesa/GasNatural, ABN-Ambro/Antonveneta, Arcelor/ Mittal, Autostrade/Albertis, or Danone/Pepsi, which follow a roughly similar pattern as the SUEZ/ENEL/GdF-cause that we have referred to above.

Contemplating these and similar cases, several observers have noticed that the national champion debate has become a much more widespread policy issue in recent years (see, e.g., Sorgard 2007, Motta and Ruta 2008b, Farmer 2008), and particularly so countries like France, Spain, Italy or Germany.[21] In these countries where the national champion debate has loomed high on the agenda, competition authorities are not completely independent, but elected politicians play an important role and thus political economy matters directly or indirectly for antitrust and merger decisions (see Motta and Ruta 2008a,b for more details). Furthermore, in all of these countries average trade freeness is already high, but further economic integration (EU integration) is still on the rise. These casual observations are consistent with the theoretical prediction of our model that these countries may then become increasingly interested in promoting national champions. Yet, there is clearly scope for more thorough empirical research to unearth more resilient evidence.

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[21] An interesting anecdote in support of this view is due to Motta and Ruta (2008b), who report that: "*During the first two years (22 November 2004 - 21 November 2006) of Mrs. Neelie Kroes' mandate as Commissioner for Competition, she was mentioned in the first page of the Financial Times 18 times, and 6 of them referred to mergers that raised political tensions across countries.*"

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Appendix

Appendix A: Proof of lemma 1

part (a): Using (4) and (7) we can compute the following terms:

$$\pi_{\{1+2\}}^{nat} - \pi_1^{pre} - \pi_2^{pre} = \frac{1}{72b}\left[8\left(a+c/g-2s\right)^2 - 9\left(a+c/g-2\right)^2\right] \quad \text{(A1)}$$

$$CS^{nat} - CS^{pre} = \frac{a+c/g+4s-6}{12} \quad \text{(A2)}$$

Setting (A1) equal to zero and solving for s we obtain two solutions, one of which always falls out of the relevant range $0<s<1$ under the parameter restrictions $a>2$, $0<c\leq 1$ and $g_{min}<g\leq 1$ where $g_{min}=3c/(a+2)$. In (A3) we report the solution for $\tilde{s}_\pi$ that falls into the relevant range, and where $\pi_{\{1+2\}}^{nat} > \pi_1^{pre} - \pi_2^{pre}$ if $0<s<\tilde{s}_\pi$ and $\pi_{\{1+2\}}^{nat} < \pi_1^{pre} - \pi_2^{pre}$ otherwise:

$$\tilde{s}_\pi = \tfrac{1}{2}\left(a+c/g\right) - \tfrac{3}{8}\sqrt{2}\left(a+c/g-2\right) \quad \text{(A3)}$$

part (b): Setting (A2) equal to zero and solving for s yields a unique solution, labelled $\tilde{s}_{CS}$:

$$\tilde{s}_{CS} = \tfrac{1}{4}\cdot\left(6-a-c/g\right) \quad \text{(A4)}$$

where $\tilde{s}_{CS} < \tilde{s}_\pi < 1$ always holds under the imposed parameter restrictions. Note that $\tilde{s}_{CS}$ is increasing in g, hence lower trade openness requires a stronger threshold synergy effect. □

Appendix B: Proof of lemma 2

part (a): Let $\pi_3^{int} \equiv \pi_{MNE}^{int} + \lambda$ denote the gross profits of the MNE before paying the takeover price. Using (4) and (12) we can compute the following gross profit difference:

$$\pi_3^{int} - \pi_2^{pre} - \pi_3^{pre} = \tfrac{1}{144b}\left[16\left(a-2c-2s+3\right)^2 - 9\left(\left(a-3c/g+2\right)^2 + \left(a+c/g-2\right)^2\right)\right] \quad \text{(B1)}$$

It readily follows that gross profitability is higher the stronger the synergy effect is (the lower s is). At $s=\tilde{s}_\pi$ (see A3) the term (B1) must be positive, because the positive first term in squared parentheses outweighs the negative second term. Hence $\pi_3^{int} > \pi_2^{pre} + \pi_3^{pre}$ holds with $s<\tilde{s}_\pi$ and, thus, it must hold with $s<\tilde{s}_{CS}$ since $\tilde{s}_{CS} < \tilde{s}_\pi$.

part (b): Evaluate $p^{int} - p^{pre} = \tfrac{1}{12}\left[\left(a+4s-6\right) + \tfrac{c}{g}\cdot\left(4g-3\right)\right]$ at $s=\tilde{s}_{CS}$: $-\left(c\left(1-g\right)/3g\right)<0$. Hence $p^{int} < p^{pre}$ if $s<\tilde{s}_{CS}$, as the consumer price difference is continuously decreasing in s.

part (c): It is readily verified that $\partial\left(\pi_1^{int} - \pi_1^{pre}\right)/\partial s > 0$, since

$$\pi_1^{int} - \pi_1^{pre} = \tfrac{1}{144b}\left[16\left(a+c+s-3\right)^2 - 9\left(a+c/g-2\right)^2\right] \quad \text{(B2)}$$

Furthermore, at $s=\tilde{s}_{CS}$, we have $\pi_1^{int} - \pi_1^{pre} = -\tfrac{1}{18b}\left[\tfrac{c}{g}\cdot\left(1-g\right)\left(3a+2c+c/g-6\right)\right]<0$, since $a>2$. Hence, if $s<\tilde{s}_{CS}$, then $\pi_1^{int} < \pi_1^{pre}$ since (B2) is also continuously decreasing in s. □

Appendix C: Proof of proposition 1

part (a): Using $c=1$ $a>2$ in (13),(14) we get $\tilde{\lambda}_1-\tilde{\lambda}_3=\frac{1}{27g^2}\left[(1-g)\left(15+g(2a-17)\right)\right]>0$

part (b): At free trade $g=1$ we have $\tilde{\lambda}_3-\tilde{\lambda}_1=2(a-1)(1-c)/3b>0$ for all levels $c<1$. At minimum trade openness $g=g_{min}$ we have $\tilde{\lambda}_3-\tilde{\lambda}_1=\left(62a-7a^2+45c^2-6c(8a+7)-10\right)/81b$. This term is positive provided $c<\tilde{c}$ where the threshold level is given by

$$\tilde{c}=\frac{1}{15}\cdot(8a+7)-\frac{1}{5}\cdot\sqrt{11}(a-1) \tag{C1}$$

Thus, if $c<\tilde{c}$ we have $\tilde{\lambda}_3>\tilde{\lambda}_1$ for all admissible values of g, since both $\tilde{\lambda}_1$ and $\tilde{\lambda}_3$ are monotonically downward sloping in g. To ensure that $c<\tilde{c}$ is consistent with the parameter restriction spelled out in footnote 11 ($c>c_{min}=\frac{1}{3}(a-1)$) we henceforth narrow down the admissible range for the parameter a, namely to $2<a<\frac{1}{2}\left(3+\sqrt{11}\right)\approx 3.158$. In that case it is ensured that $0<c_{min}<\tilde{c}<1$ is satisfied.

part (c): Finally, setting (13) equal to (14) and solving for g, we find that there is at most one solution that can fall in the relevant range $g_{min}<g<1$. This solution is given by

$$\tilde{\lambda}_1=\tilde{\lambda}_3 \quad \Leftrightarrow \quad g=\tilde{g}=\frac{15c}{16-a+\sqrt{a^2+238a-30c(8a+7)+225c^2-14}}. \tag{C2}$$

Under the previously used parameter restriction $2<a<3.158$ this solution $\tilde{g}$ falls inside the relevant range $g\in[g_{min},1]$ if and only if $c_{min}<\tilde{c}<c<1$. In this case it follows that $\tilde{\lambda}_1>\tilde{\lambda}_3$ if $g_{min}<g<\tilde{g}$, and $\tilde{\lambda}_1<\tilde{\lambda}_3$ if $\tilde{g}<g<1$. For this case it follows directly from (C2) that $\partial\tilde{g}/\partial c>0$ and $\partial\tilde{g}/\partial a<0$. At $c=\tilde{c}$ we have $\tilde{g}=g_{min}$. □

Appendix D: Proof of lemma 3

Parts a) + b) Follow directly from (16) and (17). At free trade $g=1$ we have $\Delta CS(g=1)=0$ and $-\Delta\Pi=\frac{1}{27b}\left[(a-1)(7a+6c-13)\right]>0$.

Part c) At $g=g_{min}$ we have $-(\Delta CS+\Delta\Pi)=\frac{1}{54b}\left[\left(17a^2-40a\right)+\left(14-9c^2\right)+6(a+2)\right]>0$. This term must be positive and larger than $-\Delta\Pi(g=1)$ with $a>2$ and $c_{min}<c<1$. Finally, the term $(\Delta CS+\Delta\Pi)$ has an extremum at $g=3c/a-4$ since $\partial(\Delta CS+\Delta\Pi)/\partial g=c\left(3c+g(a-4)\right)/9bg^3$. At this extremum, $-(\Delta CS+\Delta\Pi)$ is also positive, since $-(\Delta CS+\Delta\Pi)=[(17a^2-64a)+(74-9c^2)+6(a+2)]/54b>0$. Hence, $\lambda_{min}=-(\Delta CS+\Delta\Pi)$ must be positive over the entire admissible range of g. Finally, note that $\partial\lambda_{min}/\partial g=-\frac{c}{9bg^3}\left[3c+(a-4)g\right]$. The sign of this term is ambiguous since $2<a<3.158$, but it is more likely to be negative the larger c is. In fact, imposing $c>\tilde{c}$ (see eq. C.1 in appendix C) is sufficient to ensure $\partial\lambda_{min}/\partial g<0$ over the entire admissible range $g\in[g_{min},1]$. □

Appendix E: Proof of propositions 2 and 3

Setting (13) equal to (19) and solving for g we obtain two solutions $\hat{g}_{1,2}$ where $\tilde{\lambda}_3 = \lambda_{min}$:

$$\hat{g}_1 = \frac{33c}{5a+28+\sqrt{\Lambda}} \qquad \text{and} \qquad \hat{g}_2 = \frac{33c}{5a+28-\sqrt{\Lambda}} \tag{E1}$$

where $\Lambda \equiv 25a^2 + 2a(734-759c) + 33c(33c-20) - 404 - 1782bB$. For values of B that are low enough, namely for $0 < \mathrm{B} < \overline{\mathrm{B}} = [25a^2 + 2a(734-759c) + 33c(33c-20) - 404]/1782b$ we have a real root ($\Lambda > 0$), and the two solutions can then be ranked as follows: $\hat{g}_1 < \hat{g}_2$. We have $\tilde{\lambda}_3 > \lambda_{min}$ for $\hat{g}_1 < g < \hat{g}_2$ and $\tilde{\lambda}_3 < \lambda_{min}$ for $g < \hat{g}_1$ and for $g > \hat{g}_2$.

<u>**E.1: Proposition 2:**</u> Using $B = 0$ in (E1) we find that the solution $\hat{g}_2$ is irrelevant, which can be seen by noting that $\hat{g}_2 = 1$ for $c = 1$ and $\hat{g}_2 > 1$ for $c < 1$. The other solution $\hat{g}_1$ may or may not fall inside the relevant range $g \in [g_{min}, 1]$. Comparing $\hat{g}_1$ and g_{min}, and using the previously mentioned parameter restrictions $2 < a < 3.158$, $c_{min} < c < 1$ we find the following:

$$\hat{g}_1 < g_{min} \text{ if } c_{min} < c < c_x \equiv \tfrac{1}{33}(23a+10) - \tfrac{2}{11}\sqrt{15}(a-1), \qquad \hat{g}_1 > g_{min} \text{ if } c_x < c < 1$$

where $c_{min} < \tilde{c} < c_x < 1$ is ensured due to $2 < a < 3.158$. Proposition 2 now readily follows:

<u>Part a)</u> Since $c < \tilde{c}$ implies $c < c_x$ we have $\hat{g}_1 < g_{min}$, $\hat{g}_2 > 1$, hence $\tilde{\lambda}_3 > \lambda_{min}$ for $g \in [g_{min}, 1]$.

<u>Part b)</u> With $\tilde{c} < c < c_x$ we still have $\hat{g}_1 < g_{min}$, $\hat{g}_2 > 1$, hence $\tilde{\lambda}_3 > \lambda_{min}$ for $g \in [g_{min}, 1]$.

<u>Part c)</u> With $c_x < c < 1$ we have $g_{min} < \hat{g}_1 = g_x$, $\hat{g}_2 > 1$. Hence, $\tilde{\lambda}_3 < \lambda_{min}$ for $g \in [g_{min}, g_x]$. □

<u>**E.2: Proposition 3:**</u> It follows immediately from (E1) that $\partial\hat{g}_1/\partial B > 0$, $\partial\hat{g}_2/\partial B < 0$ provided $\mathrm{B} < \overline{\mathrm{B}}$ as given above. Eventually as B increases the solution $\hat{g}_2$ falls inside the relevant range. More precisely, $\hat{g}_2 < 1$ if $\mathrm{B} > \underline{\mathrm{B}} \equiv \tfrac{2}{3}(a-1)(1-c) > 0$. The other solution $\hat{g}_1$ falls inside the relevant range even with $\mathrm{B} = 0$ if $c_x < c < 1$ (see appendix E.1) and it will falls inside that range even for $c < c_x$ if B is large enough. Lastly, as $\mathrm{B} \to \overline{\mathrm{B}}$, $\hat{g}_1$ and $\hat{g}_2$ collapse (see figure 1b). Proposition 3 now readily follows: For $\overline{B} > B > \underline{B}$ we have $g_{min} < \hat{g}_1 < \hat{g}_2 < 1$ □

Appendix F: Proof of proposition 5

Using (21) and (22), $\Delta\Theta = \eta\Delta\Omega^* - (1-\eta)\mu_1$ achieves a global maximum at $g = g_k$, where

$$g_k = \frac{c\left(6\nu(1-\eta) + 33\eta\right)}{\eta(5a+28) - 2\nu(1-\eta)(5a-8)} \tag{F1}$$

To ensure that $g_k < 1$ and $\Delta\Theta > 0$ at $g = g_k$, it must be the case that $\underline{\eta} < \eta < \overline{\eta}$, where

$$\underline{\eta} \equiv \frac{2\nu(5a+3c-8)}{5a+28-33c+2\nu(5a+3c-8)}, \qquad \overline{\eta} \equiv \frac{\nu(5a+3c-8)^2 - (2a+3c-5)^2}{74a - 4a^2 - 66ac + 84c - 9c^2 + \nu(5a+3c-8)^2 - 79}.$$

Furthermore, $\Delta\Theta < 0$ at $g = 1$ with $\underline{\eta} < \eta < \overline{\eta}$. As $\Delta\Theta$ is continuous in g there must exist some g^* with $g_k < g^* < 1$ such that $\Delta\Theta > 0$ for $g_k < g < g^*$ and $\Delta\Theta < 0$ for $g^* < g < 1$. □