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Fight or buy? A comparison of internationalization strategies.

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Fight or buy? A comparison of internationalization strategies.

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1. Introduction.

The paper evaluates three internationalization strategies of a company that considers invading a foreign market:

- It can buy a firm that resides in the target market (acquisition strategy),
- it can produce at home and export into the target market (export strategy),
- or the two firms can agree upon produce in the invader's home country and sell the products in the target market (OEM strategy).

For simplicity, we assume that the incumbent firm in the target country has a monopoly position. Under these circumstances, following the acquisition strategy would allow the newcomer to obtain this monopoly position, whereas the export strategy might result in a duopoly. We compare the outcomes of these two strategies for the two firms involved, allowing for different cost situations, and derive necessary conditions for a mutually beneficial acquisition. This analysis will allow us to derive sufficient conditions under which export would be the better strategy.

The case of Lenovo is helpful to illustrate the point made by this paper: Lenovo had the options to set up own production sites in China to conquer the North American and European markets competing against IBM thinkpads, or to buy out IBM and use their production sites (which is what Lenovo actually did). The first would have been the export strategy, the second is the acquisition strategy. Another variant of the acquisition strategy would be for the newcomer to buy out the oldtimer, but to produce at home, perhaps in order to exploit a cost advantage. This variation of the acquisition strategy would also be brought about if the two firms create a joint venture, combining an established brand name and low-cost production facilities. This version of the model could also be interpreted as an analysis of OEM production.

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The main contribution of this paper is, thus, not just the comparison of the two initially mentioned strategies. The export strategy (if profitable; if export is not profitable, keeping out and doing nothing would be the outside option) is the outside option when bargaining over an acquisition or a joint venture, so the two strategies under scrutiny could also be seen as subgames of a larger bargaining model: The value of a bargaining agreement would then be the monopoly profit; the threat point is the maximum of the oligopoly profit and zero.

2. Related literature.

According to the literature on Strategic International Management**,** the following factors are relevant (among others) when doing international business:

- If a firm is pursuing the export strategy: domestic marginal cost, shipping cost, tariffs of the target country (and other trade barriers),and international transaction cost (of initiating/enforcing international contracts for transactions that cross legal borders).

- Merger and Acquisition strategy: marginal production cost in the target country, transaction cost of intra-national business (in the target country), absence of tariffs or international shipping cost. However, taking over an organization with a different (corporate) culture may require bearing adaption cost.

The marginal cost of production at home could be lower (e.g., if domestic factor cost are lower and this difference in the factor prices is not outweighed by a lower productivity), or higher (learning curve, specialization, productivity of workers) than in the target country.

Some papers have discussed the incentives to merge firms in oligopoly markets. Salant, Switzer, and Reynolds (1983) analyze n firms, m<n of which consider a merger, with constant marginal cost and homogeneous products. The merged firm then is just one among the remaining n-m+1 firms. In their model, a merger is profitable only if m (the number of firms involved) is large enough. A serious drawback of their model is, however, that the merged firm is not seen as being larger than the other n-m firms, so the only effect of the merger is the reduction of the number of firms. This would increase the industry rent, which is mainly an external effect (this has already been pointed out by Stigler (1950)). Despite this drawback, the model is canonical, and it allows for another interpretation of a merger – it could also be seen as purchasing and closing down a competitor.

Deneckere and Davidson (1983) have shown that, in an oligopoly with differentiated products, a merger can be much more profitable than in the context of the model of Salant et al., if the merged firm continues producing all the products of the firms of which it consists. Perry and Porter (1985) introduce capacity and show that mergers can be much more profitable than in the Salant et al. model even if products are homogeneous. In their model, the merged firm is not just symmetric to the remaining firms, but commands more of the capital factor and enjoys a different cost function.

Kamien and Zang (1990) come to the result that monopolization of an oligopolistic industry is only to be expected if the number of firms is initially already small. Tombak (2004) adds the idea that a merger or acquisition may allow for the transfer of technology between the involved firms. Thus, a cost effect may add to the market power effect.

Horn and Persson (2001) analyze international mergers in comparison with domestic mergers. In their model, the main advantage of a cross-border merger is the access to a foreign market, whereas

the domestic merger reduces competitive pressure in that market. Thus, the decision between cross-border merger or domestic merger depends on these different effects, and on the cost of international trade. Bjorvain (2004) demonstrates that economic integration can make cross-border acquisitions more profitable.

Another related paper is Inderst and Wey (2004). The present paper, however, neglects the discussion described above as it compares a duopoly with a monopoly. The reduction of a duopoly to a monopoly by means of a merger is one of the cases which is always profitable in the Salant et al. model. Acquisition results in the opportunity to use the target firm's production technology and market position, whereas the transfer of technology from the acquiring firm into the target firm is excluded from consideration here.

3. The models.

Consider two firms, which produce a homogenous good in two different countries A and B. Firm C resides in country A and considers going international, i.e., wants to become active in market B as well. Firm K currently holds a monopoly position in country B. We consider two internationalization strategies for C:

- Firm C can produce only in A and then export a part of its output to B. This **export strategy** would turn the market in country B into a duopoly. Under the export strategy, C has to bear the domestic marginal production cost at home and, in addition to this, shipping cost, tariffs, and perhaps international transaction cost. The marginal cost at which the two firms can serve the customers in the target market, thus, may differ.
- Firm C can choose the **acquisition strategy** and buy out the incumbent, gaining a monopoly position and saving transaction costs, tariffs, and shipping cost if the production for the customers in the B market takes place in country B.
- Firm C could also buy out firm K, use the production facilities at home, and sell the products in the target country. This leads to the same result as an agreement between the parties to create a joint venture in which the products assembled by C are sold under the brand name of firm K. Thus, this strategy is dubbed "**OEM strategy**."

Assume that the indirect demand in country B is p=a-Q, where Q denotes the quantity of the homogenous good offered to the consumers, and p is the equilibrium price. Let k (with a>k>0) denote the cost of producing in the target country (when using the production site of the incumbent firm), whereas c (with a>c>0) denotes the marginal cost if firm C produces at home. For the output to reach the customers, shipping cost s (under both the export and the OEM strategy) and international transaction cost t (only under the export strategy) have to be added. Assume that both firms are profit maximizers.

Normalizing **a-k=1**, just as in Tombak (2004, 522), simplifies the exposition without loss of generality. Moreover, let Δ denote the difference in marginal production cost between production in country K and production country C: **Δ=k-(c+s+t)**. If Δ is positive, then production in firm C's home country would occur with a marginal cost advantage, despite the shipping cost, tariffs, and international transaction cost. If, however, $\Delta<0$, then the production in the target country bears a marginal cost advantage, which can happen even if factor cost in the home country of C are lower than in the target country (e.g., due to tariffs, transaction cost, shipping cost).

These assumptions and definitions imply **a-(c+s+t)=1+Δ**.

3.1 Acquisition strategy: monopoly with production in target country.

If C buys out firm K, it becomes monopolist in country B. If C then uses K's production site, it produces with marginal cost k. Neither shipping cost nor international transaction cost have to be borne by the new monopolist. Thus, C chooses the output level Q^M with

(1) $Q^M = \text{argmax}\{[p(Q)-k]Q\} = \text{argmax}\{[a-Q-k]Q\}$.

The first-order condition for an internal maximum is a-2Q-k = 0, which leads to the optimal monopoly amount

(2) $Q^M=(a-k)/2 = 1/2$.

This amount can be sold at a price $p^M=p(Q^M)=a-Q^M=a-(a-k)/2=(a+k)/2$. The marginal contribution for the monopolist is then (p-k) = (a-k)/2. Hence, if C chooses the acquisition strategy, its operational profit would amount to

(3) $\Pi^M = (p^M-k)Q^M = (a-k)^2/4 = 1/4$.

Assume that C had to pay a price for the acquisition, denoted as F, and had to bear the adaption cost (denoted T) that may arise when taking over a firm and adapt to the existing corporate culture in a foreign country. Note that only the acquisition price F goes to the owners of the incumbent firm K. If Π^M and T reflect present values of future cash flows, then the benefit from choosing the acquisition strategy can be expressed as Π^M-(F+T).

3.2 OEM strategy: monopoly with production in C's country.

Another way to immediately establish a monopoly in the target country would be for C to buy out K (as under the acquisition strategy), but to produce at home. In that case, the customers in the target market are served with marginal cost c+s+t. The results are the same as in the previous section if, in formulas (1) through (3), k is replaced by (c+s+t). Hence, $Q^M = \text{argmax}\{[a-Q-c-s-t]Q\}$, leading to

- $Q^O=[a-(c+s+t)]/2 =(1+\Delta)/2$
- $p^O=p(Q^O)=a-Q^O= [a+(c+s+t)]/2$
- $\Pi^O = [p^O-(c+s+t)]Q^O = [a-(c-s-t)]^2/4 = (1+\Delta)^2/4$

3.3 Export strategy: Cournot duopoly.

If C chooses the export strategy, it would compete with the incumbent firm K in a duopoly. The duopoly is homogenous (the firms' output is perfectly substitutable), but it can be asymmetric (the marginal cost of the two firms may differ). We assume that the two firms choose quantities, i.e., compete in a Cournot equilibrium. C chooses its quantity Q^C with

(4) $Q^C = \text{argmax}\{[p(Q^C+Q^K)-(c+s+t)]Q^C\} = \text{argmax}\{[a-(Q^C+Q^K)-(c+s+t)]\ Q^C\}$,

whereas K chooses simultaneously $Q^K = \text{argmax}\{[p(Q^C+Q^K)-k]Q^K\}$. The first-order condition for an internal profit-maximum of firm C is $a-2Q^C-Q^K-(c+s+t) = 0$. Rearrangement leads to C's reaction function $Q^C(Q^K)$ with

(5) $Q^C(Q^K) = [a-(c+s+t)-Q^K]/2$,

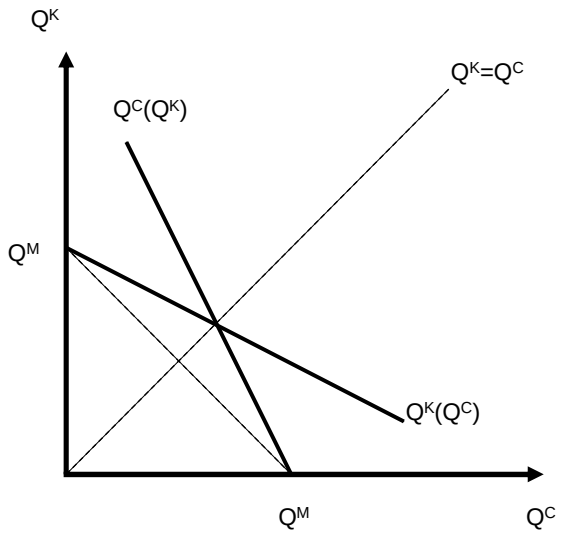
from which the incumbent firm's reaction function $Q^K(Q^C)$ can immediately be derived as

(6) $Q^K(Q^C) = (a-k-Q^C)/2.$

Figure 1 displays the two reaction functions in a diagram that shows C's output on the horizontal axis, and K's on the vertical axis for the symmetric case (i.e., k=c+s+t). It is obvious that

- the best reaction of a firm is to set its monopoly output if the other firm is not active (or chooses zero for whatever reason), and
- an increase in its own marginal cost leads to a parallel inward shift of its own reaction function, whereas a decrease leads to a parallel outward shift.

Figure 1: Reaction curves of symmetric Cournot duopolists



Plugging $Q^K(Q^C)$ into $Q^C(Q^K)=(a-c-s-t-Q^K)/2$ leads to the equilibrium amount Q^C that the exporting firm C is predicted to choose in the homogeneous (and potentially asymmetric) Cournot duopoly:

(7) $Q^C = [a-c-s-t-Q^K(Q^C)]/2 = (a-c-s-t)/2 - Q^K(Q^C)/2 = (2a-2c-2s-2t-a+k+Q^C)/4 = (1+2\Delta)/3$

for $1+2\Delta > 0 <=> \Delta > -0.5$. If $\Delta \leq -0.5$, then C would offer zero in the target market. The incumbent firm K is predicted to choose Q^K, with

(8) $Q^K= (a-2k+c+s+t)/3 = (1-\Delta)/3$

for $1-\Delta > 0 <=> \Delta < 1$. If $\Delta \geq 1$, then the incumbent firm is driven out of its market and offers zero. The joint equilibrium output of the two duopolists amounts to

(9) $Q= Q^C+Q^K = (2+\Delta)/3$

if $-0.5 < \Delta < 1$. According to the indirect demand function, the consumers are willing to buy this amount for a price

(10) $p(Q)=a-Q=a-(2a-c-s-t-k)/3=(a+c+s+t+k)/3$.

Hence, the marginal contribution for firm C amounts to $(p-c-s-t)=[a-2(c+s+t)+k]/3$. The exporter's profit in the Cournot equilibrium, thus, is

(11) $\Pi^C=(p-c-s-t)Q^C=[a-2(c+s+t)+k]^2/9=(1+2\Delta)^2/9$

for $-0.5<\Delta<1$. Then, the incumbent firm K receives an equilibrium profit

(12) $\Pi^K=(p-k)Q^K=(a-2k+c)^2/9=(1-\Delta)^2/9$.

The joint profit of the two firms in the duopoly amount to

(13) $\Pi=\Pi^C+\Pi^K=[(a-2c+k)^2+(a-2k+c)^2]/9=[(1+2\Delta)^2+(1-\Delta)^2]/9=(2+2\Delta+5\Delta^2)/9$

for $-0.5<\Delta<1$.

If $\Delta \leq -0.5$, then C would make zero profit in the target market and, therefore, keep out. In that case, K would maintain his monopoly position (see section 3.1).

If $\Delta \geq 1$, then K's profit in the duopoly would cease to be positive. In other words: if $\Delta > 1$, then C would drive K out of the market and assume a monopoly position in the target country (and produce at home).

Three observations are immediately obvious here:

- The two duopolists' equilibrium profits are identical if, and only if, the two firms have identical marginal cost, i.e., $\Delta=0$. Any positive or negative marginal cost difference leaves the duopolists with different profits.
- C would only attempt to conquer the foreign market by means of the export strategy if its cost disadvantage is not too large. If, however, $\Delta<-0.5$, then C's duopoly profit would be negative and, therefore, C would abstain from carrying out the export strategy.
- If C has a large marginal cost advantage ($\Delta>1$), then the export strategy would drive the incumbent firm out of the target market.

Therefore, in the next section only the case $-0.5<\Delta<1$ is further examined, as this is the only case in which firm C actually has to choose among the export strategy and the acquisition strategy if trying to conquer the market in country B. If $\Delta<-0.5$, then firm C does not go international, and if $\Delta>1$, then the export strategy would endow firm C with the monopoly position in the target market, as the incumbent would vanish. Hence, it makes sense to assume $k>1$ (without loss of generality), which is implied by $c>0$ (as marginal costs are non-negative) and $\Delta=1 <=> k=1+c$.

3.4 Comparison of export and acquisition strategy.

The first comparison concerns the export strategy and the acquisition strategy. If firm C successfully acquires the incumbent firm K, it would obtain a monopoly position in the target market and receive an operating profit that amounts to $\Pi^M=(p^M-k)Q^M=1/4$. However, C has to pay a price for the acquisition, denoted as F, and may have to bear further adaption cost, denoted as T. Hence, its net profit amounts to $\Pi^M-F-T=(p^M-k)Q^M-(F+T)=1/4-(F+T)$. If C abstains from buying out K and, instead,

exports the goods produced at home, then C obtains $\Pi^C=[p-(c+s+t)]Q^C= (1+2\Delta)^2/9$. Thus, the acquisition is more profitable for C than the export strategy if, and only if, $\Pi^M-F-T > \Pi^C$. This inequality determines C's maximum willingness to pay for obtaining the monopoly position in the target market and using the production capacity of firm K (i.e., serving the target market with marginal cost k). The inequality is equivalent to

(14) $F < \Pi^M-T- \Pi^C$

which indicates a maximum willingness to pay for the acquisition of K. If this inequality holds, the acquisition strategy is strictly better than the export strategy to conquer the target market. In case of equality, C would be indifferent between the two strategies. If, however, the target firm can only be purchased at a price that exceeds C's maximum willingness to pay (i.e., the inequality is reversed), then the export strategy is strictly better.

If the owners of the incumbent firm sell out to C, they obtain F. If they stay in the market, they would face the entrance of C, after which they would earn the duopoly profit $\Pi^K=(1-\Delta)/9$. Even though K is monopolist in the first place, and C would obtain the monopoly position in case of an acquisition, the monopoly profit Π^M plays no role at all in K's decision problem. An offer F submitted by C is acceptable for the owners of K if

(15) $F > \Pi^K$.

The two last inequalities combined provide the necessary condition for a successful acquisition:

(16) $(\Pi^M -\Pi^C)- T > F > \Pi^K$.

Hence, the two parties C and K are predicted to close an agreement (according to which the owners of K sell their firm to C for a price F) if the price F is smaller than the incremental profit C makes by turning from a duopolist into a monopolist , net of the adaptation cost T, and if F is simultaneously greater than the duopoly profit of K. Note that the two duopolists' profits do not necessarily have to be equal, as their marginal cost (i.e., c and k, respectively) may differ. Condition (16) implies

(17) $(\Pi^M -\Pi^C) - T > \Pi^K$.

This condition is a prerequisite for a non-empty bargaining range to exist, in which a value of F can be found that is mutually agreeable. The existence of a non-empty bargaining set is a necessary, not a sufficient, condition for an acquisition to take place, as the parties may have grossly conflicting views as to the distribution of the bargaining rent they can share by closing an agreement. If, however, the condition (17) is not satisfied, then the bargaining range is empty, which is a sufficient condition for the two parties to be unable to find a mutually beneficial agreement.

In other words: If $\Pi^M(k) - T < \Pi^K(k)+\Pi^C(c+s+t)$, then there is no scope for an agreement over the acquisition of firm K by C. If adaptation cost T is negligible, then the last condition has a simple interpretation: The monopoly profit (when producing with marginal cost k) is smaller than the joint profit of the duopolists (one of which serves its customers with marginal cost c+s+t, the other one with k).

Condition (16) $(\Pi^M -\Pi^C) - T > F > \Pi^K$ implies $\Pi^M(k)-\Pi^C(c+s+t) - T > \Pi^K(k)$ which is equivalent to

(18) $\Pi^M(k) - T > \Pi^K(k) + \Pi^C(c+s+t)$.

Let me denote this inequality as the **acquisition condition**. The monopoly profit after an acquisition of firm K (and producing in K's production site), net of the acquisition cost, has to exceed the joint profit of the Cournot oligopolist.

In the symmetric version of the Cournot duopoly (with c+s+t=k), the joint profit of the duopolists is always smaller than the monopoly (or joint cartel) profit, as the comparison of $\Pi^M(k)-T$ with $\Pi^K(k)+\Pi^C(k)$ makes obvious. Hence, it would require an asymmetric case (with c+s+t < k) for the joint duopoly profit to exceed the monopoly profit (as the cost advantage c+s+t < k may make up for the allocative disadvantage of not having the monopoly position). Using the results derived above, the acquisition condition is equivalent to

(19) $(a-k)^2/4 - T > \{[(a-c-s-t)+(k-c-s-t)]^2+[(a-k)-(k-c-s-t)]^2\}/9$

and using the simplifications k-a=1 and Δ=k-c-s-t, this can be written as a handy formula

(20) $1/4 - T > [(1+2\Delta)^2+(1-\Delta)^2]/9 = (2+2\Delta+5\Delta^2)/9$

Multiplication with 9/5 leads to

(21) $9/20 - 9T/5 > \Delta^2+2\Delta/5+2/5$

where the right hand side equals $[\Delta+1/5]^2+2/5-1/25$. Hence, (21) is equivalent to

(22) $(9-36T)/20 > [\Delta+1/5]^2 + 9/25 \quad <=> \quad [\Delta+1/5]^2 < 9/20 - 9/25 - 9T/5$

The right hand side of the latter inequality is equal to (45-36)/100-9T/5 = 9/100-9T/5 = 0.09(1-20T). The resulting **acquisition condition**

(23) $[\Delta+1/5]^2 < 0.09(1-20T)$

implies that

(24) $[\Delta+1/5 < 0.3(1-20T)^{1/2}] \vee [\Delta+1/5 > -0.3(1-20T)^{1/2}]$

for $1 \geq 20T <=> T \leq 0.05$. If T > 0.05, then the acquisition condition can never be satisfied (recall hat T represents the additional cost of running the target firm after an international acquisition (compared to the cost of running a domestic firm). In this model, therefore, the **acquisition condition** is satisfied if, and only if $T \leq 0.05$ and simultaneously

(25) $-0.3(1-20T)^{1/2} - 1/5 < \Delta < 0.3(1-20T)^{1/2} - 1/5.$

For T=0, the **acquisition condition** can be simplified to $-0.5 < \Delta < 0.1$.

Figure 2 compares the duopolists' individudal profits, the joint profit, and the monopoly profit under the assumption that k (the incumbent's or the monopolist's marginal cost) is held constant, and T=0. The relevant part of the figure starts at Δ=-0.5, which implies (c+s+t)=(a+k)/2, and ranks up to Δ=1, implying (c+s+t)=k-1. Hence, the variation of Δ implies a variation of (c+s+t), whereas k is held constant. If Δ is modified by altering k (while holding c constant), then the monopoly profit would not be constant.

For $\Delta < -0.5$, is has been argued above that firm C would abstain from exporting (and is unable to submit an acceptable offer for an acquisition of firm K). Firm K is the monopolist in the target market, and firm C limited to its domestic market.

For $\Delta = -0.5$, the joint duopoly profit (if firm C produces with marginal cost c, and firm K produces with k) equals the monopoly profit (if the monopolist produces with k). The two firms are indifferent between the duopoly outcome and an acquisition (the agreed upon price of the latter equals K's duopoly profit).

For $-0.5 < \Delta < 0.1$, the joint duopoly profit is smaller than the monopoly profit. Hence, it is possible for C to make an acceptable offer to K, in order to obtain a monopoly position (with MC=k). Notably, this does not only hold in the area where Firm C has a marginal cost advantage ($\Delta<0$), but also in an area where K has a marginal cost advantage ($0<\Delta<0.1$).

For $\Delta = 0.1$, the joint profit of the duopolists (C producing with MC=c+s+t, K with MC=k>c+s+t) equals the monopoly profit (with MC=k). The two firms are indifferent between the duopoly outcome and an acquisition (the agreed upon price of the latter equals K's duopoly profit).

For $\Delta > 0.1$, the acquisition condition is not satisfied. Hence, firm C cannot make an acceptable acquisition offer to the owners of K, as K's oligopoly profit (producing with MC=k) is still greater than the difference between the monopoly profit (producing with MC=k) and C's oligopoly profit (MC=c). For C, the export strategy is more profitable than the acquisition strategy, thanks to a considerable marginal cost advantage.

For **$0.1 < \Delta < 0.25$**, the monopoly profit (if the monopolist produces with MC=k) exceeds the individual duopoly profit of C (producing with MC=c+s+t). Purchasing firm K would, thus, provide C with a monopoly position in the target market whereas, by assumption, C had to produce with K's inferior production technology ($\Delta>0$ implies k>c). But even though C's incremental profit from obtaining this monopoly position is positive, the additional payoff does not suffice to buy out K (as it is too low to make up for K's duopoly profit). This result shows that, in an interactive context, the profitability of an internationalization strategy does not only depend on a comparison of a player's own profits. C's argument is as follows: If K would accept an offer F, turning into a monopolist would be beneficial, but the maximum offer is not sufficient to compensate (the owners of) K for their loss of the duopoly profit.

For **$\Delta>0.25$** C's individual duopoly profit (with MC=c+s+t) exceeds the monopoly profit (if producing with MC = k and k > c+s+t), so it is immediately obvious that the acquisition strategy is less profitable than the export strategy.

For $\Delta \geq 1$, K is entirely driven out of the market if C chooses the export strategy. C then becomes monopolist producing at home, with MC=(c+s+t); at **$\Delta=1$** C's monopoly profit amounts to 1.

Assuming that only the export strategy and the acquisition strategy are available, then the following list summarizes the results, depending on Δ=k-(c+s+t): If the adaptation cost of an international acquisition is zero (T=0):

- For $\Delta < -0.5$, firm C abstains from entering the target market at all.

- For -0.5<Δ<0.1, then C can make a mutually acceptable offer to the owners of firm K and, thus, carry out the acquisition strategy.
- For 0.1<Δ<1, then C chooses the export strategy and the target market will be served by both firms.
- For Δ>1 then C can conquer the target market as an exporting monopolist.

If, however, T>0, this shifts downwards the horizontal profit curve for the acquisition strategy. The greater T, the smaller is the interval of Δ values for which the acquisition strategy is predicted to be carried out. The maximum vertical distance between the joint profit parabola and the monopoly profit line (at Δ=-0.2) is 0.05.

If T > 0.05, then no value of Δ exists for which the acquisition strategy will be carried out. Moreover, if T=1/36 then the joint profit parabola intersects with the monopoly profit line at Δ=0. Hence, with T>1/36 the acquisition strategy will only be carried out for negative values of Δ. As long as T<36, the acquisition strategy can be satisfied for positive as well as for negative values of Δ.

Hence, if firm C has a cost disadvantage (-0.5<Δ<0), or if C has a small cost advantage (0<Δ<0.1), or if the competitors have identical cost (Δ=0), then the acquisition strategy is more profitable than the export strategy. The reverse is true if C's cost advantage is large enough (Δ>0.1).

3.5 Including the OEM strategy.

C may offer the owners of K to acquire K in order to close down the newly purchased production site, and rather produce at home (at marginal cost c+s+t instead of k). Hence, C buys K's monopoly position in the target market, but not K's production technology. Then, the monopoly profit is $[a-(c+s+t)]^2/4=(1+\Delta)^2/4$, which exceeds 1/4 for Δ>0 and equals 1 for Δ=1. This monopoly profit is represented by the highest parabola in figure 2 for Δ>0, just above the joint duopoly profit parabola. Figure 2 shows that the best option is

- for 1>Δ>0 (c+s+t < k): to buy K and close it down – if t, the transaction cost of exports from home country to target country, is not too high;
- for 0>Δ>0.5: to buy K and produce in the target country (at MC=k), if T is not too high;
- for Δ<0.5: to stay out.

Thus, the export strategy leading to a duopoly will never be carried out (if Δ>1 it leads to a monopoly). Or it will only be chosen if the respective variant of the acquisition strategy faces obstacles, such as legal prohibition, or high transaction cost, or high transition cost T.

A joint venture in which the two firms K and C agree upon using C's production site and exploit K's monopoly position (OEM strategy) in the target market would even be more profitable, as the transaction cost of doing international business (t) could be saved if K continues selling the goods in its home country. The joint venture could serve the customers at marginal cost equal to c+s.

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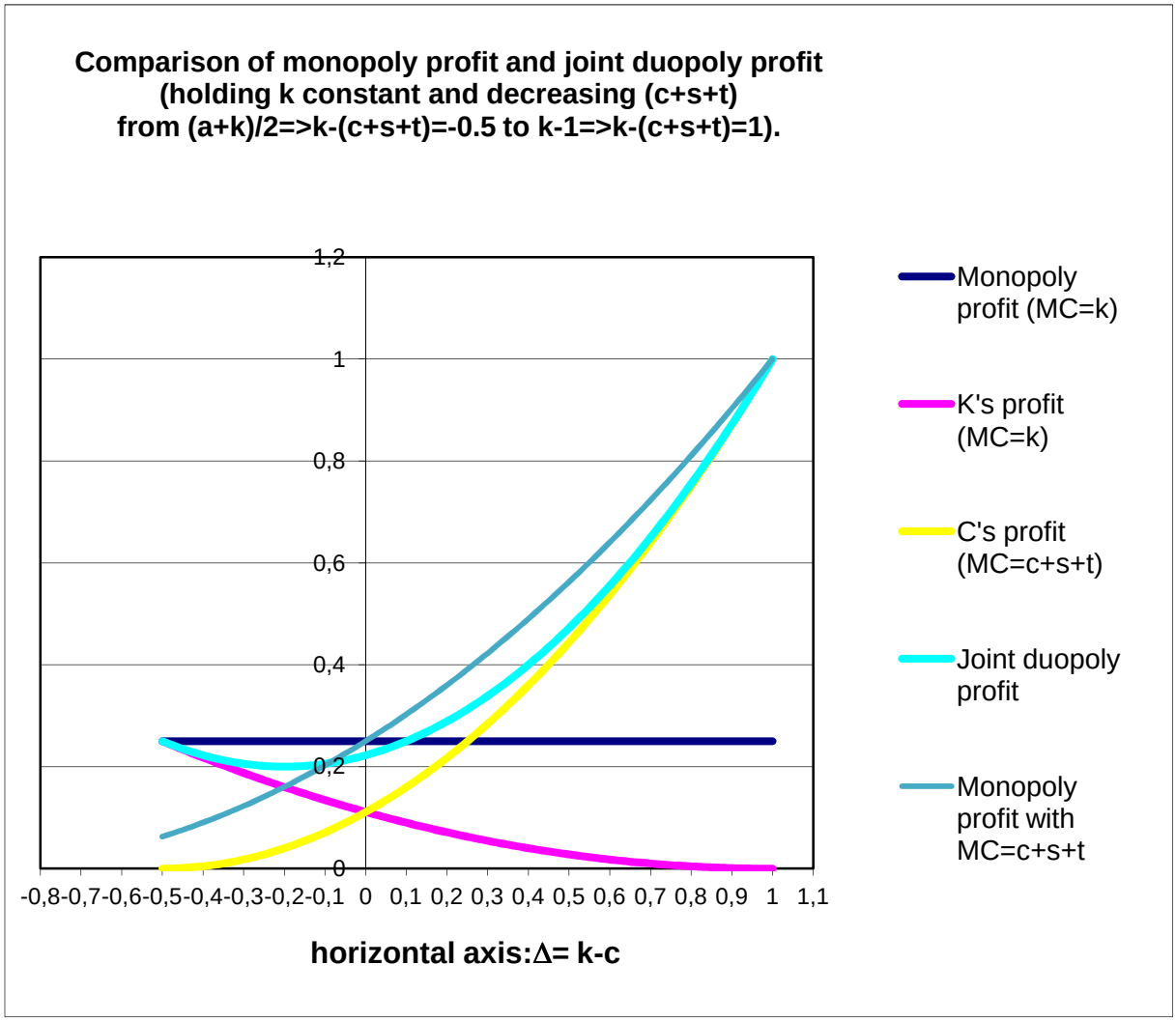
Figure 2: Comparison of joint duopoly profit and monopoly profit.



Source: own EXCEL simulation

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