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Non-competition covenants in acquisition deals☆

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HIGHLIGHTS

- We study the changes in the consumers and producers surplus in acquisition deals with non-competition covenants.
- The acquisition deals can lead to significant negative (positive) changes in the producers (consumers) surplus.
- The surplus decrease with the time period of the covenant.
- The effect on the aggregate welfare change can be positive or negative, depending on the market conditions.

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ABSTRACT

We study the changes in the consumers' and producers' surplus associated with acquisition deals where there is a non-competition covenant that forbids the *seller* from re-entering the market over a given time period. We find that these acquisition deals can lead to significant negative (positive) changes in the producers' (consumers') surplus, which decrease significantly with the time period of the covenant. We also show that the effect of the time period of the covenant on the welfare change can be positive or negative. It depends largely on the market conditions, such as the profit uncertainty and growth rate.

1. Introduction

Firms often consider the use of non-competition agreements in business acquisitions in order to protect the acquired business from future competition from the seller. A non-competition agreement is a covenant associated with the acquisition which restricts the seller from competing with the buyer within a specific geographic area over a given time period. The covenant also benefits the seller since it gives the buyer more confidence that the anticipated earnings from the acquisition will materialize, enhancing the acquisition price.

Non-competition covenants are also considered in employment agreements to protect firms' confidential information from their former employees whose departure raises the threat of unfair competition. The law literature on non-competition covenants in employment agreements is very extensive (see, e.g., Kräkel and Sliwka, 2009 and Bishara and Orozco, 2012). The use of these covenants can also play an important role in economic development. For instance, Gilson (1999) and Hyde (2003) suggest that one of the main reasons for the success of the high technology industrial district in Silicon Valley and the failure of the one in Massachusetts' Route 128 was the differential enforcement of covenants not to compete: California does not enforce post-employment non-competition covenants, therefore, high technology firms gain from knowledge spillovers which have allowed Sili-

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con Valley firms to thrive while Route 128 firms have deteriorated (see, e.g., Bishara and Orozco, 2012 and Buente, 2012).

The non-competition covenants used in acquisitions deals should, however, be tailored considering the specificities of the business that is being acquired and the scope of the business that is going to be protected by the covenant, and firms should be aware that courts may limit, for instance, the time span for which restraints could be justified (Gaby Hardwicke Solicitors, 2011).[1]

In this paper, we study the effect of competition and the use of non-competition covenants in acquisition deals on the producers' and the consumers' surplus. We also perform an aggregate welfare analysis where we show the effect of the time period of the covenant on the welfare changes. More specifically, we show that acquisition deals where there is a finite-lived non-competition covenant always lead to positive changes in the consumers' surplus and negative changes in the producers' surplus, and that the time period of the covenant affects significantly the changes in the aggregate welfare and the producers' and the consumers' surplus. Furthermore, we show that acquisition deals where there is a non-competition covenant have a significant effect on the aggregate welfare change, which can be negative or positive, depending on the time period of the covenant, and the market conditions, such as the expected profit volatility and growth rate.

The rest of the paper is organized as follows. Section 2 presents the model setting and provided the illustrative results. Section 3 concludes.

2. The model

2.1. The producer's perspective

Consider a monopolistic firm which optimizes production using the following linear inverse demand and cost functions, respectively:

$$P = a - bQ \tag{1}$$

$$C = cQ \tag{2}$$

where P represents the output price, Q the output quantity, $a > 0$, $b > 0$, and $c > 0$ is the cost per output unit.

The maximization of the instantaneous profit (π) leads to:

$$\pi = \frac{(a-c)^2}{4b}. \tag{3}$$

We assume that profits evolve randomly, being affected by a multiplicative exogenous shock (x) which follows a geometric Brownian motion (gBm) process given by[2]:

$$dx = \alpha x dt + \sigma x dz \tag{4}$$

where α is the risk neutral growth rate (drift), and σ is the instantaneous profit volatility, and dz is the standard increment of a Wiener process. We assume that risk neutrality holds and there is a constant risk-free interest rate, $r > \alpha$.

For a monopolistic firm, the present value of the expected future profit flow is given by:

$$V(x) = \int_0^\infty \pi x e^{-(r-\alpha)} dt = \int_0^\infty \frac{(a-c)^2}{4b} x e^{-(r-\alpha)} dt = \frac{(a-c)^2 x}{4b(r-\alpha)}. \tag{5}$$

Now consider an acquisition deal between two firms, the above monopolistic firm, which is the *seller* (S), and another firm, which is the *buyer* (B), where the former agrees to sell the business (whose value is given by Eq. (5)) to the latter and leave the market afterwards. Suppose, however, that the *buyer* is afraid that the *seller* may want to re-enter the market after the acquisition. Therefore, it negotiates a non-competition agreement which forbids the *seller* from re-entering the market during a given time period, T.

If the *seller* re-enters the market, the ex-post (symmetric) duopolistic profit flow for each firm, obtained *a la* Cournot, is given by:

$$\pi_B = \pi_S = \frac{(a-c)^2}{9b} \tag{6}$$

and the value of each firm is:

$$V_B(x) = V_S(x) = \frac{(a-c)^2 x}{9b(r-\alpha)}. \tag{7}$$

Following standard real options analytical procedures (Dixit and Pindyck, 1994) it can be easily shown that, without the non-competition covenant, the optimal time for the *seller* to re-enter the market is given by:

$$x_S = \frac{\beta}{\beta - 1} \frac{9b(r-\alpha)}{(a-c)^2} K \tag{8}$$

where x_S is the *seller*'s re-entry trigger, K is the investment sunk cost, and β is the positive root of the characteristic quadratic function of the ordinary differential equation that describes the value of the *seller* after being acquired by the *buyer* (but before its re-entry trigger has been reached), given by:

$$\beta = \frac{1}{2} - \frac{\alpha}{\sigma^2} + \sqrt{\left(-\frac{1}{2} + \frac{\alpha}{\sigma^2}\right)^2 + \frac{2r}{\sigma^2}}. \tag{9}$$

Note that, at the time of the acquisition, and in the absence of the non-competition covenant (i.e., if the embargo period is $T = 0$), the *buyer* should not value the *seller*'s assets according to Eq. (5) because the *seller* has the option to re-enter the market after the acquisition if x hits x_S, being thereafter two firms in a duopoly. Consequently, the value received by the *buyer*, if $x < x_S$ at the time of the acquisition, is given by:

$$F(x, 0) = V(x) - (V(x_S) - V_B(x_S)) \left(\frac{x}{x_S}\right)^{\beta_1}, \quad \text{for } x < x_S \tag{10}$$

where the second term of the right-hand side of Eq. (10) represents the value loss due to the *seller*'s option to re-enter the market after the acquisition. The existence of this option reduces the value of the acquisition for the *buyer*.

If a non-competition covenant is agreed, the *seller* is not allowed to re-enter the market over a given time period, $T > 0$. Therefore, compared with the case above, where the covenant is absent, the value of the *seller* is lower because it cannot re-enter the market when $x \geqslant x_S$, but when $x \geqslant x_S \wedge t \geqslant T$. These more demanding re-entry conditions increase the value of the acquisition for the *buyer*.

On the other hand, an appropriate valuation for the *buyer* should consider that, with the non-competition covenant, it receives only a certain-lived monopoly market, whose value when compared with that of a permanent monopoly is significantly reduced, given that the *seller* can re-enter the market as a follower after the time period of the covenant has expired. The solution for this acquisition investment problem is given by[3]:

$$F_B(x, T) = V(x) - (V(x) - V_B(x))\, e^{-(r-\alpha)T} N(d_1(x, T))$$

[1] Most courts in the US inquire whether these contracts are "reasonable" and because there is not yet a consensual theoretical framework to objectively identify and assess the "legitimacy" of the competing interests between firms, trial courts decisions are often not fully predictable (see Bitė, 2011).

[2] Similarly, we would obtain the same outcomes by setting the inverse demand function as $P = a - \frac{b}{x}Q$.

[3] Derivations in similar settings can be found in Shackleton and Wojakowski (2007) and Pereira and Rodrigues (2014). Notice that Eq. (11) reduces to Eq. (10) for $T = 0$ and $x < x_S$.