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Divestiture requirements as a tool for competition policy: A case from the Swedish beer market☆

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ABSTRACT

We investigate the effect of divestitures on prices and welfare following the Carlsberg–Pripps merger in the Swedish beer market. Both difference-in-difference estimation and simulations using a random coefficients logit model suggest that divestitures are important for dampening price increases. Prices of divested brands fall by around 3% and the predicted price increase for Carlsberg falls from 3 to 1.6% as a result of the divestitures. To guide practice on divestitures, we investigate the role of the recipient and the number and characteristics of the divested products by simulating post-merger outcomes for all relevant cases. We find that in this setting with large multiproduct firms, the competition authority's most effective means to dampen adverse post-merger outcomes are to aim for a small recipient firm and attain a large number of divested products. Enforcing larger divestitures in terms of market share and raising the average cross-price elasticity between the merging parties' divested and retained products strengthen the dampening effect further.

1. Introduction

Competition authorities frequently require that merging parties divest a number of brands or operations in order to clear a proposed merger. As we document below, little is known about the impact of such divestitures despite their prominent role in practice. In this paper we use the 2001 takeover of the Swedish Pripps brewery by the Danish brewer Carlsberg to examine the effect of the divestitures on merger outcomes. Our research question is twofold: Firstly, we want to provide a clean case study of the effect of divestitures on prices and welfare in this merger. Secondly, we want to systematically examine how the welfare effects of divestitures depend on the acquirer, the number of divested products, their market share and their average cross-price elasticities with the retained products. Our findings are partly specific to this particular merger but we believe that the results and the heuristic algorithm used will be of use for competition authorities in charge of proposing divestitures in other markets and merger cases.

A number of features make this merger in the Swedish beer market an interesting case for examining divestitures. The merging parties account for a substantial share of total sales in the Swedish beer market: Carlsberg's and Pripps' pre-merger market shares by volume were 29 and 17%, respectively. The divestitures are substantial: at the time of the merger they account for 6% of volume. We have access to barcode level data on prices and quantities, aggregated by month, for the whole market, for a period from January 1996 to January 2003, thus covering two years after the merger. Knowledge of the retailer's (exogenous) markup rule allows us to back out wholesale prices precisely.

We first examine the effects of divestitures on prices in a simple model and highlight that the prices of divested products should fall, ceteris paribus. Examining the merger with difference-in-difference methods we indeed find that the prices of divested products fall by about 3%. To be able to examine various counterfactual policies we follow the seminal work of Berry et al. (1995, hereafter BLP) and estimate a random coefficients logit model of demand. We find that the effects of the divestitures are sizable: the divestitures lower the predicted price increase from 3 to 1.6% for Carlsberg and from 6.5 to 4.9% for Pripps. For the average market price increase, the divestitures lower the predicted price hike by two thirds, from 1.6 to 0.5%.

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Both the difference-in-difference and the BLP demand system are useful for evaluating the merger. The difference-in-difference estimates describe the ex-post developments of prices under transparent assumptions even if, as we discuss below, the merger between two major firms in a national market should lead one to view the control group with some caution. The BLP demand system is useful for ex-ante simulations and for exploring alternative divestitures. We use our structural demand model to pin down which attributes of the divestiture requirements matter most for keeping price rises and consumer welfare losses in check. We find that the recipient firm of the divested beers has a large impact on post-merger outcomes. In the actual merger this firm has a negligible market share and can therefore barely use the divestitures to generate market power for its existing portfolio of brands. Varying the recipient of the divested beers is associated with average price increases ranging from 1.1% to 0.5%. We also examine the composition of the set of divestitures using a method that can approximate the distribution of all potential post-merger outcomes for a given range of market shares for the divested products. We find that in this market with large multiproduct firms the number of divested beers is an important explanation for low price increases and limited welfare losses post-merger. Raising the number of divestitures by 1% reduces the average post-merger price increase by almost 3% and reduces the loss in consumer welfare by almost 2.7%. The market share of the divestitures and the substitutability between the divestitures and the merging parties' products also have statistically significant and economically important effects on post-merger price increases and consumer welfare losses. Raising both of these parameters dampens adverse outcomes.

Using both a difference-in-difference and a BLP demand system also allows us to compare results. Important qualitative patterns are common to the two methods: prices of divested products fall, prices of legacy products for the acquirer of the divested products rise and despite the merger of the two largest firms in a concentrated market there are small price effects. Nevertheless, as in the previous literature, we find some discrepancies between the ex-post difference-in-difference predictions and the ex-ante structural simulation of the merger when we keep marginal costs at their pre-merger level. Efficiency gains are likely to be one contributor to the discrepancies but lacking separate evidence on product level marginal costs surrounding the merger we cannot rule out other explanations — it may be that the difference-in-difference estimates do not accurately capture the ceteris paribus impact of the merger or there may be concerns with the estimated demand system or firms may not be playing static oligopoly or fail to optimize as we discuss below. Our discussion should prove relevant for future ex-post evaluations of merger simulations.[1]

Let us briefly review the previous literature on divestitures. In both the European Union and the United States a majority of mergers that are subjected to closer scrutiny are cleared subject to remedies in the form of requirements regarding structure (such as divestments) or behavior (such as length of contracts). For mergers that merit closer attention, prohibiting them or permitting as proposed are the exception — clearing subject to remedies is the rule.[2] In many jurisdictions, divestitures are the most prominent form of remedy. Indeed, the European Commission's notice on remedies states that "a general distinction can be made between divestitures, other structural remedies, such as granting access to key infrastructure or inputs on non-discriminatory terms, and commitments relating to the future behavior of the merged entity. *Divestiture commitments are the best way to eliminate competition concerns resulting from horizontal overlaps.*" (European Commission (2008), paragraph 17, emphasis added).

Despite their importance in merger practice, the literature examining the role of divestitures in mergers is scant. Some, largely qualitative, descriptions of divestiture practice can be found in for instance Elzinga (1969), Federal Trade Commission (1999) and DG Competition (2005). The latter two studies establish that in most cases the divested assets are still in operation a few years after the divestiture, and in this sense divestiture policy has been successful. These studies are silent on price reactions surrounding the mergers, however, and there are only a few detailed case studies of the price effects of divestitures. In one such study Tenn and Yun (2011) provide a before–after analysis of the merger between J&J and Pfizer and show that prices of divested brands fell post-divestiture. Pham and Prentice (2013) examine a merger in the Australian cigarette industry that involved divestitures and compare results to counterfactual simulations based on a random coefficients logit model of demand. Data limitations force them to estimate demand for a period several years before the actual merger, but their results nevertheless suggest that divestitures reduced price increases. [3] Apart from the ability to follow a large merger on a market with good data we are also attracted by the beer market having been a prominent testing ground for merger simulations right from the beginning of this literature; Baker and Bresnahan (1985) and Hausman et al. (1994) use simulations to examine prospective mergers in the US beer market, and Pinkse and Slade (2004) apply them to mergers in the UK beer market. Neither of these papers examine divestitures. [4] Ashenfelter et al. (2013) examine the role of efficiencies in the US merger between Coors and Miller and find that a predicted price increase of some 2% was largely offset by declines in marginal costs. Their paper is complementary to ours as both show how substantial concentrations in the beer industry fail to lead to the price hikes that one may ex ante have expected. Efficiencies due to more efficient transport is an important facet in their study while the evidence in our case points to an important role for divestitures.

This paper is structured as follows. Section 2 provides a stylized theoretical example that illustrates the potential for downward pricing pressure when divestiture requirements are imposed on a merger. The following section describes the institutional setting, the data and the merger. Section 4 describes price developments surrounding the merger using the difference-in-difference methodology. Section 5 details our structural model and the estimation results. In Section 6 we use the structural model to examine the impact of divestitures and efficiencies on the merger in question. Section 7 contains our systematic exploration of counterfactual divestitures and in Section 8 we provide concluding remarks.

2. Stylized example

To provide intuition for our findings, we adapt the concept of upward pricing pressure (UPP) as developed by Farrell and Shapiro (2010) to explore the role of divestitures in price setting. To be concise, we present a stylized example and for the purposes of exposition abstract from efficiency gains. Suppose there are only two firms, where firm *MP* (*multi-product*) owns products 1 and 2, while firm *SP* (*single-product*) owns product 3. Let p_j, mc_j and s_j denote price, marginal cost

[1] See Peters (2006), Weinberg (2011), Weinberg and Hosken (2013) or Björnerstedt and Verboven (2013) for examples of this, as of yet, small literature.

[2] For instance, among the proposed mergers that were subject to the Phase II procedure by the European Competition Authority between 1990 and 2011, 56% were cleared subject to remedies. In comparison, only 13% of the proposed mergers were prohibited at this stage and 28% were permitted as proposed. Similarly, of 144 mergers challenged by US competition authorities between 2003 and 2007, 64% were cleared after remedies had been agreed upon (Tenn and Yun (2011)).

[3] The theoretical work on divestitures is similarly limited. Compte et al. (2002) show that divestitures may facilitate collusion if they lead to a more symmetric industry structure. Cosnita and Tropeano (2009) examine how a competition authority can use policies regarding divestitures to induce the merging parties to reveal private information on the efficiency gains of the merger. Vasconselos (2010) uses a stylized setting with four ex-ante symmetric Cournot competitors to show that divestitures can increase consumer surplus by creating a more efficient competitor.

[4] See also Hellerstein (2008) or Rojas (2008), who examine the beer market with similar tools as the merger simulation literature does, but focus on the pass-through of exchange rates and of excise taxes, respectively.