SHOULD PROFIT MARGINS PLAY A MORE DECISIVE ROLE IN HORIZONTAL MERGER CONTROL?

Jorge Padilla

Revised draft: 22 February 2018

Abstract. I consider the merits of recent policy proposals to reinvigorate horizontal merger control, especially in high profit margin industries. I conclude that, while profit margins should play, and do play, a role in the assessment of the potential price effect of horizontal mergers, there is no justification for the adoption of a policy that targets mergers in high-margin markets and subjects them to stricter controls. Such a policy would lead to inefficient outcomes, as it would likely cause too many Type I and Type II errors. It cannot be justified as a means to address current concerns about inequality either.

Keywords: concentration, inequality, labour share, margins, horizontal mergers, merger control, oligopoly, profitability.

JEL codes: K21 (Antitrust Law), L13 (Oligopoly and Other Imperfect Markets), L40 (Antitrust Issues and Policies: General)

1 Jorge Padilla is Senior Managing Director at Compass Lexecon, Research Fellow at CEMFI (Madrid) and teaches competition economics at the Barcelona Graduate School of Economics (BGSE) and the Toulouse School of Economics (TSE). I wish to thank the comments and suggestions of an anonymous referee. The opinions in this paper are the author’s sole responsibility.
I. Introduction

In a recent speech, DG Competition’s Chief Competition Economist, Prof Tommaso Valletti explained that, while there is no evidence of increased market concentration in the five largest European countries (EU-5), profit margins have increased since 2010, reaching a historical maximum in 2016. In his view the upward trend in profit margins ought to have implications for competition policy in general and, in particular, for merger control. Prof Valletti wrote: “The higher the merging parties’ margins in a given case, the more likely traditional market share thresholds will underestimate competitive effects (all else equal)”, and added: “Merger control matters especially in preventing anticompetitive effects in a world of high margins”. Prof Valletti concluded: “If we do not properly adapt to changing markets, the risk is politics will (in ways we might not approve of)”.

If I understand this speech correctly, Prof Valletti advocates in favour of reinvigorating horizontal merger control in Europe in order to prevent further increases in market concentration and thus further increases in profits and inequality. He also seems to believe that such a policy would also deter the emergence of firms with the ability and incentive to foreclose rivals. This policy proposal is in line with that defended by several competition lawyers and economists in the US. In a recent paper, Prof Hovenkamp and Prof Shapiro express concern that merger enforcement has not been aggressive enough in recent years and support proposals, currently discussed in the US Senate, to make merger enforcement more aggressive.

Prof Valletti’s concerns focus on the competitive effects of horizontal mergers in those markets and between firms exhibiting greater profit margins. In his view,
mergers in highly profitable markets or involving highly profitable firms will be more likely to lead to significant price increases and cause more consumer harm. They may also create or strengthen dominant positions that could be abused.

In this paper I discuss the economic logic behind Prof Valletti’s policy proposals. In particular, I address the following questions: Should competition authorities in Europe strengthen merger control in high margin markets? Should they intervene more and more often when the proposed merger involves one or more highly profitable firms? If so, how should profit margins be measured? Given that Prof Valleti’s proposals are driven by the observed increase in profit margins in several European economies, I also investigate whether we should indeed be especially concerned with the increase in profit margins across many industries.

My main conclusion is that, while profit margins should (and do) play a role in the assessment of the potential price effect of a horizontal merger, there is no justification for the adoption of a policy that targets high-margin markets especially. Such a policy is bound to produce false negatives (Type II errors) and false positives (Type I errors) because (a) accounting profits are not necessarily in line with economic profits, (b) comparing accounting profits across firms, industries and countries is a notoriously complex exercise bound to produce misleading conclusions, and (c) mergers between profitable and not so profitable firms facilitate the efficient reallocation of resources and are, therefore, likely to have positive microeconomic and macroeconomic implications.

I fully understand recent concerns about increasing inequality and, in particular, about the decline of the labour share.8 I am also aware that some economists attribute those developments to increased industry concentration and market power and blame them on weak merger control policies.9 Yet, as discussed below, there are alternative plausible explanations that seem to fit the data better. For that reason, I believe that current concerns about the evolution of inequality do not justify a change in merger control policy; at least not until we understand what drives the evolution of the labour

---

8 The labour income share or labour share is the part of national income allocated to labour compensation.
9 See Section V below.
share better. I also believe that the case for policy reform is especially weak in the European Union, since the European Commission’s attitude towards mergers since the Great Recession cannot be considered too lenient.

II. Profit margins and market concentration

Economists have debated for years about the relationship between profit margins and market concentration. Based on some cross-section industry studies in the US, industrial organization economists believed for a long period of time that market structure fully determines firms’ strategies and market performance.\(^\text{10}\) According with that Structure-Conduct-Performance (SCP) hypothesis, market concentration would cause firms to compete less aggressively and, therefore, lead to higher prices and profit margins. The SCP prediction about the relationship between profit margins and market concentration was later formalized through a model of oligopolistic competition where equilibrium profit margins are given by the Lerner Index \((L)\), which is given by the following equality:

\[
m_i = \frac{p_i - c_i}{p_i} = \frac{s_i}{\varepsilon} = L_i,
\]

where \(m_i\) denotes the profit margin of firm \(i\), \(p_i\) is the price of firm \(i\), \(c_i\) denotes the marginal costs of firm \(i\), \(s_i\) is firm \(i\)’s market share, and \(\varepsilon\) is the elasticity of demand. The Lerner Index for firm \(i\), \(L_i\), equals the ratio between firm \(i\)’s market share and the elasticity of demand. Other things equal, \(L_i\) is increasing in firm \(i\)’s market share. The Lerner Index thus links profit margins and market structure at the firm level: Larger firms enjoy higher margins. Aggregating the Lerner Index across all firms operating in the same market, overall market profitability, given by the weighted average profit margin, can be shown to increase with market concentration, as measured by the Herfindahl Hirschman Index \((HHI)\).\(^\text{11}\)


\(^{11}\) This index equals the sum of the squares of the market shares of the firms competing in the market.
The views of the SCP school were criticized in two ways. First, economists like Prof Harold Demsetz\(^\text{12}\) noted that, while the Lerner Index establishes a relationship between margins and concentration, it is not (necessarily) a *causal* relationship. According to Prof Demsetz, firms’ market shares are not exogenously determined and do not drive profitability, as the SCP paradigm sustains, but rather they are the result of the strategies of competing firms. In other words, firms’ conduct jointly determines market structure and performance; it is not predetermined by market structure. So, for instance, a firm with low marginal costs can exhibit both a large profit margin and a large market share. Its margin may be high even when setting relatively low prices due to its very low costs and because of its aggressive prices it will achieve a large market share. The firm’s low marginal costs “cause” both its large margin and its large market share.

Secondly, some economists noted that the Lerner Index is only valid under certain assumptions about the nature of competition between firms. In particular, it holds when firms compete by setting quantities (or choosing capacities) and their products are homogeneous. The link between profit margins and concentration may also exist when firms compete in prices and/or products are differentiated, but that is not necessarily the case. So, for example, in the so-called Bertrand model, where firms compete in prices, products are homogeneous, firms face no capacity constraints and consumers can switch providers without cost, firms’ profits and margins are unrelated to market structure.\(^\text{13}\) This paradoxical result is, however, fragile: even when firms compete in prices, market prices will be related to market structure when firms tacitly collude, or sell differentiated products, or face capacity constraints, or when consumers have switching costs or in the presence of network effects, etc.\(^\text{14}\) However, in general, those alternative sets of assumptions will not produce the stark relationship between profit margins and market structure given by the Lerner Index.

---


The theoretical consensus is therefore that competition tends to be fiercer the greater the number of firms in the market but that not all firms impose the same competitive constraint on their competitors and that the strength of the competitive constraint exerted by a given firm need not be directly associated with its market share. So, as economists, we expect to observe higher average prices, though not necessarily higher average profits, in more concentrated markets. In fact, the relationship between firms’ margins and concentration may be positive for (relatively efficient) industry leaders but negative for (relatively inefficient) industry laggards.

This consensus appears to be vindicated by the empirical literature. In his seminal paper on this matter, Prof Schmalensee\(^\text{15}\) concluded, among other things:

*Stylized Fact 4.5:* The relation, if any, between seller concentration and profitability is weak statistically, and the estimated concentration effect is usually small. The estimated relation is unstable over time and space and vanishes in many multivariate studies.

*Stylized Fact 4.10:* The profitability of industry leaders in U.S. manufacturing may be positively related to concentration; the profitability of firms with small market shares is not.

*Stylized Fact 4.12:* Within particular manufacturing industries, profitability is not generally strongly related to market share.

*Stylized Fact 5.1:* In cross-section comparisons involving markets in the same industry, seller concentration is positively related to the level of price.

III. Profit margins and merger control

The discussion above provides support for the “structural presumption”\(^\text{16}\) that underpins horizontal merger control on both sides of the Atlantic and throughout most jurisdictions worldwide: Mergers that materially increase concentration are presumed to raise prices and reduce consumer welfare. However, it does not support Prof


Valletti’s contention that the structural presumption underestimates the anticompetitive effects of merger on high margin industries.

Does that mean that he is wrong and that merger control should not investigate profit margins and especially on mergers involving high-margin firms? The simple answer is “no”. A more sophisticated answer would add some caveats to that negative answer. To explain why, we need to consider the determinants of the impact of mergers on the pricing incentives of firms.

The price effect of a merger can be approximated by using the *Gross Upward Pricing Pressure Index*, GUPPI.\(^\text{17}\) The GUPPI for product A is equal to the value of the diverted sales from B to A when A wins extra sales from a small reduction in price, expressed as a proportion of A’s revenue from the extra sales.

Consider now that firms 1 and 2 merge, the GUPPIs for both firms are given by,

\[
GUPPI_1 = D_{12} \times m_2 \times \frac{P_2}{P_1},
\]

\[
GUPPI_2 = D_{21} \times m_1 \times \frac{P_1}{P_2},
\]

where \(m_1\) and \(m_2\) denote the margins of firms 1 and 2, \(D_{12}\) and \(D_{21}\) are their diversion ratios and \(P_1\) and \(P_2\), are their respective prices. It follows from these equations that the price effect of a merger depends on the extent to which the sales lost by one merging party from a price rise are diverted to the other and *vice versa* (i.e. the parties’ diversion ratios), and their relative margins. Hence, the merger will lead to a greater increase in the prices of the products sold by firm 1 (resp. firm 2) when firm 2’s margin (resp. firm 1’s margin) is greater. The reason why margins matter is straightforward: When margins are higher, the recapture of the diverted sales

from a price rise will be more valuable and thus the merger is more likely to make a price increase profitable.

This intuition can be found in 2004 EU Horizontal Merger Guidelines,\textsuperscript{18}

\emph{High pre-merger margins may also make significant price increases more likely.}

And in the 2010 US merger guidelines,\textsuperscript{19}

\emph{Some of the sales lost due to the price rise will merely be diverted to the product of the merger partner and, depending on relative margins, capturing such sales loss through merger may make the price increase profitable even though it would not have been profitable prior to the merger.}

In short, Prof Valletti is correct in saying that the higher the merging parties’ margins in a given case, the more likely a traditional merger analysis, based on market shares only, will underestimate the price effects of the merger (all else equal). When the merger under review involves one or two high margin firms, a merger assessment based on market share data only may produce a false negative or Type II error: the merger may be cleared when it should have been prohibited or, at least, conditioned.

But that concern does not justify the adoption of a stricter approach when assessing mergers involving highly profitable firms because the merging parties may not be close competitors after all. As can be seen from the GUPPI equations above, if the diversion ratios $D_{12}$ and $D_{21}$ are small, the merger will produce no material price effects, even if the margins $m_1$ and $m_2$ are relatively large.

It does not justify the adoption of a stricter approach when assessing mergers taking place in high margin industries either. First, not all firms operating in a high margin industry will be equally profitable; in fact, there are many examples of mergers in profitable industries involving industry laggards seeking to gain scale and efficiency in order to be able to compete with the market leaders. Secondly, a firm’s high margin may be driven by its relatively high efficiency. The GUPPI calculations


\textsuperscript{19} 2010 DoJ and FTC Joint Horizontal Merger Guidelines, Section 6.1.
above do not take into account the potential efficiencies resulting from the merger. An acquisition by a well-managed firm, one using state-of-the-art technology or a more advanced business model may give rise to considerable synergies if the target firm’s management or technology is inferior. In such a case, a merger involving an efficient high-margin firm will prove procompetitive in net terms.

A well-functioning economy must be able to reallocate resources away from its relatively inefficient firms and to its most efficient ones. While inefficient firms may exit markets in different ways including via mergers, there are reasons to believe that the merger route plays a fundamental role in many markets. Economic theory and evidence show that larger firms may have incentives to close down relatively efficient plants before a smaller firm would close down its less efficient plants.\textsuperscript{20} This because the larger firms can internalize to a greater extent the positive price effect caused by a reduction in capacity. Mergers may thus facilitate the retirement of inefficient capacity, since larger firms may find it optimal to buy and close the assets of the relatively inefficient firms instead of closing down their more efficient plants. Other things equal, consumers will be better off under the merger scenario if the competitive constraint imposed by the small firms was limited or if the merger allows firms to combine the better parts of each firm’s plants.\textsuperscript{21}

Another reason to refrain from targeting mergers in high margin markets is that they may not only facilitate efficient exit levels but also encourage the entry of new firms. Start-ups face considerable risks. On the one hand, their products may not appeal consumers. On the other, even when they do, they may not have the capital or the business skills to scale up their businesses in order to ensure their sustainability. In those cases, the most efficient way to monetize their investments is to sell their business to a firm with the necessary cash flows or capitalization—i.e. a profitable incumbent.


In conclusion, while a merger control policy based on market share data only may produce too many Type II errors, one that targets especially industries and firms with high profits may produce too many Type I errors—i.e. prohibiting or conditioning mergers that are procompetitive and welfare increasing. And, in addition, it may prove inappropriate not only from a microeconomic perspective but also in terms of its adverse macroeconomic implications.

IV. Which margin?

So far I have referred to high-margin firms and highly profitable markets without explaining which profit margin I have in mind, or discussing how it should be measured. These are not trivial issues, especially if the assessment of margins becomes the cornerstone of merger control.

As I explained above, a merger will be more likely to result in a price rise when the value of the recaptured sales is large. It follows, therefore, that the relevant margin for assessing the price effect of a merger is whatever measure best reflects the profits made on the recaptured sales. In some cases, the relevant profit margin will be given by the difference between the average price and the short-run average variable cost. In some others, this will not be the case. For example, when firms do price discriminate between loyal (infra-marginal) customers and uncommitted (marginal) customers, the relevant measure of cost is not the short-run average variable cost because that is not the incremental cost incurred on the marginal sales—i.e. those made to the uncommitted customers. In some other instances, the relevant profit margin will be the incremental profit of additional sales in the longer term. This may be the case when consumers face switching costs or enter into long-term contracts and hence tend to show inertia, or when prices are sticky due to e.g. menu costs or reputational effects. The incremental profit in the long run might be lower than in the short term, because in the long run the merged firm will need to make decisions about whether to maintain the capacity needed to continue supplying the recaptured sales. So a firm may be a high-margin firm in the short term but not in the long term.

Identifying the right margin measure is only part of the story though; one still needs to be able to measure it accurately. The problem in practice is that the only
information available to the researcher is accounting information. But, as noted by Prof Fischer and Prof McGowan,22

Many users of accounting rates of return seem well aware that profits as reported by accountants may not be consistent from firm to firm or industry to industry and may not correspond to economists’ definitions of profits.

Accounting profit margins exclude opportunity costs that are relevant to understanding the pricing and investment decisions of firms. Instead, economic profit margins account for the opportunity cost of using a unit of a resource, which is not given by its historical or bookkeeping cost, but equals the maximum amount that such a unit could earn elsewhere.23 In particular, economic profits and accounting profits differ in the measurement of capital costs. The cost of capital used to calculate economic profit margins is given by the forward-looking, long-run cost of buying a capital asset of comparable quality and use.24

Accounting profit margins are particularly inappropriate to measure long-term margins, especially in multi-product firms with significant fixed costs that are common to many of their products. As a matter of economics, common costs, such as R&D costs, should only be allocated to a given product if they are incremental to the development, production and commercialization of the product in question. That is, only those costs that are incremental for a given product should enter the calculation of the product’s economic profit margin. Yet, the accounting profit margin for that product likely will include costs that are not incremental, which thus introduces a bias.

The comments above should not be interpreted in a nihilistic way. I am not trying to argue that a proper margin analysis is impossible or should not be undertaken as part of the review of mergers. On the contrary, for the reasons stated above, assessing

---

margins at the firm level is necessary in order to estimate the upward pricing pressure generated by a horizontal merger. My claims are more modest. First, I believe attention should be given to the identification of the relevant profit margin measure in each case. It would be wrong to assume that such a measure is always the short-run profit margin. Secondly, because calculating an economically meaningful profit margin using accounting data is not easy, it is important to perform various sensitivity analyses. One should not rely on a single calculation to drive policy. Thirdly, as noted by Prof Fischer and Prof McGowan and many other commentators, comparing accounting profit margins across industries is notoriously complicated. Thus, a merger control policy geared towards high-margin industries may prove not only unfair but inefficient, causing both Type I errors (in the industries incorrectly classified as high-margin) and Type II errors (in the industries incorrectly classified as low-margin).

V. Merger control and the decline of the labour share

The share of labour in GDP has fallen both in the US and in many European economies since the 1980s and, particularly, since the 2000s. The two standard explanations for the evolution of the labour share are not related to market power and/or merger control policy. The first explanation concerns the role of globalization (competition from workers outside the US and the EU exerts downward pressure on wages in the West). The second explanation is based on the observed reduction in the cost of capital relative to the cost of labour as a result of technological progress (which depresses the demand for labour and hence lowers wages).

These explanations have been questioned by Prof Barkai from the University of Chicago. He found that the capital share of GDP, which includes what companies

25 See supra note 8.
spend on equipment like robots, has also declined, which questions the traditional explanation based on technological progress. Prof Barkai also found that the ratio of corporate profits to GDP has been growing steadily, even in years when the cost of capital did not increase or even fell, and that this trend is more pronounced in industries that experienced large increases in concentration. Based on this observation, he concludes that “the decline in the shares of labour and capital are due to an increase in markups and call into question the conclusion that the decline in the labour share is an efficient outcome.” 31 If these findings were robust, interventions aimed at reducing market power would constitute appropriate public policy.

A more recent paper by Prof De Loecker and Prof Eeckhout echoes these results. 32 They found markups and profits have increased significantly since 1980. These increases became more pronounced following the 2000 and 2008 recessions. They attribute these changes to increasing market power. However, most of the variation happens within industries rather than across industries. Within narrowly defined industries, larger firms become bigger and more profitable.

Against that background some economists in the US blame the increase in concentration and market power on a lenient merger control policy: Too many anticompetitive mergers have been cleared and the remedies imposed that were conditioned have proved ineffective. 33 This may be true, but I doubt it explains it all. First, Prof De Loecker and Prof Eeckhout find that markups are actually increasing faster for small businesses than for large ones across the economy, which contradicts the link between profits and concentration and questions the role of merger control.

Secondly, Prof Autor and his coauthors argue that the simultaneous increase in concentration and profits observed in some industries is driven by technological

---

30 The capital share is given by the product of the required rate of return on capital and the value of the capital stock of an economy relative to its GDP.
change. New technologies have made markets increasingly “winner takes all” markets, where competition is won by the most innovative firms. Large incumbents have significant advantages in these innovation races, because they can exploit economies of scale and learning by doing effects, and are thus able to marginalize their rivals. The incumbents operating in markets subject to technological change tend to have a lower labour share for two reasons: Production tends to require a fixed amount of overhead labour and mark ups tend to increase with firm size. In support of this interpretation of the evidence, Prof Autor and his colleagues demonstrate that those industries that have become more concentrated are the industries in which productivity has increased the most.

Thirdly, more recent evidence by Ph. D. candidate, Díez-Catalán, shows that the decline in the labour share both in the US and in Europe is specific to the manufacturing firms. In contrast, the labour share has increased sharply in the service industries. He states:

In fact, there has been a divergence between services and non-services industries in the United States since 1980. Over this period, the labor share for services industries increased by an average of 6 percentage points, whereas for the rest of industries it decreased by an average of 14 percentage points. A similar diverging pattern is also present in several European countries.

He finds that both differences in the substitutability between capital and labor, and differences in technical change across industries account for the observed divergence. I would suggest that this divergence may also be due to the differential impact of globalization across sectors: Service industries being less affected by international trade than non-service industries.

In sum, the evidence questions that the observed decline in the labour share and the corresponding increase in inequality are the result of a lenient merger control policy. I am not saying that merger control may not have played a role, especially in

---


the US. Rather I am arguing that the evidence is not so clear cut as to trigger a radical change in merger control policy and, in particular, do not support the proposal to increase scrutiny in high margin industries.

VI. Concluding remarks

In this paper, I have considered the merits of recent policy proposals to strengthen merger control in high profit margin industries. I conclude that, while profit margins should (and do) play a role in the assessment of the potential price effect of a horizontal merger, there is no justification for the adoption of a policy that targets high-margin markets or high-margin firms especially. In particular, such a policy cannot be justified as a means to address current concerns about the decline in the labour share.