CRA Competition Memo

# *MARGINS OF ERROR:* WHAT SHOULD BE THE ROLE OF MARGINS IN MERGER ASSESSMENT?

DG Comp Chief Economist Tommaso Valletti's talk at the CRA conference last December – which introduced to the European competition community a discussion of trends in concentration and margins that had been live in the US for some time – triggered something of a controversy on the extent and causes of increases in corporate margins; and by extension, on the role margins should play in merger assessment, including whether rising margins point to the need for tougher enforcement.[1]

This controversy seems to us to conflate a number of distinct strands, and at least in part to involve agitation against "straw men". *First,* are we indeed observing an increase in concentration and corporate margins? How significant is it? This is clearly a research question worth pursuing. *Second,* what are the possible causes for such a phenomenon? This is also a research question of major interest: trends in "margins" and "profitability" over time clearly stem from multiple factors, and we need to understand what may be driving them. *Third,* could a contributor to these trends be weak antitrust enforcement over the past few decades? *Fourth,* what should evidence of rising margins imply (if confirmed) for merger enforcement going forward?

The first and second "research questions" on economy-wide trends and their drivers must be engaged with seriously. The third question about the efficacy of antitrust enforcement to date is very much worth pursuing also, and for this the appropriate tool should be retrospective studies – an area in which agencies are better placed (as the lack of publicly available data is a major constraint for private sector and academic economists).

The fourth question is where "straw men" are being raised amidst more deserving issues for debate. At the simplest level, it cannot be controversial that – as margins are central to assessing unilateral merger effects – "higher margins" will tend to increase (all else equal) the proportion of transactions attracting scrutiny. In each particular case, one can then provide cogent economic explanations for what the observed margins may imply for market power and incentives to raise prices. In and of itself, a secular economy-wide trend towards higher margins does not necessarily imply that merger policy should be tightened – the merger toolkit we use seems adequate to deal with each particular case. *A distinct question however is whether, if one is concerned that merger enforcement is too lax to begin with, evidence of rising margins could be an additional reason to motivate a change towards tighter policy.* **This** is the more controversial question, which implicitly underlies the current debate.

## Rising margins: what does the evidence show?

Concerns around rising margins and what they mean for antitrust policy have emerged against a broader backdrop of unease from various quarters around rising concentration and inequality; a reduction in economic dynamism; and a view that antitrust enforcement, particularly in the US, may have been insufficiently robust.[2]

While the jury is still out in terms of rising concentration, and whether it is significant (most of these trends have been measured on very broad sectors, not antitrust "markets", and have been tracked using very blunt indicators),[3] the evidence on increasing margins seems more robust – with a few leading studies based on *firm-level* data. The *scale* of the effects is still to be settled: an influential 2016 study by De Loecker and Eeckhout (DLE), based on US data for listed firms, found that average margins have more than tripled – from 18% in 1980 to 67% today. Digging deeper, these increases were concentrated among the most profitable firms: the average margin for the most successful firms (those in the 90$^{th}$ percentile) rose substantially while that for less successful firms was flat or even declining.

One response has been that (a) these figures are sensitive to DLE's use of cost information based on "costs of goods sold", and the trend is much less pronounced if one allows

1 See Valletti and Zenger, "Should profit margins play a more decisive role in merger control"", *Journal of European Competition Law and Practice,* May 2018, in response to J Padilla, "Should profit margins play a more decisive role in horizontal merger control", *ibid.*

2 An important starting point was a paper published by the Council of Economic Advisers ("CEA") to the Obama administration, pointing to rising concentration, inequality and corporate profits as well as an apparent decline in US economic "dynamism" as measured by rates of firm entry and exit. Council of Economic Advisers. 2016, "Benefits of Competition and Indicators of Market Power"", see https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160502_competition_issue_brief_updated_cea.pdf

3 A key issue is that statistical authorities do not attempt to define antitrust markets and their categorisation will inevitably be vastly more aggregated than any market definition of interest to competition policy. For example, there is a vast difference between "Accommodation/ Catering" and "coffee shops in the 500m radius around Place Madou" (a more plausible antitrust market definition). Similarly, there is a world of difference between "Health Care" and "10mg hydrocortisone tablets for adult adrenal insufficiency". The work of Werden and Froeb has documented these differences systematically: they compare the market sizes of antitrust markets considered in recent DOJ decisions with the broad categories used by the US statistical authorities and show that the former are dwarfed by the latter. On this basis they conclude that shifts in aggregate concentration are unlikely to provide meaningful information on changes in market power in the economy.

for alternative cost definitions that include other costs such as marketing expenditure; and (b) that the steep apparent increase in margins pointed to by DLE reflects in fact a shift in technology with greater role for quasi-fixed costs, not so much an increase in economic profits or rents.[4] But even taking a different definition of costs, these studies show margins declining over the long run until the early 1980s, and then increasing to the present (albeit to a lesser extent). And even if fixed costs are indeed rising, it is not necessarily the case that higher margins over variable cost are of no consequence: chunkier margins over costs can still be efficiency-reducing, even if fixed costs are such that firms make zero profits. [5]

But what could be the possible causes of long-run increases in margins? There is no consensus, and different interpretations have different policy implications. Autor et al. for example argue that a model of "superstar" firms could explain many of the trends we see in the data:[6] technological changes which favour the most productive firms could result in a "reallocation" of share to low-cost firms resulting in increasing concentration, and margins. However, this might well reflect a welfare increasing "shake out" and indeed could even be reflective of an *intensifying* of product market competition rather than something which would imply a failure of competition policy.[7]

**What about Europe?** The academic debate in economic circles has significantly focussed on the US. There are however some initial studies of European concentration and margin trends: Tommaso Valletti discussed some tentative evidence at the 2017 CRA conference, and we understand further work is underway. More evidence has been provided in the work of Wech and Wambach (WW).[8] The headline is that there is to date no consistent evidence that concentration is on the rise in Europe: the same broad aggregates that have drawn much attention in the US are flat in some countries and declining in others. But as to profitability and margins, the early indications are that, following a deeper and longer post crisis slump, European profitability levels have been on a comparable upward trajectory to the US and are now, according to some sources at least, at their highest level in the period covered by the available data. A follow up paper by DLE reaches similar conclusions with almost all of the countries they monitor displaying increasing margins over time albeit with significant variation in the scale of the effects observed.[9]

This is also work in progress, however: WW also find upward trends in profitability in recent years, but not a full return to pre-crisis levels. There is also a more mixed picture on the breakdown of these trends. WW find that the increase in European margins has been more evenly distributed than in the US without the same concentration among the top performing firms. As a result, the "superstar" narrative of Autor et al. may be a less complete description of developments in Europe.[10] However, even absent the superstar effect, one can think of a variety of pro-competitive stories that could result in upward trends in concentration and margins in Europe.[11]

## Merger enforcement alone cannot explain these trends, and testing its effectiveness requires ex-post assessment of past cases

The upward trend in economy-wide margins over the long term cannot be plausibly attributed to lax antitrust enforcement – even though in certain sectors it may be a contributing factor:[12] mega mergers are simply too rare to explain economy-wide shifts on such a scale. Also, even if one is concerned about the effectiveness of merger control policy overall, one cannot objectively draw inferences about the competitive effects of individual mergers from evidence of aggregate trends in highly-interdependent variables with multiple confounding factors. The tool would be

4 A comment on DLE by Gutierrez and Philippon of NYU raises these concerns and shows that the effects identified by DLE are significantly mitigated if one uses alternative profitability measures. Similarly, James Traina reports that, once one uses a broader definition of cost, "markups increased only modestly from 1980 to the present…well within historical variation." See Traina, J. 2018. "Is Aggregate Market Power Increasing? Production Trends Using Financial Statements", Stigler Center Working Paper.

5 As Valletti/Zenger note, "It is sometimes argued that high margins are not a sensible indicator of market power, for instance because firms may have high margins for benign reasons, because high margins are needed to cover fixed costs, or because economic margins are not equal to accounting margins. We find much of this argument semantic and unnecessarily confusing. Pricing power is commonly defined as the ability of firms to charge prices that substantially exceed incremental costs. Such pricing power is regularly acquired through legitimate means, such as offering better products or producing at lower cost than competitors. Moreover, some degree of pricing power is typically needed for firms to cover their fixed cost of operation. Accordingly, the mere possession of pricing power is in no way unlawful. Yet, none of this alters the fact that it is pricing power. Here, and in what follows, we therefore use the term pricing power to denote firms' ability to charge prices that substantially exceed incremental cost and thus permit earning a high profit margin."

6 Autor, D. Dorn, D. Katz, LF. Patterson, C. van Reenen, J. 2017. "The fall of the labour share and the rise of superstar firms". One of the authors (John van Reenen) is an academic associate of CRA.

7 These authors discuss how increases in price transparency (e.g. due to information technology) might result in low-cost firms winning share (think Amazon in retail), but they also discuss other factors such as an increase in the importance of network effects resulting in a larger share of "winner takes most" industries. They rule out a number of competing explanations as inconsistent with the available data (e.g. the similarity in the evolution of the labour share of income across countries with very different policy regimes is in their view inconsistent with an explanation based on the decline of organised labour). Similarly, they find that the effects in the US are not more concentrated in firms with greater exposure to imports (which seems inconsistent with a simple story of globalisation pressing down wages).

8 Weche, JP. Wambach, A. 2018. "The fall and rise of market power in Europe", ZEW discussion paper.

9 De Loecker, J. Eeckhout, J. 2018. "Global Market Power", NBER working paper.

10 While it would be wrong to equate the superstar effect identified by Autor et al. with the narrower issue of the rise of the tech giants, the potential absence of a European "superstar effect" would be consistent with the observation that Europe has failed to generate its own roster of tech giants (none of the new "Unicorns" of 2017 were based in continental Europe, for example, with the vast majority residing in the US or China). http://www.visualcapitalist.com/57-startups-unicorns-in-2017/

11 For example, this could be the outcome of greater single market integration if more efficient firms are able to expand their geographic footprint or of convergence if poorer member states saw more efficient firms able to expand more quickly.

12 Although DLE do not opine in detail on the potential causes of the trends identified in their paper, they do identify merger & acquisition as one of several "candidate explanations".

extraordinarily blunt. What is required is a systematic and thorough ex post review of actual merger decisions. There are a few such retrospectives, both in Europe and the US. The findings tend to point to prices having increased ex post across the samples of cases that have been looked at, although with huge variance across cases and average effects which (in the case of Europe at least) are relatively small. They point also to potential "blind spots" in respect of specific issues (e.g. the evaluation of market entry and in the design of remedies).[13]

These studies, while indicative, are inevitably somewhat patchy. Policy evaluation would require more systematic analysis across a larger sample – an exercise for which the incentives are somewhat complicated. Merging parties in the main have no incentive to sponsor such studies, nor to make their data available to researchers because there is no upside. Private sector economists and academics do not have the data except where (unusually) markets are reasonably well documented by third party data sources. Agencies would be best placed but again there may be conflicting incentives – openly questioning the efficacy of past interventions can be difficult. Yet this is exactly the evidence required before one can come to the view that merger policy needs tightening.[14]

## What should higher margins mean for merger control, then?

What is one to make of the rising margins trends?

**First, there is nothing controversial about high margins being of relevance in merger assessment**. The concern around horizontal mergers is that the parties will "internalise" the profits associated with sales lost to one-another and this results in an incentive to soften competition whether by raising prices or reducing service or product quality. As is reflected in the standard GUPPI formula, the scale of this "upward pricing pressure" depends both on closeness of competition between the parties (the "diversion ratio" between them); and on the value of an incremental sale (typically taken to be the *margin over incremental cost).* It naturally follows from this that, *holding the closeness of competition between the merging parties fixed,* mergers are more likely to raise concerns when margins are higher. But this is nothing exceptional or novel. It is the beginning of the discussion. One needs to explain in coherent economic terms why observed margins may be high, and why this is not in the specific case an indicator of incentives to raise prices. This is where the action is in each case, and will continue to be.

**Secondly, margins and diversion ratios are not fixed parameters but are inter-dependent, so merger effects can be subtle.** Incentives for price increases depend on both margins and diversion ratios, but they are not independent of each other. For example, when firms offer differentiated products that are not close substitutes, margins will tend to be higher; and unilateral price increases will tend to result in greater substitution to "outside goods", implying lower diversion ratios to the products of other firms in the market. While one does not want to take such counterexamples too far, it is undeniably the case that in some models of competition *declining* margins will be consistent with *higher* merger price effects and GUPPIs – because they will indicate a greater level of head-to-head competition between the merging parties.[15]

Plus, the standard concerns about the limitations of GUPPI-style analysis all still apply.

**How should competitive constraints from entry be assessed in high margin industries?** Taking the nature of competition in the market as given, high margins can only persist if sunk costs are high relative to the size of the market and/or there are specific barriers to entry.[16] Does this mean that entry is a less powerful check on the price raising effects of mergers where margins are already high? Not necessarily. The importance of entry as a constraint depends on the extent of the "integer problem" i.e. how close the industry is to being able to support an additional firm. It is not at all clear that, for a given level of concentration, higher margins are indicative of this integer problem being a more significant issue and hence of entry being a less powerful constraint.[17]

**Could looser merger policy facilitate an efficient dynamic adjustment process by removing or reforming the least efficient firms?** Autor et al. provide a credible story for how higher margins, concentrated among the most successful firms, could be reflective of *increased*

13 A 2015 study commissioned by the European Commission found, using a variety of techniques, that cleared mergers resulted in average price effects of around 4% (albeit with material case-by-case variation). Other studies have identified more targeted "blind spots", with a 2017 KPMG study commissioned by the CMA finding a number of UK mergers where anticipated market entry failed to materialise; and a 2017 FTC study identifying concerns with divestiture remedies built around newly-formed combinations of assets rather than existing business units. A 2013 meta study by Kwoka of US mergers found more material effects (an average of 5.8% overall and 7.2% for "true" mergers (as opposed to joint ventures)), but such meta studies are confounded by issues of sample selection (academics are restricted to analysing those mergers for which data is available and such studies may exhibit "publication bias" issues with only those mergers resulting in significant effects being analysed. See: Ormosi, P. Mariuzzo, F. and Havell, R. 2015. "A review of merger decisions in the EU: what can we learn from ex-post evaluations? DG Comp; KPMG. 2017" Entry and expansion in UK merger cases"; Kwoka, JE. 2013. "Does merger control work? A retrospective on US enforcement actions and merger outcomes". Antitrust Law Journal. FTC. 2017. "The FTC's merger remedies 2006-12: a report of the bureaus of competition and economics".

14 Such data would allow a more careful study of which presumptions and analyses provide genuine predictive power. For an example of a study in this vein see Kwoka, J. 2017. "The structural presumption and the safe harbour in merger review: false positives or unwarranted concerns?" *Antitrust Law Journal.*

15 Valletti and Zenger show in a numerical example that margin increases of the scale documented in DLE can result in a 4 to 3 mergers having price effects that are comparable to those of a 3 to 2 merger in the "old world" with lower margins. Their computations are correct, but are sensitive to the parameterisation used: they use a market elasticity of 0.5 in their calculations, but, with higher values for this parameter it is possible for higher margins to be associated with lower merger price effects.

16 We abstract from the case of natural monopoly with mostly homogenous products with aggressive competition, where high margins are consistent with low sunk costs and low barriers to entry.

17 The intuition behind this is simple. Suppose that there are three firms currently in a relevant market. The market is almost large enough to justify entry by a fourth firm but not quite. As a result, profit margins are high. Now assume that two firms merge, will this trigger entry? Precisely because the market was large enough to almost make it profitable for a fourth firm to enter, it is much more likely that entry would occur post-merger than if the market had been just high enough for three firms (implying smaller margins).

competition (in which case they would certainly not reflect a failure of antitrust policy). What though does this observation mean for assessment of mergers involving such "superstar" firms? The most natural implication (that such mergers could help bring "laggard" firms "up to speed") should in principle be captured by the existing consideration of efficiencies on a case-by-case basis within the merger regime (although, to the extent that technological innovation widens the efficiency gap between firms, this may be a reason to give such considerations more attention going forward).[18]

All of which is to say again that merger assessment is a case-specific exercise in which margins are a key, but not definitive, piece of evidence.

**But can/should one go further and say that evidence of rising margins can also *motivate calls for toughening of merger policy?*** This is the underlying nub of the issue. We should all agree on a case-by-case approach which considers the evidence, including margins, in the round;[19] and that the existing merger assessment tools are more likely to identify transactions as problematic when firms are already making significant margins pre-merger.[20] To the extent that this is the message, it is uncontroversial.

Concerns have however been expressed that Valletti and the CET are going further and in fact rooting for tougher merger policy to place greater emphasis on margin data and to apply particular scrutiny to high margin sectors.[21] Here is where things are more nuanced.

If one believes that the performance of merger control has been relatively weak in the last couple of decades – too many mergers allowed through with ineffectual remedies, for multiple reasons (including the bias of institutions to avoid costly litigation from all sides) – can aggregate evidence of rising margins point to the conclusion that merger policy really needs tightening?

There are multiple layers to this question. First, is it right that merger enforcement has not been sufficiently robust? Second (and separate) – how should evidence of rising margins legitimately play into policy re-evaluation? The answer to the first question is *"possibly"* – though the existing studies are still patchy, we need more evidence and one needs to be careful not to project one's priors too much onto this question. The answer to the second question is even more tentative. We do not know enough about the causes for rising margins across the economy to conclude that merger policy needs tightening *for this reason.* But this is something to be considered further, not ignored or played down *a priori*.

## What should merging parties take away from this debate?

What are the practical takeaways for a firm considering a horizontal merger who is concerned about how this debate might impact how their transaction is assessed?

**Be prepared for *detailed* questions about margins and profitability, and to engage on this.** Parties should expect detailed questions on costs and profitability. They should also have a coherent story for why margins are what they are. There are important differences between economic and accounting definitions of margins, which justify some adjustments to accounting data. But implausible efforts (such as arguing margins would be much lower if assets were valued at replacement value in a declining industry) are not going to advance the cause (particularly if firm's internal documents and investor reports are unanimous that margins are healthy).

**Profitability and margin information should be gathered early in the process to help provide an "early stage" screen alongside more natural starting points such as market shares.**

**Historic precedents based on concentration thresholds may no longer be relevant if margins have risen in the interim period.** Valletti and Zenger's numerical example shows that, under certain circumstances, higher margins can result in a 4 to 3 merger delivering comparable price effects to a 3 to 2 merger in a world with lower margins. One can come up with countless counterexamples but the bottom line is that it does illustrate that rising margins *can* lead to higher price effects unless one explains why not.

**Low margins aren't alone sufficient to remove competition concerns.** Low margins do not necessarily mean a merger will not result in an authority raising competition concerns. As above, low margins may be reflective of intense competition between the merging parties and hence of significant potential for price effects. Furthermore, while economists typically use margins to measure the incremental value of a new customer, doing so may not always be correct (e.g. such analysis may need to be adapted in emerging industries engaged in promotional pricing or in the presence of other factors such as network effects).

**Overall, the policy discussion is live and deserving – companies and advisors have serious homework to do in each case, but the ground rules may need adjusting too. Constructive contributions to the research questions, not straw men, are needed.**

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18 More indirect (and speculative) considerations would be that the prospect of being acquired increases entrepreneurs' incentives to enter the market in the first place or that by "cleaning up" the bad firms, mergers might make room for new entrants who might end up being efficient.

19 See VZ ""obviously, assessing one factor that may materially affect mergers (margins) does not imply that other factors should be ignored (e.g. concentration or closeness of competition)".

20 "In our mind, it would be wrong to brush aside effects of this potential order of magnitude and solely rely on the possibility that there may be countervailing factors in individual cases. Our own takeaway, in any event, is a different one: First, recent times appear to have experienced an unprecedented increase in margins. Second, higher margins are a reflection of increased pricing power. Third, a significant increase in pricing power tends to affect the likelihood of adverse merger effects considerably".

21 See, for example, Padila 2018 which describes Valletti's position as "…advocat[ing] 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".