

Concentration Measures

From market shares to HHIs, bands and deltas

Market structure is a key concept in competition law and economics. One can readily see that a merger or concerted practice in a market with a few firms is more likely to have anti-competitive consequences than one in which there are many small firms. The Harvard School of the 1950s worked this into a Structure-Conduct-Performance approach. This claimed that market structure determined firm conduct (pricing, R&D investment, advertising and so on), and hence market performance. A concentrated market was one more likely to be an uncompetitive one. The link between market structure and market power was severed by the new industrial economics. This should have robbed competition authorities of practical straightforward measures of effective competition. Yet market structure, and indeed a structural view of competition, remains a cornerstone of EC antitrust and merger regulation.

Market shares

While market shares may not be directly correlated with market power, they continue to guide competition law and enforcement. Their use varies from rigid application to administrative but rebuttable triggers. In EC competition law, the single firm market share is a central element in the definition of dominance. Under Article 82 and the EC *Merger Regulation* dominance is triggered if a firm has 40% to 50% or more of a relevant product market. This is however only a rule of thumb since higher market shares have not been deemed dominant, while occasionally lower ones have. Market shares have also been used to exempt firms from competition scrutiny. Shares between 5% to 30% provide 'safe harbours' or *de minimis* thresholds below which there are no competition concerns. Yet to determine whether there is market power other aspects of market structure, such as the size of the second and third largest firms, the number of firms in the industry, ease of entry and exit, and the likelihood of potential competition, are also taken into account.

Concentration measures

In many jurisdictions concentration measures play an important role. The simplest is the leading firms' market share. The most common is the three (C3) or four (C4) firm concentration ratio. The C3 or C4 is the combined market share of the three or four largest firms in the industry respectively. The higher the share the more likely it is believed that the market is uncompetitive.

There is no magic in the choice of four firms, as opposed to three or five. Nonetheless the C4 does have the advantage of broadening the measure beyond the leading firm.

An alternative and more satisfactory measure is the Herfindahl-Hirschman Index (HHI). This takes account of the market shares of all firms in the industry. The HHI is calculated by summing the squares of the individual market shares of all firms in the market. The squaring of market shares gives greater weight to larger firms, so that the measure takes into account the disparity in the size of firms in the market. The HHI ranges from 10,000 for a monopoly (= 100% x 100%) to a very low figure of an industry with many firms with small shares.

The HHI is commonly combined with threshold to assist competition authorities. For example, the US Department of Justice/Federal Trade Commission *Horizontal Merger Guidelines* (1997) sets three bands for post-merger HHIs. The competitive threshold is set at below 1000 equivalent to 10 equally sized firms. Mergers which take place in markets with a HHI less than 1000 usually do not attract the interest of the US authorities. Where the post-merger HHI is between 1000 to 1800 the market is regarded as 'moderately concentrated' and may lead to investigation depending on the size of the merger. HHIs above 1800 indicate a 'highly concentrated' market.

In addition the way a merger increases the HHI – to so-called 'delta' – is taken into account. For example, under the DOJ *Guidelines* if a proposed merger increases the HHI by more than 100 points in a moderately concentrated market or 50 points in a highly concentrated market it will be scrutinised (see table below).

New EC concentration measures

Concentration measures are now set to complement market share analysis under EC law. The C4 and HHI first formally appeared in the EC *Horizontal Agreements Guidelines* (2001/C 31/03, para 29), although the former was given only passing mention. These guidelines replicated the US approach. More recently the EC *Horizontal Merger Guidelines* (2004/C 31/03, para 20) adopts the HHI measure but with different post-merger bands and deltas – 'moderately concentrated' is set between 1000 and 2000 and a 'delta' above 250; and 'highly concentrated' above 2000 with a delta above 150.

These thresholds and deltas exceed the US ones, suggesting that EC merger clearance may be (slightly) more permissive (but see below).

How do these HHI's relate to the traditional market shares used to trigger dominance? Market shares of 40% and 50% ignoring other firms in the industry give HHIs of 1600 and 2500 placing the industry immediately in the moderately to highly concentrated bands respectively. If the remaining firms in the market are taken into account it lifts the HHIs further. For example, if the leading firm has a 40% market share with the other firms at 10% each, then the HHI is 2000. A proposed merger between the leading firm and another would increase its market share to 50%, the post-merger HHI to 3000, and have a delta of 800. Similarly, if the leading firm has 40% and the others market shares of 5%, the HHI is 1900. A merger between the leading firm and another would result in a 45% market share, a post-merger HHI of 2400 and delta of 200. Both market shares and HHIs point to competition concerns. However this is not always the case.

DOJ/EC post-merger HHI thresholds and deltas		
Concentration	Thresholds	Delta triggers
Unconcentrated	US/EC - below 1000	No further analysis required
Moderately concentrated	US - 1000 to 1800 EC - 1000 to 2000	over 100 over 250
Highly concentrated	US - above 1800 EC - above 2000	over 100 - merger creates/enhances market power or facilitates its exercise over 50 - potentially raises significant competition concerns below 50 - unlikely to have adverse competition effects above 150

Do the HHIs reduce EC thresholds?

While the EC thresholds/deltas appear more permissive than the US, they may nonetheless trigger more scrutiny than previously. There are permutations of market shares and number of firms which can trigger concerns where none were likely to exist before. For example, markets with 9 or 8 equally sized firms with market shares of 11.1% and 12.5% respectively would be classed as 'moderately concentrated', and a merger between two firms would trigger a competition concern even though the combined market share in both cases is 25% or below (see table below). Also a merger in a market with 6 equally sized firms would give the merged firm a market share of around 33% in a 'highly concentrated' market, and a delta over 800 triggering serious competition concerns. One can play around with the figures to identify other 'anomalies'. For example, an industry with 14 firms, with market shares of 20%, 16%, 9% and the others at 5% each would have a post-merger HHI of 1300

and delta of 288 if the second and third largest firms merged yet a market share of only 25%. Clearly, used in isolation the HHI guidelines would lead to a significant increase in merger scrutiny!

Market shares/HHIs for 9, 8 and 6-firm markets			
Market shares/HHIs	9-firms	8-firms	6-firms
pre-merger:			
Market share	11.1%	12.5%	16.7%
HHI	1110	1250	1673
post-merger:			
Market share	22.2%	25.0%	33.4%
HHI	1481	1719	2510
delta	370	469	836

Fortunately, the EC *Merger Guidelines* make clear that HHIs are only one implement in the EC Commission's 'toolkit'. They are a complement to market shares and case-by-case assessments of competitive factors. Indeed the HHIs are used not to identify competitive concerns as such but 'as initial indicators of the absence of competition concerns'. Further, the anomalies identified above are partly dealt with by the 'safe harbour' provisions which exempt from scrutiny proposed mergers with market shares not in excess 25% (para 18). These considerations nonetheless beg the question whether the routine use of HHIs will lead to a more restrictive merger regime. This fear which is somewhat reinforced by the 'special circumstances' provision which can override the thresholds if the proposed merger involves a new entrant, significant cross shareholding, one or more of the merging parties is an innovator, and there is evidence of past and/or on-going coordination.

Modified HHIs

It is possible to take account some of these 'special circumstances' in the HHI calculation itself. For example where there is substantial cross-ownership between firms in the industry. In *Case IV/M.1383 Exxon/Mobile* (1999) the EC Commission made reference to a 'modified HHI' which treated the controlled entities as one entity thus raising the pre- and post- merger HHIs and the delta. A similar adjustment (it is suggested) can also be made where a substantial amount of output is committed under long-term contracts and not available (contestable) to other buyers/suppliers. In such a case the firms' shares would be expressed only as a proportion of the contestable output, and not total output. This would increase the HHIs to give a better snapshot of the competitive factors in the industry.

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