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Land of the corporate giants

Economies of scale run out at a certain point. The largest firms in America may be beyond it

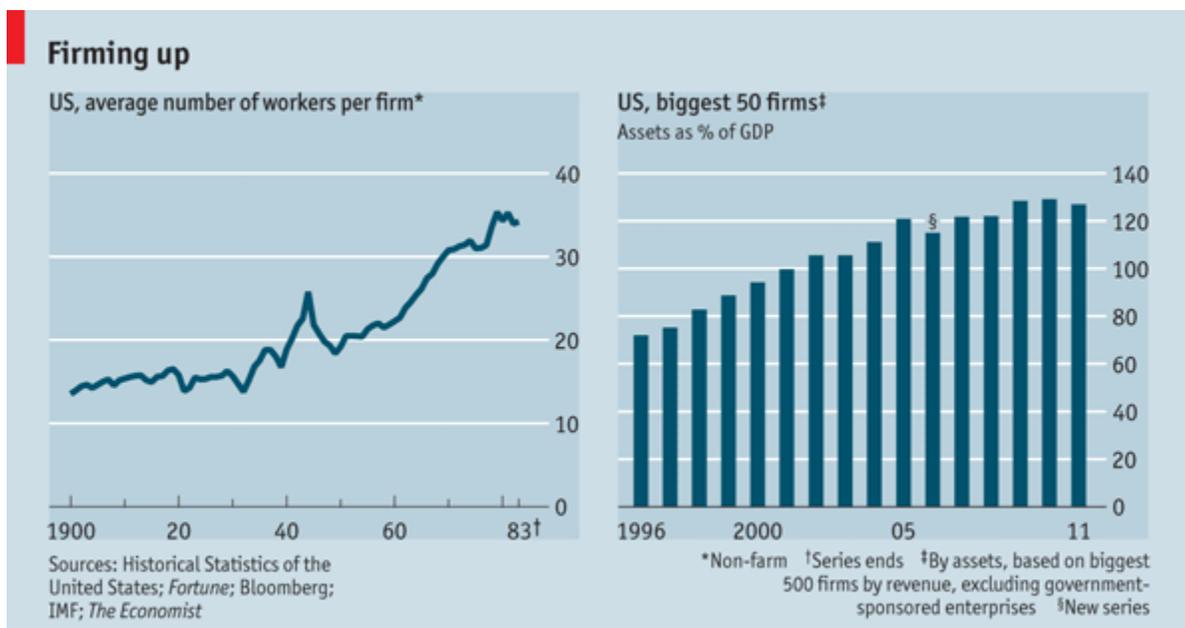
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SOME things only get bigger. From boats and planes to skyscrapers and shopping malls, size records are routinely broken. Companies are operating at record scale, too. But if the trend towards growing ever larger is clear, the economics of bigness are far murkier. In some cases, like boats, greater size still promises greater efficiency, as fixed costs are spread over higher output. In others, like buildings, the gains from scale may be running out. Where do firms lie on this spectrum?

Container ships provide a good example of economies of scale in action. Introduced in the late 1950s, the first ships could carry 480 twenty-foot equivalent (TEU) containers. By 2006 the biggest could shift 15,000 TEUs. Cost factors explain the rise: transport adds nothing to the final value of a good so cost minimisation is all-important. Since the shipping cost per container keeps on falling as ship size rises, container ships are set to keep growing. A new range of 18,000 TEU ships is due to launch in 2013. Per container they will be the most efficient yet.

But it is possible to exhaust the savings that come with size. Between 1931 and 2007 the record for the world's tallest building rose from 381 to 828 metres. At first, as buildings get taller, the fixed cost of land per square metre of office space falls. But other height-related changes offset this saving. The wind force on a building rises exponentially with height, meaning design becomes more complex and costly. A recent study* by Steve Watts and

Neal Kalita of Davis Langdon, a consultancy, shows that construction costs per square metre rise as a building gets taller. In addition, the useable space per extra floor starts to fall as the central “core” of the building gets bigger. Most very tall buildings are at an inefficient scale, propelled skyward for reasons of prestige rather than efficiency. If developers were focused on cost alone, they would opt for clusters of mid-rise buildings.



Businesses have also been getting bigger. A snapshot of the American economy shows huge dispersion in firm size: around a third of American workers are employed by one of the 6m small firms with fewer than 100 workers, and another third are employed by one of the 980 large firms that have over 10,000 workers. But the long-run trend seems to be towards bigger companies. In a 1978 paper Robert Lucas of the University of Chicago documented how average firm size in America had increased over a 70-year period (see left-hand chart).

And at the very top end of the scale, the world’s biggest firms keep on getting bigger. This can happen gradually, as firms outdo their rivals, or suddenly as firms merge. Indeed, mergers are particularly important in explaining gigantism. In the past 15 years the assets of the top 50 American companies have risen from around 70% of American GDP to around 130% (see right-hand

chart). All of the top ten American firms have been involved in at least one large merger or acquisition over the past 25 years.

So are businesses like boats or buildings: are they seeking out economies of scale, or are they too big to be efficient? One way to answer this question is to estimate how output levels influence the costs of production in a competitive industry. This relationship—known as a “cost function”—can be tricky to establish because firms often have multiple inputs and outputs. Take farming. Estimating a cost function requires complex information on how each farm’s outputs (milk, meat and crops) and inputs (labour, energy, feed, capital) interact.

But once the cost function has been pinned down, it can be used to identify scale economies. If average costs fall as a firm of a given size grows bigger, this suggests economies of scale exist for firms of that size. Results vary by industry. American dairy farms, for example, have been getting bigger but a recent paper shows there are still economies of scale to exploit, especially at those many farms with fewer than 200 cattle. By contrast, rail-industry studies show dwindling economies of scale over time as companies have grown. Overall, estimated cost functions suggest the limits of scale may have been reached for some very large firms.

Merger studies support this. The “winner’s curse” describes the phenomenon of mergers destroying value for the shareholders of an acquiring firm. Research by McKinsey, a consultancy, provides one explanation: close to two-thirds of managers overestimate the economies of scale a merger will deliver, often overregging the benefits by more than 25%. Size can even drive costs up, if firms get too big to manage efficiently.

Top dogs and fat cats

If size does not keep driving down costs, why do big firms keep expanding? One possibility is that they are seeking to boost profits not by driving down costs but by raising prices. Buying up rivals softens competition and enables firms to charge more. American

antitrust regulators recently looked back at past health-care mergers, and found that prices rose significantly after some deals. Another view is that mergers are driven by something other than profit. The “empire-building” theory holds that managers are out to increase the scale of their business whatever the cost in terms of creeping inefficiencies.

State safety nets can distort incentives, too. America’s leading three car manufacturers have all grown through mergers: each of them employs over 50,000 workers, and the government balked at letting them fail during the crisis. Some firms may be growing not to lower costs but to receive the comfort of implicit state support. A 2011 paper by Federal Reserve staff supports this conclusion, suggesting banks pay a premium to merge if the tie-up gives them “too-big-to-fail” status. None of these reasons for operating at a vast size is benign. All suggest that antitrust authorities should be much more sceptical about mergers that claim to be justified because of economies of scale.

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