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**Article**

## The economics and politics of market concentration

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## The Economics and Politics of Market Concentration

Thomas Philippon

Business concentration and profit margins have increased across most industries in the United States over the past 20 years. Figure 1 illustrates these trends together with the declines of the labor share and private investment. The ratio of after-tax corporate profits to value added has risen from an average of 7 percent from 1970 through 2002 to an average of 10 percent in the period since 2002. Firms used to reinvest about 30 cents of each dollar of profit. Now they only invest 20 cents on the dollar.

### Good versus Bad Concentration

A crucial research question is whether these trends reflect market power and rent seeking or more benign factors, such as a shift toward intangible assets with returns-to-scale effects. The main difficulty is that the relationship between concentration and competition is ambiguous.

Concentration and competition are positively related when shocks to ex post competition play a dominant role in the data. For example, lower search costs make

it hard for inefficient producers to survive, force them to merge or exit, and lead to higher concentration. Increasing productivity differences among firms — often embedded in intangible assets — can play a similar role. If these explanations are correct, the remaining firms in the market should be the most productive and concentration should go hand in hand with strong productivity growth and intangible investment.

Concentration and competition are negatively related when shocks to entry costs play a dominant role in the data. This can result from changes in antitrust enforcement, barriers to entry, or the threat of predatory behavior by incumbents. If these explanations are correct, concentration

should be negatively related to productivity and investment.

Some industries fit the efficient concentration hypothesis, while others fit the rent-seeking one. Ali Hortaçsu and Chad Syverson argue that the rise of superstores

and e-commerce reflects efficiency gains in the retail industry.<sup>1</sup> The wholesale trade sector also seems to fit this pattern. The telecom industry, on the other hand, fits the rent-seeking pattern rather well. It has become increasingly concentrated, and Germán Gutiérrez and I show that US consumers today pay twice as much for cell phone and broadband internet services as citizens in nearly all other developed countries.<sup>2</sup> Some high-tech sectors combine features of the two types of concentration. One reason, as Nicolas Crouzet and Janice Eberly argue, is that intangible capital generates high returns and high rents at the same time.<sup>3</sup>

Over the past 20 years, however, negative concentration has become relatively more prevalent in the United States.<sup>4</sup> Recent increases in concentration have been associated with weak productivity growth and declining investment rates. Firms in concentrating industries engage in more profit-

able mergers and acquisitions and spend more on lobbying.<sup>5</sup> Excess profits are no longer competed away by free entry and the turnover of industry leaders has declined.<sup>6</sup>

European industries did not become cheaper and more competitive by chance. In all the cases that I have studied, there was a significant policy action, such as the removal

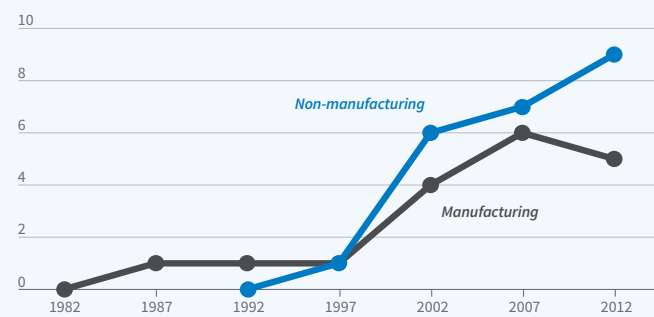
of a barrier to entry or an antitrust action. The French telecom industry, for instance, was an oligopoly with three legacy carriers that lobbied hard to prevent entry. The oligopoly lost in 2011, a fourth operator obtained a license, and prices decreased by 50 percent within two years.

These results are surprising. Europe, with its tradition of protecting national champions, is not the place where we would have expected competition to thrive. The United States, with its tradition of free markets, is not the place where we would have expected competition to stall. How then can we explain these evolutions?

The theoretical explanation for Europe is actually relatively simple. When the institutions of the EU's Single Market were designed in the early 1990s, there was significant suspicion among member states that each would try to impose its domestic agenda on the common regulators. Gutiérrez and I show that the Nash equilibrium of the regulatory-design game plays out differently at the national and EU levels.<sup>7</sup> At the national level, politicians enjoy being able to influence regulators. At the EU level, however, they are mostly worried about influences from other countries. As a result, the member states jointly decided to make EU institutions more fiercely independent than they would have done at the national level. This is how Europe ended up with the most independent central bank as well as the most independent anti-trust agency in the world. Over the following 20 years, the logic of the single market has slowly pushed Europe toward freer and more competitive markets.

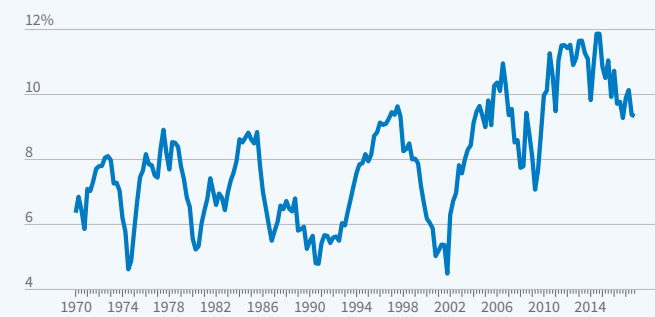
Understanding how US markets became less competitive is more complicated. There are many possible explanations. Some concentration has been driven at least in part by increasing returns to intangible assets, as Crouzet and Eberly explain.<sup>8</sup> The crucial test lies in the relationship between productivity growth and concentration. Matias Covarrubias, Gutiérrez, and I find a positive correlation between changes in concentration and productivity growth in the 1990s. This suggests that concentration was either benign or that it was the price to pay to achieve greater efficiency. The correlation became negative in the 2000s, however, suggesting a higher prevalence of rent seek-

Change in Market Concentration Ratio



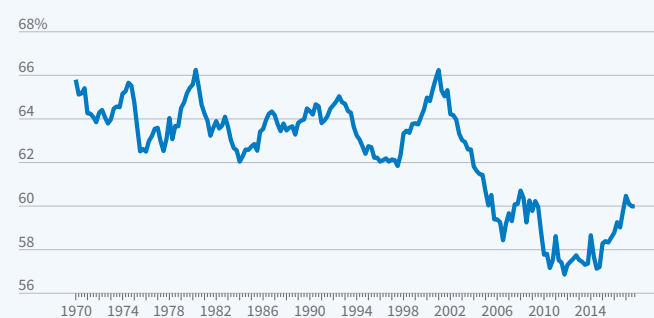
Source: Researchers' calculations using data from the US Economic Census

After-Tax Corporate Profits as a Percent of Value Added



Source: Researchers' calculations using data from the Federal Reserve Bank of St. Louis

Employee Compensation as a Percent of Gross Value Added



Source: Researchers' calculations using data from the Federal Reserve Bank of St. Louis

Net Investment as a Percent of Net Operating Surplus



Source: Researchers' calculations using data from the Federal Reserve Bank of St. Louis

Figure 1

Thomas Philippon is the Max L. Heine Professor of Finance at New York University's Stern School of Business. Philippon was named one of the top 25 economists under 45 by the International Monetary Fund in 2014. He has won the 2013 Bernácer Prize for Best European Economist under 40, the 2010 Michael Brennan & BlackRock Award, the 2009 Best Young Economist of France Award, and the 2008 Brattle Group Prize for the best paper in corporate finance.



Philippon has studied various topics in macroeconomics and finance: systemic risk, crisis resolution mechanisms, the dynamics of corporate investment and household debt, and the size of the finance industry. His recent work has focused on the Eurozone crisis, financial regulation, and the market power of large firms. He is affiliated with the NBER programs in Economic Fluctuations and Growth, Asset Pricing, and Corporate Finance

Philippon currently serves as an academic adviser to the Financial Stability Board and to the Hong Kong Institute for Monetary and Financial Research, and was previously an adviser to the Federal Reserve Bank of New York, a board member of the French prudential regulatory authority from 2014 to 2019, and the senior economic adviser to the French finance minister in 2012–13.

He graduated from École Polytechnique, received a PhD in Economics from MIT, and joined New York University in 2003.

ing. Unfortunately, this is where the lack of data on firm-level prices and difficulties in making adjustments for labor quality create empirical challenges. There are also tricky econometric issues when we use granular data to test this relationship. A fair assessment is that we do not know for sure.

Two trends that are specific to the US in the 2000s help us to shed light on the issue. One is what Gutiérrez and I call the failure of free entry.<sup>9</sup> When profits increase in an industry, new firms should enter. When profits shrink, existing firms should exit or consolidate. Economic theory predicts higher entry in industries with higher market-to-book values, also known as Tobin's q. Intuitively, Tobin's q measures expected profits (valued by the market) per unit of entry costs (book values). We study whether the number of firms increases in industries where Tobin's q is high and decreases in industries where it is low.

Figure 2 shows that free entry was alive and well from the 1960s to the late 1990s. The positive elasticity implies that, when the industry-median Tobin's q increased, more firms would enter the industry. Specifically, an increase in Tobin's q of one unit, as from 1 to 2, coincided with an increase in the number of firms in the industry of about 10 percent over the next two years. Consistent with free entry, firms used to enter into high q industries and exit from low q ones.

But this is no longer the case. The elasticity has been close to zero since 2000. A fundamental rebalancing mechanism that was at the heart of the Chicago School argument for not worrying about market dominance by a few large firms seems to have broken down. If free entry fails, the *laissez-faire* argument fails.

The other striking trend in the US

during the 2000s is the rise in business lobbying and campaign finance contributions. Lobbying and regulation can explain the failure of free entry if incumbents use them to alter the playing field. Incumbents may, for example, influence antitrust and merger enforcement as well as regulations, ranging from the length and scope of patents and copyright protection to financial regulation, non-compete agreements, occupational licensing, and tax loopholes. Consistent with these ideas, we find that the elasticity of firm entry to Tobin's q

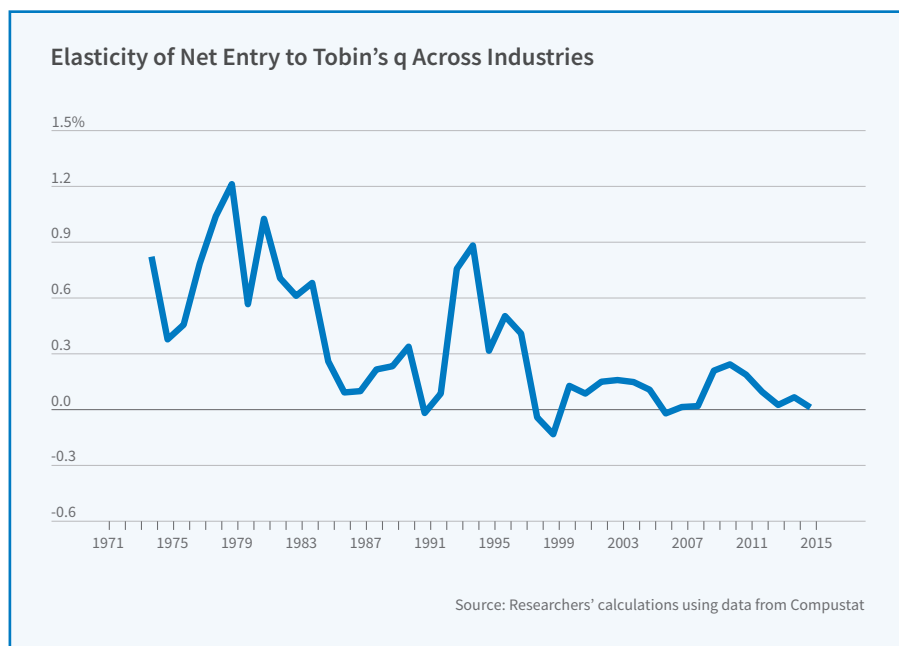


Figure 2

has decreased more in industries that have experienced larger increases in lobbying and regulations.

The failure of free entry has negative implications for productivity, equality, and welfare in general. If capital gets stuck in declining industries and does not move to promising ones, the economy suffers: productivity growth is weak, wages stagnate, and standards of living fail to improve.

<sup>1</sup> "The Ongoing Evolution of US Retail: A Formal Tug of War," Hortaçsu A, Syverson C. *Journal of Economic Perspectives*, 29(4), 2015, pp. 89–112.

<sup>2</sup> "How EU Markets Became More Competitive Than US Markets: A

Study of Institutional Drift," Gutiérrez G, Philippon T. NBER Working Paper 24700, June 2019. See also: "Political Determinants of Competition in the Mobile Telecommunication Industry," Faccio M, Zingales L. CEPR. Discussion Papers, No. 11794, January 2017.

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<sup>3</sup> "Rents and Intangibles: A Q+ Framework," Crouzet N, Eberly J.

Kellogg School of Management, Working Paper, October 2019.

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<sup>4</sup> *The Great Reversal: How America Gave Up on Free Markets*, Philippon T. Cambridge, MA; Harvard University Press, 2019.

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<sup>5</sup> "Are U.S. Industries Becoming More Concentrated?" Grullon G, Larkin Y, Michaely R. Forthcoming, *Review of Finance*.

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<sup>6</sup> "From Good to Bad Concentration? U.S. Industries Over the Past 30 Years," Covarrubias

M, Gutiérrez G, Philippon T. NBER Working Paper 25983, September 2019.

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<sup>7</sup> "How EU Markets Became More Competitive Than US Markets: A Study of Institutional Drift," Gutiérrez G, Philippon T. NBER Working Paper 24700, June 2019.

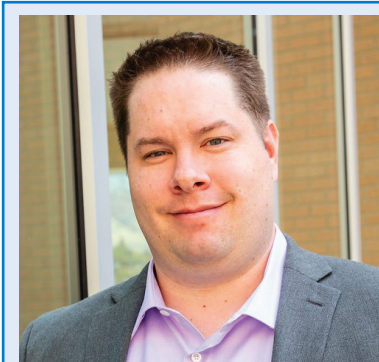
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<sup>8</sup> "Rents and Intangibles: A Q+ Framework," Crouzet N, Eberly J. Kellogg School of Management, Working Paper, October 2019.

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<sup>9</sup> "The Failure of Free Entry," Gutiérrez G, Philippon T. NBER Working Paper 26001, June 2019.

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Matthew S. Jaremski is a research associate in the NBER's Development of the American Economy Program and an associate professor in the Department of Economics and Finance of the Jon M. Huntsman School of Business at Utah State University. His research explores the intersection of financial economics and economic history. Topics include the effects of interbank networks on financial instability, the role of regulation in bank outcomes, the connection between financial development and economic growth, and the determinants and consequences of financial crises. A unifying theme is using unique historical variation to study dynamics that are obscured or hard to isolate in modern data.

Jaremski received a BA in economics, classical civilizations, and business administration from Austin College in 2006 and his PhD in economics from Vanderbilt University in 2010. Before joining Utah State, he was an associate professor at Colgate University and has held visiting positions at Yale University and the Office of Financial Research at the US Treasury.

He grew up in Dallas, Texas and currently lives in Logan, Utah, with his wife. They enjoy hiking and swimming during the summer, and board games and movies during the winter.

## Interbank Network Risk, Regulation, and Financial Crises

Matthew S. Jaremski

The financial crisis of 2008–09 intensified interest in how relationships within the financial system can amplify and transmit shocks. At a basic level, firms took advantage of rising real estate prices by scaling up lending and leverage, which fueled further increases in asset prices. When asset price growth slowed, problems at individual financial institutions suggested problems at other firms and triggered a reduced ability to borrow for many firms, whether or not they were contractually connected to the mortgage credit shock. For example, in September 2008, the inability of the Reserve Primary Fund to maintain a constant \$1 per share price led to runs on other money market mutual funds, including many that had little or no direct exposure to Lehman Brothers or the Reserve Primary Fund. Moreover, as the interbank lending market collapsed, banks scrambled to hoard reserves as a means of self-insurance against prospective liquidity needs, further aggravating declines in asset prices and lending.

Despite the importance of modern financial markets, their complexity makes it hard to study the effects of asset price shocks or how they are transmitted and amplified across firms and markets. For instance, information about a bank's interconnections with other lenders—its "counter-party positions"—is often closely held and accessible to only a handful of researchers at regulatory agencies. Further, with many banks having international branches and engaged in a wide variety of off-balance-sheet activities, it is difficult to distinguish the effect of a single shock or policy from other concurrent factors.

My research uses the lens of history for insight into these dynamics. US financial history is advantageous for a variety of reasons. First, as most states prohibited or severely restricted interstate bank branching, the financial statements of individual banks reflect their lending to local customers. This creates a large sample of banks to study, each of which operates in a distinct economic environment. Moreover, historically, few banks engaged in significant off-balance-sheet activ-

ity. This structure facilitates the identification of the effects of shocks to individual banks from other simultaneous macroeconomic factors. Second, the financial statements of each bank were publicly available, and publications often listed each bank's specific interbank correspondent connections. The historical period, therefore, is the only time when a full picture of the nation's interbank network can be studied without confidential data. Third, there was a great deal of regulatory variation within the country's unified legal and monetary system. Each state had regulatory control over its state-chartered banks, while national banks chartered by the Comptroller of the Currency faced a common set of regulations throughout the country. This feature allows the study of banks that are in the same location and during the same year, but subject to different sets of regulations. As highlighted below, the historical environment sheds light not only on the factors that lead to financial panics, but also on how interbank dynamics play out during panics.

### Commodity Shocks and Regulation

As in 2008–09, asset price booms and busts historically were often intertwined with lending booms and busts. Rising asset prices can stimulate lending and increased leverage, which in turn cause asset prices to rise further. Similarly, falling asset prices can force debt contraction and deleveraging that reinforce the decline in asset prices. The interrelationship between asset prices and lending booms thus raises important questions, including how various regulations and policies affect the vulnerability of the banking system to asset price shocks, and how bank lending and instability can exacerbate asset price movements. I have sought to use the unique variations in the historical environment to examine the roles that lending and regulation play in boom-bust events.

David Wheelock and I examine bank lending in the boom-bust cycle affecting US agricultural land prices during and after World