

Changing Market Structures and Implications for Monetary Policy: An Introduction to the 2018 Economic Policy Symposium

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Shifts in market structure over the past two decades have contributed changes in productivity, growth, and inflation that are of concern to central bankers. Within product markets, there has been a notable increase in economic activity associated with large multinational corporations along with increased market concentration in many industries. These developments suggest that large firms today may have greater market power than in the past, and this shift may result in a decrease in competition within many industries. Central bankers should be monitoring these shifts carefully since they likely have important linkages to observed structural changes in the global economy, including lower capital investment, a declining labor share, slow productivity growth, slow wage growth and declining dynamism.

To address these issues, the Federal Reserve Bank of Kansas City sponsored a symposium titled “Changing Market Structures and Implications for Monetary Policy,” Aug. 23-25, 2018, in Jackson Hole, Wyo. Participants included central bankers, academic economists and individuals from around the world who are engaged in the analysis of the economy and implications of changes in market structure.

A number of themes emerged during the proceedings. First, the emergence of “superstar firms” has been a key contributing factor in the observed increase in market concentration across many industries. Second, the increased importance to firms of intangible capital, such as software, intellectual property, and innovative business processes,

relative to physical capital has led to productivity gains in certain industries, such as the consumer sector, and stronger market power in other industries, such as health care. Third, the rise of online stores and their competition with brick-and-mortar stores has caused firms to change their pricing decisions and has altered inflation dynamics for the broader economy. And finally, a study concluded that while there is evidence of a trade-off between competition and stability in the banking industry, policymakers can mitigate the macroprudential concerns if increased competition is accompanied by good policy design.

Increasing Differences Between Firms: Market Power and the Macroeconomy

Professor John Van Reenen of the Massachusetts Institute of Technology presented a paper that examined the relationship between the large—and growing—differences between firms and observed changes in macroeconomic outcomes over recent decades. Using microeconomic data, Van Reenen showed that inequalities between firms have been increasing over time in terms of sales as well as worker productivity. This shift has resulted in a substantial increase of sales concentration across a wide range of industries and a similar shift in terms of wage inequality, where higher productivity firms pay higher wages on average than firms with lower productivity.

The central theme of the paper was to assess whether the increasing gap between large and small firms reflects an increase in market power due to a reduction in competition. Many observed changes in the macroeconomy, such as the fall in the labor share of gross domestic product (GDP) and the rise in estimated price-cost mark-ups, are consistent with a rise in market power. An increase in market power potentially could bring several negative consequences for the economy, including a weakening of productive efficiency and higher unemployment. Based on the analysis of firm-level data, Van Reenen argues for an alternative hypothesis where markets are becoming “winner take all,” particularly with high-tech firms, which is exemplified by the dominance of “superstar firms” such as Amazon, Apple, Facebook, Google and Microsoft. The forces driving market concentration may be due as much to intensified competition “for

the market” rather than anti-competitive mergers or collusion “in the market.”

Professor Valerie A. Ramey of the University of California-San Diego discussed Van Reenen’s paper, focusing on the question of how policymakers should respond to rising market concentration. Ramey began by summarizing the fairly-well-established facts: 1) there has been a decline in the labor share starting around 1980 in the United States and many other developed countries; 2) most of the decline in the labor share in the United States is not due to the labor share declining at individual firms, but rather to a reallocation of sales toward large and growing firms that have a lower labor share; and 3) market concentration has risen in many (though not all) sectors in the United States and across the Organisation for Economic Cooperation and Development (OECD). More controversial results, which should be the focus of additional research, include 1) markups of price over marginal cost have risen dramatically since 1980 and 2) profit rates in the United States have risen since 1980. Ramey argued that more detailed industry studies are needed to determine whether firms truly have more market power and suggested that monetary policy makers should keep a watchful eye on the emerging evidence before deciding whether any major changes in policy are warranted.

Understanding Weak Capital Investment: The Role of Market Concentration and Intangibles

Assistant Professor Nicolas Crouzet and Professor Janice C. Eberly of Northwestern University documented that the rise of “intangible capital,” which includes factors such as software, intellectual property, brand and innovative businesses processes, can explain much of the weakness in physical capital investment over the past two decades. They described how the scalable nature of these factors likely has contributed to the rise in industry concentration over that time. Their industry-level analysis identified strong links between intangible investment, market power and productivity. Some industries, such as the consumer sector, exhibit strong productivity gains derived from intangibles, while other industries, such as the health-care sector, exhibit a stronger role for market power derived from intangibles.

These shifts within industries have important implications for policymakers. Since intangible capital is less interest-sensitive and less collateralizable than physical capital, the monetary transmission mechanism is likely to have a weaker influence on investment in intangible capital. This weaker transmission may explain why business investment recovered slowly from the Great Recession despite historically low interest rates. To the extent that shifts in market structure and market power are tied to the rise in importance of intangible investment, policymakers should focus on tools other than interest rates to promote sustainable economic growth, such as strengthening competition regulation and intellectual property rights enforcement.

The paper's discussant, Professor Thomas Philippon of New York University, provided an overview of the research literature on market concentration and assessed the implications of concentration for investment and economic growth. In assessing concentration, Philippon described that one needs to consider the role of markets to distinguish the influence of local markets as well as international markets for trade in a given industry. The evidence suggests that trade-adjusted concentration has increased in the United States for industries that are not exposed to foreign competition, implying more concentration in services than goods industries. With regard to intangible investment, Philippon argued that the rise in intangibles appears to explain between a quarter and a third of the observed decline in physical capital investment since 2000. Philippon concluded by providing evidence from Europe, where his research has found a very different set of facts suggesting that rising concentration, declining labor shares and rising profits are a U.S.-specific phenomena that are not evident in Europe.

Panel on Changing Market Structure and Implications for Monetary Policy

To complement the discussion of changing market structure, a panel of economists shared views on market structure shifts and implications for monetary policy. Andrew G. Haldane, chief economist of the Bank of England, discussed the link between developments in product markets and monetary policy. Given the large number of recent studies documenting changes in market structure, including

increased markups for firms and rising market concentration, Haldane explored some of the potential channels by which these changes could influence monetary policy. Through the lens of an economic model, he showed that the response of an economy to an increase in market power is broadly similar to what one would expect from an adverse supply shock: the inflation rate rises and real GDP usually contracts. Such a disturbance is persistent in the model, despite monetary policy actions to dampen fluctuations. The reason that monetary policy cannot fully offset these fluctuations is because monetary policy is caught between loosening rates to return output to potential and tightening rates to return inflation to its longer-run target. The results suggest that if markups are becoming larger over time, it would be expected to make the task of monetary policy makers somewhat harder due to trade-off faced as output and inflation move in opposite directions.

Professor Antoinette Schoar of the Massachusetts Institute of Technology discussed two aspects of emerging changes in the financial services industry. First, she examined how fintech is changing the competitive structure of this industry. While the emergence of fintech may appear as a signal of new competition for the banking industry, recent trends in the United States suggest that the large franchise value and existing client base of established large commercial banks may make it difficult for new entrants to successfully compete as standalone entities. As a result, fintech firms may be less disruptive for existing financial institutions than originally expected. And their impact on market competition has been limited thus far. Second, she discussed the possible implications of fintech for the pricing of financial services and monetary policy. The availability of more detailed data about individual customers combined with powerful analytics tools has allowed for much more individualized pricing of services to customers. Recent research papers suggest that financial institutions may find it profit maximizing to target households that are prone to financial self-control issues by making contract offers that are more complex. This may lead to higher rent extraction for the industry from parts of its customer base. With regard to monetary policy, Schoar described one of her research projects that found that when the federal funds rate rose, financial institutions increased late and overdraft fees in the offers to unsophisticated customers, suggesting that banks were using

fee adjustments to pass funding costs to certain customers. In offers to sophisticated customers, federal fund rate increases were associated with increases in APRs and annual fees and with decreases in late fees and overdraft fees. These results suggest that the impact of monetary policy might be very different for various segments of the population.

Professor Chad Syverson of the University of Chicago provided four main points related to changing market structure. First, he described a paradox in which empirical evidence has documented strong cost growth and increasing growth of firm markups, yet overall price growth has been unusually low. No single explanation can currently account for the apparent lack in price increases in an environment where firms are facing rising costs and experiencing rising market power. Second, Syverson emphasized the importance of heterogeneity for understanding the macroeconomy. Producers in a given industry differ markedly in their behavior, including in their responses to even common external influences. This implies that observed aggregate changes do not generally reflect a common change across all producers within a market or industry. Third, with regard to monetary policy, the magnitude of firms' responses to interest rate changes depends on the link between firms' costs and their desired activity level. If increased market concentration is a result of reduced competition, this would suggest that firms are less responsive to changes in monetary policy than in the past. Fourth, Syverson emphasized that market concentration is a market outcome; it should not be viewed as a description of economic fundamentals. In other words, the level of concentration in an industry does not, by itself, infer the extent of competition and the degree of firms' market power within an industry.

Reflections on Dwindling Worker Bargaining Power and Monetary Policy

Professor Alan B. Krueger of Princeton University gave the luncheon address and discussed changes in labor market competition and worker bargaining power in the United States. He argued that declining competition and worker bargaining power can help to explain the relatively weak wage growth in today's economy despite historically low unemployment rates. Krueger suggested that it

is most appropriate to model the labor market as imperfectly competitive, subject to monopsonylike effect, collusive behavior by firms, search frictions, and surpluses that are bargained over. These market forces suggest that firms should be viewed as wage-setters or wage-negotiators, rather than wage-takers that would be found in a perfect-competition model. This perspective can help explain many well-documented phenomenon in the labor market, such as the high variability in pay for workers with identical skills in different industries or firms, the lack of evidence that minimum wage increases reduce employment, and the reluctance of firms to raise wages when vacancies are hard to fill.

This view of labor markets is certainly not new, but recent evidence suggests that monopsony power among firms may be increasing. Krueger noted that Adam Smith addressed this topic long ago when he wrote in *The Wealth of Nations* that employers “are always and everywhere in a sort of tacit, but constant and uniform combination, not to raise the wages of labour above their actual rate. To violate this combination is everywhere a most unpopular action, and a sort of reproach to a master among his neighbors and equals.” Krueger argued that this type of behavior among firms is becoming more prevalent in recent decades as employment is becoming more concentrated in large firms. One recent study has found that labor markets in which there is more employer concentration in terms of hiring are characterized by lower wages for workers. In addition, the decline in union membership over the past three decades has also likely contributed to a weakening of bargaining power for workers. Krueger concluded by urging central bankers to be aware of the impact of the growing use of monopsony power and noncompetitive labor market practices on wages, employment and output as they seek to promote their primary objectives.

More Amazon Effects: Online Competition and Pricing Behaviors

Associate Professor Alberto Cavallo of the Harvard Business School examined how online competition is affecting pricing decisions of firms and inflation dynamics for the broader economy. Using several micro-price databases available at the Billion Prices Project, Cavallo analyzed prices of online firms as well as large brick-and-mortar

retailers that sell products online and uncovered two key results. First, he documented that the frequency of price changes in multichannel retailers, who sell in both physical stores and online, has been increasing for the past 10 years. Second, Cavallo found that retailers are more likely to use a “uniform pricing” strategy for the prices of identical goods across locations if those goods also are sold on Amazon. This finding suggests that online transparency limits the ability of brick-and-mortar retailers to price discriminate across locations.

These two findings imply shifts in inflation dynamics for the United States. Retailers that adjust their prices more quickly and uniformly across locations would be expected to react more rapidly to nationwide price shocks. To test this hypothesis, Carvallo examined Walmart price data from 2016 to 2018 and found that online competition results in more rapid pass-through of gasoline price and exchange rate fluctuations into overall prices. Over a longer time sample of sector-specific price indices, Carvallo confirmed that the degree of price-sensitivity to exchange rates has been increasing over time. In summary, these results suggest that retail prices will be more responsive to aggregate shocks than in the past.

His discussant, Yuriy Gorodnichenko of the University of California-Berkeley, examined the implications of Carvallo’s findings for central bankers. If e-commerce eventually makes consumer prices as flexible as commodity prices, central banks may have to recalibrate their targeted measures of inflation. If the pass-through of aggregate shocks becomes as high for online prices as it is for food and energy prices, one may expect that central banks in large, developed countries would have a weaker grip on inflation, especially in the short run, and may have more difficulty in establishing or maintaining their credibility. In addition, if central banks are constrained in their ability to combat recessions in the current low interest rate environment, this constraint may become exacerbated by increasingly flexible prices. If prices fail to adjust quickly to recessionary shocks, such price stickiness can help avoid deflationary spirals. But with greater price flexibility, central banks may need to enact more aggressive countercyclical policy at a time when central banks may have only limited ammunition given the current low interest rate environment.

Competition, Stability and Efficiency in Financial Markets

Professors Dean F. Corbae of the University of Wisconsin-Madison and Ross Levine of the University of California-Berkeley presented a paper that examined the interaction between competition and stability in the banking industry. While many policymakers have stressed that there is a trade-off between competition and stability in the banking industry, this view is not universally accepted among researchers. For example, a large body of research finds that more competitive banking systems tend to be more efficient and more stable.

Corbae and Ross described three key findings from their analysis regarding bank competition and stability. First, they find that there is a trade-off between competition and stability, where the removal of regulatory impediments to competition increases the fragility of the banking system. Increases in competition squeeze bank profit margins and lower franchise values, leading banks to increase lending to riskier firms and results in increased risks to the banking system. Second, policymakers can mitigate the fragility repercussions of lower barriers to competition by developing improved standards for bank governance and tightening leverage requirements. Third, the authors argue that monetary policy will have a bigger effect on lending in more competitive banking systems. In a competitive environment where banks have narrower profit margins, monetary policy actions will trigger sharper balance sheet responses than in an environment in which banks have large profit margins to cushion the effects of monetary policy.

Claudia M. Buch, from the Deutsche Bundesbank, discussed the implications of Corbae and Ross' paper for policymakers. She began by highlighting the importance of technological change for this industry, which is influencing banks' business models as they face increased competition from the globalization of nonfinancial firms as well as increased competition from fintech companies. As various forces shift the structure of the banking system, Buch discussed how macroprudential policy should respond to best promote financial stability. In particular, she asked whether regulations that are designed for individual banks are also optimal from a macroprudential perspective? Corbae and Ross' paper provides helpful insights

on this question with their conclusion that more competition can yield a “double dividend” in terms of efficiency and stability, but only if increased competition is accompanied by good policy design. Buch concluded by saying that further research collaborations, including the creation of improved cross-country datasets and repositories of evaluation studies, will be crucial for policymakers as they seek to improve macroprudential policy and assess whether there is a need for coordination across policy areas.

Overview Panel

In the closing overview panel, Agustín Carstens, general manager of the Bank for International Settlements, discussed the impact of openness on market structures. Carstens expressed concerns regarding recent measures to reverse globalization and to retreat into protectionism. Reversing globalization puts at risk the real economic gains that have come about through closer trade and investment linkages. This could lead to higher prices, raise unemployment, and impinge economic growth. And retreating into protectionism will not fix inequality issues. For example, revoking the North American Free Trade Agreement would create only losers across North American regions. While higher trade barriers would shield some domestic industries from import competition, the resulting wage gains would be more than offset by the damaging effects of reduced export opportunities and the increased cost of imported input for manufacturing firms. Finally, trade tensions can also lead to financial vulnerabilities given the increase in financial links in recent decades with new trading relationships and production chains associated with increased globalization.

Stephen S. Poloz, governor of the Bank of Canada, focused his comments on digital disruption. Just about everything in the economy, from production, to consumption, to financial intermediation, is being disrupted by the deployment of digital technologies. The deployment of these technologies will obviously be very positive for economic progress. But this progress will be accompanied by creative destruction, and the destruction typically gets more headlines than the creation. Poloz urged policymakers to explain this process and to offer concrete evidence that it is unfolding as usual. And beyond explaining these complex dynamics, policymakers should be attentive

to potential pitfalls, such as those connected with the rise of so-called superstar firms. To this end, digital disruption is also disrupting central banking as structural changes to the economy alter inflation dynamics in a way that make it challenging to determine whether inflation could accelerate as an economy approaches full capacity or whether the digitalization of the economy is boosting aggregate supply and holding inflation pressures at bay.

Professor Raghuram G. Rajan of the University of Chicago concluded with a discussion of four topics related to the theme of this year's symposium. First, he examined whether the rise in market concentration is a signal of greater business efficiency or greater market power. Based on the research presented at the symposium, it seems that firms that are increasing their market share are performing very well, and thus far, they are passing some of the benefits from their efficiency on to customers, as opposed to simply raising prices. Second, he asked what the rise in concentration means for innovation and dynamism of the economy going forward. To the extent that the emergence of superstar-dominated industries leads to barriers blocking out competition from new firms, this could lead to the prevention of new ideas disseminating into the rest of the economy and contribute to low overall productivity growth. Third, the congregation of capabilities into elite firms has led to the problem of workers at top firms receiving good wages whereas workers at firms straggling behind get paid less despite having similar skills. And fourth, Ragan argued that the largest effect of these structural changes for policymakers is to the political economy of central bankers. Central banking is difficult in the first place, but even more so if in an environment where both the public and the politicians have lost trust. The key task for policymakers is to rebuild confidence in the objectives of the central bankers in a world where policymakers have to accommodate structural changes that are shifting economic opportunities among the population.