An edited version of this article appeared in the *London Review of Books* (http://www.lrb.co.uk), 5 May 2016.

Must do better

Donald MacKenzie

Sometimes, the most important – and most perturbing – insights are at their core simple, and are introduced without fanfare. So it is with an as yet little noticed analysis by the New York University economist Thomas Philippon of the history of the unit cost of financial intermediation. That unit cost is a measure of the efficiency of the financial system, and Philippon tracks its level in the United States from 1884 – from the time of the horse and the steam engine, of candles and open fires, of pens and paper ledgers, when a ‘computer’ was still a human being, equipped at most with a mechanical calculator. Remarkably, Philippon finds that US finance’s efficiency has essentially not improved since the 1880s, despite a century and more of unprecedented technological innovation.

To understand what Philippon has done, let’s start with a little example of financial intermediation. Imagine you've got savings of £100. You want them to be safe and to have ready access to them. You therefore need what an economist would call 'liquidity services', and a bank can provide them – and will maybe even pay you a modest rate of interest, although less than you might receive if you were prepared to tie up your money in an unsafe investment. Let's say that when your savings are deposited in the bank they earn 1 percent a year.

Let’s assume there is also someone who needs 'credit services'. She wants to borrow £100. The bank lends her that amount, charging her 5 percent per year, or £5. So it earns £4 per year acting as an intermediary, standing in between you and

her. Altogether, the bank has provided £200 of intermediation services (£100 of liquidity services to you; £100 of credit services to her) at a cost to the users of those services of £4. So the unit cost of financial intermediation is £4 divided by £200, i.e. 0.02 or 2 percent per year. Taken in isolation, 2 percent annually may not sound a lot, but costs at that level have a substantial impact on either or both of the cumulative returns that savers receive and the amounts borrowers pay.

The cost of financial intermediation is the equivalent of a tax on the rest of the economy, slowing its growth – with the difference from a tax being that, instead of paying for schools, hospitals or economically-beneficial infrastructure, much of the cost of intermediation is made up of the pay packets of senior staff in banks and other financial businesses. Costly intermediation thus increases inequalities of income and wealth.

Working out the unit cost of intermediation for an entire financial system in a way that's consistent through time is demanding, but involves doing the same three things as in my little example: first, calculating the total amount of intermediation services provided in each year; second, working out the total annual cost of those services; and finally dividing the result of the second calculation by that of the first. Philippon does the first calculation by adding together the sums of money involved in four broad financial activities: the total amounts held in bank accounts and similar 'safe' deposits; the money lent to firms and the value the market gives their shares; the money lent to households; and the total value of corporate mergers and acquisitions. He does the second calculation (working out the total annual cost of intermediation) by adding up the profits and staff salaries of the entire gamut of financial intermediaries: banks, investment-management companies, insurance companies, private equity firms, and so on.

The graph on the final page of this article shows how Philippon's resultant estimate of the unit cost of financial intermediation fluctuates through time. It rises to a first main peak during the financial excesses of the 1920s, falls during the middle decades of the twentieth century, then increases rapidly again. The unit cost of intermediation has come down a little in recent years, but only to roughly its level in the late 1880s. (The lower line in the graph is Philippon's estimate of the unit cost corrected for the changing aggregate level of the difficulty of the task of intermediation. For example, investing wisely in start-ups involves more screening and monitoring – and is thus intrinsically more expensive – than buying the shares of established corporations with lengthy track records, while making a single big loan to a wealthy household is cheaper per dollar lent than making multiple smaller loans to less well-to-do households. However, adjusting the unit cost of intermediation to take this into account produces an only slightly improved picture of change through time.)

Although research on finance's efficiency (in the sense in which Philippon uses the term) is in its infancy, its early results suggest there's nothing specific to the US in his discovery of an astonishingly lengthy period in which the financial system became no more efficient. Although his data stretch back only to 1950, Guillaume Bazot of the École d'économie de Paris finds broadly similar patterns of stagnation or increase in the unit cost of financial intermediation in Europe. In the UK, for example, the unit cost was about 1.3 percent in 1950. By 2007 (the endpoint of Bazot's time series), it was around 1.8 percent.

Why hasn't finance's efficiency improved during a period in which its core technology, computing, has advanced so much? A good part of the answer indeed seems likely to be that much of the economic benefit of technical improvements has been captured by finance's senior employees in the form of higher pay. In separate

work with Ariell Reshef of the University of Virginia, Philippon has shown that in the middle decades of the twentieth century, levels of pay in US finance were broadly similar to those in other industries (taking different levels of education into account). At the twentieth century's end, however, pay in finance accelerated fast relative to other sectors. By 2005-6, average pay in finance (adjusted for educational levels) was 50 percent higher than elsewhere, and executives of financial firms took home two and half times what their counterparts earned in other sectors.

Some areas of finance have cartel-like features and high barriers to the entry of potential competitors. Retail banking, for example, has seen some recent new entrants, but creating a new fully-fledged investment bank would be a hugely expensive and dauntingly complicated process, and essentially no-one seems to be trying. It's too simple, however, to think that finance's inefficiency and high levels of pay are just the result of oligopolists' market power. As Philippon and Reshef show, work in finance has become more complex, and especially more demanding of mathematical skill. You don't have to spend long with today's financial intermediaries to realise that they're usually clever, hard-working people.

Unfortunately, however, far too much of that intelligence and energy seems devoted to activities that boil down to efforts to influence, outwit or outrun their fellow intermediaries, efforts that add to the cost of intermediation without necessarily improving the effectiveness with which the financial system channels savers' money to productive uses in the non-financial economy. As the economist John Kay points out, being an intermediary tends to create an inherent bias to activity, even when it's wiser and cheaper to do nothing, because you have to give the appearance of 'earning your keep'. Investment managers, for example, cannot realistically expect systematically to beat the market (in aggregate, they essentially *are* the market), but

large amounts of investors' money are wasted in usually fruitless efforts – by dedicated, highly paid, skilled managers – to do so, thus contributing to the aggregate cost of financial intermediation.

Viewed through the lens of Philippon's analysis, it's possible to see the virtues of the smaller, simpler, safer, cheaper financial system of the 1950s and 1960s, and indeed all four of those attributes ought to be goals of financial policy. If there's reason for at least a little optimism, it's that increasingly firms with roots not in finance but in information technology are experimenting with new approaches to lending, to payment systems, to financial advice, and to other aspects of financial intermediation. Of course, those firms are in the business to make money, and a sector of finance that became dominated by a single firm to the extent that Google, Uber or Airbnb dominate their sectors could be just as expensive and inequitable as one dominated by Citigroup, Goldman Sachs or the Royal Bank of Scotland. It is, however, worth keeping a close eye on the rich variety of these new 'fin tech' experiments, in the hope of spotting ways of creating a better – and cheaper – financial system.

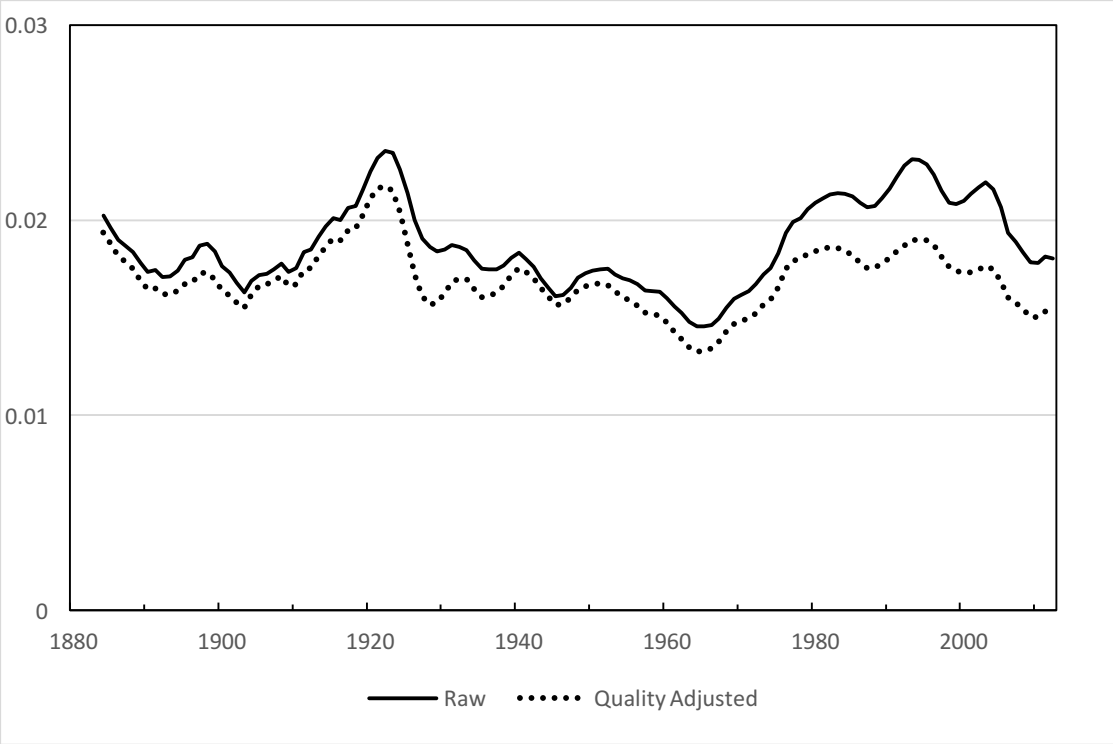

Figure 1: the unit cost of financial intermediation in the United States, 1884-2012. Data courtesy Thomas Philippon. For more details, see Philippon, 'Has the US Finance Industry Become Less Efficient? On the Theory and Measurement of Financial Intermediation', *American Economic Review* 105/4 (2015): 1408-38.