The financial sector, welfare gains and regulation

– A Danish perspective

By

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February 2022

Abstract

Throughout their lives, all citizens come into contact with the financial sector – whether through children's savings accounts, home loans or pension saving – and it is impossible to imagine a well-functioning market economy without one.

The financial sector plays a core role as a provider of financial intermediation and payment services, generating liquidity, and in assessing, pricing and allocating financial risk.

One often overlooked role of the financial sector is its importance for wealth creation and economic growth. Very extensive research in the field shows a close correlation between the size of a country's financial sector and its economic prosperity.

One way the financial sector contributes to wealth creation is through the provision of payment services. Calculations in this paper indicate that Danes on average have an annual welfare gain alone improved payment services of least DKK 8-10,000 per Dane.

Another significant channel for wealth creation is the financial sector's ability to generate liquidity and capital for entrepreneurs, which crucially depends on well-established and defined property rights.

A good legislative framework is essential for a well-functioning financial sector. The reverse applies as well. Failed regulation can not only lead to excessive risk-taking, but it may also inhibit economic growth by limiting opportunities for financial companies to fulfil their beneficial roles in financial intermediation, payment services and liquidity creation.

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No modern economy without a financial sector

This paper examines the financial sector's importance for the general welfare of Scandinavian citizens. While the perspective will be a Danish one, the discussion is of a more general nature and relevant to all modern high-income and middle-income economies.

The financial sector plays a key role in the lives of all Danes.

This can best be illustrated by thinking about how Danish citizens come into contact with the sector throughout their lives – from cradle to grave.

Danish parents and grandparents often set up tax-free savings accounts (*børneopsparing*) for their children and grandchildren under the age of 14.

Virtually no Danes get through life without having a bank account to receive salary payments or social benefits and hold savings.

A bank account is also the usual way to obtain payment cards – both the so-called *Dankort*, a debit card that has been widely used for payments in the Danish retail sector since the 1980s, along with traditional credit credits and smartphone payment apps such as MobilePay. Today the vast majority of Danes' payments are made by these payments means rather than in cash.

This makes the financial sector largely responsible for providing payment services – a key role in any modern market economy.

Savings do not only happen in bank accounts. Danes accumulate most of their wealth through private pension schemes (typically labour market pensions) and in bricks and mortar – by their mortgage loan payments.

As private labour market pensions have been built up since the mid-1980s, pension funds have become an extremely important and major player in Denmark's financial sector, which comprises not only the banks, but also pension funds, private equity funds, investment companies and insurance companies.

While Danes are great contributors to the pension funds, they also save up by paying off their mortgage debt.

Here, the mortgage credit sector plays an extremely important role – both in terms of ensuring that Danes can finance their home purchases and in facilitating savings.

It is thus completely clear that the financial sector plays a vital role in the lives of ordinary Danes, whether through child savings accounts, mortgage loans, pension savings or payment services.

Given the financial sector's crucial role in the economy, it naturally attracts considerable political attention, especially to ensuring that it remains well-functioning and stable.

Good framework legislation is also vital given the financial sector's role in wealth creation. Even so, it is less clear precisely how much the sector contributes to economic growth and how much or little regulation is needed.

This paper will try to answer these questions. As a result, it will focus on the connection between the financial sector, regulation, growth and welfare gains.

The four core tasks of the financial sector

Financial companies – banks, mortgage banks, insurance companies and pension funds – handle four core tasks.

The first is *financial intermediation*, where their role is to connect companies and households that wish to save with those who want to invest. Those who work and save generally pay money into pension savings, bank accounts or by investing in shares and bonds. The banks, pension funds and other financial institutions that provide these services act as a link between savers and those in need of capital.

If banks and pension funds did not exit, then in theory your only recourse would be to go out and find a counterparty. As a practical matter, this would make saving virtually impossible. Without savings, there is no investment, and without investment, there is no wealth creation. Investment growth is also a key source of productivity gains over time.

Secondly, banks play a key role in *payment services*. In Denmark, as in most countries, the central bank (*Danmarks Nationalbank*) is responsible for the production of banknotes and coins. Payment for most goods and services today, however, takes place electronically – typically through debit (*Dankort*] and credit cards, mobile-based payment systems (MobilePay) or electronic transfers such as Payment Service.

One could of course imagine going back to traditional payment in the form of specie and banknotes, but that would make financial transactions considerably more cumbersome and costly.

The role of financial companies in the payment system thus significantly reduces the transaction costs of trading goods, which is the foundation for the economic division of labour, in which actors produce what they are relatively best at.

By "producing" efficient means of payment, banks foster significantly higher productivity than could otherwise be achieved. Without payment services, the complex division of labour and unprecedented prosperity of modern economies would be unimaginable. We will have more to say about this later.

A third important function of financial companies is *liquidity provision*. The average household does not store its wealth in piggy banks, but typically in financial assets and through the property market.

When a family decides to renovate its kitchen, it is by no means given that it possesses the necessary liquidity (cash or bank deposits) to pay for it, since most of its savings may be tied up in pension accounts or bricks and mortar. Banks and mortgage lenders turn those bricks into cash through loans. Without mortgage lenders, there would be many fewer new kitchens.

The fourth crucial role played by financial companies is in the *assessment, pricing and allocation of risk*. One of the central tasks of a bank's credit department, for example, is to evaluate whether a customer will be able to repay a loan. The financial markets play a similar role. Banks and financial markets distribute the risk from those who are most risk-averse to those who both tolerant and capable of bearing risk. It allows projects to be funded that would otherwise be too risky for entrepreneurs to undertake on their own.

As a thought experiment, imagine that there was one government-fixed interest rate available to everyone. That would mean that risky ventures would receive too much capital, while low-risk projects would be underfunded – obviously a suboptimal distribution of capital from the societal point of view.

Economic growth and the size of the financial sector

That the financial sector plays a crucial role in modern economies and societies is not debatable, but economists have long argued about just *how* important the financial sector is for growth and wealth creation.

There seem to be three schools of thought on this issue.

The first considers the financial sector as simply a prerequisite for growth. We can call this this Schumpeterian view, after the Austrian economist Joseph A. Schumpeter, who in *The Theory of Economic Development* [*Theorie der wirkschaflichen Entwicklung*] (Schumpeter, 1911/1934) had already described the positive correlation between growth and the financial sector. Schumpeter's views were further developed and substantiated by the American economist Ross Levine, whose contributions we will discuss below.

The second school holds that the size of the financial sector in modern economies is a result or by-product of growth rather than a precondition for it. We can call this the *Robinsonian view*, after the British economist Joan Robinson, who argued that 'where enterprise leads finance follows'. She argued that when an economy develops, its financial sector grows commensurately, but does not itself contribute to economic growth (Robinson, 1952).

Nobel laureate Robert Lucas has put forward a similar view, arguing that what is crucial for growth is the volume of savings and investment, not how or who mediates the transfers of capital between those who save and those who invest (Lucas 1988).

The third school maintains a large financial sector is simply detrimental to growth. This so-called *'too-much-finance'* hypothesis (Berkes and Panizza, 2012) has enjoyed a renaissance since the world financial crisis of 2008-9.

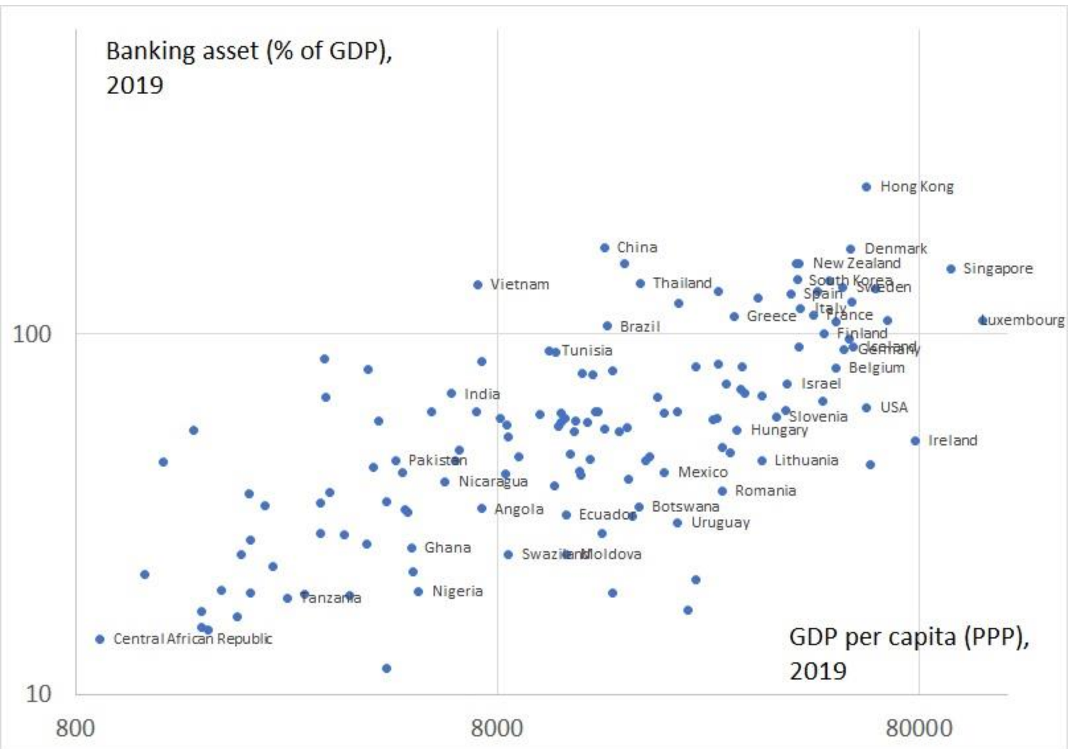
Even so, it should not be taken for a *general* perception among economists that the financial sector is harmful to economic growth, only that under certain circumstances, it can be argued that the financial sector may become *too* large.

It must be emphasized that the three views described above are not necessarily contradictory or in conflict with each other.

One can very well imagine, for example, that banks' loan intermediation spurs growth and innovation, but also that their financial activities lead to excessive risk-taking, which can have a negative effect on growth.

It is important to keep in mind not just the size of the financial sector, but also what activities it performs.

If we look at the relationship between the financial sector's size – here measured by banks' assets as a share of GDP – and GDP per capita, we can see a rather close correlation.



Source: International Monetary Fund

Countries with large financial sectors in relation to their economies – Denmark, Great Britain and Hong Kong, for example – also tend to be more prosperous.

Those with very small financial sectors tend to be developing countries (e.g. Sudan, Congo) or, less often, middle-income nations such as Turkey, Mexico and Brazil.

Certain measurement problems make it important to exercise caution when interpreting a country's position on the graph.

For example, Europe has a tradition of bank financing for business, while in the United States, companies rely much more heavily on the stock market.

Thus, the graph above shows the US with a very small banking sector in terms of GDP share relative to other high-income countries. But that does not mean the overall size of the US financial sector is small. To measure it properly, equity markets must also be taken into account.

The total market capitalization of the US stock market is equivalent to 160-170% of GDP. That is about 50 percentage points higher than in Denmark and over 100 percentage points more than in Germany - both countries with a much stronger tradition of bank financing of business investments. In addition, the US has a much more developed market for corporate bonds than Denmark and the rest of Europe.

Thus, some of the tasks solved by banks in Denmark and Germany are handled through the capital markets in the US. Arguments for the preferability of one approach over the other are not necessarily convincing.

Other factors such as the popularity of private pension schemes, the design of the mortgage credit system and the size of the public sector can also explain some of the variation in the size of the banking sector from country to country.

But despite the challenges of measuring the relative size of a country’s financial sector, it seems quite clear that richer countries have disproportionately larger financial sectors than less developed economies.

However, correlation is not causality, and we should not necessarily rush to conclude that large financial sectors make countries rich. It is true that we cannot find examples of high-income countries with small financial sectors. Yet we can find the opposite – relatively poor countries which have surprisingly large banking sectors.

Here, China is particularly noticeable, with a share of bank assets to GDP on par with Denmark's, while GDP per capita is significantly lower.

The Chinese case poses obvious methodological problems. For example, since China's private capital markets are relatively underdeveloped, it could be that its position on the graph (a relatively large banking sector, but relatively lower GDP per capita) is an example of the *'too much finance'* hypothesis. In this case, the country's financial sector has simply grown too large in relation to the economy.

In this context, it should of course be noted that a significant part of the Chinese banking sector is state-owned and that the authorities actively use commercial bank lending to try to control economic developments.

This obviously creates so-called 'moral hazard' problems, particularly the risk of excessive risk-taking on the part of state-owned banks. Such issues are discussed below in relation to financial sector regulation.

While it can certainly be demonstrated that the financial sector can become too large in countries such as China, it is difficult to get around the fact that economic research has long shown that 'finance matters' – in other words, a well-functioning and well-developed financial sector can be vital to growth.

As the American Nobel laureate in economics Merton Miller (1998) put it: 'that financial markets contribute to economic growth is a proposition almost too obvious for serious discussion.'

Below, we discuss how the financial sector contributes to growth.

The financial sector and the growth channels

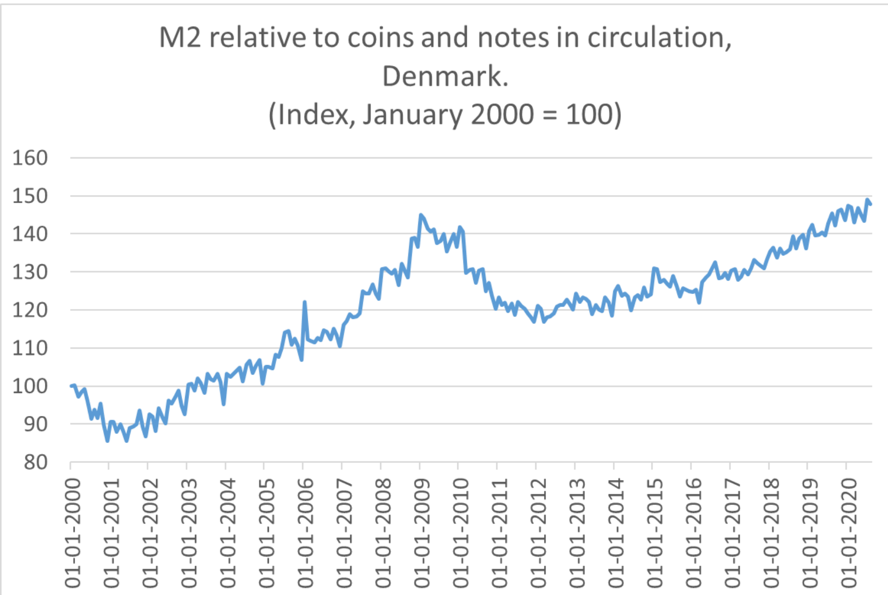
Over the past 30 years, empirical studies have identified several different channels through which the financial sector can positively affect long-term economic growth. These primarily relate to the core tasks performed by the financial sector which we describe above – payment and financial intermediation, generation of liquidity, and the assessment, pricing and allocation of risk.

In payment services, the financial sector's contribution is primarily related to more efficient use of time and financial resources, which can therefore be deployed more productively. Thus, the effects of efficient payment intermediation are to some extent indirect.

The time that households and companies save by through more efficient payment services can be devoted to further production or to leisure. The latter is certainly a value, even if it is not included in national accounts.

One way to estimate the increasing efficiency of payments is calculate how much of the total money in circulation is made up of physical banknotes and coins. If the total money supply grows in relation to banknotes and coins, then this must reflect growth in private payment services.

The graph below shows this development.



Over the past 20 years, the private 'production' of means of payment has increased by almost 50% in relation to the volume of banknotes and coins, an annual increase of just over 2%.

This indicates growth of the financial sector’s output of payment services has exceeded that of the Danish economy over the same period.

Another way to illustrate this trend is to assume that one spent, say, five hours per month paying bills 20 years ago (standing in line at shops, the post office, the bank, etc.), then the productivity improvements we have seen in the payment system over the past two decades mean that today we spend a little more than three hours on the same activity – a time savings of two hours per month.

That is only an illustration, of course, but a Rockwool Foundation study (Bonke and Christensen, 2018) of Danes' time budgets puts the amount spent at “the doctor, bank, hairdressers’ etc.” at about 1.2-1.3 hours per week. If half of that is spent on paying bills and other banking matters, that would roughly correspond to our estimate above.

On average, Danes work about 135 hours per month, so a time savings of two hours corresponds to 1.5%-2% of their total working time – equivalent to an individual benefit of DKK 8-10,000 (EUR 1,075-1,345) per year, if we used GDP per capita as a starting point.

While this is a “back-of-an-envelope” calculation for purely illustrative purposes, it does show that progress in the financial sector's supply of payment services has made a measurable contribution to Danish households’ prosperity and general welfare.

It is not an unreasonable estimate of how product development and technological innovation in the financial sector has contributed to productivity growth in private payment services.

The financial sector and entrepreneurship

Schumpeter highlighted the role of the *entrepreneur and entrepreneurship* as absolutely central to growth in a capitalist economy.

For Schumpeter, entrepreneurs are the ones who come up with new ideas. By creating new products and services, they also the driving force behind innovation and technological development, and thus, growth and prosperity.

But as discussed above, Schumpeter also believed that the financial sector plays a crucial role in ensuring that entrepreneurs have the capital and liquidity they need to operate.

Indeed, Schumpeter thought the most important task of financial institutions was to generate and allocate the capital that entrepreneurs need when creating and innovating.

The effect of these activities on economic growth is an empirical question which we will examine more closely below. First, however, it is important to understand the conditions needed to bring financial companies and entrepreneurs together.

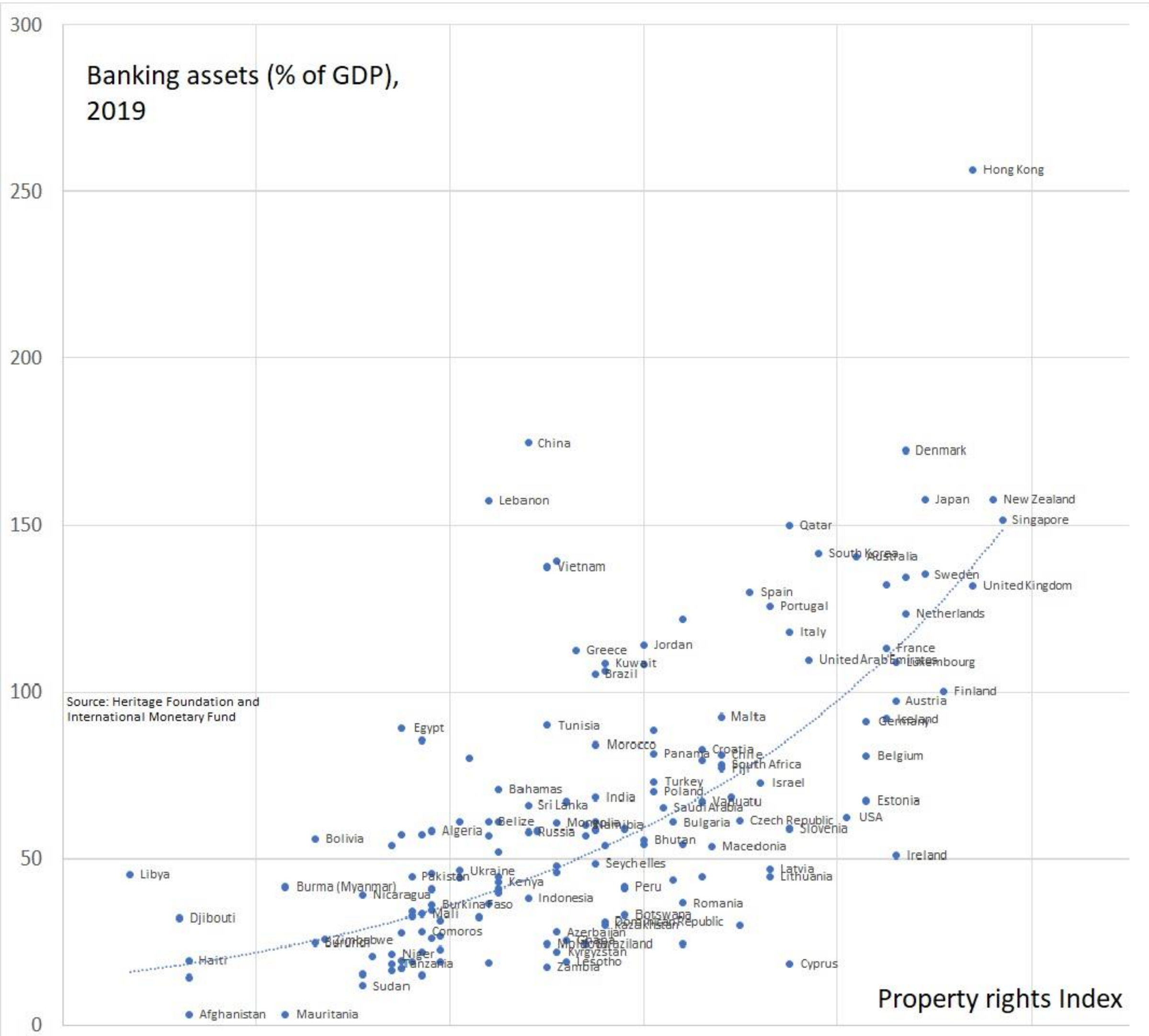
Here the Peruvian economist Hernando de Soto is quite helpful.

In his book *The Mystery of Capital* (2000), de Soto describes a number of developing countries where the provision of capital appears to be absolutely crucial for innovation.

De Soto's specific thesis is that in countries where property rights are not well established, entrepreneurs are unable to use their land or dwellings as security for bank loans.

Thus, if a poor street vendor in Lima or Johannesburg needs funds to develop his business, it will be almost impossible to do so in practice without some form of security. Typically, the most widely available form of security is a plot of land or dwelling that can be mortgaged.

The graph below illustrates the relationship between a property rights index (based on figures from the Heritage Foundation) and the size of countries' financial sectors (measured by bank assets as a share of GDP).



The clear correlation between countries with strong private property protection and large financial sectors to some extent supports de Soto's central point. The financial sector is means of converting property into prosperity, although there may be other transmission mechanisms at work as well.

The graph also explains why Denmark’s financial sector is relatively large in international comparisons, since it enjoys strong protection of property rights.

Property rights ensure that entrepreneurs and companies can raise capital more easily, which naturally benefits growth and wealth creation.

'Schumpeter might be right'

The American economist Ross Levine is probably the world's most prominent researcher when it comes to uncovering the relationships between the size of the financial sector and economic growth.

Most telling perhaps is the title of one of Professor Levine's many articles on the subject – 'Finance and Growth: Schumpeter might be right' (1993), co-authored with Robert King.

In the study, Levine and King empirically examine the relationship between the size of the financial sector and economic growth of 77 countries between 1960 and 1989.

Based on their statistical analysis, Levine and King conclude that there is a close correlation between the development of the financial sector and capital accumulation, which determines the current level of investment and thus long-term economic growth.

In addition, they conclude that a better-developed financial sector not only gives rise to a higher volume of investment, but also to the more efficient use of the capital invested. This yields the remarkable conclusion that the financial sector's degree of development determines future economic growth over the long term.

Levine and King's work suggests that the financial sector not only contributes to economic growth through its own expanding output, but also by increasing investment and promoting the more efficient use of capital.

Levine has since co-authored several more empirical studies that confirm the results of his research with Robert King.

In addition, new research published in 2020 largely confirms the close link between the size of the financial sector and economic growth. While Levine and King based their inquiries on macroeconomic data, a new study (Beck et al., 2020) written by German economist Thorsten Beck, among others, is based on 'micro data'.

Beck and his co-authors looked at 18,217 banks in 100 countries from 1987 to 2024, examining how they created liquidity.

Based on their empirical analysis, Beck and his co-authors concluded there is a statistically significant positive correlation between banks' liquidity creation and economic output. They show that a permanent increase of 10% in liquidity (per capita) leads to an increase of 1.12% in long-term GDP per capita.

At the same time, the authors show that there is a smaller effect on growth if the liquidity creation takes place off the balance sheets of commercial banks.

Another striking result is that a larger banking sector in itself has a positive effect on the sectors most dependent on debt financing, such as capital-intensive agriculture and traditional heavy industry. This confirms previous empirical research (e.g., Rajan-Zingales, 1998).

Overall, we must conclude that empirical research over the past 30 years has largely vindicated Schumpeter's claim that a well-developed financial sector contributes greatly to economic growth and wealth creation.

Regulation: How much and how little?

As shown by the discussion above, there is no doubt that a well-developed and well-functioning financial sector is a basic precondition for a healthy market economy and for wealth creation. The question then is how much and what kind of regulation is needed to ensure good performance from the financial sector.

When the global economic and financial crisis hit in 2008-2009, it caused the political pendulum to swing sharply towards greater regulation of the financial sector – not just in Denmark but globally.

In future research notes, we will take a closer look at specific changes in financial regulation in Denmark and internationally, examining how regulation can affect economic growth.

In general, economic theory only justifies government regulation when so-called market errors are detected. Otherwise, the state’s role in regulating business should in principle be limited to protecting property and contract law.

Three types of market errors are highlighted in economic theory: 1) lack of competition (also called ‘imperfect competition’), 2) externalities and 3) information asymmetries.

Financial regulation is usually taken to concern the latter two types of market failure, since competition-related issues are typically covered by competition law, which is considered part of general business regulation rather than financial regulation.

However, it is certainly debatable whether certain forms of financial regulation tend to favour established, dominant players in the financial market, thus in themselves contributing to problems with weak or imperfect competition.

This is an example of what can be called the *unintended consequences* of state regulation, which can produce the opposite result of that intended or exacerbate problems it was trying to resolve.

Of course, a one-size-fits-all approach will not work in the financial sector. There are significant differences between banks, pension funds, insurance companies, and investment funds that are too extensive to discuss here. Rather than citing hypothetical or actual examples of market failures in various sub-sectors of the financial industry, we will confine ourselves here to a general discussion based on economic theory, returning in future notes to specific regulation of different parts of the financial sector and their possible justification.

Trust is crucial to a well-functioning financial sector, and trust largely depends on information.

In the case of financial institutions such as a bank, it is immediately obvious that there are asymmetries in access to information. Bank employees and management will naturally possess more and better information about the bank's true state of health than either its customers or owners (shareholders).

There is, as it were, nothing unusual about this. The same applies to any company, but in banking operations, this problem of asymmetric information can be crucial.

Basically, banks make their living from accepting deposits and extending loans, earning money from the so-called interest margin (the difference between the deposit rate and the lending rate) or brokerage fees.

But traditional banks lend far more money than they have in deposits. This is possible because only a small fraction of depositors need to withdraw or spend their money at any given moment. Such is the origin of the old-fashioned term *fractional reserve banking*.

While most professional economists regard fractional reserve banking as a sensible and efficient, it is also associated with risks. The main risk is a so-called bank run, in which – usually under the influence of external events – many depositors suddenly decide to withdraw their deposits at the same time.

Under fractional reserve banking, of course, such pay-outs will not be possible, because the bank holds only a small portion of the deposited funds as a liquid reserve. The money is not available in cash, gold, or a safe deposit box. Much more than the whole sum has already been lent out.

This generally sensible practice is one of the reasons why banks create liquidity in the economy and thus contribute to economic growth, but it is also a risk factor. In fact, one could argue that risk-taking should be seen as a *prerequisite* for growth.

Here we return to the issue of asymmetric information. Even if a bank is well-managed and financially sound , rumours may circulate that this is not so. In the past, such speculation has often spurred bank runs and, in cases where the institution is unable to generate sufficient liquidity to honour its liabilities (deposits), bank failures.

The theoretical expression of the problem asymmetric information poses to the stability of the financial sector is often called the *Diamond – Dybvig model* (Diamond and Dybvig 1983).

The issue has wider implications because a run on a single bank can create uncertainty about the stability of the *entire* banking system, giving rise to runs at other banks. In such a case, we are dealing with another type of market error – a so-called externality.

Moral hazard – Market failure or government failure?

Potential market failures in the financial sector – in particular, asymmetric information and externalities – may be grounds for regulating the financial sector.

Nevertheless, it is important to remember that market failure may be a *necessary* precondition for regulation, but it is not *sufficient* to justify it.

The American economist Harold Demsetz (1969) has warned against the so-called *Nirvana fallacy* of jumping directly from pointing out possible market failure to demanding regulatory intervention.

Demsetz puts it this way:

> *The view that now pervades much public policy economics implicitly presents the relevant choice as between an ideal norm and an existing "imperfect" institutional arrangement. This approach differs considerably from a comparative institution approach in which the relevant choice is between alternative real institutional arrangements.*

One cannot compare an imperfect institution – for example, an unregulated financial sector where there may be market failures – with an imaginary situation ('Nirvana') where these market failures resolve through 'perfect' government regulation.

What needs to be compared, Demsetz argues, is the imperfect market with imperfect regulation.

An example of this could be precisely how the problem of bank runs, externalities and asymmetric information in the banking sector has traditionally been addressed.

One way to ensure confidence in the banking sector could be to introduce a deposit guarantee scheme under which the state guarantees part or all of bank deposits. According their supporters, such schemes ensure that depositors will not fear for the safety of their savings, thus reducing the risk of bank failures.

At first glance, this might seem a sensible solution to the problem of asymmetric information and externalities in the banking sector. But it also has an unintended consequence, which creates a new problem.

For how does a deposit guarantee affect the behaviour of depositors, banks and their owners?

If the depositors are always assured that they will retrieve their deposits, no matter how irresponsibly the bank acts, they have no special incentives to choose a well-managed and financially sound bank.

To the contrary, customers will tend to choose banks that offer the highest interest rates. And banks can only offer those attractive rates by lending at greater risk, thereby creating a competitive appetite for risk that would not exist were there no deposit guarantee scheme. This is what we call moral hazard.

And indeed, the incentive for excessive risk-taking in banks created by deposit guarantee schemes is a well-known problem in the economic literature.

In a nutshell, banks and their shareholders take the profit from risk-taking, while the bill for any losses is footed by the taxpayers – or other banks in countries like Denmark, where commercial banks collectively finance the deposit guarantee scheme.

This example shows how regulation ostensibly aimed at ensuring the stability of the financial sector can produce the opposite of what was wanted.

The problem of implicit or explicit state guarantees for financial companies (popularly known as TBTF, or Too Big To Fail) has given rise to new arguments for government regulation. These seek to reduce risk-taking, for example, through liquidity and capital adequacy requirements for banks and other financial institutions.

This raises the prospect of a vicious circle, or what we can call the dynamics of interventionism (Kurrild-Klitgaard et al., 2006).

Another risk of government regulation is so-called *regulatory capture*, in which the subjects of regulation – i.e., financial companies – turn that regulation to their own advantage.

One can thus imagine that an established bank would lobby for *more* and not less regulation, provided these requirements – for example, on liquidity and capital – create barriers to entry that help keep new competitors out of the market.

Thus, regulation can have an anti-competitive effect and regulatory error can create market error (imperfect competition), illustrating that it is certainly not a given that banks and their owners bear the real costs of regulation. As our example shows, the real cost is borne by the customers.

We can therefore conclude that while economic theory may provide good justification for state regulation of the financial sector, there needs to be a calculation of whether the regulatory intervention remedies market failures or makes them worse.

Discussion

The above paper discusses ample evidence in the economic literature that a well-functioning financial sector is central to economic growth, and that no nation has become prosperous without one. In other words, a healthy financial sector appears to be a prerequisite for prosperity.

This implies that it is crucial for the financial framework legislation to minimise market failures, while at the same time avoiding any unnecessary obstruction of the financial sector's development that could hamper economic growth.

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