SPEECH

BY GOVERNOR LARS ROHDE AT AARHUS SYMPOSIUM

DANMARKS NATIONALBANK

CHECK AGAINST DELIVERY

3 November 2017

Thank you for inviting me to speak about future changes and challenges in the financial sector.

Today, I will present you three key messages from a central bank point of view:

Slide 2: Key messages

1. Digitisation and globalisation will increase innovation and competition in the financial sector which is very positive. It will also create new threats to the financial system, such as cyber-attacks. Thus, the operational risks of yesterday are not the same as the operational risks of today and tomorrow.

2. Another threat to our financial system is the risk of a new financial crisis. We should use our fresh memory of the recent crisis and its devastating impact on our economy to strengthen our financial regulation and prevent future crises.

3. Central banks have played a crucial and high profile role in the recovery of the economies in Europe and the US after the financial crisis. Hopefully, we now enter more normal times in the sense that monetary policy will not remain "the only game in town."

4. Despite an increased focus on new technologies in financial services, such as digital currencies, Danmarks Nationalbank will not grow into a bank for every citizen in the country. Financial intermediaries perform an important task for society and help ensure a flexible financial system in Denmark.

Slide 3: Increased competition and new partnerships

The future of money and finance will be marked by innovation, new technologies and increased competition across borders. Such a development should be embraced by financial authorities just as we welcome innovation and competition in other sectors of the economy.

New technologies and innovations may lead to the disappearance of some of the financial intermediaries we know today, while new players enter the markets for financial services. However, we can also expect to see new partnerships between established businesses in the financial sector and new players.

One area of the financial sector that could undergo rapid changes soon is the payments market. There are multiple reasons for this, but I would like to mention the European Union's new payments service directive, PSD2, which will be implemented in Danish legislation in 2018. Due to the upcoming legislation, it will become easier for third parties to enter the payments market. The presence of new third parties will increase competition in the payments market, which existing players must be ready to match.

Currently, there are quite a few new players who attempt to gain a foothold in the payments market by either competing with established companies or engaging in partnerships. Roughly speaking, these new players can be divided into two groups. The first group are the fintechs. These are companies that are highly specialised in financial technology and typically small and based on an entrepreneurial culture. The other group of new players in the payments market are multinational technology companies that are already huge players in other sectors. Two examples are Apple and Alibaba who have just launched their payments services, Apple Pay and AliPay, in Denmark.

Whether the agents in the payments market are banks, specialised payment service providers or multinational technology companies, authorities have a responsibility to safeguard against systemic stability problems. Regulating and monitoring of risks will remain as important in the future as today.

Slide 4: Denmark is a digital front-runner

The Nordic countries are among the digital front runners and digitisation has already affected the financial system significantly. At the beginning of 2017, less than 5 percent of the Danish money supply was made up of banknotes and coins. Furthermore, the use of cash is rapidly diminishing. In 2016, card payments accounted for around 80 per cent of the total retail turnover in Denmark, leaving only 20 pct. of retail turnover for cash transactions. It is thus possible for Danes to choose a cashfree living if they wish to.

The digitisation of money and payments enable citizens and businesses to make transactions faster at a lower cost for society. However, the digitisation of money also involves a new kind of vulnerability as it relies on complex IT systems. I am certain that we are past the point where cash is an effective backstop should electronic payment systems break down. This makes cyber security an extremely important task.

In general, digitisation is a double-edged sword. The digitized world has produced a number of advantages for the financial sector and society as a whole, but the increasing dependence on computers has also created a new threat in the form of cyber-attacks.

Slide 6: The cyber threat today

A variety of agents are involved in cybercriminal activity, from small-time offenders through hacktivists to nation states. The agents have different motives: Some attack purely for financial gain, others seek to disrupt or destabilize their target. However, they all have one thing in common: Their level of sophistication is ever-increasing at a rapid rate.

In 2010, it took approximately five years for small-time offenders to adopt the most advanced techniques developed by the intelligence agencies of nation states. Today, small-time offenders seem to adopt the most sophisticated techniques in only 18 months. Because their attacks are much more frequent than those of nation states, the overall impact of cyber incidents has increased.

A recent example of a cyber-attack is the incident that paralyzed Maersk Line for almost two weeks in June/July this year. The malware inflicted serious damage on Ukraine and spread to many global companies including Maersk.

Imagine if a critical financial institution was hit by a cyber-attack that paralyzes it for two weeks, while the financial markets were already volatile – what would be the implications for financial stability? And what would happen if the malware spread to other key financial institutions?

In a worst case scenario, cyber-attacks aimed at critical financial institutions will not only have economic consequences for those institutions directly affected but also make people lose their trust in the financial system as a whole. Cyber-attacks are therefore not just a threat for individual institutions but a threat that could shake up the whole foundation of the financial system: peoples' trust in the system.

Slide 6: Financial Sector Forum for Operational Resilience

Because of this, Danmarks Nationalbank has initiated a forum for collaboration among the critical companies in the Danish financial sector – the Financial Sector Forum for Operational Resilience (FSOR).

FSOR has three primary goals: (1) To create an overview of cyber threats to financial stability, (2) to implement joint measures to ensure financial sector resilience and (3) to set up a framework for collaboration and knowledge-sharing.

We have to accept that cyberattacks are inevitable and that attackers are persistent, but we should not succumb to fatalism: By continually improving and testing our cyber security capabilities, we can significantly mitigate the systemic risks of cyber threats.

The creation of FSOR is an example of how key institutions in our society have to adapt to changing circumstances. Cyber-attacks have been around from some decades now, but cyber security can no longer be left to a few specialists; it has to be on the agenda of senior management in all larger institutions. Furthermore, the growth in cyber-attacks increases the need for cooperation between private and public institutions because the weakest link in the chain might expose other institutions to security threats – as in the case of the cyber-attack on Ukraine.

Slide 7: Lessons learned from the financial crises

One thing is the growing, potential cyber threat. Another, is the threat of a financial crisis, where the confidence in the financial system disappear overnight and the whole system freeze. This threat became a reality 10 years ago, and as it evolved it became the worst financial crisis since the the late 1920'es.

Few of us have personal memories of the 1930'es and the huge, devastating effects of the financial crisis on the real economy, but we all got a clear picture of this era of great depression. During the recent crisis we once again witnessed how a banking crisis evolved and developed into a severe macroeconomic slowdown. For Denmark you could say that we ended up losing 7 years of output growth. Only in 2014 our level of economic activity was restored to its level prior to the crisis.

With this fresh memory of the effects of a financial crisis in mind we now work on bolstering our financial system to prevent such crisis to occur again.

The crisis revealed a need to shake-up the regulation of credit institutions. And in recent years we have seen a number of international regulatory initiatives which aims at strengthening the resilience of the financial sector and preventing a new financial crisis.

Looking ahead the question is, whether we have truly learned our lesson well – and what to do next?

Let me present my vision for the future financial regulation.

Slide 8: The pillars of financial regulation

Our regulatory framework should basically rest on 3 pillars, addressing capital, liquidity and resolution.

The first pillar should ensure a solid, true and fair capital adequacy position – based on the actual risk exposure of the bank.

Second, we need requirements to ensure healthy liquidity management and stable financing, as included in recent Basel reforms.

Last but not least, we need a credible resolution regime. In our European case we need a strict implementation of the EU directive on Banking Recovery and Resolution. This includes setting minimum requirements for own funds and eligible liabilities to be used in the resolution of a bank in troubles. It also includes formulating credible resolution plans for credit institutions.

This is all about getting the incentives right. No credit institution should be too big to fail.

If we – through the ongoing reforms with the new rules adopted in Basel and Brussels – end up delivering on all three pillars of regulation, I think we have learned our lesson well after the crisis. And with all these measures in place we will be ready to take a new step: Simplify the remaining part of the regulation and ease the administrative burden of banks.

Basically the three pillar system would leave it to market forces to keep the financial sector in check. As long as banks perform on all three parameters, the credibility and soundness of the bank will ensure their access to the necessary capital and funding. And with the resolution regime in place we no longer need Governments to save banks with taxpayers money.

The most important effect, however, is that we significantly reduce the likelihood of a new financial crisis with all its detrimental effects on our economy.

Slide 9: Unconventional monetary policy

Let me now finally turn to some future perspectives for us in the central banks.

Since the beginning of the financial crisis many things have been far from normal for central banks.

In response to persistently weak demand and low inflation, central banks across the globe have reduced their monetary-policy rates to historically low levels.

In fact, Danmarks Nationalbank was a central bank pioneer in terms of setting the key monetary-policy rate well below zero already in 2012 in order to offset large capital inflows.

As we have seen in Denmark, the low interest rates set by central banks across various currency regimes are simply the result of one thing and one thing only: Central banks are trying to fulfil their specific mandates which have been assigned to them by elected representatives. The low interest rates in Denmark have been nothing but a necessary consequence of our fixed exchange-rate policy.

However, very low and even negative interest rates might not be preferred for an extended period. Long periods with very low interest rates create risks of financial bubbles in specific sectors of the economy. For example, we have seen increasing prices in the housing market here in Aarhus and in Copenhagen. [This is something we will keep an eye on in the coming years.]

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Slide 10: Major global central bank balance sheet

With interest rates close to their effective lower bound central banks have deployed a range of so-called unconventional measures to achieve the desired amount of monetary accommodation. The most famous one has been to engage in purchases of financial assets including government bonds on a massive scale – known as quantitative easing, or QE.

QE has become an integral part of the set of unconventional tools central banks use to support economic growth and increase inflation towards target levels. [As you can see from this figure, the balance sheets of the world's major central banks, the Fed, Bank of Japan, Bank of England and the ECB have therefore expanded to historically high levels.]

The key question is: Do these unconventional measures work as intended?

Before answering, it is important to remember that in the heat of the crisis, many national governments were paralyzed for political reasons or by fiscal constraints. Therefore, central banks were forced to take on a large responsibility in fighting against the crisis in order to limit its adverse consequences.

As such, QE programmes helped the US economy to recover quickly from the financial crisis. In the euro area, the ECB's unconventional monetary policy and its communication to the markets have been crucial in order to support the euro area economy and helped the euro overcome its most severe crisis since its introduction.

Taking on a greater role in the economic policy-making in this period has left central banks prone to criticism. However, when looking back in 20 years' time, I think history will acknowledge the responsibility they have taken in the period of crisis management.

Hopefully, central banks can allow themselves to relax a bit more in the future and let fiscal and structural policy do the heavy lifting.

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Slide 11: Are cryptocurrencies a mirror of the tulip mania

But one thing we know for sure is that central banking and the idea of money will change a lot in the future due to new innovations.

The question is how?

Looking at the recent developments in digital money and payments, this is perhaps the most relevant question for a central banker right now.

In these days, crypto-currencies, and especially Bitcoins, are on everybody's lips, even though their use is still relatively limited. [In fact, the number of MobilePay payments in Denmark exceeds the total global amount of payments conducted by Bitcoins.]

[I sometimes run into the question: Will crypto-currencies be our future money?]

However, before making trivial comparisons, we must remember that crypto-currencies, like Bitcoins, have no fundamental value, and therefore their value can increase or decrease quite fast. This is completely the opposite of how we usually think of money.

One of the first things we learn about money is its function as a store of value. In other words, a fundamental characteristic of money is related to price stability. In contrast, Bitcoins have been compared with the tulip bulbs in the Netherlands in the seventeenth century.

Looking at this figure, it is not difficult to see why crypto-currencies cannot be mistaken for ordinary national currencies, which are under the control of central banks.

[In my opinion,] the most interesting thing about crypto-currencies is the underlying Blockchain technology. In the coming years, I believe we will see a lot of interesting examples of Blockchain's huge potential.

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Slide 12: The future of central banking

There is an ongoing debate about the fact that money creation is not controlled by central banks, but is taking place in commercial banks as they grant loans to households and firms.

As you know Danmarks Nationalbank issues banknotes and coins, but we do not regulate the creation of money in connection with bank deposits and lending.

Therefore, it is sometimes suggested that Danmarks Nationalbank should take back control of money creation, by creating a central bank account to every citizen in the country and provide a digital central bank currency.

However, it is important to remember that even though today's money stock primarily consists of deposits in bank accounts, it is not possible to create more money than households and firms want to hold. In other words, the total amount of money in society – both banknotes and coins in circulation as well as bank deposits – depends on demand.

And by changing interest rates – and hence the cost of holding money – the money demand is, in the end of the day, determined by central banks' monetary policy.

This is because monetary policy interest rates are transmitted to banks' deposit and lending rates, which in turn have a direct impact on the demand for deposits and loans – and thus economic activity.

Therefore, money supplied by banks as deposits is not any worse than money supplied by central banks. In a well-functioning financial sector the amount of loans and deposits should be allowed to increase or decrease depending on the demand for liquidity. This means that firms can obtain the loans needed for investment purposes. At the same time, households can plan their consumption profile over time. In this way, banks help to secure a flexible financial system for our economy.

Given this important role in society, the banks are subject to extensive regulation and supervision by the authorities. As I mentioned before, it is important that we continuously ensure that there is no excessive risk taking in the financial sector and that we do not repeat yesterday's mistakes.

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Thank you!

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THE FUTURE OF MONEY AND BANKING

Lars Rohde, Chairman of the Board of Governors – 3 November 2017

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Key messages

1. Financial sector will face more competition, and that is good news

2. Need for strengthen the financial regulation and prevent future crises

3. Hopefully we enter more normal times with a low-key role for central banks in economic policy

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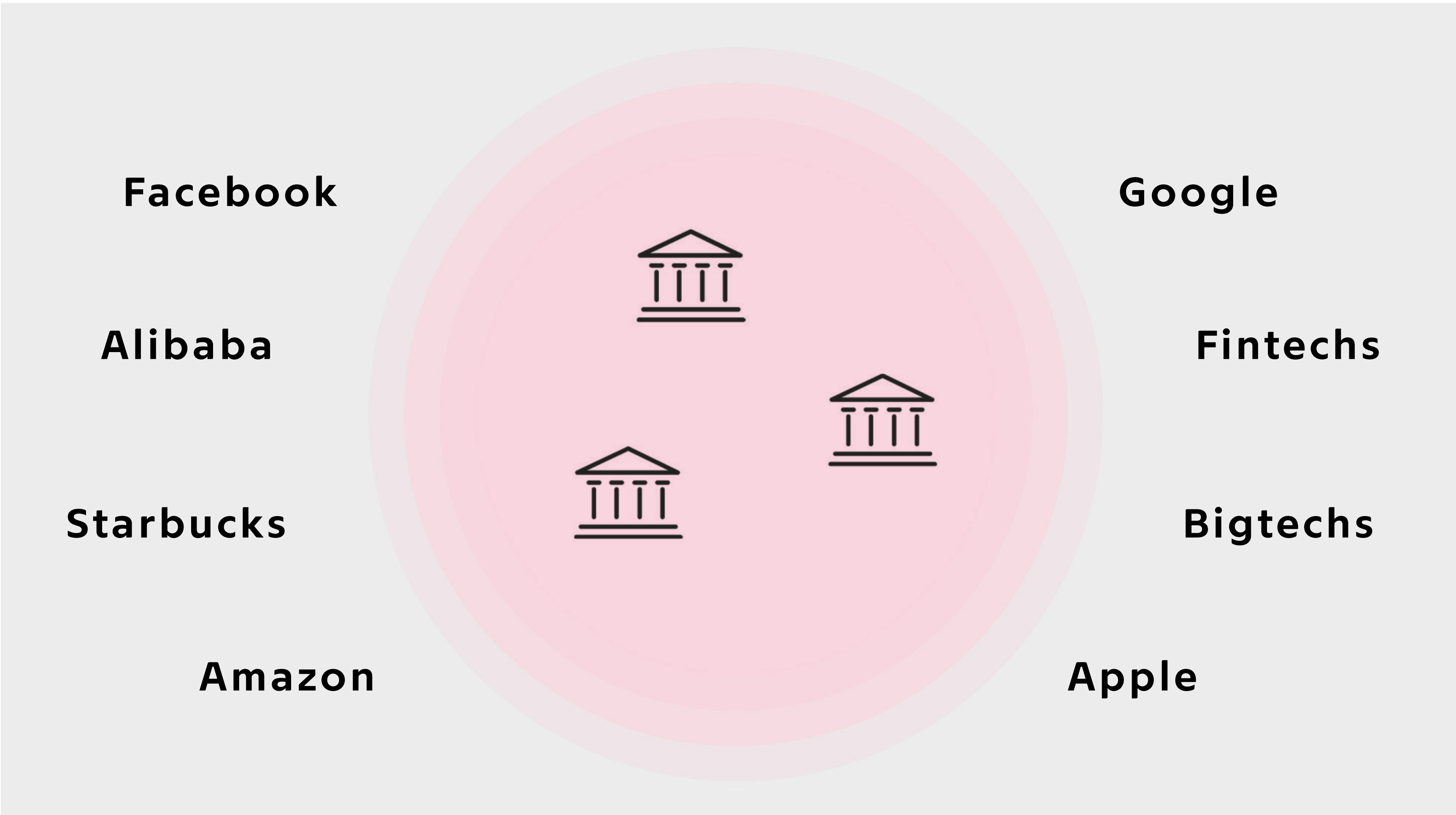
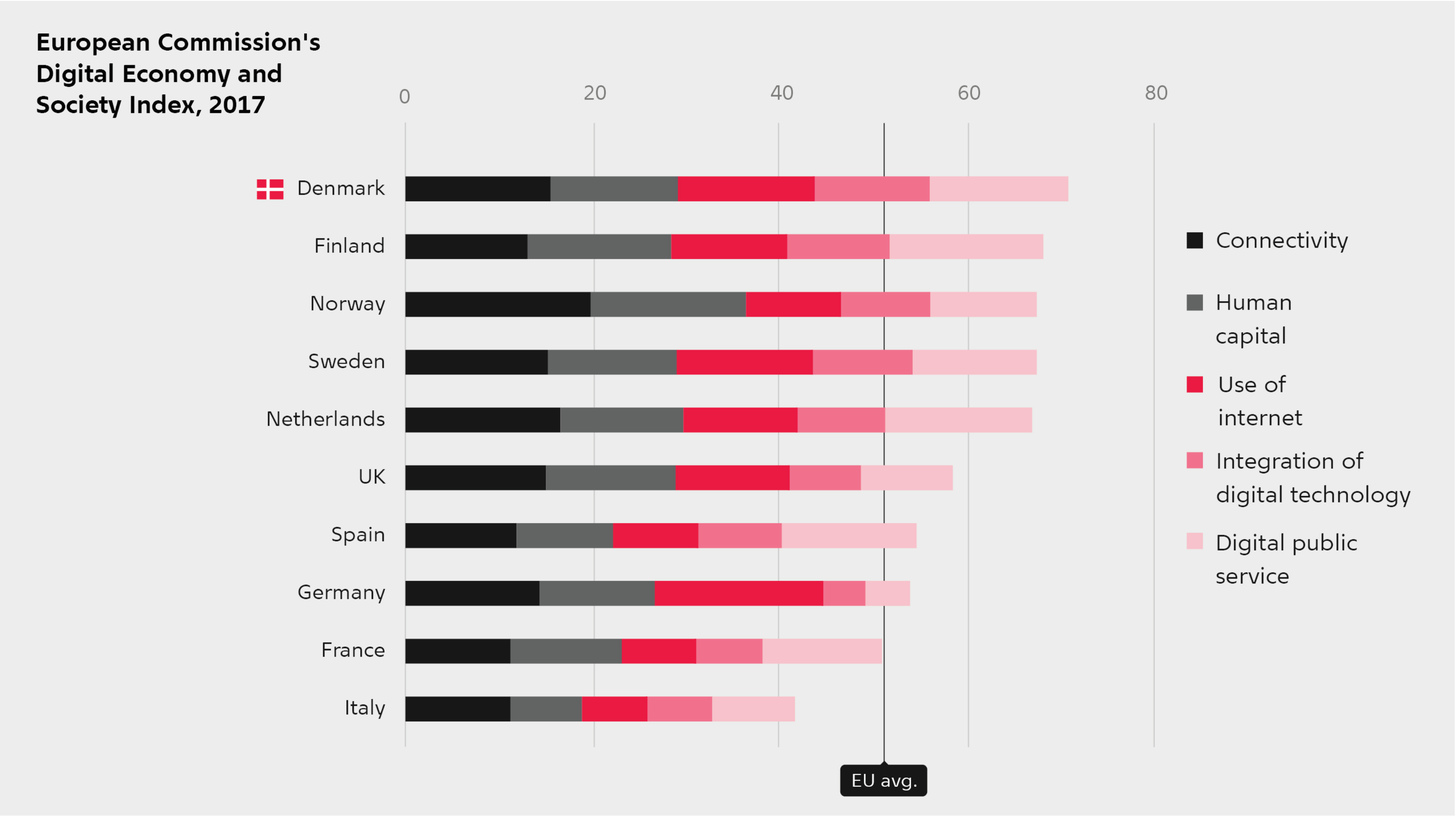
Increased competition and new partnerships



Denmark is a digital front-runner



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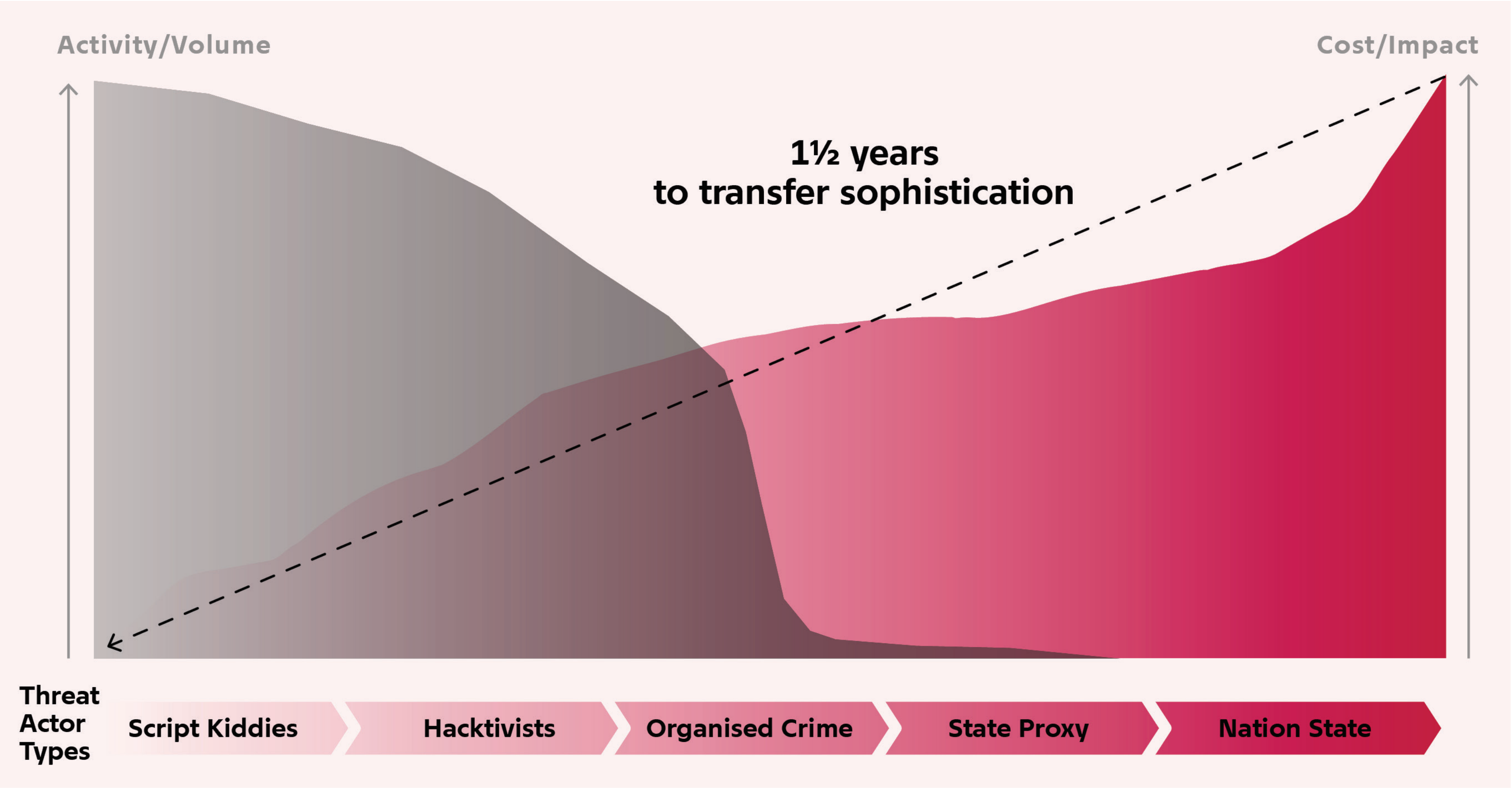
The Cyber Threat today



Source: Bank of England. Generic perceptions based on central and commercial threat intelligence.

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FSOR: Financial Sector Forum for Operational Resilience

e-nettet

nets DK

Finanstilsynet

SDC

bankdata

BEC

Nordea

Finansiel Stabilitet

Danske Bank

FINANS DANMARK

dlr kredit er realkredit

forsikring & pension

Nykredit

VP SECURITIES

Nasdaq

JN DATA det foretrukne valg

Sydbank

Erhvervsministeriet

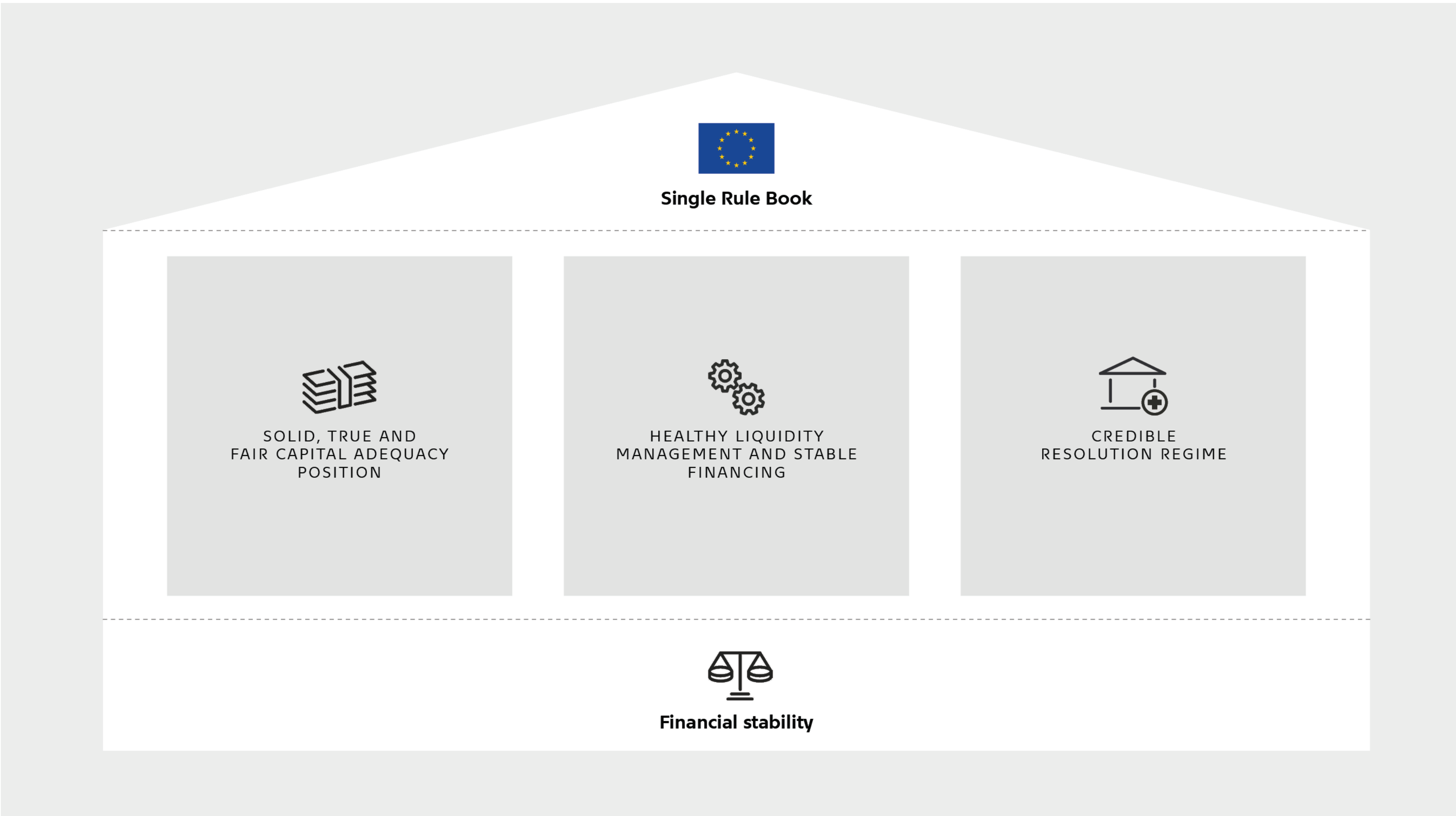
FE CENTER FOR CYBERSIKKERHED

JYSKE BANK

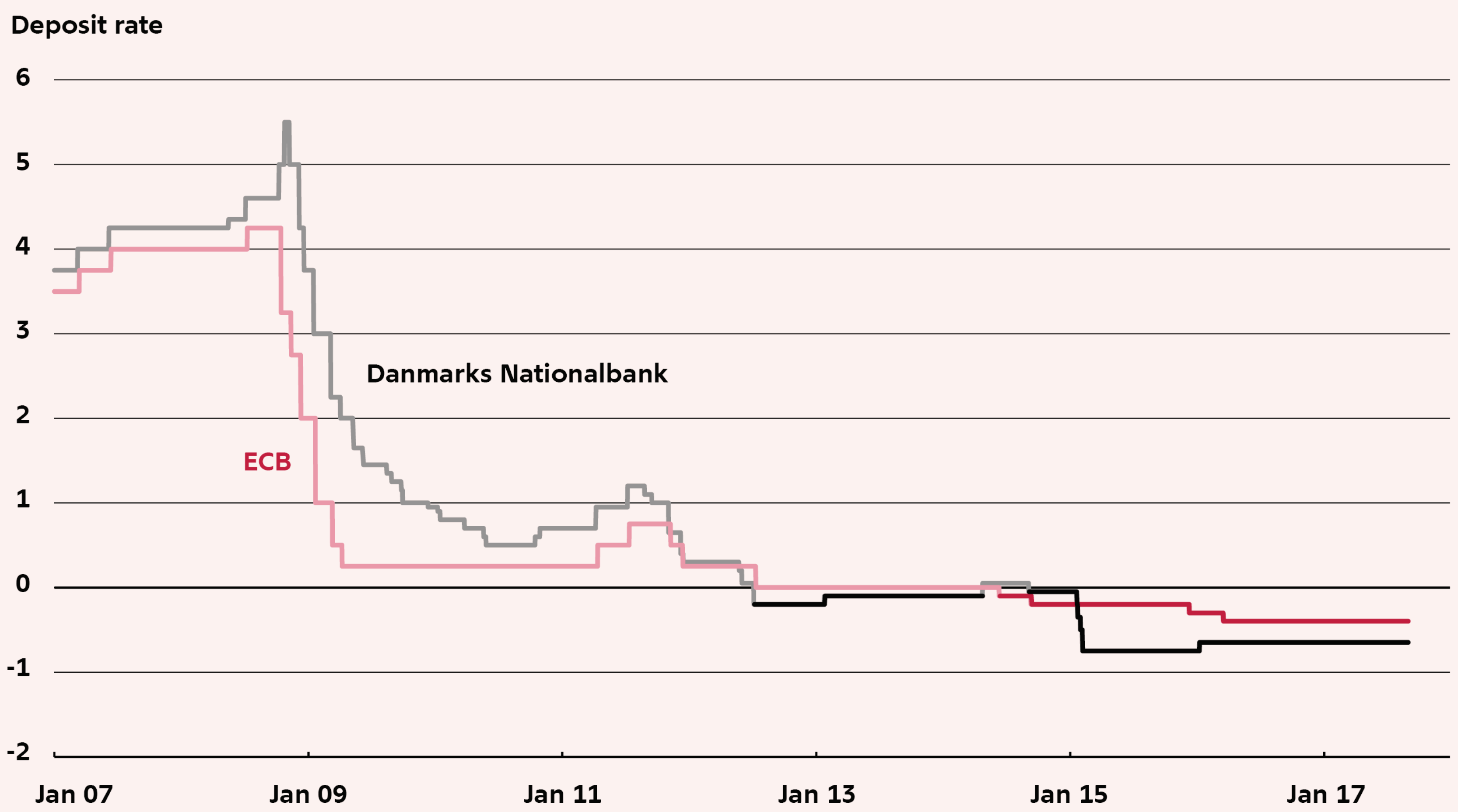
Lessons learned from the financial crises

The crisis revealed a need to shake-up the regulation of banks

The pillars of financial regulation



Unconventional monetary policy



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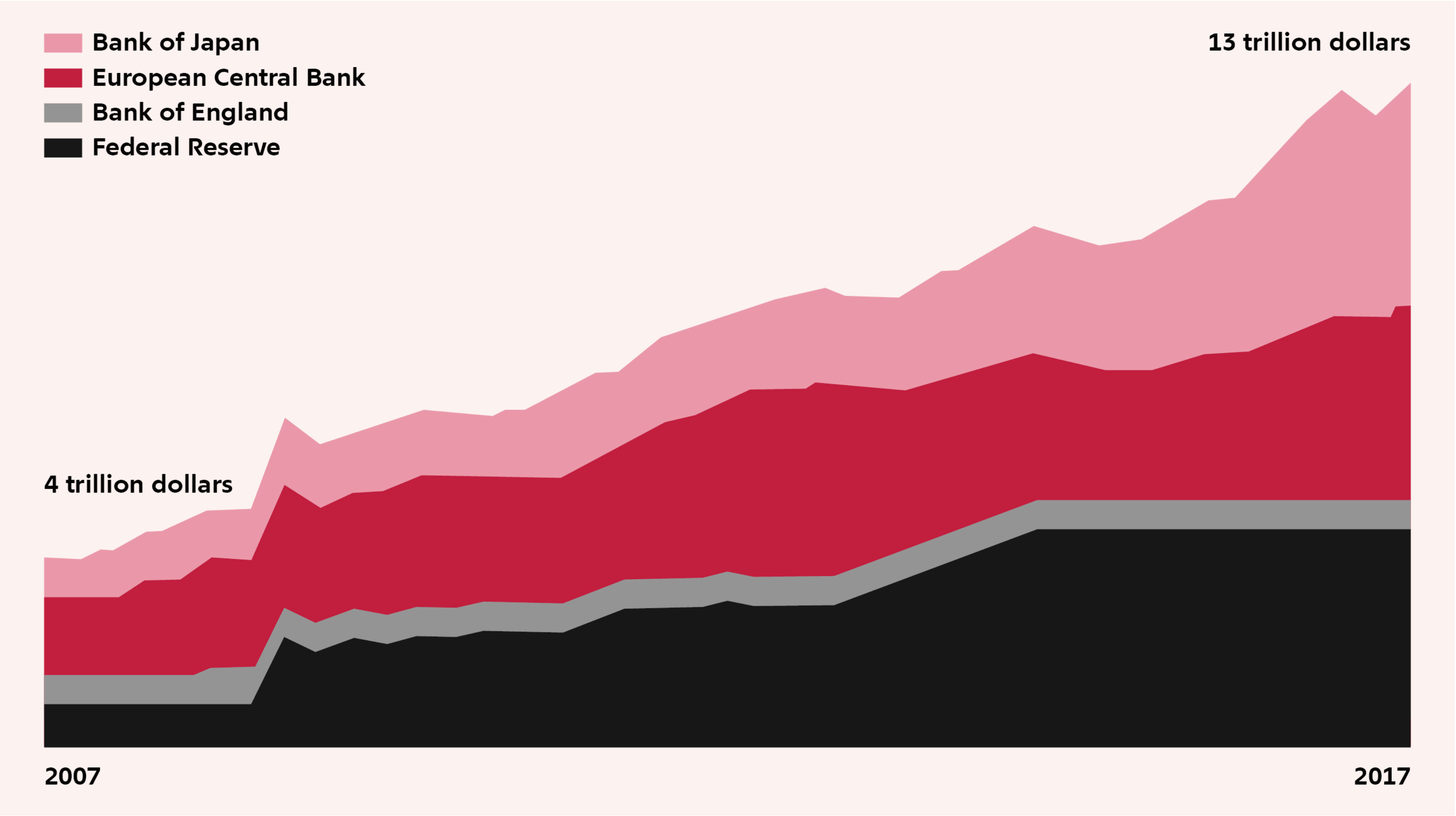
Major global central bank balance sheet



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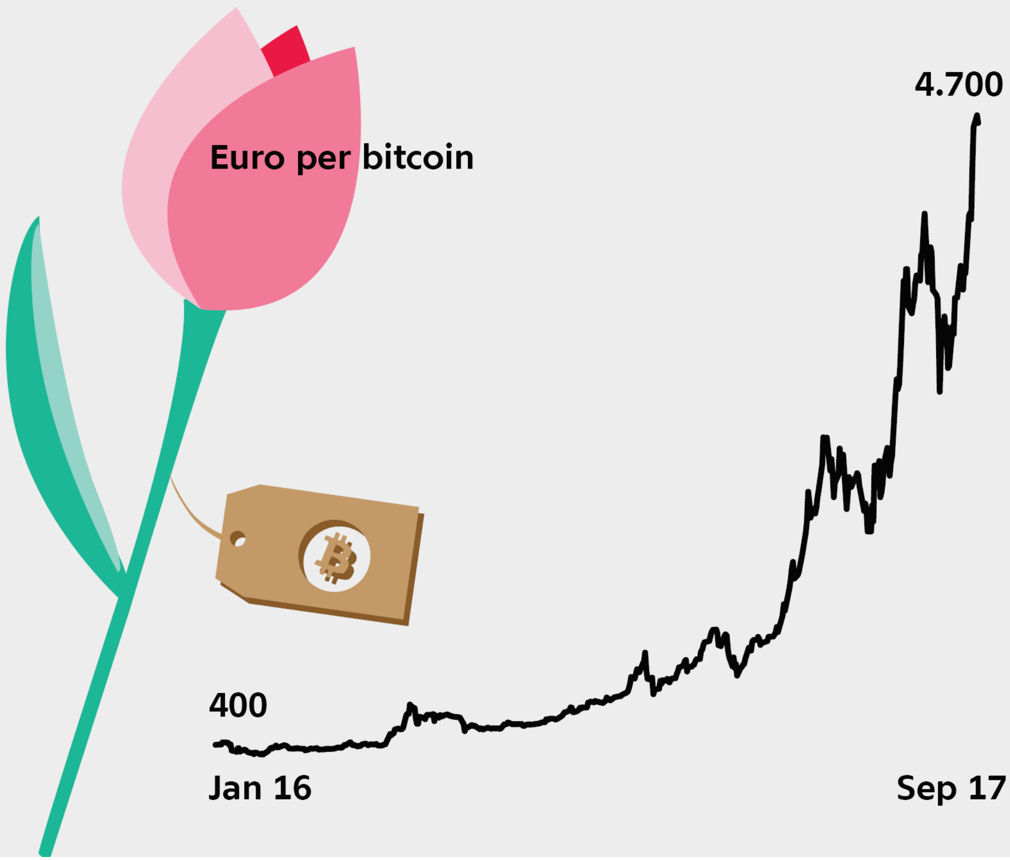
Are cryptocurrencies a mirror of the tulip mania?

Bitcoins have skyrocketed but have no fundamental value



The future of central banking

1. Money in society depends on demand

   It is not possible to create more money than household want to hold

2. CBDC – Central Bank Digital Currency

   Hard to identify what CBDC can do better

3. Digital money already exist in Denmark

   Deposit guarantee, full access to bank accounts and instant transfers