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Dear certified professionals, members, and friends.

Today we will start with Stefan Ingves, Chairman of the Basel Committee on Banking Supervision, (a keynote speech at the Institute for Law and Finance conference on "Basel III: Are we done now?", Goethe University, Frankfurt am Main).

Basel III: Are we done now?

Good morning, and thank you for inviting me to deliver the keynote speech.

The title of this conference is "Basel III: Are we done now?".

Let me answer this question at the outset: yes, we are done, but that doesn't mean the work has ended. In some respects, it's only just beginning.

While finalising Basel III was an important milestone, work remains to

(i) implement Basel III nationally in a full, timely and consistent manner;

(ii) evaluate its effectiveness in reducing the excessive variability of risk-weighted assets (RWAs); and

(iii) continue to monitor and assess emerging risks.

My remarks this morning will focus on these three topics.

Basel III: from 2010 to 2017

But let me start with a brief review of the Basel III framework, which has been ten years in the making.

As you know, the Basel III framework is a central element of the Basel Committee's response to the global financial crisis. The initial phase of Basel III reforms, published in 2010 (BCBS 2010(a)), focused on addressing some of the main shortcomings of the pre-crisis regulatory framework, including:

- improving the quality of bank regulatory capital by placing a greater focus on going-concern loss-absorbing capital in the form of Common Equity Tier 1 (CET1) capital;

- increasing capital requirements to ensure that banks can withstand losses in times of stress;

- enhancing risk capture by revising areas of the risk-weighted capital framework that proved to be acutely miscalibrated, including the global standards for market risk, counterparty credit risk and securitisation;

- adding macroprudential elements to the regulatory framework, by: (i) introducing capital buffers that are built up in good times and can be drawn down in times of stress to limit procyclicality; (ii) establishing a large exposures regime that mitigates systemic risks arising from interlinkages across financial institutions and concentrated exposures; and (iii) putting in place a capital buffer to address the externalities created by systemically important banks;

- specifying a minimum leverage ratio requirement to constrain excess leverage in the banking system and complement the risk-weighted capital requirements; and

- introducing an international framework for mitigating excessive liquidity risk and maturity transformation, through the Liquidity Coverage Ratio and Net Stable Funding Ratio.

These reforms have demonstrably helped to strengthen the global banking system. Since 2011, the Tier 1 leverage ratio of major internationally active banks has increased by over 65% (from 3.5% to 5.8%), while their CET1 risk-weighted ratio has increased by over 70% (from 7.2% to 12.3%).

The bulk of this change was achieved by an increase in banks' CET1 capital resources (from €2.1 trillion to €3.7 trillion). There has also been a corresponding reinforcement of banks' liquidity: holdings of liquid assets have increased by 30% (from €9.2 trillion to €11.6 trillion).

There are also clear social benefits from these reforms. During the global financial crisis, the weaknesses in the banking sector were transmitted to the rest of the financial system and the real economy, resulting in substantial costs. Ten years after the start of the crisis, the global economy is still recovering from its effects. These costs include much higher public debt, increased unemployment and substantial output losses.

To give just one example, a recent study estimates that the cumulative output loss resulting from financial crises is in the order of 100% of GDP in net present value terms.

This output loss would probably have been much larger without the massive public sector interventions. The increase in banks' capital and liquidity resources will help mitigate both the probability and impact of future banking crises.

But a major faultline remained in the regulatory framework, namely, the way in which RWAs were calculated. At the peak of the global financial crisis, a wide range of stakeholders lost faith in banks' internally modelled risk-weighted capital ratios.

The complexity and opacity of internal models, the degree of discretion provided to banks in modelling risk parameters, and the use of national discretions all contributed to an excessive degree of RWA variation.

A growing number of studies by authorities, academics and the private sector pointed to a worryingly large variation in banks' estimated RWAs (BCBS (2013a,b)).

For example, one study found that banks' reported capital ratios could vary by 50% for the same hypothetical portfolio.2 The loss in the public's confidence in banks' reported capital ratios clearly highlighted the need for tighter limits to the way in which RWAs are calculated and greater transparency.

The recently finalised Basel III reforms seek to restore the credibility of RWA calculations, and as a result the public's confidence in the banking system, by:

- enhancing the robustness and risk sensitivity of the standardised approaches for credit risk and operational risk, which will make banks' capital ratios more comparable;

- constraining the use of internally modelled approaches, including by removing the use of the most advanced modelled approaches for certain credit risk asset classes and for calculating operational risk; and
- complementing the risk-weighted capital ratio with a finalised leverage ratio and a revised and robust output floor.

Collectively, the set of Basel III reforms addresses a number of shortcomings in the pre-crisis regulatory framework and provides a foundation for a resilient banking system that will help mitigate the impact of future banking crises and the build-up of systemic vulnerabilities.

The post-crisis framework will also help the banking system support the real economy and contribute to economic growth.

Full, timely and consistent implementation: more than just words

But are these reforms enough, or does more need to be done? The answer depends in part on the extent to which the reforms are implemented in a full, timely and consistent manner across jurisdictions. To borrow the words of Goethe (1829): "willing is not enough, we must do".

The Basel Committee's standards are global minimum standards. The Committee has no supranational authority, its decisions carry no legal force, and it cannot impose fines or sanctions.

Rather, once the Committee agrees on a standard, its member jurisdictions are responsible for converting this standard into law or regulation.

So internationally agreed standards that are not properly implemented will ultimately have no impact in practice.

It is therefore imperative that the Basel standards are effectively implemented by all the Committee's jurisdictions.

To this end, the Committee's flagship Regulatory Consistency Assessment Programme (RCAP) monitors the timely adoption of Basel standards across jurisdictions and reviews whether standards are completely and consistently adopted by member jurisdictions.

They also highlight any deviations from the Basel framework. As a result of the RCAPs, over 1,200 deviations were identified as part of the peer reviews focusing on the initial Basel III capital reforms. Two thirds of Basel Committee members have risk-weighted capital rules that are considered compliant or largely compliant with the Basel standards.

Looking forward, the RCAP will continue to play a key role in ensuring that the recently finalised Basel III reforms are implemented as agreed by the Committee. But let me stress three points.

First, in developing its standards, the Committee actively seeks the views of all stakeholders, public and private.

For example, in finalising Basel III, the Committee consulted extensively with academics, analysts, banks, finance ministries, parliamentarians, market participants and trade associations as well as the general public.

These views were duly considered by the Committee in finalising its standards. So there are plenty of opportunities for all stakeholders to express their views before the standards are finalised. The focus then should be on full, timely and consistent implementation.

Second, in endorsing the finalised Basel III reforms, the Group of Governors and Heads of Supervision (GHOS) has unanimously reaffirmed that they expect full, timely and consistent implementation "of all elements" of the Basel III package (BCBS (2017a)). So I take comfort that all of the Committee's members keep this aim in the forefront of their minds during the implementation phase.

Third, the move to national implementation should not be read as an invitation to reopen policy issues and debates at a domestic level.

While the varying legislative and procedural arrangements used to implement Basel standards across the Committee's membership must be fully respected, it is concerning to see ongoing lobbying efforts by some banks and other stakeholders to undo or dilute aspects of the agreed Basel standards in some jurisdictions.

The unsound expedient of adopting standards that fall below the Basel Committee's minimums can only lead to regulatory fragmentation, and in a bad scenario a potential race to the bottom.

Just getting up close, as we like to say in Sweden, isn't enough to shoot the hare.

Reducing excessive RWA variability: mission accomplished?

Assuming that the Basel reforms are properly implemented, will they reduce excessive RWA variability and restore the credibility of the risk-weighted capital framework? While I am confident that the Basel III reforms are an important step in that direction, the honest answer is that only time will tell.

To that end, the Committee has initiated a rigorous evaluation of its post-crisis reforms, including those that relate to reducing excessive RWA variability.

As the reforms will only start to be implemented from 2022 onwards, this exercise will take several years.

But I believe that the Committee should remain open to the possibility of considering whether additional measures, or revisions to existing measures, are warranted to reduce excessive RWA variability.

In a similar vein, the Committee is also further evaluating the interactions and coherence of its post-crisis reforms. The findings will provide an important input for future deliberations by the Committee about the robustness and effectiveness of its post-crisis framework.

I will not prejudge the outcomes of these evaluations, but let me make three observations.

First, the purpose of these evaluations is not to reopen already agreed standards.

Second, the Basel Committee is a member-led and consensus-based body. Accordingly, the Basel III reforms are a compromise that reflects the different views of its members.

Third, as the Basel reforms are minimum standards, jurisdictions are welcome to apply more conservative requirements should they wish to do so.

This could include faster transitional arrangements and/or more conservative steady-state requirements.

Enhancing financial stability: an ongoing journey

If the Basel reforms do reduce excessive RWA variability, is the job then done? Probably far from it. Banking crises are inevitable. So, while the Basel standards cannot prevent all future crises, they can seek to mitigate their likelihood and impact.

This, in turn, requires the Basel Committee to remain vigilant for emerging conjunctural and structural risks. It also needs to monitor how banks are responding to its post-crisis reforms.

All this highlights the importance of supervision as a complementary tool to regulation. Let me say a few remarks about both these issues.

Emerging risks

An example of a topical risk of direct relevance for the Basel Committee is cyber-risk. The banking system is increasingly reliant on information technology, which exposes it to a growing and evolving set of operational risks.

Banks with operationally resilient systems, staff, processes and technology can better adapt to evolving shocks and maintain the provision of critical financial services.

The Committee is reviewing its existing cyber-risk measures and will consider whether additional measures are needed to enhance banks' operational resilience.

Behavioural responses to post-crisis reforms

With the Committee's post-crisis reforms now finalised, and with only minor technical issues remaining, the Basel Committee will carefully monitor banks' responses to its reforms.

It will continuously assess banks' behavioural responses, and the potential emergence of any optimisation or arbitrage techniques that may not meet the letter or spirit of the Basel standards.

In this case, it will consider whether any measures are needed to address such issues.

Supervision

The Committee's response to the global financial crisis included much more than just regulation. It also encompassed a range of measures to support strong supervision.

These include principles and guidance on corporate governance, risk data aggregation, the prudential treatment of assets, the treatment of weak banks and an updated set of core principles for effective banking supervision. The Committee will step up its efforts to promote improvements in banking supervision practices and principles.

Conclusion

In summary, the finalisation of Basel III in December 2017 represents an important milestone for the Basel Committee's response to the global financial crisis. The full set of Basel III reforms will help enhance the resilience of the banking system.

But we cannot rest on our laurels. Whether it relates to the proper implementation of these reforms, their evaluation, or the assessment of emerging risks, the Basel Committee will continue to exercise its mandate to strengthen the regulation, supervision and practices of banks worldwide.

The agenda changes, but the purpose is constant - to safeguard and enhance financial stability.

Basel III - Are we done now?

Statement by Dr Andreas Dombret, Member of the Executive Board of the Deutsche Bundesbank, at the Institute for Law and Finance Conference on Basel III, Frankfurt am Main.

Thanks Nicolas, it's a great pleasure to contribute to this panel. And, on behalf of the Bundesbank, I am happy to see that so many outstanding experts accepted our invitation.

Please let me start with a confession: I strongly support the Basel III finalisation package - in these times, a global minimum standard is a crucial (and noteworthy) success.

It contributes to stabilising the global financial system and prevents regulatory arbitrage.

When talking about Basel III, many banks or lobbyists may think: "Things are never as bad as they seem." Of course, they are hoping for of a less strict implementation of the Basel standards. But I have to say that I, in their stead, would not cherish these hopes.

Looking ahead, all Basel Committee member jurisdictions must do everything in their power to ensure full implementation.

But as important as Basel III is, we should not forget what it was made for - and what not.

The Basel III standards are, first, minimum standards for, second, internationally active banks.

Let me say a few words about the first point: Since Basel standards are minimum standards, a country may decide to set stricter requirements.

The second qualification of the Basel III standard is that it is for internationally active banks. As such, jurisdictions are free to apply a different set of rules to smaller, only nationally active banks that pose no threat to international financial stability.

In sum, then, we should focus on truly global aspects, like regulating globally active banks, while leaving it to nation states to carry out those tasks that they are better suited to take care of, for example the regulation of locally active banks.

In this sense, let's not forget the former governor of the Bank of England, Mervyn King, who said: "Banks are global in life, but national in death."

To make one thing quite clear: There is no alternative to global standards, but within their implementation, we must not forget that a "one size fits all" approach does not always reflect national different banking systems.

So, in sum: Yes, we are done with Basel, but we should lose no time and start implementing it.

And one point is of crucial importance in my mind: After having implemented Basel III, we need a regulatory break - because, yes there is regulatory fatigue; but do not get me wrong - this is no ticket for regulatory capture and deregulation.

As tired as banks are of new regulation, as tired are we regulators of their (often unsolicited) lobbying efforts.

In that sense, I clearly expect from the industry to adapt their business models to those new rules.

The comparable positive reaction the stocks markets showed in face of the Basel compromise is in my view a sign for the value of regulatory certainty - so let's go for it.

Therefore, let me recall the objective of Basel III, which is to reduce RWA variability, and not to raise regulatory capital on average. We still strive for that objective in the implementation period that will follow. So, the answer to our leading question is: Yes, we are done now with Basel III.

Therefore, all discussions about the outcome - or the desired outcome - are a waste of time. What we need to discuss is how to implement Basel III in a way that is as close to the agreed standards as possible, but, at the same time, also reflects national particularities.

And when this is done, we can have our regulatory break to see how all the reforms interact with each other and whether they all work as they should.

In the meantime, let's stop complaining about a one or two percent higher output floor, but let's start talking about the real stuff that may endanger our financial system. Cyber crime is only one catchword amongst many challenges that lie ahead.

Ethics and trust in finance

François Villeroy de Galhau, Governor of the Bank of France, at the 6th "Ethics and Trust in Finance" Global Prize ceremony, Paris.

Ladies and Gentlemen,

It is with great pleasure that I welcome you all to the auditorium of the Banque de France for the 6th "Ethics and Trust in Finance" Global Prize ceremony. I would particularly like to welcome Angel Gurria, Secretary-General of the OECD, and Professor Paul Dembinski, the Co-chair of the prize.

The venue that you have been invited to today sends a message in itself: as the Autorité de contrôle prudentiel et de résolution is backed by the Banque de France, some might have a tendency to think that the bank and insurance supervisor, as the "guardian of the temple", would only be concerned with compliance with prudential rules, which are collective and compulsory.

They might also think that the supervisor would consider that an ethical approach is too poorly defined to be inspected, as each financial institution - and even each professional - has their own perspective on it, and would also consider that an ethical approach leaves them free to look after the interests of their clients.

The philosophers among you will have recognised in this divergence between rules and ethics the classic contrast between Kant's "categorical imperative" and Aristotle's "practical wisdom". But I am thoroughly convinced that in practice, in the financial sector and in society in general, we must respect the rules and behave ethically - even when we are respecting the rules. A number of cases that have recently made the headlines have also shown that citizens and customers alike are becoming increasingly demanding in this regard. Adopting the same reasoning, Paul

Dembinski likes to quote Ricoeur's broader definition of ethics as "a wish for a fulfilled life - with and for others - in just institutions".

1. From this perspective, what is at stake is more than a simple contrast, but the sound balance and dynamic tension between compulsory rules and enduring, freely adopted ethics.

There can be no doubt that the financial sector needs rules. This is not just a question of an activity that involves intermediation between different parties - each of which must be convinced that the rules are being properly applied - but it is also a question of managing risks, while protecting the interests of customers and policyholders. Financial instability also has substantial externalities on the economy, and on social cohesion through unemployment. The recent financial crises have brought the failings of the financial system into focus, not forgetting the impact of new technologies, such as high frequency trading, FinTechs, or crypto-assets.

But rules have their limitations. An ethical approach is needed if we are to respect the spirit of the rules - and not just the letter of the law - and if we are to make informed decisions when clear rules are not available. In addition to financial institutions' in-house ethical practices, the financial sector must now also consider how society - NGOs, the media, fellow citizens included - perceive its activities from an ethical standpoint.

Clearly, the 2007-09 crisis was partly created by an imbalance: too much trust had been placed in ethics, while the rules were insufficient. The weaknesses in the corporate culture of financial institutions were thrust into the spotlight; incentives to take risks were too powerful and governance was inappropriate.

Certain Anglo-Saxon expressions perfectly illustrate the period: "too big to fail" created a widespread moral hazard, "tick the box" encouraged overly lax self-regulation through a purely formal compliance with the rules... and in so doing, the "light touch" of the British FSA at the time clearly showed its limitations.

Since then, I am happy to say that we have significantly tightened up the rules. With the CRD IV Capital Requirements Directive and Basel III for banks and, at least in Europe, Solvency II for insurers, quantitative requirements have been reinforced to ensure greater resilience, governance of financial institutions has been improved and compensation policies for bankers have been reined in a little.

International regulation is our common good. It strengthens a sound financial system. But as we strengthen international regulation, we must not lower our guard in terms of ethics. Ten years later, this would generate the opposite imbalance to that of 2007-08. In other words, there's a risk that the pendulum could swing back the other way.

2. Ethics must permeate the day-to-day practices and culture of financial institutions.

Over and above the good intentions, declarations and codes of conduct, which did nothing to prevent the excesses that caused the 2008 crisis, the challenge now is for all actors from the bottom to the top of these organisations to adopt an ethical approach.

As the "Banking Conduct and Culture" report of the Group of Thirty, which brought together private and central bankers and academics, asserted, the "tone from the top" must have an "echo from the bottom".

This begins with the Boards of Directors and the management teams, who must always be exemplary, and who need to realise that their behaviour is scrutinised at all times for indications of what is acceptable and what is not, irrespective of their declarations of intent. Actions speak louder than words.

It then requires employees to be trained and informed on ethical standards on a regular basis and not only on their first day on the job. Situations change; new developments can be an opportunity to reconsider existing practices; stakeholder expectations evolve.

Ethics - just like technical issues - must be subject to constant communication and ongoing training. And this is no easy task. As ORSE's report on corporate ethics, responsibility and strategy1 quite rightly reminds us, "Corporate ethics is not built on obedience, but on engagement and discernment". Employees must be able to identify ethical "grey areas" even when their manager or clear rules are not available.

If ethics are to permeate corporate practices, they must form an integral part of HR policies and structures. For example, during selection procedures for external recruitment or internal promotion, particularly for management positions, the integrity of candidates during their career should be seriously assessed and taken into account.

Ethics in themselves have value. Good performances can neither excuse nor compensate for questionable ethical behaviour. Results obtained at the expense of ethical standards should not be rewarded.

On the contrary, they should be penalised in order to send the right message with regards to expected behaviour, including from the managers of the employees concerned.

Diversity within teams, and particularly management teams, should be encouraged. Experience shows that diversity - in terms of gender, social background, education, thinking - is a factor in risk prevention.

An overly homogeneous group does not debate, loses critical thinking and as a result takes more risky decisions.

At a time when technical processes and compliance procedures are becoming increasingly complex and favour dialogue between human and machine, direct human contact should once more be given the importance it deserves.

Employees must be able to approach managers with their questions on ethics in just the same way as they can ask technical questions; with the same ease, the same freedom, the same legitimacy.

No-one should be afraid of raising ethical questions, being concerned about certain practices, or raising ethical concerns, which is now protected by law since the introduction in France of the Sapin II Act.

Alongside the approach offered by human resources, the permeation of ethics into corporate practices and cultures is achieved through their integration into business strategy, and their monitoring and supervision by the three lines of defence - first, management; second, ethics and compliance officers; and third, audit.

Financial institutions must consider corporate culture as a key strategic element rather than a specific field only intended to provide a short-term response to regulatory requirements.

Personally, I am also convinced that in the long term, ethics pays, even if it does not always immediately pay in "cold, hard cash", as the Anglo-Saxons say.

It is only by promoting ethics as a desirable value in themselves that we will obtain the right mix between ethical standards and the regulations necessary for a sound financial system.

And that is why the Prize being awarded today is no stranger to the Banque de France and the ACPR. I hope you all enjoy the ceremony.

Are banks opaque? Evidence from insider trading

Fabrizio Spargoli and Christian Upper
BIS Working Papers No 697, February 2018

BANK FOR INTERNATIONAL SETTLEMENTS

Summary
Focus

We contribute to a long literature on whether banks are more opaque than other firms.

By opaque we mean that outsiders, such as investors or depositors, are less able to assess the soundness of a bank than that of another type of firm.

An answer to this question has important implications for regulation. For instance, bank opacity could undermine market discipline.

Contribution

We test whether banks are more opaque than other firms by looking at how equity prices respond to trades by bank or firm insiders.

These are purchases or sales by senior company officials, who presumably have better information on the future performance of their institutions than outside investors.

If companies are opaque, then insider purchases should be followed by increases in equity prices and insider sales by drops, at least on average.

We believe that price responses to insider trades provide a better measure of opacity than the variables used in previous studies, such as bid-ask spreads, which are also affected by a range of other factors.

Findings

Our results do not support the conventional wisdom that banks are more opaque than other firms.
Yes, purchases by bank insiders are followed by positive stock returns, indicating that banks are opaque.

But banks are not special as we find the same effect for other firms. Where banks are special is when bad news arrive.

We find that sales by bank insiders are not followed by negative stock returns.

This suggests that bank insiders do not receive bad news earlier than outsiders. By contrast, insider sales at non-banks tend to be followed by a decline in stock prices.

Abstract

We use trades by US corporate insiders to investigate bank opacity, both in absolute terms and relative to other firms. On average, bank insider sales do not earn an abnormal return and do not predict stock returns.

By contrast, bank insider purchases do, even though less than other firms. Our within-banking sector and over-time analyses also fail to provide evidence of greater opacity of banks vis-à-vis other firms.

These results challenge conventional wisdom and suggest that, to assess bank opacity, the type of benchmark (transparency vs. other firms) and transaction/information (purchase/positive vs. sale/negative) are crucial.

To read the paper:
https://www.bis.org/publ/work697.pdf

Basel III - sense and sensitivity

Ms Sabine Lautenschläger, Member of the Executive Board of the European Central Bank and Vice-Chair of the Supervisory Board of the European Central Bank, at the Institute for Law and Finance Conference on Basel III, Frankfurt am Main.

It is done: Basel III has been finalised.

I admit that it was a long journey, but in my view, it was worth the wait: Basel III will help to make banking safer. It is crucial, though, that Basel III is properly implemented - in Europe and around the world. It must not be watered down.

Basel III marks the end of the post-crisis reforms; regulatory certainty has been restored. The banks know what awaits them; they can be confident about the regulatory framework, and can plan ahead and support the real economy.

But does Basel III deliver what was promised? Does it, on the one hand, create rules which are sufficiently risk-sensitive to set the right incentives for banks? And does it, on the other hand, create rules which are simple enough to decrease model risk?

Banks are not enchanted by Basel III. Many of them claim that it throws risk sensitivity overboard and penalises low risk exposures. Are these claims justified?

Well, we have not thrown risk sensitivity overboard. And why would we? Risk sensitivity helps align capital requirements with actual levels of risk and supports an efficient capital allocation. It prevents arbitrage and risk shifting. And risk-sensitive rules promote sound risk management.

But we all know how challenging it is to measure and model risks. Much depends on the quality of the models; much depends on the data and the assumptions that feed into those models; and much depends on supervisors' capacity to act.

If there are errors along the way, banks might end up undercapitalised and vulnerable. This, in turn, might lead markets to question the reliability of risk-based capital requirements in general, which would undermine trust in banks more generally.

Therefore we need to balance risk sensitivity with some safeguards. And this is exactly what we aim to do with Basel III. It preserves risk sensitivity. It retains internal models for most asset classes. And it enhances the risk sensitivity of the standardised approaches. But at the same time, Basel III adds a few safeguards.

First, I think we can all agree that it makes no sense to allow for more complex risk-sensitive capital requirements if risks cannot be measured and modelled. Basel III therefore aligns the degree of risk sensitivity with the extent to which it is possible to measure and model risks.

Second, there are some more conservative haircuts on collateral and some input floors. These input floors lie beneath the parameters for "probability of default" and "loss given default". And there will be floors beneath the "exposure at default" calculation as well. These floors work bottom-up; they will keep banks from feeding their internal models with excessively low inputs. This serves as a safeguard as it prevents capital requirements from being set too low.

And, yes, these input floors make the rules a bit less risk-sensitive. But we need to look at this in absolute terms - for residential mortgages, the input floor increases from three basis points to five basis points. Five basis points correspond to a once-in-2,000 years default rate! Is such a floor really too conservative? At global level, the bottom-up reforms see small increases in capital for exposures to other banks, large corporates and equity investments. This is somewhat offset by a reduction in risk weights for loans to small and medium-sized enterprises.

Third, there is the hotly debated output floor. It ensures that risk-weighted assets calculated with internal models do not fall too far below those calculated with standardised approaches. "Too far below" means they must reach at least 72.5%. Does that kill risk sensitivity? No, it does not. Obviously, there is still room for banks to apply individual risk weights and to benefit from lower capital requirements for classic, low-risk banking business.

And more than that: the effective floor might even be lower than 72.5%. This is due to the fact that many banks apply the standardised approaches to at least some exposures. This implies that, depending on the share of assets still under the standardised approach, the effective floor for them could be lower than 72.5%.

At the same time, Basel III makes the standardised approaches themselves more risk-sensitive. Let me give you just one example: residential mortgages. Under Basel II, the standardised approach assigned the same risk weight to almost all such mortgages.

But in Basel III, the risk weights of residential mortgages depend on the loan-to-value ratios.

The output floor is thus set in relation to a benchmark, which itself has become more risk-sensitive.

And let us not forget that, in some cases, the standardised approaches have become less costly in terms of capital.

At global level, the capital requirements from standardised approaches have been reduced by about 2% on average. Mortgages and corporate lending make up the majority of these reductions.

So, Basel III does keep risk sensitivity on board. It acknowledges, though, that there are limits to internal models. It provides safeguards to restore trust in risk-based capital requirements.

Does this mean that Basel III is the perfect standard - the philosopher's stone of banking regulation?

Well, Basel III is a global standard, and across the world, financial sectors differ greatly. Just think of real estate financing and how differently it is treated in Europe compared with the United States.

Thus, a global standard cannot suit everyone perfectly. The key is to find an acceptable compromise; the alternative would be to have no global standard, and that would definitely be worse. The output floor in particular is one such compromise.

What impact will the final Basel III package have on banks - and on their business models and their capital?

The rules are not neutral. The bottom-up safeguards in Basel III, including the input floors, will impact on risk weights in some business areas. Certain retail credit card exposures are one example.

The top-down output floor affects overall capital requirements, depending on the overall portfolio composition of a bank.

For example, our analysis suggests that the difference between internal ratings-based and standardised risk weights tends to be relatively large in certain segments of real-estate markets where historical loss rates are exceptionally low.

The output floor tends to be more binding for banks which are heavily engaged in these markets.

Overall, it is hard to predict how business models will evolve. This depends not only on regulation, but also on many other factors, including the future path of profitability in different business areas, the pricing power of banks and, eventually, how banks will adapt their business models.

Now what about additional capital requirements? What about the banks' claim that the burden might be too heavy for them?

Well, there are two things to bear in mind.

First, there will be a long transition period. This is at the heart of the overall compromise which paved the way for finalising Basel III. This transition period runs right through to 2027.

It gives banks and legislators time to implement all the changes introduced by Basel III.

Second, the European Banking Authority estimates that, for EU banks, the final Basel III package will lead to an aggregate Tier 1 capital shortfall of €34.4 billion.

Is that a lot? In 2016, the largest banks in the euro area earned €50 billion - net, after taxes, and in a difficult environment.

Also, the capital shortfall refers to the end of the transition period, which is nine years away. Most banks should be able to earn their way out of potential shortfalls.

To sum up, Basel III preserves risk sensitivity in a sensible way. At the same time, banks will be able to handle its impact and, in the long run, they too will benefit from a more stable banking system.

Thank you for your attention.

Looking into the crystal ball

A report on emerging technologies and security challenges

European Union Agency for Network and Information Security

The time has come for ENISA to take a look at the crystal ball of technology; In particular looking at what are considered to be emerging technologies and what might be their prospective usage scenarios.

Considering emerging technologies and applications is an important step in assessing future security needs.

ENISA has performed this effort in collaboration with external experts from academia and industry.

Starting with a small number of individuals, it is planned to expand this assessment by engaging additional experts, both within and outside ENISA committees and bodies.

For the time being, the initial sight to emerging technologies has shown that currently top technological challenges are:

- The Internet of Things,
- Autonomous systems,
- Next generation virtualized infrastructures (including SDN and 5G),
- Upcoming societal challenges,
- Virtual and Augmented reality,
- The Internet of Bio-Nano Things,
- AI and Robotics.

Knowing that the above list is not exhaustive, ENISA will continue the dialogue with experts to complement it.

For the above emerging technology areas both technological and cyber-security challenges are presented in this report.

By taking into account the emerging security challenges, the most important cyber security areas have been identified by means of "emerging security related areas".

These are:

- Elaboration on Certification,
- Coordination of actions in cyber space,
- Development of trustworthiness,
- Coverage of complete lifecycle,
- The future of cryptography,
- Future Identification technologies,
- Use of Artificial Intelligence and Machine Learning in cyber security,
- Increasing end-user involvement.

ENISA believes that these cyber security areas will present challenges to the cyber security community in the years to come and hopes that they will be extensively discussed within its stakeholder communities.

Last but not least, in this work input that has been received by the ENISA Permanent Stakeholder Group (PSG) is being mentioned.

In a similar manner, input will be integrated through an interaction with the new PSG that will have its kick-off end of October 2017. In this manner, both previous and new contributions from PSG will be put in the context of the areas presented in this report, widening thus significantly the number of contributors.

To read more:
https://www.enisa.europa.eu/publications/looking-into-the-crystal-ball

Fourth FSB Annual Report

This fourth annual report provides an update on the key activities of the FSB and its audited annual financial statements for the 12-month period ended 31 March 2017.

The report describes the increasing focus of the FSB's work on monitoring implementation and evaluating the effects of the G20 financial regulatory reforms. It provides an update on the activities, publications and decisions by the FSB during the course of the year, and sets out details on the FSB's governance.

The FSB separately publishes an annual report for G20 Leaders on the implementation and effects of the agreed post-crisis international regulatory reforms, the most recent version of which was published in July 2017 and delivered to the G20 Leaders' Summit in Hamburg.

Financial Stability Board in numbers

68 member institutions, comprising ministries of finance, central banks, and supervisory and regulatory authorities from 25 jurisdictions as well as 10 international organisations and standard-setting bodies, 6 Regional Consultative Groups reaching out to 65 other jurisdictions around the world; 33 Secretariat staff; 7 public consultations on policy recommendations during 2016/17.

To read more:
http://www.fsb.org/wp-content/uploads/P160118.pdf

New report assesses structural change in global banking

Bank profitability has fallen from pre-crisis peaks but banks have become more resilient to risks, finds a new report by the Committee on the Global Financial System (CGFS).

Over the past decade, banks' balance sheets, cost base, scope of activities and geographic presence have been shaped by the impact of the crisis, as well as the resulting changes in regulation, competition and the macroeconomic landscape.

The report, Structural changes in banking after the crisis, outlines common trends but also differences across 21 countries. The banking system data, spanning the years 2000-16, are published alongside the report as a comprehensive reference tool.

"In response to their new operating landscape, banks have been re-assessing and adjusting their business strategies and models," said CGFS chair William C Dudley, also President and Chief Executive Officer of the Federal Reserve Bank of New York. "At the same time, a number of advanced economy banking systems have to confront low profitability and legacy problems."

The report finds that, since the crisis, banks have significantly strengthened their capital and liquidity buffers, as well as their funding structures, in line with the intended direction of regulatory reforms. A stronger banking sector now generally supports the flow of credit to the real economy, although conditions vary across the globe.

Many banks directly affected by the crisis have shifted their businesses away from complex and trading activities and have become more selective in their international activities. In contrast, banks less affected by the crisis, including those in many emerging markets, have expanded internationally.

The decline in bank return-on-equity from historically high pre-crisis rates partly reflects lower leverage and risk-taking, but also sluggish revenues and high costs. Longer-term profitability challenges could also signal overcapacity and the need for further structural adjustment supported by robust bank resolution frameworks.

Looking forward, bank supervisors point to scope for further improving risk management. Central banks must also remain alert to evolving system-wide risks.

To read more:
https://www.bis.org/publ/cgfs60.pdf

A level playing field in banking

Agustín Carstens, General Manager of the BIS, at the Institute of International Finance Board of Directors dinner, Zurich.

Introduction

Thank you very much for giving me the opportunity to address you on this occasion. Special thanks are due to my former central bank colleague, Axel Weber, and to Tim Adams and the IIF for their hospitality.

I've been asked to cover the closely related topics of the future of regulatory cooperation and institutions, and the risks of regulatory fragmentation. Linking these two topics is the issue of level playing field, and I will concentrate on this.

I won't go into the details of why this is an important topic - there is no group of people who appreciate this more than you do.

Just to say here: there is widespread agreement that a level playing field in banking is a key condition for a competitive banking sector that rewards the more efficient business models - not the most risky ones or those protected by implicit guarantees.

But before addressing this topic, let me get something very important out of the way. As you know, the BIS is not only about regulatory cooperation. Indeed, we spend plenty of time talking about macroeconomic developments, financial market conditions and monetary policy.

On this basis, allow me to share a few observations from our recent economic discussions at the BIS which I think will be of interest to you.

Conjunctural developments

The global upswing has continued at a strong pace, with growth in most advanced economies at or above potential and labour markets tightening further. Conditions across emerging market economies are seen as somewhat less buoyant, but overall quite positive.

Inflation is still low, especially when judged against real activity indicators. At the same time, uncertainty persists as to how far this is explained by structural or conjunctural factors.

Globalisation and technological progress may partly account for low inflation and wage growth. For example, the share of temporary and part-time jobs is up, and the bargaining power of labour has generally declined. Various transitory factors are (also) keeping inflation down in a number of economies, raising the possibility of inflationary surprises ahead.

This implies that central banks might be facing difficult trade-offs. On the one hand, there may be a desire to bring inflation back to target rather quickly and push rates away from the zero lower bound - to gain some room for manoeuvre in case of future economic weakness.

On the other hand, accommodative policies could further lift equity and other asset prices and maintain easy credit conditions, which may complicate any future adjustment.

Well, how to handle this will be for each central bank to figure out. For commercial banks, however, growth is up on a broad basis - supporting the demand for bank loans and other financial services. Interest margins, in turn, are bound to gradually widen.

In short, even though there are risks (including that of a snapback in rates), banks are enjoying broadly improving business conditions, which should help them to finally emerge from the shadow of the Great Financial Crisis (GFC).

Level playing field: good news/achievements

With that, let me turn to the level playing field issue. As with any interesting story, this is one of good and bad news; of opportunities and risks, of achievements and challenges. I'll start with the good news, and then move on to the challenges.

The international policy framework

My starting point is the recent crisis experience. It brought home the point that while crises often span borders, the pain is always domestic. At the political level, therefore, the temptation is for a narrow, national policy response that tends to make the playing field uneven - the very opposite of what we should be aspiring to.

When the GFC hit in 2007-09, for example, national approaches prevailed - notably in the form of ad hoc ring-fencing and recapitalisation of domestic banks by governments. Cross-border banking receded significantly.

To work against such tendencies and to avoid the associated costs is not easy. This is where the BIS and other international forums play a role in coming to common understandings that limit the fragmentation brought about by policy responses that take a narrow, national approach.

A key achievement is that this international framework for policy cooperation has grown much more robust - for example, with the Financial Stability Board becoming accountable to the G20, thus bridging between elected politicians, on the one hand, and experts and standard setters, on the other.

There is some hope, therefore, that future crises will not only be less likely - I'll return to this point in a moment - but also less likely to trigger uneven policy responses.

Minimum standards

This brings me to the next point: regulation. Recall that the original Basel Accord was introduced back in 1988 with the very aim of harmonising capital regulation across jurisdictions. In other words: to keep the playing field level.

How? Via internationally agreed minimum standards. This was a great leap forward.

Of course, the Basel framework has evolved significantly since, not least because of the need to respond to the GFC. The latest step, as you know, was taken in December, when the Committee of Governors and Heads of Supervision (GHOS) - the Basel Committee's oversight body - finalised the Basel III framework.

This decision brought to a close eight years of rule-making, and leaves banks able to plan with less regulatory uncertainty.

The agreed regulatory framework redresses the key shortcomings exposed by the GFC, such as insufficient bank capital, too much leverage, insufficient liquidity buffers and overstretched maturity transformation.

What's more, it employs multiple regulatory metrics, with complementary constraints backstopping each other and providing protections against undue variation in risk weights across banks.

The resulting, more robust regulatory approach better deals with the inherent uncertainties of risk management and measurement.

Let me add one point on calibration, which, as you are aware, was the main sticking point in the final negotiations. It is sometimes argued that the capital shortfalls (relative to new minimum requirements) that have been generated by the recent decision indicate an un-level playing field.

That's true only in the sense that an un-level playing field was the starting point, not the end point. Levelling out these differences ought to affect banks differently. The recent measures are precisely intended to move outliers towards their peers.

Level playing field: bad news/challenges

Having achieved so much, what are the challenges we now face? One issue, of course, is that the political climate appears to have changed. There are signs that economic nationalism might be entering the scene, which may influence regulation. We need to keep an eye on three areas.

The environment for international policy reforms

As I have just argued, the international policy framework is much improved. In principle, we now have a mechanism in place that can offer future policy responses to difficult circumstances and that will help safeguard agreed standards.

The main risk is that support for further measures may be waning. You may say none too soon. But not so fast. It is important not to take just a narrow banking perspective. Policy work continues, and for good reasons: from resolution frameworks for central counterparties, through shadow banking monitoring and regulation, to cyber-security and similar issues.

It is key not to neglect regulation of non-banks, where much remains to be done. Also, recall that consistent implementation does not preclude supervisors going beyond the agreed minimum standards, which brings me to the second area.

Implementation and supervision

This is precisely implementation and supervision. Standards are one thing, implementation is another. Safeguarding Basel III's level playing field requires consistent and timely implementation.

National authorities need to translate the new standards into legal requirements in their own jurisdictions. This has not always happened in the past, in terms of both timing and substance.

The Basel Committee has established the Regulatory Consistency Assessment Programme (RCAP) to monitor this process and to align incentives across jurisdictions. This is a major step forward.

But private financial institutions also have a role to play: achieving a level playing field requires upfront investment in IT systems and other tools to avoid unnecessary technical delays. Capacity building is needed among both banks and supervisors.

Financial innovation and regulation

The third - closely related - area concerns the regulatory approach to financial innovation, especially fintech. Regulators have a difficult role to play here, as they have to provide a level playing field for all participants (banks and non-banks alike), while at the same time fostering an innovative, secure and competitive financial market.

What defines a level playing field in this context? When banks and fintech firms vie for the same customers with similar services and by taking similar risks, they should be similarly regulated: "same risk, same regulation".

But different players may be operating under very different regulatory regimes. This may create unintended regulatory gaps (eg with regard to the collection and sharing of client data), with new business models shifting critical activities outside their current regulatory environment.

All of this puts a premium on regulatory and supervisory cooperation at both the international and the sectoral level. The Basel Process has much to offer here - for example, in the context of information-sharing on experience with new practices, such as innovation hubs and regulatory sandboxes. Support for such cooperative activities will be a key BIS focus in the coming years.

Thank you very much.

EBA launches 2018 EU-wide stress test exercise

The European Banking Authority (EBA) launched its 2018 EU-wide stress test and released the macroeconomic scenarios.

The adverse scenario implies a deviation of EU GDP from its baseline level by 8.3% in 2020, resulting in the most severe scenario to date.

The EBA expects to publish the results of the exercise by 2 November 2018.

Key features of the exercise

The stress test is designed to provide supervisors, banks and other market participants with a common analytical framework to consistently compare and assess the resilience of EU banks to economic shocks.

For the first time, it incorporates IFRS 9 accounting standards.

No pass-fail threshold has been included as the results of the exercise are designed to serve as an input to the Supervisory Review and Evaluation Process (SREP).

The EBA's 2018 stress test methodology was published in November 2017 and is to be applied to the scenarios released today.

The baseline scenario is in line with the December forecast published by the European Central Bank (ECB), while the adverse scenario assumes the materialisation of four systemic risks, which are currently deemed as representing the most material threats to the stability of the EU banking sector:

- Abrupt and sizeable repricing of risk premia in global financial markets, which would spill over to the European countries and lead to a tightening of financial conditions;

- Adverse feedback loop between weak bank profitability and low nominal growth resulting from the decline in economic activity in the European Union. This will affect, in particular, banks in those countries facing structural challenges in their banking sector;

- Public and private debt sustainability concerns amid potential repricing of risk premia and increased political uncertainty;

- Liquidity risks in the non-bank financial sector with potential spill-overs to the broader financial system.

The adverse scenario is designed to ensure an adequate level of severity across all EU countries.

The implied EU real GDP growth rates under the adverse scenario amount to -1.2%, -2.2% and +0.7%, in 2018, 2019 and 2020 respectively.

Overall, the scenario implies a deviation of EU GDP from its baseline level by 8.3% in 2020, resulting in the most severe scenario in terms of GDP deviation from baseline levels compared with the previous EBA exercises.

Detailed information about the scenario can be found in the note produced by the European Systemic Risk Board (ESRB).

Process

The adverse macroeconomic scenarios have been developed by the ESRB and the ECB in close cooperation with the EBA, competent authorities, and national central banks.

The EBA, which is responsible for coordinating the whole exercise, developed a common methodology and will act as a data hub for the final dissemination of the results, in line with its commitment to enhancing the transparency of the EU banking sector.

Competent authorities will assure the quality of the results and decide on any necessary supervisory reaction measure as part of the SREP process.

Notes

The EU-wide stress test will be conducted on a sample of 48 EU banks – 33 from countries under the jurisdiction of the Single Supervisory Mechanism (SSM) – covering roughly 70% of total banking sector assets in the euro area, each other EU Member State, and Norway, as expressed in terms of total consolidated assets as of end 2016.

The exercise will be run at the highest level of consolidation.

This exercise will involve close cooperation between the EBA and the competent authorities (including the SSM, the ECB and the ESRB).

Virtual or virtueless? The evolution of money in the digital age

Yves Mersch, Member of the Executive Board of the European Central Bank, at the Official Monetary and Financial Institutions Forum, London.

European folklore warns of the will-o'-the-wisp, a malignant creature that dwelt in marshes. It would appear as a light in the distance, which a traveller would mistake for houses.

As they reached the place where they thought the light was, it would move further ahead, drawing them deeper into the marsh to their untimely death and a watery grave.

In some areas, will-o'-the-wisps were said to mark buried treasure. Investigation of the phenomenon found it was related to dissipating bubbles of marsh gas.

With the draining of marshes to make way for agricultural land, will-o'-the-wisps are rarely sighted nowadays. But there remain plenty of distant flashing lights to distract travellers with promises of riches.

As with the previous incarnation, these flashing lights often turn out to be just like bubbles of marsh gas - insubstantial and foul-smelling, but also flammable and sometimes able to burn things around them.

The most recent beguiling wisps are named variously "cryptocurrencies" - to denote the use of cryptographic methods and technology - or "virtual currencies" (VCs) - to denote their lack of legal recognition.

There are, at present, more than 1,500 VCs in circulation, with dozens of new schemes being launched monthly, including initial coin offerings (ICOs).

Most have failed to attract users, in particular in the major currency areas. The total value outstanding has fluctuated sharply, largely from speculative activity.

The global value of all VCs is currently around a fifth of the value of all euro banknotes in circulation and around 3% of the narrow monetary aggregate M1. Of course, these figures are probably already out of date, such is the volatility of the market.

Having a million dollars' worth of Bitcoin today would have required the simple investment of three million dollars in mid-December.

Because holders can hide their identity and location, it is impossible to accurately analyse VC circulation in the euro area. But euro-related activity on exchanges represents a small share of global activity, and is concentrated on a small number of users.

While VCs remained an esoteric interest, it seemed sufficient for authorities to mostly observe and issue warnings here and there. But it is the dose that makes the poison. Now that VCs may grow to be economically significant, we need to reduce the risk of negative impacts on the economy.

In my remarks today, I wish to explain what it takes for something to be considered "money" - and how VCs measure up. I will then set out what I believe are some of the key regulatory questions that need addressing, and actions that need to be taken to mitigate the potential blowback from VCs to the rest of the financial system.

What is money?

Money has formed an integral part of human economic interaction for millennia. It has appeared in many forms - metallic currency, paper notes, cowry shells, cigarettes and even the great Rai stones of Yap.

Are VCs the latest incarnation of money?

The answer for now, and indeed for the foreseeable future, is no. Economists generally define money as being a verifiable asset that fulfils three basic functions: a medium of exchange, a unit of account and a store of value.

How well do VCs carry out those functions?

Medium of exchange

Some VCs have attained patchy acceptance as a medium of exchange. The current largest, Bitcoin, is accepted by some retail outlets, but on a global scale these outlets remain small in number, and hardly any actual transactions have taken place.

On a daily basis, there are around 284,000 Bitcoin transactions globally, compared with 330 million retail payments in the euro area. Indeed, a recent Bitcoin conference stopped receiving payment in Bitcoin because of the cost and time involved in processing the payments.

Bitcoin is far inferior to existing payment options. Bitcoin transactions generally require confirmation from six miners. With each block taking around ten minutes to mine, you would expect transactions to take an hour to process. But with recent network congestion, the average time for one confirmation can easily exceed several hours.

At these speeds, if you bought a bunch of tulips with Bitcoin they may well have wilted by the time the transaction was confirmed.

Bitcoin payments are also expensive. The recent cost of a Bitcoin transaction is €25, the same cost as carrying out 12,500 transactions on the incoming TARGET Instant Payment Settlement (TIPS).

Bitcoin is heavily resource intensive, and certainly not a green technology. Bitcoin mining is estimated to currently consume energy at an annual rate of 46 TWh,6 approximately 35 times the electricity consumption of all Tesla cars in the world.

In comparison, traditional payment services have made large strides in innovation. The instant payments scheme SCT-Inst was launched in November 2017 and the Eurosystem will implement the TIPS service in November 2018.

A key characteristic of the instant payments scheme is that funds are made available to the beneficiary in, at most, 10 seconds for 0.2 euro cents.

In TIPS, we aim to settle those transactions within a fraction of a second, in central bank money, with Europe-wide reach and interoperability. So it is with conventional technology, not with VCs, that genuine progress is being made in payment processing.

Unit of account

The second function of money is acting as a unit of account, without which buyers and sellers would have to know how many chickens an iPhone would be worth, how many iPhones would buy a house, and so forth. Such a system quickly becomes complex: just ten products already have 45 bilateral pairs of prices.

Money simplifies the comparisons of value between products. VCs fail this test - none of them are generally accepted as a unit of account. A unit of account is like a flag or an anthem, a representation of commonness backed by assets and values which is even accepted beyond the territory of legal tender.

In part this is due to the lack of widespread recognition. VCs are not legal tender, and are not backed by a central bank. Retailers accepting such assets as payment undertake notable risks, including potential expropriation by hacking or by an enforced rollback.

But the lack of acceptance as a unit of account is also down to the final function of money - being a store of value.

Store of value

Wild fluctuations in the value of VCs mean that businesses pricing in VCs could find themselves with a large and detrimental gap between their actual price and their optimal price.

A stable value is required to underpin effective pricing. Similarly, households benefit from being able to optimise their spending over time by saving. To do so, they need an effective store of value that they can be sure will enable them to buy goods and services in the future.

When there is considerable uncertainty around how many goods and services an asset can buy in the future, or indeed whether it can be used to purchase anything at all, it is a poor store of value.

Traditional currencies have a trusted issuing authority that acts as a guarantor of the stability of the currency, and a legal framework that punishes counterfeiters.

The ECB's mandate for price stability, bolstered by the treaty provision for independence, provides consumers with the confidence that the purchasing power of their euro will remain stable from year to year.

The political capital the leaders of the euro area's countries invested during the crisis to confirm the integrity of the euro proved all sceptics wrong.

There are no equivalent structures in place for VCs. They have neither intrinsic value, such as the commodity content of gold coins, nor extrinsic value, such as the value assigned to traditional fiat currencies by the trusted public issuing authority.

VCs do not even provide the dividend or coupon payments that tie down the prices of equities and bonds. They are in fact a classic Keynesian beauty contest, where investors buy what they perceive others view as the most attractive investment.

Like in Mr Ponzi's schemes, those investors hope for future price gains and believe they will find a greater fool to sell to before the inevitable crash. Under these conditions, VCs exhibit wild fluctuations in value, meaning that they cannot be trusted as a store of value.

It is this failure, more than any other, that makes the label "currency" a misnomer.

Public versus private provision of money

Having a widely accepted unit of account and medium of exchange helps smooth economic transactions, reduce costs and enable some interactions to take place that would not be possible under a pure barter system.

There are clear network and scale effects with money, which provide one justification for public issuance. Even Milton Friedman recognised this, noting that "a moderately stable monetary framework seems an essential prerequisite for the effective operation of a private market economy.

It is dubious that the market can by itself provide such a framework. Hence, the function of providing one is an essential governmental function on a par with the provision of a stable legal framework."

But that does not mean that private sector money is either impossible or undesirable. Forgotten amid the hype surrounding VCs is that a widely accepted form of private sector digital money already exists: bank deposits.

This private sector money dwarfs the amount of public sector money - i.e. cash - in circulation. In November 2017, euro notes and coins in circulation amounted to €1.1 trillion, compared with the €17.5 trillion deposited by euro area residents with MFIs.

Certainly this private sector money acts as an effective medium of exchange and, a few episodes aside, as an effective store of value. But such private sector money is not truly independent; it shares its unit of account with the official currency.

The implicit promise underlying bank deposits is that customers can redeem them whenever they wish and one to one with public sector cash, if they need a safe refuge in a time of crisis.

By providing liquidity to the banking sector and acting as lenders of last resort, central banks de facto recognise this private sector money, even if it is not legal tender.

But that recognition comes with obligations - including regulations on capital, liquidity, anti-money laundering (AML) and counter terrorist financing (CTF).

For VCs to cross over into the mainstream, regulatory acceptance is necessary, and that acceptance requires equivalent measures for governance and legal certainty.

Potential impact of virtual currencies

Yet even if VCs are not money, central banks should still be aware of the potential risks they pose for price stability and financial stability. The magnitude of such risks depends on the total value of VCs outstanding, their interconnectedness with the rest of the economy, and the extent to which investors in VCs are leveraged.

In terms of interconnectedness, the main concerns would be if a significant crash caused losses of wealth that were large enough to affect consumer behaviour, or caused contagion through the financial system. The bursting of the tech bubble in 2000 provides a useful comparison for the first scenario.

The market valuation of the NASDAQ fell by around $5 trillion between March 2000 and October 2002, roughly 20 times the current total value of VCs outstanding. How holders of VCs consume out of their perceived wealth and how much is built on leverage are crucial to determining the impact of a crash.

Until recently, VCs have lacked perceptible connections to the financial system. Regulatory requirements on the use of certain types of money or settlements, the high risk of money laundering associated with the lack of customer identification, the speculative pricing of VCs and the limited liquidity are some of the reasons why regulated institutions have refrained from getting involved in this asset class.

Yet there are signs that greed has weakened their resolve and some have begun to form tentative linkages. A number of derivative products pertaining to VCs have recently been launched.

There is rising activity in euro at VC exchanges and some jurisdictions are falling over each other to issue licences to largely unregulated platforms and exchanges in a misplaced competitive race.

What happens if this trend continues and VCs become more commonplace as settlement assets in some niches of financial markets? What if credit institutions start developing larger exposures to these assets? What if retail investors take out mortgages to buy VCs?

Amid the growing risks of contagion and contamination of the existing financial system, regional regulatory solutions have to be explored while we await an outcome from G20 discussions. Indeed, we ultimately need global answers in the absence of a defined jurisdiction for VC issuance.

This is crucial to safeguard the integrity of financial sector services, avoid the undue mutualisation of risks, protect investors and consumers and prevent negative spillovers to the real economy.

Resolute ring-fencing measures might be needed. Reviewing and updating legislation in a timely fashion is a continuous challenge, yet inaction could be perceived as condoning VCs.

The four broad areas that require particular attention are:

- VCs themselves;
- the facilitators - VC exchanges, wallet-providers and brokers;
- financial market infrastructures (FMIs); and,
- the banking sector.

Regulating virtual currencies

Beginning with the VCs themselves, it is clear that they cannot be directly regulated or overseen in the absence of a centralised governance and legal framework.

In fact, most VCs are "mined" peripherally by a computer programme explicitly to prevent any legal entity being in control. Recognising their limits here, most countries tolerate the usage of VCs, without trying to ban them.

Many regulatory bodies and central banks have issued warnings, and this is certainly important from a consumer protection viewpoint. Retail investors need to understand the predominantly speculative nature of VCs and the risks they entail.

Statements regarding returns on investment in VC-related advertisements targeting potential investors should be under the same level of scrutiny as advertisements for financial products.

In the United States, awareness of the growing inherent risks to investors and consumers is on the rise. The Securities and Exchange Commission (SEC), which oversees the US investment industry, warned in a letter sent last month to two trade groups that, "there are a number of significant investor protection issues that need to be examined before sponsors begin offering these funds to retail investors."

The SEC outlined more than 30 questions that had to be answered before it would give the green light to mutual funds and exchange-traded funds (ETFs) that invest in Bitcoin and its peers.

The concerns refer in particular to the establishment of Bitcoin ETFs, some of which even use leverage to amplify the price movements. The extreme volatility in recent months highlights the large degree of speculation involved.

Likewise, the lack of liquidity is concerning. If many investors want to withdraw their money from the ETFs on a particular day, the funds might struggle to meet the redemptions because they would struggle to sell off their atypical assets.

And how would such funds deal with cases of market manipulation, as have happened in the past? Clarity on such aspects is vital.

In the same vein, relevant market authorities should monitor, analyse and regulate the use of ICOs. An ICO is a way of raising money from the public, often to start a project or to finance a company, using coins or tokens. In an ICO, an entity issues newly created coins or tokens and offers them in exchange for fiat currencies, such as the euro, but more often VCs.

In 2016, the total amount of funds raised through ICOs was less than €82 million. This number has dramatically increased to over €3 billion raised through ICOs in 2017.

Potential explanations for the increasing popularity of ICOs is that they allow companies to raise funds without ceding control to venture capital investors, or enduring the rigour and expense of an IPO process involving a legally binding prospectus, among other things.

Depending on their features and characteristics, ICOs can be regarded as either the issuance of VCs, as utility tokens to access or purchase a service or product, or as securities. In the latter case in particular, clarification is needed on the extent to which ICOs should be bound by existing regulations, such as on disclosure and prospectuses. This is particularly relevant when tokens are exchanged for fiat money.

Restraining the facilitators

Let me turn to the facilitators of the spread of VCs.

Vigilance is warranted in view of the repeated incidents, most recently the hack of the Tokyo-based VC exchange Coincheck, where €430 million of virtual currency was stolen.

Although there is no specific evidence to confirm the suspicions, security experts are increasingly warning that VCs could offer rogue states a route to circumvent sanctions and gain access to foreign currency and world markets.

The ECB takes an active role within our mandate, for example our opinion on the 5th Anti-Money Laundering Directive, which will extend the scope of obliged entities to cover exchanges and wallet-providers handling VCs, in order to avoid anonymous transfers into fiat currencies.

The ECB reminded the EU legislative bodies that they should not be perceived, through regulatory forbearance, to be promoting VCs, and should take VCs' inherent stability risks into consideration.

But we need a broader perspective on regulatory intervention for VC facilitators that extends beyond the fields of AML and CTF.

Possible regulatory action should be explored, as well as amending or broadening existing frameworks such as the revised Payment Services Directive (PSD2) so that the licensing and supervision rules also apply to VC facilitators.

Protecting financial market infrastructures

Third, I would like to cover financial market infrastructure services. One could envisage a major incident involving VCs triggering contagion from the market infrastructure services themselves to their participants, and even beyond.

Against this background, we have to review whether the regulatory and oversight tools in the field of trading, clearing and settlement require updating.

One of the key questions is whether VCs could become a settlement asset in payments and settlement services or be used in the clearing domain. Existing standards for FMIs, for example, refer to the usage of "a settlement asset with little or no credit and liquidity risk".

While it could be argued that this by and large excludes settlement involving VCs in payment systems, it should be borne in mind that this definition currently does not systematically apply to all FMIs. The situation is similar in the field of securities settlement.

The question is whether VCs could be used as an asset for settling securities transactions or constitute a security per se. The answer hinges on whether they could be legally characterised as "financial instrument/financial asset" under the applicable regulation.

Certain authorities have already qualified VCs as financial instruments or commodities and this may prepare the ground for the issuance of some specific VC-related products, including derivatives.

VC derivative activities need to be fully transparent and records must be collected, maintained and made available by trade repositories.

The use of VCs at central counterparties (CCP) should also be monitored. The European Market Infrastructure Regulation (EMIR) states that a CCP shall accept highly liquid collateral with minimal credit and market risk to cover its initial and ongoing exposure to its clearing members.

While it is doubtful that a VC would meet such a requirement, clear guidelines ex ante would be helpful, and financial stability considerations will need to be taken into account by the relevant authorities.

In my view, it should be examined whether any VC activity carried out by FMIs must be ring-fenced from their other activities. The enforcement of segregated accounts and liabilities could be discussed.

FMIs play an important role in financial markets, and any liquidity support offered by central banks should be to mitigate shocks emanating from the real economy, not from gambling in risky assets.

Certainly, FMIs should not be obliged by legislation to provide settlement services for VCs and VC-related products. In the same vein, the Eurosystem market infrastructure services - TARGET2 and TARGET2-Securities - cannot grant access to VC business according to their existing framework.

Regulating credit institutions

Finally, we need to look at the banking sector, whose profitability and stability might be impaired by VC activities. EU credit institutions are already required to have adequate frameworks in place to assess the capital they need to cover the nature and level of risks they are, or might be, exposed to.

Given the volatile nature of VCs, it could seem appropriate that any trading in VCs would be backed by adequate rates of capital, and segregated from their other trading and investment activity.

Any VC business of credit institutions needs to be rigorously supervised to ensure that risks emerging from such activities are contained.

This includes ensuring that proper protocols are in place to meet obligations under AML and CTF regulations.

Furthermore, given the risks posed by leverage, credit institutions should not accept VCs as collateral, or only accept them with haircuts that appropriately reflect past volatility, liquidity, and market and operational risks. Likewise, limits on leverage could be examined.

Central bank issuance of digital currency

The advent of VCs has triggered suggestions that central banks should provide central bank digital currency, or digital base money (DBM), as I have previously called it.

DBM already exists in terms of the reserves of the banking sector held at the central bank, but the more recent question is whether central banks should make DBM more widely available.

As with every central bank policy decision, any such move would need to be both necessary and proportionate. There would need to be a clear motivation within our mandate to issue DBM, and such issuance would need to be done in a way that did not bring about risks and costs that exceeded the benefits.

It is important to avoid being beguiled by the flashing lights of novelty and assuming that, just because a technology is new, it is also better.

There is no material evidence that abolishing cash will inhibit crime. Electronic storage and transfer may well prove easier for criminals than banknotes. I'm also uncertain why cash is being singled out; mobile phones and cars are also used in crime, but there are no calls for their abolition.

Moreover, there does not appear to be a global trend towards a cashless society. A recent study conducted by the ECB finds that around 79% of all payments at point-of-sale were made with cash.

Indeed, the demand for cash in the euro area currently outstrips the rate of nominal GDP growth. And people who currently prefer electronic payments already have a wide range of options available, without needing the central bank to provide the digital money.

A further argument for introducing DBM and abolishing cash is framed in terms of monetary policy.

Several authors have proposed DBM as a way to eliminate the effective lower bound on interest rates, and impose much more negative interest rates than are currently possible.

But such rates are not necessary; the unconventional measures put in place by central banks over the past decade have proven sufficient to meet the challenges of the crisis.

And while sharply negative interest rates may work well in some macroeconomic models, unforeseen changes in real-world behaviour by households and businesses could inhibit the effectiveness of this tool and achieve nothing more than the destruction of confidence in central bank money. Whether this would work to the advantage of private moneys with large disorders in exchangeability remains to be seen from a social welfare point of view.

The decision on issuing DBM also needs to be assessed in relation to the impact on the financial system. During a systemic banking crisis, holding risk-free central bank issued DBM could become vastly more attractive than bank deposits. There could be a sector-wide run on bank deposits, magnifying the effects of the crisis.

Even in the absence of a crisis, readily convertible DBM could completely crowd out bank deposits - putting the existence of the two-tier banking system at risk. In this situation, the efficient flow of credit to the economy would likely be impaired.

The central bank - now holders of deposit funding - would have to decide which projects were financed, either directly by replacing commercial banks, or indirectly by deciding which banks received funding. This is an undesirable situation for European central bankers for two reasons:

- Legally, the Treaty provides for the ECB to operate in an open market economy.

- And, by the same logic, we are well aware of Friedrich von Hayek's warnings about "the pretence of knowledge". Decentralised market decisions are the "first choice" when it comes to allocating resources in an optimal way. This includes the allocation of credit.

Overall, there is currently no convincing motivation for the Eurosystem to issue DBM to the general public. It is unnecessary at present and, when the likely negative impacts on the financial system are taken into account, such a move appears disproportionate to the aims put forward by its proponents. There is no need to fix something that is not broken.

If anything, one could imagine a digital representation of cash that replicates the features of cash in the reasonably distant future, if citizens demanded it.

Such an approach seems more appropriate for jurisdictions whose currencies face domestic regress as they are also not widely accepted beyond their territory - which is certainly not the case for the euro.

Conclusion

Let me conclude.

Virtual currencies are not money, nor will they be for the foreseeable future. Their market share is still small and their ties to the real economy are still limited.

But this can be subject to change. Regulators and legislators on all levels should therefore urgently pay close attention to mitigating the potential risks that could stem from growing VC business.

It is not unknown for new innovations to bring about euphoria and hype, which in turn fuel bubbles that eventually burst. And indeed, the hot air is already escaping from some of these bubbles.

But just because the initial euphoria and hype subsequently fade, it does not mean that the innovation is without virtue, even if early market leaders may not last the distance.

Despite the many defaulted railroad bonds, railways are a common mode of transport today. From London you can even take a train directly to many parts of Europe through the Channel Tunnel - whose now profitable operator filed for bankruptcy protection in 2006.

Netscape and AltaVista were titans in the early days of the internet. Web browsers and search engines are still with us, but those names are no more. So it may well prove with VCs. The technology may in time become widespread and useful, but early versions of it may fade from view.

IT security: BaFin specifies requirements for the banking industry

Bundesanstalt für Finanzdienstleistungsaufsicht

BaFin

Federal Financial
Supervisory Authority

BaFin has published the Supervisory Requirements for IT in Financial Institutions (Bankaufsichtliche Anforderungen an die IT – BAIT).

The BAIT have now become the cornerstone of IT supervision for all credit and financial services institutions in Germany.

The requirements are directed at the management boards of such companies.

The objective of the BAIT is to create a comprehensible and flexible framework for the management of IT resources, information risk and information security.

They also aim to contribute towards increasing awareness of IT risks throughout the institutions and in relation to external service providers.

Furthermore, they provide transparency about what banking supervisors expect from the institutions with regard to the management and monitoring of IT operations, including the user access management that this necessitates as well as requirements for IT project management and application development.

Overall, the BAIT address those subject areas which BaFin has identified as particularly important based on its experience of IT inspections.

One on the primary objectives of the BAIT is to improve awareness of IT risks at institutions, especially at management levels.

Banking supervisors understand the term "IT risk" as meaning all risks to the institution's financial position and financial performance that arise from deficiencies relating to IT management, the availability, confidentiality, integrity and authenticity of data, the internal control system for IT organisation, the IT strategy, IT guidelines and IT topics in the rules of procedure, or the use of information technology.

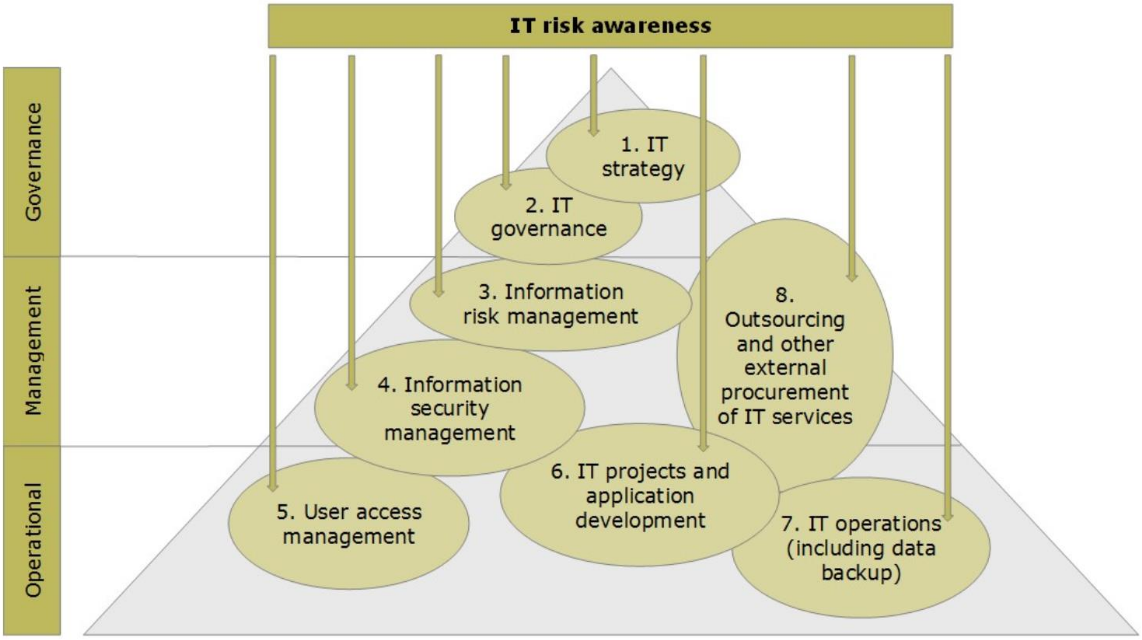

Figure: Improving risk awareness with the BAIT; © BaFin

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https://www.bafin.de/SharedDocs/Veroeffentlichungen/EN/Fachartikel/2018/fa_bj_1801_BAIT_en.html

The nature of evolving risks to financial stability

Agustín Carstens, General Manager of the BIS, at the 53rd SEACEN Governors' Conference/High-level Seminar and 37th Meeting of the SEACEN Board of Governors, Bangkok.

Introduction

Good evening. Thank you for that kind introduction. I wish to express my gratitude to our hosts at the Bank of Thailand, especially Governor Veerathai Santiprabhob, for their extraordinary hospitality, and to SEACEN for organising tomorrow's conference.

It's also a pleasure to be back in Asia, where you all, as policymakers, have managed to put together a framework that fosters steady high growth while maintaining financial stability, allowing you to successfully navigate through episodes of extreme turbulence in the global economy and financial markets.

Over the past two decades you have strengthened your financial systems, in part through the pre-emptive use of macroprudential instruments, as well as reforms in corporate governance.

Although US dollar funding shortages hit your major banks, they did not suffer a solvency crisis during the Great Financial Crisis as did banks in Europe and the United States.

The greater exchange rate flexibility that many of your jurisdictions have allowed, combined with the development of local currency bond markets, has also contributed to financial system resilience.

On the macroeconomic front, your economies show the great benefits to be gained from openness to direct investment and trade, and increased integration in global supply chains.

Trade recovered more strongly in Asian emerging markets than elsewhere subsequent to the Great Financial Crisis. Regional factors now play a more important role in explaining variation in output than global factors, as the regional economies have become more integrated through stronger supply chains.

The theme of tomorrow's conference is "Pursuing stability in a world of instability". I commend you on this choice. Indeed, there will never be a world of perfect stability. It is our ongoing job as central bankers to identify and prepare for possible shocks to the system.

Tonight I would like to discuss three risks to financial stability from the current perspective:

(i) the path of policy normalisation;

(ii) protectionism or at least uncertainty in trade policies; and

(iii) rapid technological change in financial services.

Policy normalization

To start with policy normalisation, the backdrop is that in advanced economies interest rates have been low for long, and central bank balance sheets have been swollen by years of unconventional policies.

Low interest rates and ample liquidity have had significant spillover effects to many emerging market economies, including in Asia and the Pacific. They have encouraged increases in indebtedness and the elevation of house and other asset prices beyond historical standards in many economies.

As monetary policy in advanced economies has been overburdened for some time, and markets overly dependent on accommodative policies that aggravate the risks to financial and macroeconomic stability over the medium to longer term, normalisation to build policy space ahead of the next downturn would be a very welcome development.

That said, recent indicators point towards a very slow pace of interest rate increases for advanced economies. Market participants also expect central bank balance sheets to shrink only gradually.

One risk is that the pace of interest rate normalisation could be considerably faster than currently priced into yields.

While higher rates could simply reflect higher growth and inflation approaching targets, they could also portend a jump in term premia. Financial markets could be similarly roiled by changes in balance sheet policies.

Examples of "snapbacks" in rates seemingly unrelated to changes in growth or inflation expectations include the taper tantrum of 2013, the bund tantrum of 2015 and, further back, the 1994 bond market sell-off.

Given the global reach of the US dollar, rises in dollar yields are eventually likely to result in higher yields in emerging markets, and a de facto tightening of financial conditions.

In addition to reducing spending and investment, higher interest rates could squeeze the debt servicing capacities of households and corporations in Asia, which have leveraged up in recent years, with much of the debt at floating rates.

And the overstretched asset valuations mentioned earlier could correct as well, with knock-on hits to economic growth.

While local currency depreciation might mitigate some of the real effects, work at the BIS has documented that US dollar appreciation vis-à-vis domestic currencies can often hurt activity through balance sheet deterioration more than it helps through improvement of competitiveness.

More generally, normalisation of interest rates and liquidity conditions may well expose other weaknesses in the global financial system: as Warren Buffet once put it, only when the tide goes out do you discover who's been swimming naked.

Not only can unforeseen linkages of global financial institutions spread financial stress in unforeseen ways, but there may be precious little time to adjust to higher interest rates and exchange rate volatility, as mobile international capital can be highly procyclical.

In sum, while we should not forget that policy normalisation will be a welcome development on the whole, given where we are, we will need to carefully manage it.

Part of this management will be to further stabilise the banking system, including through the timely and consistent implementation of Basel III reforms.

Protectionism

Next, I would like to talk about the growing risk of protectionism and uncertainty in trade and capital market policies.

Events over the past few years have heightened our awareness of the challenges posed by globalisation - in particular the uneven distribution of its benefits and adjustment costs within societies.

And as we now know all too well, this can prompt a backlash.

The solution is not to reverse global integration but to redress its distributional consequences. Let's preserve and enhance free trade - maintain and refurbish agreements and, when necessary, adjust them.

To be more specific, the way forward with trade agreements is to modify and to improve them to widen their beneficiaries.

For example, there should be common labour, safety and health standards for industries, to mitigate multinational firms' race to the bottom in global markets. There should be programmes for retraining and re-employing laid-off workers.

Both global and domestic policy institutions need to make a better case for global trade. Many politicians seem unaware of the returns to global value chains in advanced economies, including in terms of overall job creation. Similarly, the cost of protectionism is underappreciated.

At the same time, let us not forget that exchange rate flexibility is one of the antidotes to the worsening of current account imbalances that can exacerbate the job costs of globalisation and open markets.

Persistent intervention so that current account surpluses lead to more reserve accumulation and less exchange rate appreciation runs the risk of exacerbating imbalances.

Global capital market integration with flighty international capital also poses challenges. Just as reversing integration is not the answer on the trade side, so too capital controls are not the right answer on the financial side - not in most cases, anyway.
Rather, we should continue to increase the resilience of our economies and financial systems to international capital flows and exchange rate movements.

In this respect, I would like to commend you on some of the regional measures you have undertaken - perhaps an example for other emerging market economies.

More than a decade ago, ASEAN+3 and EMEAP took initiatives that have boosted local currency bond markets (though most jurisdictions have made more progress on the sovereign than on the corporate front).

Local currency debt markets allow both the sovereign and firms to reduce financial vulnerability to exchange rate movements, in particular the hit to national or corporate net worth that local currency depreciation can inflict.

That said, the US dollar remains the dominant global currency in trade and finance, and market participants' impulse to hoard dollars in situations of stress is deeply ingrained.

The maintenance of much higher levels of reserves than before the Asian financial crisis is appropriate.

But given the potential cost of the accumulation of own reserves, it makes economic (if not always political) sense for central banks and treasuries to also enter into reserve sharing arrangements.

The Chiang Mai Initiative Multilateralization and related bilateral swap arrangements in this region deserve credit in this regard. But they remain fair weather cooperation, untested in a storm; their practical usefulness could be strengthened.8

Rapid technological innovation

Lastly, I would like to touch on some of the risks posed by rapid technological innovation. We are entering a new era in which internet access and a new generation of payments and financial intermediation technologies ("fintech") are greatly expanding the ability of both diffuse creditors to provide funds, and small businesses to raise funds. The supply of investment funds will be more inclusive.

"Big data" analytics and the use of algorithms also have the potential to enhance the identification, analysis and management of risks and to reduce the cost of adherence to compliance and regulatory reporting requirements. This latter objective is sometimes known as "regtech".

In theory, by increasing the breadth, depth and diversity in the provision of funds, and by decreasing the costs of payments, risk assessment and regulatory compliance, these technological innovations could make the financial system more stable.

At the same time, we must be aware of the risks posed by such rapid technological change. In the provision of credit, new underwriting procedures and mechanisms of certification, many being managed by entities that are not regulated as credit institutions, could lead to declining credit standards and even a credit bubble without proper discipline.

Current banking business models could face competitive challenges from rapid disintermediation of customers.

Similarly, on the asset management side, with the large-scale entrance of new classes of investors whose behavioural tendencies are unfamiliar, risk management models may prove inadequate.

In addition, algorithmic trading - which has the characteristics of a black box and which we have seen could increase the vulnerability of trading systems to flash crashes - is another, potentially interrelated, risk.

In cyber-security, data leaks and infiltration of systems could result in financial and reputational losses for key institutions in the global financial system.

It is not unthinkable for cyber-attacks to potentially hinder the operation of traditionally reliable financial transactions such as retail electronic transfers.

Authorities in all jurisdictions should treat those threats very seriously and actively invest in raising the reliability of their defences and crisis response capabilities.

Vigilance is required on the part of supervisors and regulators so that the protection of depositors and investors is maintained in the face of rapid technological change.

Just as firms will need to adopt their ways of managing risks and meeting regulatory requirements, regulators and supervisors will need to revise their practices.

They will need to develop the capacity - now often called "suptech" - to assess and to use the data yielded by fintech.

Suptech can refer to the use of machine learning and natural language processing to link communications and behavioural data to financial stability risks that could derive from trading activity. In fraud detection as well, the use of machine learning to identify high-risk patterns is under way, and shows real promise.

While there is likely to be consolidation as banks unable to deal with the competitive challenges exit, we must ensure that the banking system as a whole retains sufficient financial strength in the face of disruptive technologies.

We must also ensure that, despite the convenience and speed afforded by the adoption of the new technologies, investors do not skip due diligence in making financing decisions and clearly understand the risks that they are taking.

And with the new data analytics offered by artificial intelligence and machine learning, we must relentlessly stress-test the resilience of financial institutions to cyber-security threats.

I would like to add a word on the possibility of central bank digital currencies, which is receiving much attention and stimulating discussion.

In some jurisdictions, particularly those where the use of cash is declining rapidly, policymakers are considering providing a digital alternative to cash to serve as a store of value and medium of exchange.

Under one design of such an alternative, anyone could electronically open an account and deposit money at the central bank.

To be sure, various forms of digital central bank currencies, depending on degrees of access, remuneration and other features, can be envisaged as improving welfare, among others, given potential efficiencies to be gained in payment, clearing and settlement.

Considerations of financial inclusion objectives may also come into play in some jurisdictions.

But each jurisdiction will need to consider the risks to financial stability as well. Over time central banks have evolved to limit access to their balance sheet only to commercial banks (and some selected non-bank financial institutions).

This defines the centuries-old two-tier banking system - the central bank being a bank for banks and banks providing services to the public and the broader economy.

Digital central bank currencies, under certain designs, could do away with this long-standing practice, with major implications. Granting access to central bank balance sheets to many parties would present competition to bank deposits.

One could expect a shift of deposits to the central bank under certain conditions that could in principle exacerbate financial stability risks. The shift would be particularly marked in times of stress, when depositors would fly to safety at any price, leaving banks vulnerable to losing deposits to the central bank.

Many tough questions would arise. Could commercial banks still undertake efficiently their current forms of intermediation? Which type of financial intermediary, besides the central bank, could take their place?

Most importantly, central banks would end up intermediating more. With a larger balance sheet, they have to choose how to allocate funds. Would the central bank be more efficient than the private sector in resource allocation, and if not, would the benefits be worth the welfare costs?

So while it is a good thing that some jurisdictions have been thinking seriously about digital currencies, and are fairly advanced in their planning, it is highly likely that other jurisdictions, considering their own financial system structure, underlying preferences for privacy and other constraints, will approach the introduction of central bank digital currencies more cautiously.

One area in which policymakers across jurisdictions might share a common view is with regard to the recent emergence of so-called cryptocurrencies (more like cryptoassets) such as bitcoin.

While these can offer decentralised peer-to-peer exchange and cash-like anonymity, the general judgment is that their volatile valuations, as well as inadequate investor and consumer protection, make them unsafe to rely on as a common means of payment and store of value.

We should not hesitate to warn the public about the differences between central bank money and privately created virtual currencies. The growth and development of the latter may end up quite badly if we in the central banking community do not warn enough of the importance of this distinction.

Concluding remarks

While the risks I have outlined above are significant, they are by no means unmanageable. We can learn from previous tightening episodes and prepare ourselves for the risk of sharp snapbacks in the level of interest rates. We can do a better job in both spreading and selling to the body politic the benefits of economic and financial integration.

Globalisation is not off the rails; it is just in need of maintenance.

We should continue to enhance our capacity to respond to the challenges posed by some disruptive innovations in financial services. At the same time, we should not allow for the revolution in IT and innovation to blur the distinction between money and virtual currencies.

And let's also continue to buttress domestic policies with international cooperation that monitors and addresses global linkages - through both global bodies such as the BIS, the IMF and the FSB, and regional ones such as ASEAN and SEACEN.

Not least, let's fully implement the internationally agreed financial reforms - such as Basel III - in a timely and consistent manner to ensure the resilience of our financial systems.

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