

International Association of Risk and Compliance Professionals (IARCP)
1200 G Street NW Suite 800, Washington DC, 20005-6705 USA
Tel: 202-449-9750 Web: www.risk-compliance-association.com



Monday, May 31, 2021

Top 10 risk and compliance related news stories and world events that (for better or for worse) shaped the week's agenda, and what is next

Dear members and friends,

I remember the words of Sun Tzu: “When able to attack, we must seem unable; when using our forces, we must seem inactive; when we are near, we must make the enemy believe we are far away; when far away, we must make him believe we are near.”



Sun Tzu believed that it is not enough to have a plan, we also have to disguise it using deception. I remembered his words, when I read Microsoft's tweet about a massive email campaign that's pushing a Java-based STRRAT malware to *steal confidential data* from infected systems while *disguising itself as a ransomware* infection.

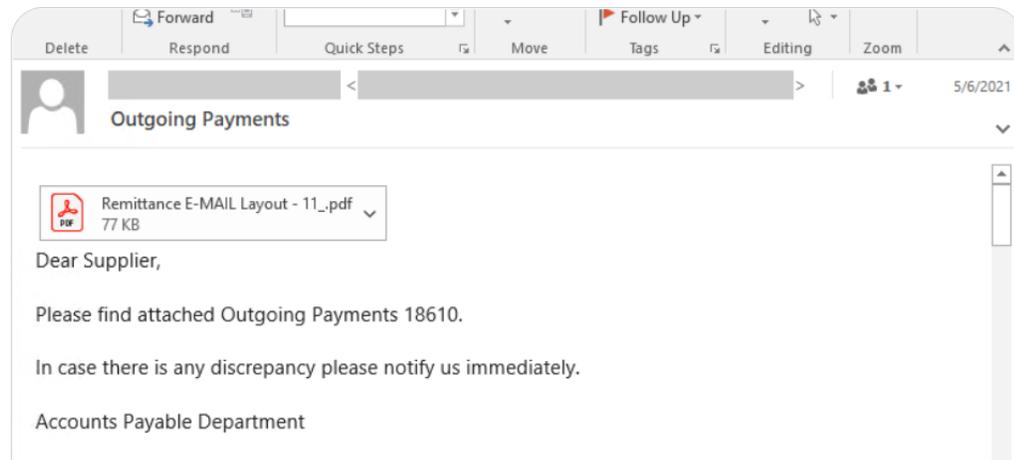
Attackers used compromised email accounts to launch the email campaign. The emails contained an *image that posed as a PDF attachment* but, when

opened, connected to a malicious domain to download the STRRAT malware.



Microsoft Security Intelligence  @MsftSecIntel · May 19 ⋮

The latest version of the Java-based STRRAT malware (1.5) was seen being distributed in a massive email campaign last week. This RAT is infamous for its ransomware-like behavior of appending the file name extension .crimson to files without actually encrypting them.



Email users do not trust Microsoft Word attachments, they trust only pdfs. Predictability leads to vulnerabilities. Weaponized pdfs are used by all cyber attack groups, especially state-sponsored groups. I remember that through all of 2018, network security company SonicWall had discovered more than 47,000 new attack variants within pdf files.

Welcome to the top 10 list.

Best regards,

George Lekatis

George Lekatis
 President of the IARCP
 1200 G Street NW Suite 800,
 Washington DC 20005, USA
 Tel: (202) 449-9750
 Email: lekatis@risk-compliance-association.com
 Web: www.risk-compliance-association.com
 HQ: 1220 N. Market Street Suite 804,
 Wilmington DE 19801, USA
 Tel: (302) 342-8828

Number 1 (Page 5)

FinTech, BigTech and cryptos – will new technology render banks obsolete?

Ida Wolden Bache, Deputy Governor of Norges Bank (Central Bank of Norway), Oslo



Number 2 (Page 10)

Descending safely: Life after Libor

Andrew Bailey, Governor of the Bank of England, at the Alternative Reference Rates Committee – the SOFR symposium: The final year.



Number 3 (Page 19)

How to improve funding of bank resolution in the banking union: the role of deposit insurance

Fernando Restoy, Chairman, Financial Stability Institute, Bank for International Settlements, at the 2021 Biennial International Association of Deposit Insurers Research Conference "Navigating the New Normal for Financial Stability, Deposit Insurance and Bank Resolution", Basel.



Number 4 (Page 24)

2021 COST AND PAST PERFORMANCE REPORT



*Number 5 (Page 27)***Active Cyber Defence (ACD) - the fourth year**

The year four report covers 2020 and aims to highlight the achievements and efforts made by the Active Cyber Defence programme.

*Number 6 (Page 30)*

Committee on the Global Financial System, CGFS Papers, No 66.

Changing patterns of capital flows*Number 7 (Page 35)*

Notification to Passengers (In continuation to the information given on 19th March 2021)

*Number 8 (Page 37)*

FBI TLP White Flash Alert: Conti Ransomware Attacks Impact Healthcare and First Responder Networks

*Number 9 (Page 39)*

Race Logic: Novel Circuitry Solves a Myriad of Computationally Intensive Problems With a Minimum of Energy

*Number 10 (Page 42)*

DARPA Seeks "Always On" Interconnected Networks for Multidomain Missions



*Number 1***FinTech, BigTech and cryptos – will new technology render banks obsolete?**

Ida Wolden Bache, Deputy Governor of Norges Bank (Central Bank of Norway), Oslo

*Introduction*

"No state can endure without a well functioning monetary system." The quote comes from the Constitutional Assembly at Eidsvoll in 1814. At that time, it was imperative to restore the monetary system and establish our own national currency.

Two years later, Norway saw the birth of its first bank – Norges Bank. For many years, it was the country's only bank. Today, more than 200 years later, Norges Bank is the bankers' bank and forms the core of a network of small and large banks spread throughout the country.

But the number of physical premises is steadily declining, and our national currency – the krone – is predominantly a number on a screen rather than a physical handheld object.

And if things develop as some might believe, tomorrow's financial system will not be made up of banks, central banks and national currencies – but of electronic signals that transfer cryptocurrencies – from one digital wallet to another. To quote a well know Norwegian businessman: "The direction is clear: finance will be disrupted as surely as fossil fuels will be. The question is not if, but when."

I think there is little chance that cryptocurrencies will make banks and Norwegian kroner obsolete anytime soon, but the financial system will change.

Innovative technology is paving the way for new and improved financial services, while competition among financial service providers is intensifying. In a digital world, location and national borders become less important.

The banking system in Norway is at the forefront of technology. Cash usage is low, and almost four in five person-to-person payments are made using Vipps mobile payment services.

Norway ranks at the top in Europe in terms of use of internet banking, and robots are performing tasks such as customer contact and processing of loan applications.

The largest Norwegian banks have the lowest cost-to-income ratios in the EEA. Payment services costs are also low in Norway compared with other countries.

Even though Norwegian banks are well positioned to meet growing competition, they are not sheltered, nor should they be. Increased competition for financial services is an intended development.

Combined with digitalisation, this engenders better and cheaper banking services for customers, giving more people access to financial services. But new technology and increased competition can also disrupt the very key role banks play in the financial system.

The changes we are observing raise big questions: Are we headed towards a monetary system that is fundamentally different from the one we have today? Will tech giants and cryptocurrencies outcompete banks and national currencies in a few years?

To shed light on these questions I will look at what actually characterises the role of banks, how competition from new participants might influence the financial system and finally the implications of the changes underway for Norges Bank's role and responsibilities.

The role of banks in the financial system

The financial system should deliver a number of very basic services.

We want to be able to borrow in order to study or buy a home today, while paying out of future income. We also want to be able to borrow long-term to finance investment projects with high expected returns.

In addition, we need a means of payment that provides fast, safe and reasonably priced settlement services for both domestic and cross-border transactions.

The means of payment should also be a savings vehicle. A pre-condition is that we have confidence in the current and future value of money.

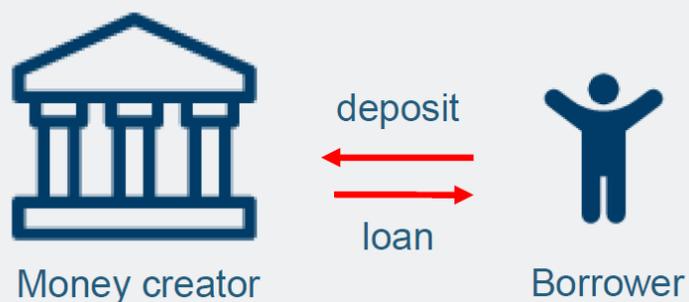
In today's system, banks have a key role in providing these services. They offer credit, savings products and payment services.

Banks are often described as agents that provide credit by taking deposits from savers and lending part of that money to borrowers. This description of banks is not entirely wrong, but overlooks an essential component of banking and a function that distinguishes banks from non-financial firms.

Banks provide credit



Banks create money



The description does not explain where the deposits originate. The deposit placed in one bank can come from another bank. But what if we take banks as a whole? The answer is that banks create deposits when they extend loans to their customers. When a bank grants a loan, money that did not exist before is credited to the customer's account. The bank does not have to find someone who wants to save before it can make a loan. The bank creates

its own funding in the act of lending. Banks thereby also create the money we all use. No other financial firm can do that.

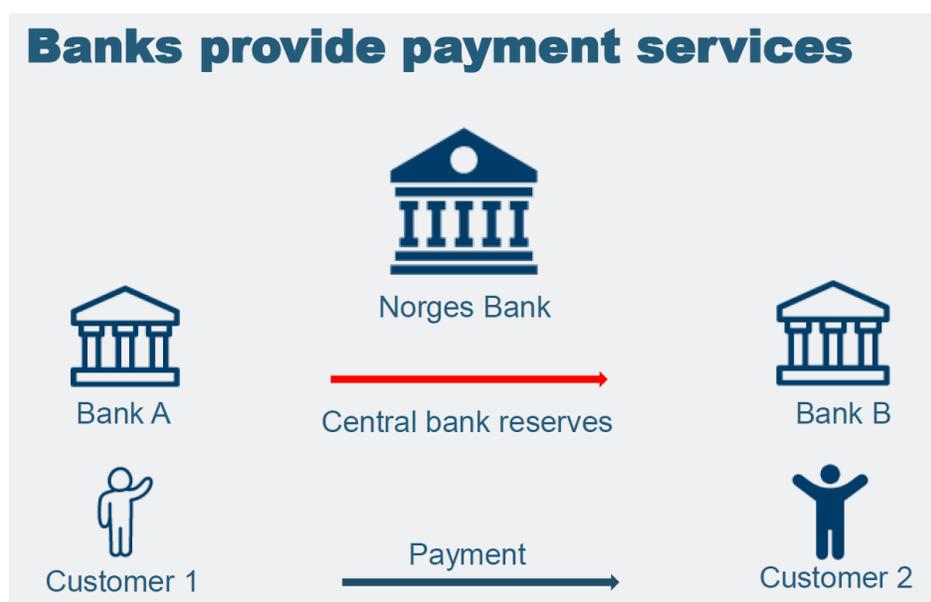
Non-bank financial institutions must hold deposits in a bank for them to be able to pay another party.

Almost all the money we spend daily is deposit money created by a bank. There is little likelihood that many customers will withdraw large amounts simultaneously. Banks can therefore create far more deposits than they can pay out at the same time.

But a bank cannot extend loans and create deposits without limitations. First, it must assess the customer's debt-servicing capacity, ie credit risk. Second, the bank must assess the degree of liquidity risk associated with lending long and creating deposits that customers can withdraw at any time. Third, it must comply with statutory rules.

Banks' willingness to assume some degree of liquidity risk is a public good. In its absence, we would have less access to long-term loans and money in the form of bank deposits. On the other hand, too much liquidity risk entails a risk of instability and crises like the one we experienced in 2008. Banking regulation implicitly provides a trade-off between these considerations.

The other main activity of banks is payment services, which are services we use virtually every day. Today, most people in Norway receive money as a bank deposit directly into their account. As long as there are payment solutions that give us cheap and simple access to money, the account is an efficient and safe wallet.



But how is it that bank deposits can become money that we can use as payment? An important pre-condition is that there is an infrastructure to enable deposits to be efficiently transferred between customers and banks.

As the bankers' bank, Norges Bank creates the money banks use to pay each other, so-called central bank reserves, which are the banks' deposits at the central bank.

Transfers of customer deposits between banks can take place without frictions because a corresponding amount of central bank reserves are transferred between banks' own accounts at Norges Bank, where banks have a common and trusted means of payment and settlement system.

This helps ensure that there is no difference between the money created by DNB and money created by Nordea. The money is interchangeable. For us, it is all Norwegian kroner.

As such, banks play a key role in delivering services we want from the financial system, albeit subject to a framework designed by the Norwegian authorities. The banking sector is more strictly regulated than most sectors of the economy. With the right to create money comes obligations.

To read more:

<https://www.norges-bank.no/en/news-events/news-publications/Speeches/2021/2021-05-11-bache/>

https://www.norges-bank.no/contentassets/679dc7eb81e146448022425718cbfb4c/speech_charts_iwb-vartale-11-05-2021.pdf?v=05/11/2021080047&ft=.pdf



*Number 2***Descending safely: Life after Libor**

Andrew Bailey, Governor of the Bank of England, at the Alternative Reference Rates Committee – the SOFR symposium: The final year.



Many thanks to Tom [Wipf] and the Alternative Reference Rates Committee (ARRC) for the invitation to join today's SOFR symposium and to John [Williams] for his remarks.

Introduction

I have spoken on the transition from Libor each year since 2017 when we set out that despite the significant improvements in its governance and oversight, there were increasing challenges in anchoring the submissions on which those rates were based, to the greatest extent possible, in actual transactions.

The underlying market that Libor seeks to measure – the market for unsecured wholesale term lending between banks – is no longer sufficiently active to support such a widely used reference rate. This has not changed in the last four years.

At that time we highlighted the market disruption that could stem from an unplanned disappearance of Libor. Working together with the panel banks and the wider market, it was in the interest of all involved that we stabilised those rates until such times as transition arrangements were sufficiently well advanced.

Well the summit, or summits that are the cessation dates for Libor are now clearly on the horizon with the FCA announcing earlier in the year that Friday 31 December 2021 will be the final publication date for panel bank sterling, Japanese yen, Swiss franc and euro Libor rates along with a number of lesser used US dollar tenors. The remaining US dollar tenors will cease in mid-2023.

These summits have been on the horizon for over a decade and have been well signposted but they are now clearly visible, but as any climber will tell you the hardest part of mountaineering is often the descent. It can often be more treacherous than the climb.

So with the market having definitive dates for the end of Libor – I am going to focus my comments today on descending safely – remembering the important role benchmarks play in the financial system and why financial firms and borrowers would be well served in choosing the most robust alternative reference rates that meet their use case.

Transition from Libor was always going to be challenging given its widespread use, but to those looking for an easy descent by substituting Libor for credit sensitive rates that do not address all of its fundamental weaknesses, they risk much of the good progress that has been made.

While these rates may offer convenience as a short-term substitution, they present a range of complex longer term risks. And while they may remove the reliance on expert judgement, they veneer over the fundamental challenges of thin and incomplete markets through the extrapolation of data.

The ability of such rates to maintain representativeness through periods of stress remains a challenge to which we have not seen adequate answers.

Developments in sterling markets

So what is the position in sterling markets? Back in 2017, a reformed SONIA rate was recommended by the Working Group on Sterling Risk-Free Reference Rates (RFRWG) as the alternative risk-free reference rate to sterling Libor.

This was in my view a good choice reflecting the liquid and active markets upon which it is based. This makes it inherently more robust. Since then, the RFRWG and UK authorities have co-operated on recommending a series of industry milestones to build liquidity in SONIA.

These milestones have been positioned ahead of the cessation of sterling Libor at the end of this year. We don't apologise for this – it is focussing attention, and providing a clear roadmap to support the development of deep and liquid markets in robust alternatives to Libor and facilitating a smooth transition.

In line with the RFRWG milestones, alternatives to GBP Libor should have been offered to borrowers since the start of October last year. And from the end of March this year, the majority of new GBP Libor business should have ceased, further shifting demand to those increasingly deep and liquid risk-free rate markets.

New sterling floating rate note issuance has almost exclusively referenced SONIA for some time. In the sterling swap market, the share of SONIA-referencing swaps has regularly dominated the Libor equivalent for 10 months now, with continued progress since the 'SONIA-first' interdealer quoting convention switch last year.

Indeed, the dealer to dealer market has completed a transformation in risk traded with SONIA in excess of 70% vs. Libor, with progress across all tenors. If we remove the direct market element and focus on pure inter dealer market, we estimate this is now in excess of 90% SONIA.

These positive developments in linear derivatives (e.g. interest rate swaps) have filtered through into more complex derivative markets, with SONIA swaptions, caps and floors widely available and infrastructure being put in place to support these products.

Today is a further landmark, with another 'SONIA first' initiative as the interdealer market looks to shift liquidity in these more complex non-linear products from Libor to SONIA ahead of the upcoming end-Q2 milestone to cease new Libor linked issuance.

This is not to say there is an outright ban on trading Libor in non-linear sterling markets after this milestone.

In line with our consistent message of supporting a smooth transition there is a 'risk management' exemption to help firms support their clients as liquidity in Libor decreases and end users actively transition to more robust alternatives.

I will, however, offer a warning to those firms regulated by the Prudential Regulatory Authority (PRA) who may be guilty of what I'll call 'lazy' behaviors in unnecessarily sustaining Libor linked contracts.

UK supervisors have been consistent and clear that they support the industry-agreed milestones of the RFRWG and have set their expectations in line with these.

Across regulated firms the necessary reporting is in place and your supervisors will be speaking to you. The transition away from Libor is a risk management issue and relevant senior managers in firms will be responsible for ensuring suitable policies and oversight are in place.

Firms regulated by the PRA in the UK that fail to prudently manage transition will be treated in the same way as firms demonstrating any other risk management / governance failings.

As in other jurisdictions, lending markets have presented their own challenges. Market conventions and relevant infrastructure to support the use of overnight rates have been slower to settle and implement. But the industry and authorities have worked through these challenges together, and we see overnight SONIA compounded in arrears is now being actively used across billions of pounds of GBP facilities.

This includes bilateral, syndicated and multicurrency deals across a wide range of domestic and international users spanning a large range of commercial sectors.

Similar to the experience in the GBP bond markets, compounded in arrears rates have quickly established themselves as a robust and useable market standard. They offer borrowers a transparent rate based on substantial volumes of real transactions and lenders a durable rate that will function through a range of scenarios.

It is promising to see the progress made in SONIA and as liquidity continues to shift, the benefits of transitioning new business from Libor becomes even clearer.

But it is also imperative we have a clear path for existing or 'legacy' Libor contracts to transition in a robust manner. Legislative processes in the US, EU and UK continue to progress in establishing safety nets for those contracts that can't actively transition ahead of cessation.

Strong adherence to the ISDA IBOR fallbacks protocol, in the US and UK in particular, has been encouraging. Clearing houses are also following suit with their own conversion processes on similar terms.

We estimate over 97% of sterling interest rate derivatives have a robust safety net in place. But more can and should be done – the protocol remains open for entities that have not yet adhered and it is critical that equally robust fallback arrangements are adopted in cash products too.

While it is always the right choice to install the safety net to break your fall in the form of fallbacks, this shouldn't be seen as a substitute for pre-emptive action, ensuring a sure footing on the descent.

Active transition ahead of LIBOR cessation remains an important part of easing the gradient of that descent – it ensures contractual certainty and allows borrowers, lenders, issuers and investors to retain economic control over their contracts. GBP bond markets are again leading the way, as we have seen over 50 bonds with a value of around £40 billion actively transitioned from GBP Libor to SONIA.

Where tough legacy contracts are able to take advantage of that safety net, for example in the form of the proposed synthetic Libor we should be clear that this a temporary solution.

Supervisory engagement will continue after the end of this year to ensure regulated firms continue to manage that rump and move those exposures onto robust alternatives where that is possible.

As those facilities re-new, in most case they should move to the most robust rate available, where we expect the most liquidity to be – in sterling that will be SONIA compounded in arrears.

The use of forward looking term risk-free rates

Let me now turn to the critical element of any journey – the destination. The reference rates the market transitions to are important choices. A broad-based transition to more robust overnight risk-free rates can provide the safe descent from Libor we set out to achieve, to a more resilient and transparent financial system.

Active and liquid underlying markets underpinning overnight rates have demonstrated resilience and we expect liquidity to move to these markets.

But there are also specific and limited use cases where forward-looking term rates may help facilitate this journey. We have seen constructive engagement in the UK. In 2018 the RFRWG surveyed the sterling market – and to be honest, we received a mixed response on the role of term rates, but with a small majority supporting a limited role for them.

The UK authorities have been supportive of the development of forward-looking term SONIA rates for limited use in cash markets. These rates have now been available for use in sterling contracts since January.

But while a narrow majority of the market made the decision to support the development of those rates, a broader consensus has firmly endorsed the limited use case for such rates.

It has done this through the RFRWG but also through the FICC Markets Standards Board (FMSB) that has published a proposed market standard that considers limited use cases where there is a robust rationale for use of forward term SONIA, to meet specific needs, such as in trade finance and Islamic finance products.

Let me be clear – forward-looking term rates can support transition. But let me be equally clear in setting out that a broad-based transition to the most

robust overnight rates – for sterling that is compounded in arrears SONIA, underpinned by deep underlying markets, will support a stronger more transparent financial system and ultimately benefit all market participants.

Moving to the most robust reference rate

Despite being the London Inter Bank Offer Rate – transition is of course as much an international, as it is a domestic effort. Indeed John and I have co-chaired the FSB group co-ordinating work on the transition to more robust benchmarks for a number of years now, ensuring co-ordination between authorities from the five Libor currency jurisdictions but also more broadly across the wide range of jurisdictions that are exposed to the Libor benchmarks.

One of the challenges of transition is how embedded Libor has become in our economies and indeed how widely it is used across a broad range of retail and wholesale financial products – far broader than originally envisaged.

Clearly alternatives to Libor need to work for domestic markets but given Libor's role in many of the products and services that interconnect our financial systems, it is important a robust transition is delivered across all the Libor currencies. And the signs here are positive, industry groups in each jurisdiction were established to recommend alternatives to Libor. It is no accident that each industry group has, in my view, taken the sensible decision to recommend risk-free rates.

As we approach the points at which the Libor panels will cease, it is worth pausing to reflect on what the underlying challenges with Libor benchmarks are and making sure that in finding suitable replacements we move to solutions that don't replicate those weaknesses.

Any failure to address these weakness will pose risks in the domestic markets that use them but will potentially export those risks into other jurisdictions through international markets, for example through offshore markets, multi-currency lending and cross currency derivatives trades.

We need to learn the lessons of Libor, and ensure we complete this transition in a way that minimises the risk of us having to undertake a similar exercise in the future.

And across markets we have seen progress in building liquidity in those selected risk-free rates and demonstrating a wide use case.

The tools are there to support use of these rates through the production of indexes and calculators that we are seeing emerge. The transition from Libor should be done once and it must be done right.

As I have already mentioned, there has continued to be low levels of actual transactions in the markets Libor seeks to measure and the rate has had to remain heavily reliant on 'expert judgement'. However, the inherent weaknesses in Libor making it a less reliable and more volatile rate are more accurately captured by three linked factors:

- The lack of underlying transactions on which to base the rate;
- The use of expert judgement to supplement the rates where actual transactions are not available; and,
- The impact of the underlying liquidity dynamics of the markets being referenced.

To address these weaknesses, alternatives to Libor need to address all of these factors and not just reducing the likelihood of the application of judgement.

With banks moving to greater use of retail deposits and secured funding, rather than short-term wholesale interbank markets, Libor increased its reliance on transactions grounded in the commercial paper (CP) and certificates of deposit (CD) markets.

This increased Libor's vulnerability to short-term illiquidity effects apparent in these markets and the amplification of price moves. We have seen how liquidity in these markets can fall away rapidly leading to sharp moves in rates that reference them during periods of stress – most recently during the market reaction to the Covid-19 pandemic last year.

For example three-month USD Libor rose by over 50 basis points in the second half of March 2020, at a time when observable transactions were diminishing and official US rates were reduced by 100 basis points.

Outflows from money market funds (MMFs) were a key driver of the frictions underpinning Libor during March 2020. Credit quality was not the primary concern given the regulatory reforms to money market funds post the 2008 crisis. Instead we saw a 'dash for cash' and pronounced redemption dynamics. In prime institutional MMFs there were 20 consecutive days of outflows between 6 and 26 March 2020.

Redemptions in such funds have been a regular feature of market dislocations and it is these funds that underpin the CP and CD markets that provide many of the reference transactions for Libor.

Many of these new credit sensitive rates continue to reference these markets and when liquidity drops away they seek to expand their ‘daily’ data sets through the use of rolling windows, giving the appearance of larger underlying volumes.

Additionally executable quotes are also sometimes added (albeit at a lower weighting). The use of regression approaches introduces significant model risk and fitting of data to try to demonstrate stability – what is a lot less clear is how stable these rates will be in the future as these underlying market continue to evolve, especially against the backdrop of the potential for further money market reform.

It is therefore not clear to what extent alternative credit sensitive benchmarks have truly addressed the weaknesses of Libor. These rates, which are being promoted by some as alternatives to the selected risk-free rates have only a fraction of the underlying data points and are still exposed to the liquidity premia inherent in Libor.

Building new benchmarks from small, and shrinking markets can create large and sudden movements in those rates that immediately get passed on to borrowers with contracts linked to those rates.

It is easy to understand why lenders may find credit sensitive alternatives attractive in the short-term, but what is less clear is why non-financial borrowers who look to their financial service providers to help them manage their risks would want to see their cost of borrowing being driven by thin liquidity in CP and CD markets.

And it is clear they don’t, in a survey of borrowers by the Alternative Reference Committee’s Nonfinancial Corporates Working Group in March this year, over 80% of respondents would prefer alternatives based on SOFR than on credit sensitive alternatives.

In fact if lenders looked past the short term benefits of substitutability they too would see that when the limited durability of these credit sensitive rates is combined with the need, and in some jurisdictions the requirement, to ensure there is access to robust fallbacks the sensible option is to make your primary rate selection the most robust you can.

In the UK there is a clear consensus that credit sensitive rates are not required or wanted as part of sterling LIBOR transition and in my view this

is sensible. Widespread use of RFRs will ensure we are using benchmarks that will remain transparent to users and embed rates that have long-term durability for the future.

Conclusion

The use of SOFR in US dollar markets is growing. We know liquidity attracts liquidity, it is clear there is demand from borrowers and we welcome initiatives to continue to increase SOFR usage.

There is also broad international consensus to support the US authorities and limit new use of US dollar Libor from the end of this year. So with the summit in sight let's reflect on how far we have come in what was always a challenging climb, but let's also make sure we complete the job properly and safely descend the mountain that is Libor.

I am grateful to Raza Rehman, David Geen, Arif Merali, Stefania Spiga and Alastair Hughes for their assistance in helping me prepare these remarks.



*Number 3***How to improve funding of bank resolution in the banking union: the role of deposit insurance**

Fernando Restoy, Chairman, Financial Stability Institute, Bank for International Settlements, at the 2021 Biennial International Association of Deposit Insurers Research Conference "Navigating the New Normal for Financial Stability, Deposit Insurance and Bank Resolution", Basel.

*Introduction*

It is a pleasure to participate in this event organised by IADI.

This research conference provides a great opportunity to scholars in the field to share, among other contributions, analytical work on the interaction of crisis management frameworks with deposit insurance.

This is a key issue within the ongoing reflection in the European Union on how to improve the current arrangements for bank failure management and, in particular, on how to best adjust the existing funding mechanisms.

It is unlikely that authorities will be able to achieve consensus quickly on what to change and how to do it. But the ongoing discussions already show that an agreement may be emerging on the diagnosis of a few relevant flaws of the current framework

First, at present the banking union lacks an efficient and sufficiently harmonised framework to deal with bank insolvency.

Second, the combination of a common resolution framework with a constellation of heterogeneous insolvency regimes generates inconsistencies that can severely damage authorities' ability to deal with the failure of systemic banks without relying on taxpayers' support.

And third, some banks are too large for their failure and market exit to be managed through conventional insolvency regimes, but still do not qualify, or cannot meet requirements for, resolution under the Bank Recovery and Resolution Directive (BRRD). These banks are what I have referred to elsewhere as the "middle-class".

Some of us have long been suggesting that the above deficiencies could be largely corrected by putting in place harmonised mechanisms to facilitate transfer transactions – such as the sale of a suitable combination of deposits and assets from the failing entity to an acquirer – for small and medium-sized banks under both resolution and insolvency.

Under the EU resolution framework, such transactions are labelled "sale of business" (SoB). In that regard, a helpful reference – although not a full solution – can be found in the US regime administered by the Federal Deposit Insurance Corporation (FDIC).

Those mechanisms would entail adjustments in the institutional framework at the EU and national levels. However, the most important modifications affect the available funding arrangements for relevant crisis management strategies. Money is, as always, key.

In crisis situations, sufficient funds are required to protect the public interest when resolving banks (ie the continuation of critical functions). In addition, they may be needed to preserve banks' net asset value and therefore to protect the interest of the deposit guarantee scheme (DGS) and other creditors under insolvency.

The amount of funding needed crucially depends on the chosen bank failure management strategy. The market exit of a failed bank – even when its critical functions are preserved through an SoB transaction – typically requires fewer resources than its restoration through recapitalisation.

In what follows, I will review the existing funding mechanism and propose a few concrete modifications that could help address the main drawbacks of the current setup.

The existing funding mechanisms

In principle, there are three different sources of funding for the orderly management of bank failures under resolution or insolvency: public funding, a bank's internal loss-absorbing capacity and industry-funded sources such as a deposit guarantee scheme or resolution fund.

The most direct form of funding is government bailout. That has been, in practice, the most relevant funding source for managing the failure of significant banks to date.

The new resolution framework, however, is built with the objective of avoiding recourse to government funds to maintain the critical functions of failing banks. Yet, as recent experience shows, taxpayer funds are still

available to fund banks' exit from the market under national insolvency regimes.

At the other extreme, a core source of funding is banks' own internal resources. Creditor bail-in – ie the writedown or conversion into equity of debt instruments for loss absorption and recapitalisation – could fund the continuation of critical functions by failing banks. This is the cornerstone of the new resolution framework.

In order to make this strategy feasible, banks that may be resolved are typically asked to issue a sufficiently large amount of debt instruments that could be bailed-in in resolution. In the EU, that takes the form of a minimum requirement for own funds and eligible liabilities (MREL).

The current SRB approach to setting MREL aims at ensuring that all banks whose failure may have public interest implications should have a credible resolution strategy that entails no need for external support, from either the government or industry-funded sources, such as a resolution fund or a DGS.

To meet that objective, banks subject to a preferred resolution strategy based on open bank bail-in must satisfy MREL requirements that are consistent with their estimated needs for loss absorption and recapitalisation in resolution, so that the entity can continue to operate immediately after resolution, pending restructuring.

For banks with a credible SoB transaction as a preferred strategy, MREL needs could, in principle, be lower as the bank will cease operating after resolution.

However, given the uncertainty about the availability of a suitable buyer at the point of resolution, the SRB also develops a variant strategy for such banks that is less dependent on third parties and market conditions. In most cases, that is open bank bail-in. The SRB then calibrates MREL at the level needed to implement that variant strategy.

As a consequence, significant banks in the banking union are generally asked, in practice, to satisfy stringent MREL requirements regardless of their preferred strategy. In other words, MREL is effectively calibrated so as to primarily accommodate a restoration strategy.

However, the SRB may need to adjust this approach somewhat as the new Single Resolution Mechanism Regulation (SRMR) explicitly links possible adjustments to MREL requirements to the needs of the preferred resolution strategy.

A third source of funding is the national DGS. Those funds can contribute to supporting transfer transactions in both resolution and insolvency.

However, there is a tight limit on that contribution (a financial cap): funds provided by the DGS cannot exceed the net costs for the DGS of paying out deposits if the bank in question is wound up under the national insolvency procedures.

"Net costs" in this context refers to net of the recoveries the DGS would have made in a liquidation following a payout of insured deposits. In the EU, DGS claims rank senior to other deposits and securities issued by banks (they are "super-preferred"), so expected losses for the DGS in liquidation and, therefore, the available support for a SoB transaction are typically small when not negligible.

Therefore, while a financial cap is a necessary protection for DGS funds that prevents excessive expenditure in a single bank failure, the way in which the cap currently applies makes DGS support for SoB transactions largely irrelevant in practice.

Finally, another source of possible funding for bank failure management in the banking union is the Single Resolution Fund. The SRF is only available for banks meeting the positive public interest assessment required for resolution. Available SRF support is capped at 5% of total liabilities and, more importantly, requires the prior writedown of at least 8% of total liabilities.

Minimum bail-in requirements ensure that the SRF funds are available only when the liabilities that can realistically absorb losses – ie without undermining the effectiveness of the resolution or the resolution objectives – have done so.

The 8% minimum bail-in condition for SRF access is imposed across the board regardless of the failing bank's preferred resolution strategy. It does not therefore accommodate the situation of banks with a large amount of deposits relative to other liabilities that can absorb losses without unintended effects.

Imposing the same minimum bail-in conditions for SRF access by any bank further reinforces the SRB's approach of imposing stringent MREL requirements on all significant banks irrespective of their preferred resolution strategy.

The current framework is therefore internally consistent: restrictions on the use of DGS and SRF funds to facilitate an SoB transaction justifies requiring all banks to satisfy large MREL requirements. Banks that can meet those

conditions may credibly be subject to open bank bail-in (as the preferred or a backup strategy) and may also satisfy the conditions required to obtain SRF support if that is needed. The problem, of course, is that a relatively large subset of banks under the SRB remit run business models that could not easily cope with the conditions imposed (MREL requirements) for their resolution strategies.

On the basis of the new provisions of the SRMR, the SRB will need to adjust downwards MREL requirements for all banks whose preferred resolution strategy is SoB. However, under current arrangements that adjustment cannot realistically be far reaching.

Without further reforms that would increase the feasibility of SoB for a failing bank, the lack of sufficient loss-absorbing liabilities could severely jeopardise the orderly resolution of that bank. Absent a suitable buyer, the bank might only be able to continue operating and have access to the SRF if sensitive liabilities – such as deposits – were bailed-in.

Therefore, solving the middle-class issue requires a comprehensive approach that could lead to a new internally consistent setup that would be less disruptive than the current one.

That might be achieved by adopting three main reforms:

- (i) first, make DGS funding less restrictive by replacing the current super-preference of covered deposits by a general depositor preference rule;
- (ii) second, redefine the methodology for calculating MREL requirements for banks with a resolution plan based on SoB transactions to accommodate a higher likelihood of success of that strategy; and
- (iii) replace the currently universal 8% minimum bail-in conditions for SRF access by a case by case calibration linked to MREL requirements. Let me review each of those three proposals.

To read more: <https://www.bis.org/speeches/sp210511.htm>



*Number 4***2021 COST AND PAST PERFORMANCE REPORT**

In line with the European Commission's Request to the European Supervisory Authorities (ESAs) to periodically report on the cost and past performance of retail investment products, this report provides an analysis of costs - for the year 2019 – and past performance – for the period 2015-2019.

The products within scope for this iteration of the report by European Insurance and Occupational Pensions Authority (EIOPA) are: Insurance-based Investments Products (IBIPs) and Personal Pension Products (PPPs).

The report covers the European Union (EU) markets until 2019 and excludes UK, being most of the analysis based on ad-hoc data collection developed after the UK Brexit final decision.

While the focus is 2019, some general considerations on the impact of COVID-19 on the retail investment market are also presented. Given the extent of the crisis, some preliminary considerations are drawn as the length and depth of the crisis raises a number of issues with regard to the costs and performance of retail investment products.

Beyond possible illiquidity risks, market shocks have indeed impacted returns and in the longer terms costs.

The findings presented are based on a sample covering:

- › More than 680 IBIPs being marketed by over 160 insurance undertakings covering the 60% of the European IBIP market; and
- › More than 210 PPPs marketed by 69 insurance undertakings representing circa 1.4 million of contracts.

IBIPs

Following general financial market trends, 2019 was characterized by an extremely positive year for the IBIPs market.

Unit-linked products overall performed better than profit participation products and hybrids.

A consumer investing € 10,000 in January 2015 in a putative unit-linked product would have achieved, after costs, a net value of € 11,450 (2.7% per year) in December 2019.

For the same time frame, an investment of € 10,000 in an average profit participation product would have paid a net value of € 10,706 (1.4% per year). For hybrid products the net value at the end of 2019 would have been € 11,122 (2.1% per year), in nominal terms.

The difference in net return is explained by the structural differences in the level of costs and return volatility of the mentioned products.

While the level of costs is generally stable and in line with findings of the previous editions of this report, exposure to risky assets and volatility for unit-linked and hybrid products is much higher than profit participation products.

Buying unit-linked products consumers can reach higher net profits in case of favourable market scenarios while being exposed to negative returns in less positive market developments.

Looking at last year's data it could be observed that a putative consumer investing over the years 2014-2018 would have had a higher return with a profit participation product because of the protection offered during the 2018 market contraction.

While profit participation products offer 'stability', their performance after costs is low throughout the reference period.

In particular when considering the impact of inflation, the value offered to consumers has been, on average, very little in real terms, though this is also true for other comparable financial instruments with conservative investment profiles, due to the European low interest yield environment.

Trends at Member States level differ. However, given the overall broader market stability, 2019 data confirms more homogeneous trends with respect to last year both in terms of past performance and costs.

In terms of costs, profit participation products continue being cheaper (1.5%) than unit-linked (2.5%) and hybrid (2.1%), in terms of reduction in yield (RIY) at recommended holding period (RHP).

Amongst the different drivers of net performance and costs level analysed – by market, risk classes, recommended holding period and premium frequency, it can be observed that:

- › the clearer driver of performance for unit-linked products was the risk level, while the main factor for profit participation products was the recommended holding period.
- › Hence, riskier unit-linked products and longer term profit participation products paid higher net return in the years 2015-2019.

From a ‘value for money’ perspective, some trade-offs need to be considered in terms of returns and costs for hybrid products.

In fact, while generally they have a higher degree of complexity because combining different option with different features, in case of positive market trends, on average terms, they show significantly lower profitability than unit-linked products.

On a five years basis the median net return of hybrid was 2.1% vs. 2.7% of unit-linked, while being more expensive than profit participation products, 2.1% vs. 1.5%.

Finally in terms of costs composition, administrative costs continue being the most predominant driver of costs, often representing more than half of the total costs paid by consumers, followed by investment management costs and distribution costs. Biometric costs are minor costs elements.

To read more:

<https://www.eiopa.europa.eu/sites/default/files/publications/reports/eiopa-cost-past-performance-report-2021.pdf>



*Number 5***Active Cyber Defence (ACD) - the fourth year**

The year four report covers 2020 and aims to highlight the achievements and efforts made by the Active Cyber Defence programme.



"How can we use it to help..." was the theme of our Active Cyber Defence (ACD) efforts in 2020.

As the pandemic took hold, we looked at ways in which we could use the ACD tools, services and projects to support people and organisations moving to a working from home model, and also to protect the health, retail, and other sectors during that critical period.

The year ended with a very different challenge, as we took an important role in responding to the SolarWinds Orion compromise and its impact on the UK.

The aim of the Active Cyber Defence (ACD) programme is to "Protect the majority of people in the UK from the majority of the harm caused by the majority of the cyber attacks the majority of the time."

The report is broken down by individual effort, but these aren't siloed efforts: each service and project influences, supports, and guides the others.

This can be seen in data from the Vulnerability Reporting Service highlighting the scale of the 'Dangling DNS' problem, and the team addressing that problem using data from Protective DNS (PDNS) to improve their detection capability. Similar supportive flows exist across the portfolio, and are growing as the efforts mature.

We've also made this report less "numbers heavy", and instead have tried to focus on key stories and important trends that we have discovered in the course of our work. Despite the uniqueness of the events in 2020, we've included comparisons to 2019 as we have in previous years.

As is mentioned throughout, this is a team effort, including UK public sector, commercial and international partners without whom we wouldn't be able to implement these national scale cyber security defences.

Conclusion

2020 was the fourth year of the NCSC's Active Cyber Defence programme, the aim of which is to make the UK objectively and measurably safer from

cyber attack. Our efforts are focused on commodity attacks that affect the majority of the people in the UK which can be prevented at scale.

We have many approaches, which include but are not limited to:

- direct interaction with members of the public (SERS)
- scanning and notification to system owners (Web Check, Mail Check)
- detection and reporting of attacks to infrastructure providers (Takedown)
- supporting network providers in their own attack detection and response processes (BGP Spotlight)

As we focus on scale and commodity attacks, we do not expect our efforts to prevent every attack; rather, we seek to make life harder for attackers, and to raise their costs to a level that is difficult to sustain.

Additionally, the data we generate (and the experience the teams gain through running these services) gives government a better understanding of the cyber threats currently facing the UK, including the best approaches to combat them.

In the years leading up to 2020, our tools, services, and teams had matured to the extent that we were able to rapidly respond when the pandemic took hold, and to apply our technology and techniques in novel ways.

For example, as cyber criminals attempted fraud through fake online stores purporting to sell PPE, the Takedown service was extended to address this challenge.

As organisations moved their meetings online, analysis from the Observatory fed NCSC research and guidance on remote collaboration tools.

And as cyber criminals and state actors targeted the health and vaccine sectors, the PDNS service was extended to protect them.

This fourth annual report documents many of the valuable contributions the ACD programme made to the cyber security of the UK in 2020.

By providing data and case studies on our efforts, we are demystifying the challenges of large-scale cyber attacks, and shining a light on the ACD services and other solutions that work.

As we continue our efforts to broaden adoption of the approaches and services we've developed, we hope this report provides evidence and inspiration for others to adopt, adapt, and copy across industry and foreign governments.

To read more:

<https://www.ncsc.gov.uk/files/Active-Cyber-Defence-ACD-The-Fourth-Year.pdf>



Number 6

Committee on the Global Financial System, CGFS Papers, No 66.

Changing patterns of capital flows



Executive summary

The decade following the Great Financial Crisis (GFC) of 2007–09 saw significant changes in the patterns of capital flows, especially in their composition.

These changes reoriented rather than reduced concerns about the potentially adverse impacts of exceptionally large or volatile capital flows.

In particular, extreme swings in non-resident inflows still pose a significant risk to macroeconomic and financial stability.

This risk is particularly high for emerging market economies (EMEs), which tend to be more dependent on foreign capital and whose local financial systems are less resilient to shocks.

The challenges posed by large swings in capital flows were highlighted again in the early stages of the Covid-19 crisis, when portfolio flows to EMEs reversed with unprecedented speed and magnitude.

The crisis demonstrated the effectiveness of policy tools in managing the risks associated with extreme shifts in capital flows, but it also served as a reminder that both the toolkit and the framework for its application are still works in progress.

Whereas the Committee on the Global Financial System's (CGFS) previous report on capital flows to EMEs, published in 2009, did not come to a definitive conclusion regarding the net benefits of capital account liberalisation, empirical evidence based on the richer data available today highlights these benefits more clearly.

Capital inflows can have significant positive effects on real economic outcomes and financial development. However, the risks are also clearer, especially the adverse effects of sudden stops in capital inflows.

These risks can be significant, and they are shaped by three sets of factors.

First, they depend on the characteristics that “pull” capital flows towards recipient countries.

Second, they depend on exogenous conditions that “push” capital flows to foreign markets.

Third, they depend on the “pipes” through which capital is channelled, such as different types of financial intermediaries and the rules and practices they follow.

Overall, there is a higher risk that resources will be misallocated when capital flows are driven by global financial conditions or channelled through a domestic financial system beset with financial frictions.

The CGFS’s 2009 report concluded that, at that time, a large number of EMEs already met the macroeconomic and financial system preconditions for fully realising the benefits of international capital mobility.

This has since proved to be true. Improvements in EMEs’ macroeconomic fundamentals and institutional frameworks have made investors more selective when assessing opportunities in EMEs.

These improvements addressed structural weaknesses, leading investors to shift their focus towards cyclical factors such as economic growth.

Supported by improved fundamentals, capital flows to EMEs have, on average, held up better than those to advanced economies (AEs) in the years since the GFC.

Inflows to EMEs fluctuated around their pre-GFC levels, whereas flows to AEs remained far below their pre-GFC levels. That said, inflows to EMEs remained low in comparison with the size of their economies.

China stood out as one of the few EMEs to see a substantial increase in inflows after the GFC. Even though EMEs have continued to catch up to AEs in terms of the development of their financial systems and policy frameworks, these structural improvements have not insulated them from sudden stops.

The frequency of sudden stops in capital inflows to EMEs has not significantly declined since the GFC.

Importantly, however, the improved resilience of EMEs has reduced the severity of the disruptions these sudden stops cause.

For example, during the Covid-19 crisis, in contrast to previous periods of global stress, many EMEs had enough policy leeway to implement countercyclical policies to smooth the adjustment to the shock.

Sudden stops are typically triggered by exogenous global shocks.

Tightened monetary policy in major AEs stands out as a potential trigger, as seen during the 2013 “taper tantrum”.

Commodity price fluctuations played a role in the sudden stop episodes of 2015. Shifts in international investors’ risk appetite are another possible trigger, as seen during the Covid-19 crisis.

In general, global factors have played a significant role in driving capital inflows to EMEs.

Against the backdrop of a prolonged period of low interest rates, there has been abundant global liquidity since the GFC, fuelling international investors’ pursuit of yield.

Shifts in risk appetite have also had an important influence on the ebb and flow of capital.

Furthermore, due to China’s growing weight in global activity, economic and policy developments in that country have increasingly shaped capital flow patterns, as demonstrated by the financial market fluctuations that followed the devaluation of the renminbi in 2015.

Since the GFC, the pipes that channel capital flows to EMEs have changed significantly. An increasing share of foreign capital has been channelled through investment funds and other portfolio investors.

Indeed, in many countries, portfolio investors have surpassed banks as the largest source of foreign credit.

Other changes in these pipes include the international expansion of EME-based banks and investors, which has also broadened the role of public sector investors in international capital markets.

Foreign direct investment (FDI), which has historically been the most stable and beneficial type of capital inflow, has also been more affected by financial and tax-related strategies than it had been in the past.

These changes have altered the risks associated with capital inflows to EMEs.

On the one hand, they helped diversify the investor base and develop local financial markets.

This in turn enabled governments to borrow in their own currency rather than in foreign ones, thus reducing the currency mismatches that had exacerbated earlier crises in EMEs.

On the other hand, the rising importance of portfolio investors exposed EMEs to new risks, or rather, “old risks in new clothes”.

Passive investment strategies and other practices in the asset management industry can give rise to herd behaviour and contagion, such as when changes to a bond or equity index trigger a rebalancing by the portfolio investors tracking the index.

Also, unhedged investments can amplify feedback loops between exchange rates and asset prices, potentially resulting in destabilising dynamics.

Other players, like rating agencies, have become an integral part of the global financial infrastructure, presenting their own new risks and benefits.

More generally, the Covid-19 crisis increased attention on the potential systemic risks associated with nonbank financial intermediation and how to enhance its resilience.

The CGFS’s 2009 report concluded that the optimal response to large and volatile capital flows is a combination of macroeconomic and structural policies.

It also concluded that there is no “one size fits all” regarding precisely how these policies are best combined – the best combination depends on the country and the context.

This report reaffirms these conclusions and expands upon them to highlight that, even for EMEs with strong structural policies and sound fundamentals, there are circumstances in which additional policy tools, particularly macroprudential measures, occasional foreign exchange intervention and liquidity provision mechanisms, can help mitigate capital flow-related risks.

Furthermore, the Covid-19 crisis underscored the critical role of international cooperation.

The pipes that channel capital are interconnected and operate on a global scale.

Therefore, policy actions that affect these pipes and the flows they channel have global implications.

This highlights the importance of international dialogue about potential spillovers.

It also confirms the need for a strong global financial safety net composed of a mix of tools suited to different shocks, including tools for alleviating short-term liquidity pressure as well as others designed to ease medium-term adjustment.

It also highlights the need for clear international guidance on the appropriate use of various policy tools in managing extreme shifts in capital flows, taking into account their spillovers and other multilateral consequences.

The first chapter of this report outlines trends in capital flows since the GFC, especially their composition and volatility.

The second chapter examines the drivers of capital flows, distinguishing between what drives capital flows in normal times and what drives them during periods of extreme volatility.

The third chapter analyses the benefits and risks of capital flows.

The final chapter examines policy tools and lessons for managing risks, drawing on central banks' views of the effectiveness and potential side effects of various tools.

To read more (98 pages) you may visit:

<https://www.bis.org/publ/cgfs66.pdf>



*Number 7***Notification to Passengers (In continuation to the information given on 19th March 2021)**

This is to inform that SITA PSS our data processor of the passenger service system (which is responsible for storing and processing of personal information of the passengers) had recently been subjected to a cybersecurity attack leading to personal data leak of certain passengers.

This incident affected around 4,500,000 data subjects in the world.

While we had received the first notification in this regard from our data processor on 25.02.2021, we would like to clarify that the identity of the affected data subjects was only provided to us by our data processor on 25.03.2021 & 5.04.2021.

The present communication is an effort to apprise of accurate state of facts as on date and to supplement our general announcement of 19th March 2021 initially made via our website.

The breach involved personal data registered between 26th August 2011 and 3rd February 2021, with details that included name, date of birth, contact information, passport information, ticket information, Star Alliance and Air India frequent flyer data (but no passwords data were affected) as well as credit cards data. However, in respect of this last type of data, CVV/CVC numbers are not held by our data processor.

We would also like to inform you that the following measures to ensure safety of the data were immediately taken:

- Investigating the data security incident;
- Securing the compromised servers;
- Engaging external specialists of data security incidents;
- Notifying and liaising with the credit card issuers;
- Resetting passwords of Air India FFP program.

Further, our data processor has ensured that no abnormal activity was observed after securing the compromised servers.

While we and our data processor continue to take remedial actions including but not limited to the above, we would also encourage passengers to change passwords wherever applicable to ensure safety of their personal data.

The protection of our customers' personal data is of highest importance to us and we deeply regret the inconvenience caused and appreciate continued support and trust of our passengers.

For more information, please contact: Mr Deepak Sangwan, on email id: aidata.helpdesk@airindia.in Phone Nuber: 0124-2641415 (Monday to Saturday from 0900 hrs. to 1800 hrs.)



*Number 8***FBI TLP White Flash Alert: Conti Ransomware Attacks Impact Healthcare and First Responder Networks***Summary*

The FBI identified at least 16 Conti ransomware attacks targeting US healthcare and first responder networks, including law enforcement agencies, emergency medical services, 9-1-1 dispatch centers, and municipalities within the last year.

These healthcare and first responder networks are among the more than 400 organizations worldwide victimized by Conti, over 290 of which are located in the U.S.

Like most ransomware variants, Conti typically steals victims' files and encrypts the servers and workstations in an effort to force a ransom payment from the victim.

The ransom letter instructs victims to contact the actors through an online portal to complete the transaction.

If the ransom is not paid, the stolen data is sold or published to a public site controlled by the Conti actors.

Ransom amounts vary widely and we assess are tailored to the victim. Recent ransom demands have been as high as \$25 million.

Cyber attacks targeting networks used by emergency services personnel can delay access to real-time digital information, increasing safety risks to first responders and could endanger the public who rely on calls for service to not be delayed.

Loss of access to law enforcement networks may impede investigative capabilities and create prosecution challenges.

Targeting healthcare networks can delay access to vital information, potentially affecting care and treatment of patients including cancellation of procedures, rerouting to unaffected facilities, and compromise of Protected Health Information.

Technical Details

Conti actors gain unauthorized access to victim networks through weaponized malicious email links, attachments, or stolen Remote Desktop Protocol (RDP) credentials.

Conti weaponizes Word documents with embedded Powershell scripts, initially staging Cobalt Strike via the Word documents and then dropping Emotet onto the network, giving the actor access to deploy ransomware.

Actors are observed inside the victim network between four days and three weeks on average before deploying Conti ransomware, primarily using dynamic-link libraries (DLLs) for delivery.

The actors first use tools already available on the network, and then add tools as needed, such as Windows Sysinternals and Mimikatz to escalate privileges and move laterally through the network before exfiltrating and encrypting data.

In some cases where additional resources are needed, the actors also use Trickbot.

Once Conti actors deploy the ransomware, they may stay in the network and beacon out using Anchor DNS.

If the victim does not respond to the ransom demands two to eight days after the ransomware deployment, Conti actors often call the victim using single-use Voice Over Internet Protocol (VOIP) numbers.

The actors may also communicate with the victim using ProtonMail, and in some instances victims have negotiated a reduced ransom. View the entire report below.

To read more:

<https://www.aha.org/system/files/media/file/2021/05/fbi-tlp-white-report-conti-ransomware-attacks-impact-healthcare-and-first-responder-networks-5-20-21.pdf>



Number 9

Race Logic: Novel Circuitry Solves a Myriad of Computationally Intensive Problems With a Minimum of Energy



From the branching pattern of leaf veins to the variety of interconnected pathways that spread the coronavirus, nature thrives on networks — grids that link the different components of complex systems.

Networks underlie such real-life problems as determining the most efficient route for a trucking company to deliver life-saving drugs and calculating the smallest number of mutations required to transform one string of DNA into another.

Instead of relying on software to tackle these computationally intensive puzzles, researchers at the National Institute of Standards and Technology (NIST) took an unconventional approach.

They created a design for an electronic hardware system that directly replicates the architecture of many types of networks.

The researchers demonstrated that their proposed hardware system, using a computational technique known as race logic, can solve a variety of complex puzzles both rapidly and with a minimum expenditure of energy.

Race logic requires less power and solves network problems more rapidly than competing general- purpose computers.

The scientists, who include Advait Madhavan of NIST and the University of Maryland in College Park and Matthew Daniels and Mark Stiles of NIST, describe their work in Volume 17, Issue 3, May 2021 of the ACM Journal on Emerging Technologies in Computing Systems.

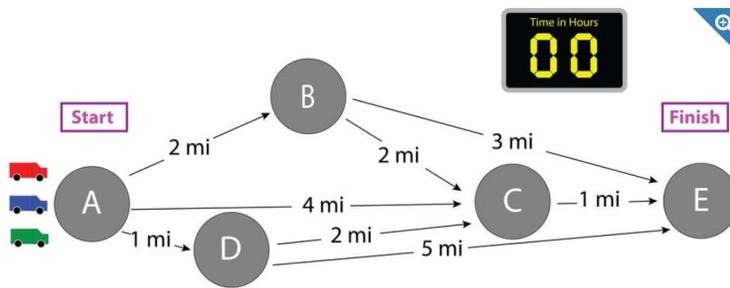
A key feature of race logic is that it encodes information differently from a standard computer. Digital information is typically encoded and processed using values of computer bits — a “1” if a logic statement is true and a “0” if it’s false. When a bit flips its value, say from 0 to 1, it means that a particular logic operation has been performed in order to solve a mathematical problem.

In contrast, race logic encodes and processes information by representing it as time signals — the time at which a particular group of computer bits transitions, or flips, from 0 to 1.

Large numbers of bit flips are the primary cause of the large power consumption in standard computers. In this respect, race logic offers an advantage because signals encoded in time involve only a few carefully orchestrated bit flips to process information, requiring much less power than signals encoded as 0s or 1s.

Computation is then performed by delaying some time signals relative to others, determined by the physics of the system under study. For example, consider a group of truck drivers who starts at point A and must deliver medicine to point E as fast as possible. Different possible routes go through three intersections — call them B, C and D.

To determine the most efficient route, the race logic circuit evaluates each possible segment of the trip, such as A-B and A-D. If A-B takes more time to travel than A-D, whether it's because the path is longer or has more traffic, A-B will be assigned a longer delay time. In the team's design, the longer time delay is implemented by adding additional resistance to the slower segment.

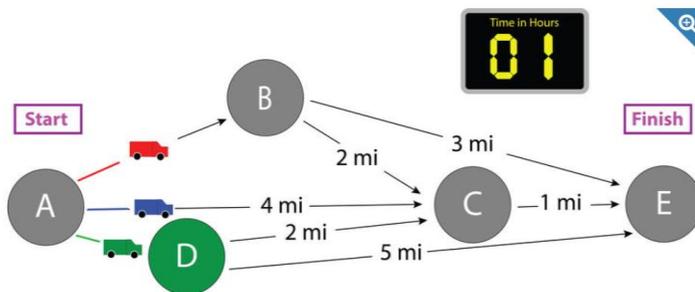


Numbers next to lines show distance in miles between Cities A, B, C, D, and E.

Each truck travels at the same speed --1 mile per hour -- and each travels in a different initial direction.

The object is to get from the start at City A to the finish at City E in the shortest amount of time.

Credit: NIST

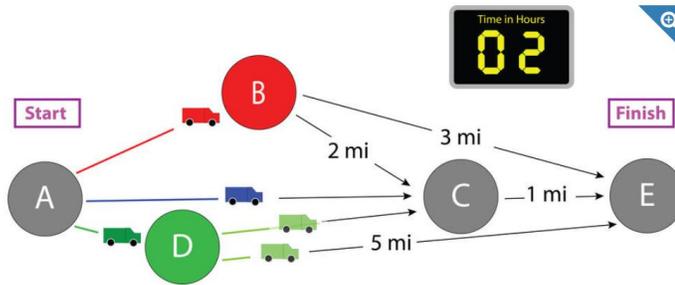


After 1 hour:

The **red** truck is halfway to City B. The **blue** truck is one-fourth of the way to City C.

The **green** truck has reached City D and claimed it for green.

Credit: NIST

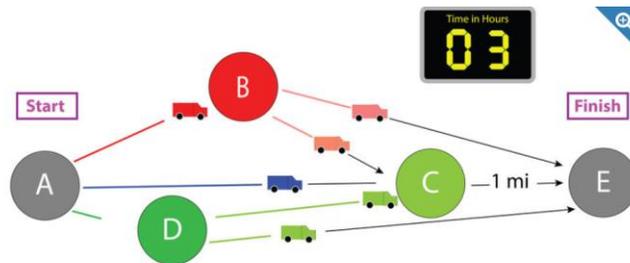


After 2 hours:

The **red** truck reaches City B and claims it for red. The **blue** truck is half of the way to City C.

The **green** truck stops and sends off two related (**light green**) trucks from City D, which it already claimed.

Credit: NIST



After 3 hours:

The **red** truck, having claimed City B, sends out two light red trucks -- one toward City C and one toward City E. The **blue** truck is still only 3/4ths of the way to City C.

One **light green** truck reaches City C first and claims it. The other **light green** truck has moved 2 miles toward City E.

Credit: NIST

To read more:

<https://www.nist.gov/news-events/news/2021/05/race-logic-novel-circuit-ry-solves-myriad-computationally-intensive-problems>



Number 10

DARPA Seeks “Always On” Interconnected Networks for Multidomain Missions



Available and reliable tactical data and communications networks are critical in modern warfare – especially as adversaries seek to disrupt the flow of information across space, air, maritime, ground, and cyber nodes.

Current military networks, however, are manually and statically configured, stove piped, prone to error, and don’t scale easily.

No capability exists to dynamically control interconnected networks (called networks of networks) to ensure warfighters can always send and receive data even in contested environments.

To provide continuously available network pathways, DARPA recently announced its *Mission-Integrated Network Control (MINC)* program. You may visit:

<https://beta.sam.gov/opp/5cff048a105b425cba09639fof7f8c28/view>

MINC seeks to develop software that autonomously configures networks of networks regardless of the communication device or networking resource.

“The goal is to create an ‘always on’ secure network overlay that gives warfighters backward and forward compatibility across heterogeneous networks,” said Mary Schurgot, program manager in DARPA’s Strategic Technology Office. “MINC aims to develop software that autonomously prioritizes information and communications paths to achieve the Mosaic Warfare end state of agile, self-healing networks that enable cross-domain kill webs in highly contested, highly dynamic environments.”

MINC will leverage software-defined networking (SDN) technology for remote, intelligent control of heterogeneous networks. Unlike commercial applications of SDN, which focus on homogenous networks, MINC technology will manage multiple data and control layers via a single secure control overlay.

In the past, the Department of Defense (DoD) approach to building communications systems has modelled a vertically integrated stack. Currently, both DoD and commercial approaches deconstruct this stack and employ open, flexible solutions.

Successful DARPA networking and information programs such as DyNAMO, SHARE, SoSITE STITCHES, and Network UP have addressed various challenges associated with deconstructing the stack and demonstrated key technologies that MINC will leverage.

“Innovations from these DARPA efforts have enabled radio and message interoperability, customized data delivery, packet level data security, and resilience via data and control plane separation,” Schurgot said. “MINC aims to culminate the paradigm shift from static, manual configuration of closed, rigid architectures by moving towards autonomous, mission-driven approaches where applications and networks adapt with mission dynamics and operator feedback.”

For more information and details, view the MINC Broad Agency Announcement solicitation available here: <https://go.usa.gov/xHvrC>

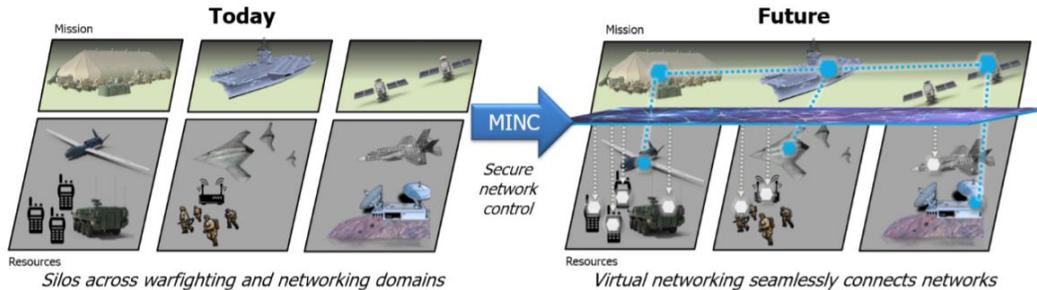


Figure 1. Today: Static networks in separate domains limit the ability to execute the mission and only allow limited to no movement of data across networks; Future: MINC will provide real-time, autonomous resource discovery and network orchestration to dynamically compose data pathways across multiple warfighting and networking domains to continuously adapt to meet mission needs



Disclaimer

The Association tries to enhance public access to information about risk and compliance management.

Our goal is to keep this information timely and accurate. If errors are brought to our attention, we will try to correct them.

This information:

- is of a general nature only and is not intended to address the specific circumstances of any individual or entity;
- should not be relied on in the context of enforcement or similar regulatory action;
- is not necessarily comprehensive, complete, or up to date;
- is sometimes linked to external sites over which the Association has no control and for which the Association assumes no responsibility;
- is not professional or legal advice (if you need specific advice, you should always consult a suitably qualified professional);
- is in no way constitutive of an interpretative document;
- does not prejudice the position that the relevant authorities might decide to take on the same matters if developments, including Court rulings, were to lead it to revise some of the views expressed here;
- does not prejudice the interpretation that the Courts might place on the matters at issue.

Please note that it cannot be guaranteed that these information and documents exactly reproduce officially adopted texts.

It is our goal to minimize disruption caused by technical errors.

However, some data or information may have been created or structured in files or formats that are not error-free and we cannot guarantee that our service will not be interrupted or otherwise affected by such problems.

The Association accepts no responsibility regarding such problems incurred because of using this site or any linked external sites.

International Association of Risk and Compliance Professionals

You can explore what we offer to our members:

1. *Membership* – Become a standard, premium or lifetime member.

You may visit:

https://www.risk-compliance-association.com/How_to_become_member.htm

2. *Weekly Updates* - Visit the *Reading Room* of the association at:

https://www.risk-compliance-association.com/Reading_Room.htm

3. *Training and Certification* – Become a Certified Risk and Compliance Management Professional (CRCMP), a Certified Information Systems Risk and Compliance Professional (CISRCP), a Certified Cyber (Governance Risk and Compliance) Professional - CC(GRC)P, and / or a Certified Risk and Compliance Management Professional in Insurance and Reinsurance - CRCMP(Re)I.

www.simplyhired.com/search?q=crcmp&job=BY_s7GxAbt4KwSJ_aJA_4KaruYRQSQ



Search results for in

Crcmp jobs

Sort by Date Added More Filters

Relevance ▾

Anytime ▾

None Selected ▾

Risk Science Business Process Lead, Senior Associate

Capital One - McLean, VA

Est. \$110,000 - \$150,000 a year ⓘ

Lean, Six Sigma, BPM, PMP, PRM, or CRCMP. McLean 1 (19050), United States of America, McLean, Virginia....

Application Security Advisor-Penetration Tester

USAA - San Antonio, TX

Est. \$100,000 - \$140,000 a year ⓘ

Professional designation in CISSP, CISA, CRISC, CISM, CEH, GWAPT, GWEB, or CRCMP. Purpose of Job IMPORTANT:....

Senior Information Security Risk Analyst

Public Company Accounting Oversight Board - ★★★★★ 10 reviews - Washington, DC

Professional designation in CISSP, CISA, CRISC, or CRCMP preferred. The PCAOB is a nonprofit corporation established by Congress to oversee the audits of public...



Senior Manager Vendor Risk Management

Johnson & Johnson Family of Companies ★★★★★ 3,153 reviews -
New Brunswick, NJ

[Apply On Company Site](#)

requirements:

- Stay abreast of regulatory environment regarding VRM.

Qualifications

- A minimum of a Bachelor's degree or equivalent is required.
- Compliance Certification (CRCMP) designation is preferred.
- A minimum of 6 years experience in IT compliance, finance compliance and/or payroll compliance is required.
- Experience leading & executing SOX 404 compliance programs is required.
- Prior experience with vendor risk management preferred.
- Experience working with 3rd party vendors is preferred.

Companies and organizations around the world consider the Certified Risk and Compliance Management Professional (CRCMP) program a preferred certificate. There are CRCMPs in 32 countries. You can find more about the demand for CRCMPs at:

https://www.risk-compliance-association.com/CRCMP_Jobs_Careers.pdf

For the Certified Risk and Compliance Management Professional (CRCMP) distance learning and online certification program, you may visit:

https://www.risk-compliance-association.com/Distance_Learning_and_Certification.htm

For the Certified Information Systems Risk and Compliance Professional (CISRCP) distance learning and online certification program, you may visit:

https://www.risk-compliance-association.com/CISRCP_Distance_Learning_and_Certification.htm

For the Certified Cyber (Governance Risk and Compliance) Professional - CC(GRC)P distance learning and online certification program, you may visit:

https://www.risk-compliance-association.com/CC_GRC_P_Distance_Learning_and_Certification.htm

For the Certified Risk and Compliance Management Professional in Insurance and Reinsurance - CRCMP(Re)I distance learning and online certification program, you may visit:

https://www.risk-compliance-association.com/CRCMP_Re_I.htm

For *instructor-led* training, you may contact us. We can tailor all programs to meet specific requirements.