Banking Union: imminent crisis and possible solutions

Graham Bishop
Consultant on
European integration

Giuseppe Russo
Director of Centro
Einaudi, Turin

The Banking Union is an essential pillar of the Economic and Monetary Union. However, it is still not completed and not as resilient and weather-proof as one would wish. In this ELF Discussion Paper, two distinguished authors analyse the imminent crisis and possible solutions: Giuseppe Russo proposes to prevent banking crises at the micro-level through the use of predictive systems that employ artificial intelligence while Graham Bishop analyses the proposals to counter the current crisis, arguing for a temporary Eurobill Fund and the capitalisation of banks.

Content

Authors' Bios

Graham Bishop is an independent consultant on EU financial affairs with more than 40 years of experience in financial markets (including at Salomon Brothers and Citigroup). He has served on many key Expert groups for the EU institutions.

Giuseppe Russo is a quantitative economist, a consultant and lecturer of applied economics. Managing Director of the Centro Einaudi, Turin, since 2014, he manages multi-disciplinary research teams and has a qualified experience in the global asset management industry.

Chapter 1

Preventing banking crises at the micro-level: New technologies and new mechanisms

Giuseppe Russo
Director of Centro
Einaudi, Turin

The European banking system has developed important tools to help to prevent future banking crises due to the potentially devastating consequences of the spill-over effect within a highly integrated system. New technologies could complement existing preventive control tools by applying innovative machine learning and data analytics in addition to the existing warning systems. This would lead to better forecasts of risky behaviour and against potential banking crises.

1.1 The standard way to avoid banking crises

The banking union has been a step forward in the process of European integration. During both the financial crisis of 2008 and the sovereign debt crisis of 2011-2012, the robustness of the banking system proved to be a key asset in the transmission of monetary policies; moreover, credit was shown to be essential for the resurgence of economies emerging from periods of recession. Restoring a possibly disrupted financial system comes at an enormous cost and is difficult to sustain without prolonging recession. The entire euro system is furthermore in danger of potential collapse with the uncontrolled spread of counterpart risk in the interbank deposit market. This could happen if interbank lending were frozen by a hypothetical systemic crisis originating in another country inside Europe.

While the North American banking system maintains several professionals in the

banking sector operating on a national and international level, alongside a relatively large number of local banks across all the countries, the European banking system has different characteristics. In Europe, by contrast, the ever-present smaller banks have a specific entrepreneurial DNA. There do exist large banks, however, which still have their own well-defined national character – even if this is likely to decline over time within the Union, as the integration and thus mixing of national economic systems continues. Yet there are also many current limitations. Behaviours caused by low levels of integration may result in damage to the whole system. The European banking system now requires additional institutions in order to make it more secure and overcome a level of integration that originally appeared limited. Part of the safety that would then be guaranteed is directly dependent on the instruments of the European Central Bank, particularly those instruments of direct intervention in banking liquidity – utilised when the interbank liquidity market suddenly contracts due to the spread of pessimistic expectations about particular regions of the euro area.

> "The extraordinary levelling of conditions for access to liquidity does not solve every condition of potential crisis in banking systems

The extraordinary levelling of conditions for access to liquidity does not solve every condition of potential crisis in banking systems, although it may reduce contagion between banks in different countries. In order to have a truly secure banking system, banking safety must be inherent in the process of granting credit and selecting investments, as these involve risk. From this point of view, the banking system is underpinned by special regulations concerning the methodology of risk assessment and the calculation of correct proportions between risks and the net equity needed to protect depositors and the market against crises that may exceed reserves. The assumption of restrictive regulations on the assessment of risks, with particular weights for selected asset classes and in relation to their concentration and minimum capital requirements, can be considered as a precautionary measure. It reduces the probability of losses that may exceed banks' liquid assets, but it does not exclude them.

Moreover, these regulations have the effect of restricting competition between banks as investors and professional loan-makers. Even so, the continuous growth of average bank size can be seen. Banking firms subject to strict standards of risk management and capital endowment are unlikely to outperform each other – except, for example, by scaling up and distributing fixed structural costs over a larger pool of investments and related revenue streams. The historic growth in the size of banking companies has led to increased territorial coverage and, therefore, an obvious increase in the granularity and lower riskiness of portfolios. Apart from the fact that the golden age of local banks is probably done (with the emergence of online banking), the geographical relationship between banks and their customers is vanishing. In any case, the race among banks that are increasingly large, but little differentiated by business model is another factor limiting their competition, one which should also be taken into account by regulators.

1.2 The need to anticipate banking crises

Is there a different way to approach the problem? In order to reduce the impact of crises, there is no doubt that banks need solidifying in terms of equity capital. Still, this is not enough because such a policy only provides for static supervision – albeit administrators and auditors are required to continuously check the consistency of the risk appetite framework in relation to capital supervision. Losses in excess of capital may occur due to the leverage that is naturally necessary for the banking business.

The current system of prudential supervision, having European and national supervisory bodies intertwined, mitigates but does not solve the problem. In fact, it is well known that supervision tends to intercept banking crises too late for normal recovery to proceed. Banks may have access to more liquidity facilities than other businesses do. For this reason, a banking crisis becomes evident only when the deterioration of assets' value is well underway. Supervisors conduct inspection activities based on the sampling rule, and their findings may not be coincident with the most troubling cases. QE monetary policies in action, through access to liquidity facility, might hide real solvency crises facing some banking institutions.

It is therefore necessary to intercept banking crises ahead of time and before they impact on the books: for this reason, we must study their origins.

1.2.1 Crisis predicted by macroeconomic data and environment

In general, studies on the origin of banking crises are based on several macroeconomic factors. Among the recognised precursors of credit crises are trade deficits and speculative bubbles prevailing in asset markets (real estate, stock, and bond markets) which are normally related to excessive access to credits. These precursors have a global nature and are valid for the entire banking industry of a certain territory. Naturally, we have seen in previous banking crises that there is a distinction within the industry between companies that either fall victim to the crisis or not. Macroeconomically derived premonitory signals are therefore suitable in cases where regulators have to focus on a banking system in order to prevent possible crises, but they are too general to determine which banks within that system show such prevailing risks as to threaten failure. In hyper-liquid markets – such as financial ones, wherein expansive monetary policies and quantitative easing have predominated as measures supporting real economies – it should be considered that the delayed identification of banking crises is much more likely than under normal liquidity conditions. Though this does not always occur, a solvency crisis should be anticipated or manifested by a liquidity crisis.

> " In general, recognised precursors of credit crisis are trade deficits and speculative bubble related to excessive access to credits.

1.2.2 Crisis arising from credit portfolio dynamics

The same macroeconomic risk environment factors in when trying to distinguish, at an early stage, which entities may actually enter a crisis. This should be preferred to resolution mechanisms, which may involve the economic responsibility of not only shareholders, aware of their investments' credit risk, but also the holders of more common bonds and deposits who are unaware of the risk they run. Investors, unlike shareholders, do not possess leverage for addressing and directing the actions of bank management. Moreover, they would certainly not be involved in the remuneration of credit and investment risk, unlike shareholders. The consequences of banking crises have naturally led regulators to a prudential supervision of banks: they impose capital buffers to reduce the risk of default, and the system identifies the central bank as lender of last resort in the event of liquidity crises, while possibly anticipating solvency crises.

The possibility of identifying banking crises at an early stage is yet to be explored, not because of the changing macroeconomic environment but for reasons related to credit and investment portfolio formation processes. In other words, the microeconomics of credit management is not considered when revealing potential banking crises. This is contrary to the fact that banking crises sometimes arise precisely within managerial processes – this is also where they often get worse. For example, credit portfolios undergoing financial stress have a tendency to change their inner behaviour: the ETD (Extended Time to Default) under such external stress is very quickly altered in a differentiated way for the various credit segments already present in portfolios. That is, worsening macroeconomic conditions may impact portfolios apparently characterised by the same average original PD (Probability of Default) in very different ways, depending on the composition and direction of the sudden change in the aggregate ETD, as a result of the changing ETD of sub-portfolios. Therefore, an a priori identification of the ETD under simulated stress conditions could provide the means for an initial a priori monitoring of the varied riskiness of credit portfolios. This could also have an impact on regulatory capital requirements: for example, from factoring in upwardly adjusted requirements for more sensitive portfolios, when burdened by external financial stress, to shortening the ETD. In fact, it is well known that unexpected crises may require an increased capital buffer in periods incompatible with the management's exercise of options to access the new equity capital market, which becomes illiquid precisely towards the financial sector when it enters a clear crisis. A supplemental buffer, available a priori and consistent with the ETD's sensitivity to financial stress, could be used to buy managers time to deal with the transmission of the crisis to the bank's loan portfolio. What happens during the onset of a crisis may provide inspiration for tools to avoid it. Not all banking crises, at the moment they arose, would have been necessarily inevitable. The negative outcome of crises is often linked to mismanagement in the final periods of their exercise of control. With the aid of a capital buffer, an emerging crisis leading to asset write-downs should also lead to a risk reduction strategy to protect that buffer; conversely, if the signs of crisis are not caught early, a decline in banking margins could lead managers to accelerate the consumption of the capital

> Investors, unlike shareholders, do not possess leverage for addressing and directing the actions of bank management

Preventing banking crises at the micro-level: New technologies and new mechanisms

buffer, thereby taking on more risk rather than holding it back. The potentially sudden change of ETD, which could happen in tandem with managerial decisions unfavourable to containing the banking crisis, already provides the opportunity to introduce additional early warning systems into the banking system.

1.2.3 Existing warning systems against banking crises

The early warning systems implemented via macro-prudential supervision make wide use of quantitative techniques, applying them to economic and financial databases at the macro level. The quantitative techniques are simple indicators, composite indicators, and quantitative models. In accordance with Aldasoro's recent publication[1], these combined indicators are chosen and computed to be timely, updateable in real time, and easy to interpret, which means that their signals are unambiguous with only a few false readings. The aforementioned survey offers certain macroeconomic indicators to form a common base upon which to forecast banking crises. Among the main indicators are the total loans, the overall and household debt service ratio, and the cross-border claims in a certain economy. As the authors illustrate, the need for indicators that may identify all banking crises in advance looms against the number of false signals that they might produce. Moreover, the calibration of 'trigger' levels, i.e., the threshold for intervention by the authorities to occur, must be fine-tuned from country to country; and there is no guarantee that the absolute level calibrated for a past historical period will have the same predictive value in the future, even in the same country. Composite indicators could better fulfil this function. In general, as recent research has stated, improving these systems will require a move from univariate models to multivariate models, such as logit and probit.[2]

> "
> Among macroeconomic indicators to to forecast banking crises are the total loans, the overall and household debt service ratio, and the cross-border claims in a certain economy.

1 I. Aldasoro, C. Borio, M. Drehmann, "Early warning indicators of banking crises: expanding the family", BIS Quarterly Review, March 2018 (last accessed May 2020).

2 Lucia Alessi et al. "Comparing different early warning systems: Results from a horse race competition among members of the Macro-prudential Research Network", Munich Personal RePEc Archive, Paper No. 62194, posted 20 February 2015 (last accessed May 2020).

1.3 From indicators to big data and machine learning

The progress in methodologies applicable to the prediction of discrete events (a crisis or even a pre-crisis situation of a banking system) has recently been enriched by the techniques of artificial intelligence and deep learning. With developments in these techniques, we could move on from data-based warning systems, which involve the a priori selection of relevant predictive variables, towards systems based on the valuation of crisis formation processes. These methods help to identify, within very big databases, the variables to be used.

Alessi and Detken have recently used the "*Random Forest*" model, a classic of machine learning, to classify and predict banking crises.[3] The model has proven to be effective in identifying, ordering and prioritising numerous indicators that anticipate banking crises across a much broader range than what are usually chosen as simple and composite indicators. The experience from using these indicators should be appropriately considered by regulators. There is, however, no uniform judgment on the superiority of deep machine learning models, nor do they exceed the predictive capacity of multivariate logit models.[4] However, the latter are strictly conditioned by the dataset on which testing is simultaneously conducted. This is, by necessity, subject to an a priori choice, i.e., one made before comparing the predictivity of models and systems.

> The progress in methodologies applicable to the prediction of discrete events has recently been enriched by the techniques of artificial intelligence and deep learning.

The potential superiority of deep machine learning models, on the other hand, is precisely due to the better predictive results achieved when a choice of variables is included in the objectives of a predictive model. This seems to be the technological frontier that must now not only be challenged, but moved from the territory of macroeconomics to that of micro-banking systems. The Alessi-Dekten model performs the function of identifying, in advance, a banking crisis within a homogenous territory. Its usefulness for macro-prudential supervision is clear: a banking union country which triggers an early warning signal from the model may be the object of precautionary policy measures. This could prevent such a crisis from exacerbating and spreading the contagion to other banking union countries.

1.3.1 From macro approach to micro approach

Many banking crises do not have systemic roots, but rather the causes are local, sectoral and corporate-specific. In many cases, the root of the banking crisis lies in mismanagement that has revealed an operational weakness. Managers who underestimate the emergence of losses, both on investments and loans, do not reduce leverage to protect the equity and thus the sustainability of the banking business. Rather, they might increase credit or investment leverage in order to meet the objective of stabilising divi-

3 L. Alessi, C. Detken, "Identifying excessive credit growth and leverage", Journal of Financial Stability, April 2018 (last accessed May 2020).
4 J. Beutel et al., "An Evaluation of Early Warning Models for Systemic Banking Crises: Does Machine Learning Improve Predictions?", Discussion Paper, Deutsche Bundesbank, No 48/2018 (last accessed May 2020).

elf   www.liberalforum.eu

Preventing banking crises at the micro-level: New technologies and new mechanisms

dends. If the investment or credit market environment is characterised by bubbles or a generalised increase in financial risk, then such managerial strategies may fail, no matter that they are being pursued in the interests of shareholders. The cost of these errors is very high: the realisation of a corporate banking crisis can have a negative impact not only on shareholders.

Banking crises may spread through interbank credit channels and undoubtedly further impact demand and therefore local income. It has been demonstrated here that machine learning and/or artificial intelligence models can be useful in identifying potential banking crises. Their application would decrease the impact of bad management. In addition, shareholders could take prompt action – for example, with a capital increase or by demanding the restructuring of banks. This could greatly benefit the European Banking Union, both by reducing the number of potential crises and reducing the potential for banks' business risks evolving into sectoral and, later, eventual systemic risks.

1.3.2 A roadmap to a banking crisis warning system based on machine learning

Though this chapter cannot draw definite conclusions, the path towards preventing business and industrial risks in the banking sector is promising – through warning systems based on automated learning techniques, calibrated with not only data from the financial sector and aggregated national data but also micro data from individual banking companies. As is well known, companies already use quantitative and qualitative assessment systems for credit risks, market risks, and even operational risks.

Such internal models could provide first-level variables for machine learning models and especially dependent variables. Possible variables include:

- PD (Probability of Default);
- EL (Expected Loss);
- ExTD (Expected Time to Default);
- VAR (Value at Risk) and TVAR (Tail Value at Risk).

These and other variables indicating the risk dynamics involved in an individual banking enterprise should be linked to a wider and larger pool of local and business variables, potentially anticipating adverse developments of risk indicators and their acceleration over time. Companies' datasets should track a large number of variables, letting the algorithms determine those variables that could have an impact on risk.

The table below shows some sets of different variables that can signal the evolution of corporate banking risk (see Table 1).

We must also certainly recognise the benefit of collecting and sharing datasets when creating and calibrating the micro-prudential surveillance models that could arise from the use of deep and machine learning. To ensure this possibility, banking companies should make their (appropriately anonymised) data available in order to create a shared database for the estimation and calibration of such models. The databases should be large enough to isolate the test sets for model estimation and calibration. The application of these models to the scale of individual banking firms should be introduced

Table 1: Variables for a banking crisis warning system based on machine learning

Class of variable	Area of focus
Human capital	Training, turnover, etc.
Control system	Resources, methodologies, anomalies detected
Composition of the shareholding structure	Division, concentration, relationships with management, employees and customers
Organisational efficiency tracking	Time to delivery, time to perform standard procedures
Operational correctness tracking	Complaints, lawsuits, administrative infringements
Tracking regulatory complexity	Number of company rules and number of infringements
Tracking innovative capacity	Investments in fintech and digitalization
Territorial variables	Investments and loans
"Chain" variables	Means to express chain links between the recipients of investments and loans

Source: author's elaboration

through an experimental phase before their use for real-time crisis prevention purposes. If the adoption of the models was voluntary rather than mandatory, they could be encouraged.

The results of these models applied at the micro-business level of banks should be targeted differently according to the intensity of early warning signals. Weak signals should be primarily addressed to bank management, internal supervisory bodies, and banking boards. Medium- and especially high-intensity signals should be made explicit to supervisors. It is desirable for internal earnings warnings to trigger streams of virtuous actions to prevent non-systemic banking crises, reducing in a timely way the leverage and exposure to risk, protecting shareholder capital, and fostering it – including the raising of new capital. A successful machine learning system to warn against banking crises at the micro level would be superior to the current system, which is sometimes late in detecting crises, expensive, and not always fair in applying resolution mechanisms. These failings may even result in economic and financial costs for individuals without substantial responsibility for the credit and investment management process.

Comment on Chapter 1

Professor Russo has provided an interesting chapter that reviews some of the historical features of banking crises. He has reviewed the characteristics of national banking crises and shows why the Eurozone's Single Supervisory Mechanism (SSM) became necessary after the Great Financial Crash of 2007/8 and the 2012 euro crisis.

There were a number of lessons to be learnt from those crises and he correctly highlights the perennial behaviour of bank management in continuing to take credit risk even after the deterioration in economic fundamentals might have suggested a more cautious approach.

Among the supervisory community, there is always tension about the best solution – but Professor Russo comes down firmly in favour of steps to avoid resolution of the bank if possible. However, that underlines the weakness of the bank's stakeholders other than shareholders, as it is they alone who have the power to discipline management.

> **"Russo develops interesting points on the application of artificial intelligence and machine learning"**

He develops interesting points on the application of artificial intelligence and machine learning, concluding that "the golden age of local banks is probably done" as a natural consequence. However, it would be useful to have his analysis of applying machine learning to the current Covid-19 crisis. Is it actually possible, with no precedent to be learnt from?

Moreover, for the first time, the entire EU banking system has been struck by a single event across all member states, rather than the typical historical pattern of a series of national crises that subsequently spill over into other states – requiring an EU-wide regulatory response.

Graham Bishop

Chapter 2

Two partial solutions to the imminent banking crisis

**Graham
Bishop**

Consultant on
European integration

The entire financial system is about to be stressed to a greater extent than anyone ever imagined because the decline in GDP this year could be at least twice the decline during the Great Financial Crash (GFC) in 2008/9. The recent Financial Stability Review[1] from the ECB underlines the gravity of the situation.

Because of this unpredictability inherent in the Covid-19 related crisis, we should be cautious in applying existing instruments (such as the Bank Recovery and Resolution Directive)[2] to potentially large swathes of the entire banking system, as opposed to an occasional individual bank. Moreover, several instruments have been proposed to tackle the current crisis of excessive public debt – to avoid the "doom loop" linkage between banks and their sovereign governments.

Ensuring the transparent strength of bank balance sheets is crucial to avoid having to risk resolving a swathe of banks. Creating financial instruments that could balance risk and reward means reviewing the full range of banks' capital instruments. If, particularly in these times, investors are looking for profitable but risky bonds, then they will willingly bear a fair risk rather than transferring it to taxpayers.

This author continues to believe that a variant of his long-standing proposal for a Temporary Eurobill Fund (TEF)[3] remains politically and financially feasible. Furthermore, in the short term, the economic crisis linked to the emergency we are experiencing will require the issuance of large additional loans by governments. An interesting opportunity presents itself as the Eurozone gears up for the new Recovery Fund: a pooling (but avoiding mutualisation) of short-term issues, in combination with their short-term nature, could prevent moral hazard. Thus, exposure to those who do not keep their promises will be reduced swiftly, as short-term debts mature and are not renewed. At the same time, this specific form of pooling would create political solidarity in a time of crisis.

Concrete solutions are proposed that can ensure both 'safe assets' for banks and strengthen financial stability; these will enhance credibility within jurisdictions and – not least – among citizens.

---

1 ECB, "Pandemic increases risks to financial stability" Press Release, ecb.europa.eu, 26 May 2020 (last accessed May 2020).
2 Directive of the European Parliament and of the Council of 15 May 2014, "Establishing a framework for the recovery and resolution of credit institutions and investment firms" n° 59/2014/EU (last accessed May 2020).
3 G. Bishop, "Temporary Eurobill Fund (TEF): 30 FAQs", grahambishop.com, 9 May 2018 (last accessed May 2020).

Introduction

As the economic consequences of the Covid-19 pandemic deepen, the risks of a renewed banking crisis are rising rapidly. Despite the measure taken after the Great Financial Crash (GFC) to ensure that banks never have to be bailed out by taxpayers again, banks still remain inextricably linked to the financial health of their home sovereign state: the 'doom loop'.

This chapter proposes two measures that could help – but there are no complete, magic solutions:

1. **Bank Capital:** This will probably need to be bolstered once the massive economic losses are fully accounted for. In its latest Financial Stability Review, the ECB expects that the capital draw from loans losses – at the lower bound – will exceed the value of the newly-permitted €140 billion drawdown on regulatory capital. The estimated loss range runs up to perhaps €500 billion – equivalent to a third of Tier 1 capital. But the history of the 2008 GDP decline suggests the loan losses could be much higher, as ECB forecasts are now in a range of 8-12% decline – so, at least twice the 2008 severity.

   Against this background, equity investors are unlikely to subscribe for new shares in banks – especially without any dividends. However, bond investors have shown a huge appetite for higher yielding instruments and should be encouraged to invest in banks' Additional Tier 1 (AT1) instruments. But they are only likely to do that if they believe they will be treated fairly.

2. **Eurobills:** These can stabilise public finances, encourage a return to sound economic management as soon as possible, and provide a 'safe asset' to diminish the doom loop. Eurobills could form part of the funding package for the Recovery Fund to be launched by the European Commission and also help to create a financial asset that would enhance the international role of the euro.

"" As the economic consequences of the Covid-19 pandemic deepen, the risks of a renewed banking crisis are rising rapidly

Two partial solutions to the imminent banking crisis

www.liberalforum.eu

2.1 Commentary on banking problems

The STOXX index of EU bank shares hit its peak for the year at 102 on February 18, back up to the same level as 1/3 of a century ago (see Figure 1). A month later, the index sank to 49 (before rebounding somewhat) as bank shareholders began to digest the Covid-19 implications – pricing banks at perhaps a third of their published book value.

Why has the stock market been so obviously worried for a decade? The European Central Bank (ECB) and the European Banking Authority (EBA) have been producing learned reports on the banking sector. These highlight the basic problem clearly: Europe's banks are insufficiently profitable. For the big banks that the ECB supervises, return on the equity that shareholders have paid in is under 6% on average. The ECB now expects it to decline to 2.4% in 2020 and recover only slightly to 3.5% in 2021. But the cost of their capital is in the 8-10% range – an unsustainable gap in the long run.

Two partial solutions to the imminent banking crisis

Figure 1: STOXX index of EU bank shares, 1987-2020

Source: stoxx.com.

2.1.1 EU regulatory response to 2008 Great Financial Crash: Taxpayers must not pay again

On this score, there was some 'good news' – until Covid-19 struck – as the EU had enacted the BRRD (Bank Recovery and Resolution Directive) to enable failing banks to be 'resolved', i.e., re-capitalised by someone other than the state, sold to a strong bank, or liquidated, if all else fails, over a weekend. However, if you do not believe that the BRRD will function in a crisis as intended, then you (implicitly) believe there is a chain that may break. It seems that not even the regulators believe in the full working of the BRRD! The European Parliament recently published a report stating that "[…] *very few European banks could be described as resolvable* […]"[4] if they had to meet the regulator's (currently only draft) standards.

To complete the 'good news' from the past, the third iteration of the Basel rules must soon be put into EU law. Even the EBA thinks that will require about 10% more capital in the banks. They will then be super-safe, but the same question remains: where will this capital come from? Will shareholders be willing to buy new shares? The ECB now calculates that no major banks are priced above their 'book value'. The weakest banks are

---

4 European Parliament, "Impediments to resolvability of Banks", Economic Governance Support Unit (EGOV) Directorate-General for Internal Policies PE 634.360 - December 2019 (last accessed May 2020).

elf   www.liberalforum.eu

priced at just over 10% of stated book value – while the average hovers around one-third of book value. So, a major issue of shares would dilute value for existing shareholders. Naturally, they may not be keen to agree to such a policy.

Are there other solutions? Even these days, bankers are not popular with citizens, so it is difficult for politicians to advocate that banks should double their profits – to match US banks' 'normal' profitability. But such a rise in profits would easily solve their problems. The EBA rather lamely suggests cutting expenses is 'presumably' the main route to increasing profitability. But there is another simple and quick solution for an individual bank: cut the size of its balance sheet so that the existing capital arithmetically becomes a higher proportion of its assets – as required by the regulator. However, in aggregate that would spell disaster for the already-fragile EU economy, as the supply of credit to firms and individuals would be reduced. That might induce another round of expected loan losses: perhaps actually putting banks into losses that reduce their capital. The dreaded vicious spiral could then be underway – ironically, triggered by the well-meaning and individually-sensible policies enacted after the GFC.

Having watched many crises brew up during my decades in the financial markets, there are now some eerie parallels with earlier cycles that are increasingly concerning. Policymakers say they have learnt the lessons and the new rules ensure that the previous crisis cannot be repeated. However, there is a great light that has been flashing ever more brightly orange for a long time: the stock markets are sending a powerful message about the poor health of EU banks. Pre-Covid, the average EU bank stock had hardly risen in 30 years and they never recovered from the effects of the Great Financial Crisis (GFC) in 2008/9, either (see Figure 1). In sharp contrast, US banks nearly tripled in value after the GFC – up until the recent Covid-19 crash.

> "It is difficult for politicians to advocate that banks should double their profits, but such a rise in profits would easily solve their problems.

Highly profitable banks could generate the required capital quickly by retaining more of their earnings rather than paying out dividends. But the ECB's forecast of low – and sharply declining – profitability suggests that this will not be possible in the EU. Yet it merely forecasts the average of all banks. Many banks are above these averages, but (by definition) many are still below the average and could be a weak link. In any case, this possibility to generate capital has just been taken away – regulators are exerting huge pressure on banks to suspend their dividends entirely.

2.1.2 EU regulatory response to the Covid-19 crisis

The regulatory response so far has consisted of action at two levels: relief measures for both capital buffers and provisioning for loan losses. The Pillar 2 Guidance buffers were released immediately, and the more relaxed CRD V composition of capital for Pillar 3 Requirements was immediately implemented. Together, this amounted to a release of €140 billion of CET1 capital – about 10% of the total in the banking system. So far, so good.

More controversially, banks were permitted to use more flexibility in the treatment of non-performing loans (NPLs) and the 'expected credit losses' that will have to be re-

Two partial solutions to the imminent banking crisis

ported under the recently implemented IFRS 9. If a debtor does not pay, due to a public moratorium, then that individual debtor should not be treated as having missed a payment. Moreover, that categorisation does not kick in until a payment is 90 days past due. Now that the new accounting standard (IFRS 9) is in force, investors should only fear 'reality': swiftly reported 'expected losses'. However, it is worth noting that the ECB reckons about a third of all losses may be passed on to governments via the guarantees they have issued.

Even before the Covid-19 related crisis, the EBA reported on risks and vulnerabilities and found an increasing share of banks expecting a 'deterioration of asset quality' – bureaucratic-speak for rising loan losses. Leading credit-rating agency Moody's has downgraded EU banks for exactly this reason. If loan impairments push a bank into loss, then it will be under pressure to raise more capital to compensate, especially once the contingency buffers have been exhausted. But the ECB feels that banks may be reluctant to allow capital levels to sink too low out of fear of stigma.

Where could the new capital come from? Two types of capital are relevant:

1. Core Equity Tier 1 (CET1) – normally ordinary shares, but large-scale issues of new shares would involve massive dilution for existing shareholders when new shares have to be marketed at less than a third of "book value". Moreover, the strong pressure by regulators to suspend dividends makes new shares even less attractive to investors.

2. However, a modest portion of Tier 1 capital can be supplied by Additional Tier 1 (AT1) capital instruments sold to professional bond investors – at the right price – as I will explain later in this publication.

The problem of any perceived relaxation of loan-loss accounting standards

Investors already seemed to have had major concerns about the genuine quality of bank assets in the period before Covid-19. The halving in value of EU bank shares in the month since the pandemic started suggests a very sharp rise in these concerns. If the authorities now connive to reduce the credibility of stated assets even further, then we may have started slipping down a slope where there may only be one buyer of new bank equity if (or, more accurately, when) it is needed. The risk of taxpayer bail-outs – *de facto* nationalisation – may return very quickly (despite all the legislation after the GFC) unless bond investors are willing to buy Additional Tier 1 capital instruments.

2.1.3 Potential impact of loan losses

The problem of losses could be huge. The major US banks have already reported their first quarter earnings and reported $24.1 billion in loss provisions – an increase of $18.7 billion from Q1 2019. These provisions were 0.6% of their loan portfolios, but net earnings were still $10.1 billion. How bad could it get? As an example, JP Morgan took an extra $6.9 billion in provisions, but The Economist reckoned the bank could finish up with $45 billion of loan losses – based on its 2007/9 experience.

The Financial Times recently published an article by the US official who oversaw the Troubled Asset Relief Programme (TARP) in 2008. He pointed out that *"in 2008, US taxpayers injected about $200bn of capital to strengthen banks. Raising that amount from private investors today, as a strong, preventive measure, would ensure that large banks can support the economy over a broad range of virus scenarios."* Shareholders might look at such calls more kindly when the top four banks are selling at around 80% of book value – rather than the 40% average of large EU banks.

Most EU banks will report Q1 earnings during May, and these should begin to reflect the expected shrinkage of GDP in 2020: recently estimated by the European Commission at nearly 8%, with risks biased downward and an incomplete recovery expected in 2021. Reports so far suggest that average earnings have roughly halved – even after accounting for the more relaxed loss provisioning at this stage. As the GDP decline in 2020 is expected to be roughly twice that in 2009, the losses incurred may turn out to be quite dramatic. The ECB now expects overall profitability in 2020 to be less than half that of 2019.

Figure 2: The evolution of the NPL ratio and real GDP growth, EU and Euro Area
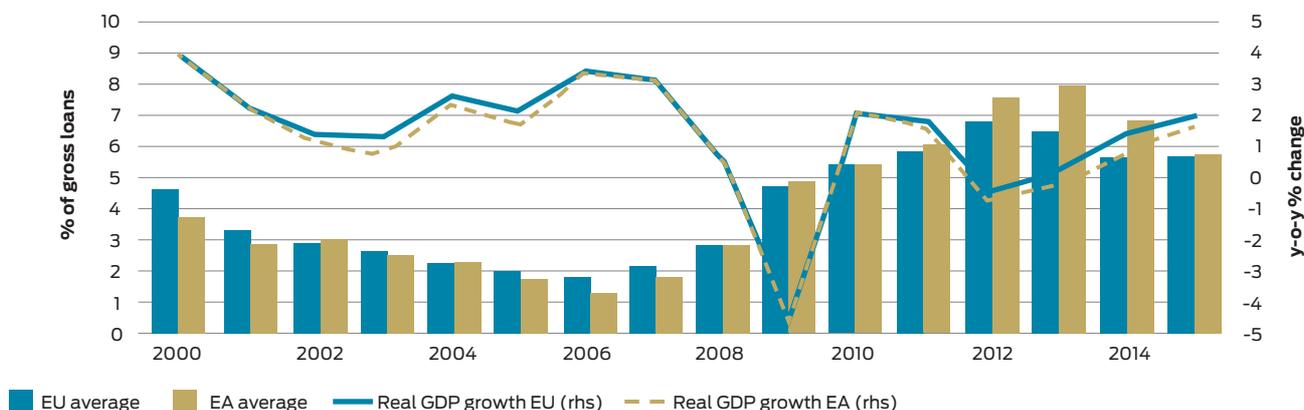
Source: Quarterly Report on the Euro Area, Vol. 16 nº 1, EU Commission.

The ECB's Financial Stability Report suggests that the lower bound (author's emphasis) of potential loan losses may create a minimum draw on capital of just under €200 billion – somewhat higher than the newly-permitted €140 billion drawdown amount on regulatory capital. The estimated loss of value ranges up to perhaps €500 billion – equivalent to a third of total Tier 1 capital.

The history of the GFC suggests the serious possible under-estimation of potential

losses. Vol 16.1 of the European Commission's Quarterly Report on the Euro Area[5] (provides a useful chart showing the development of NPL ratios versus GDP. The ratio rose from under 2% to about 8% – generating a nearly €1 trillion pile of NPLs at the peak in 2014. But the GDP decline was "only" 4.5%, versus the 8-12% range now expected by the ECB for this year. Should we be expecting NPLs to approach €2 trillion after the ECB's estimated lag of perhaps three years? That would substantially exceed the entire Tier 1 capital stock of the euro area banking system. However, the ECB estimates that government guarantees may mitigate perhaps a third of these losses – substantially reducing the strain on the banking system but transferring it to public finances instead.

> "De-risking" balance sheets is a polite term for cutting lending – the last thing needed by public policy in these circumstances.

Jan Schildbach, a researcher of Deutsche Bank, recently published a paper[6] at SUERF[7] that reviewed many of the issues facing the largest EU banks. He made several powerful points:

- Loan loss provisions last year were already up 18%. In the GFC, they rose to 4.3 times pre-crisis levels.
- Profitability is weak – about half the level of US banks. In the GFC, profits fell from €131 billion to a €53 billion loss. Net income has only recovered to €74 billion for the largest institutions.
- The scenario unfolding is likely to be more severe than the latest EBA "adverse" stress test of 2018.
- "[...] *The aggregate capital ratio could plummet into single digits* [this author's emphasis]. *On the other hand, the stress test was based on a static balance sheet and did not take into account banks' mitigating measures such as de-risking and raising/injecting capital from private or public sources... After the crisis, there should be enough time to rebuild capital positions.*"

His optimism is admirable, but 'de-risking' balance sheets is a polite term for cutting lending – the last thing needed by public policy in these circumstances. Moreover, we come back to the core problem of who is likely to be willing to inject new equity capital at this stage – other than taxpayers? However, as explained later, some help could come from bond investors via Additional Tier 1 capital instruments.

5 European Commission, "I. A macroeconomic perspective on non-performing loans (NPLs)", Quarterly Report on the Euro Area, Vol. 16 nº 1 (last accessed May 2020).
6 J. Schildbach, "European banks in the corona crisis", SUERF Policy Note, Issue nº152, April 2020 (last accessed May 2020).
7 "Société Universitaire Européenne de Recherches Financières", original name of The European and Money and Finance Forum, a non-profit association established on 25 November 1963 in Louveciennes, France focusing on the analysis, discussion and understanding of financial markets and institutions, the monetary economy, the conduct of regulation, supervision and monetary policy, and related issues (last accessed May 2020).

Two partial solutions to the imminent banking crisis

2.2 Safe Assets: SBBS versus Corona Bonds versus Eurobills

The need for safe assets has been clear for a long time and was analysed by the Expert Group[8] on DRF and Eurobills in 2014 and again by the ESRB in 2018. This author was a member of that Expert Group and presented his plan for a Temporary Eurobill Fund that would be a safe asset as well as provide several other policy benefits.

Here you can find selected extracts from DRF/Eurobills Expert Group Conclusions. Possible objectives of schemes of joint issuance of debt:

- The Eurobills idea has been put forward with the primary objectives of stabilising government debt markets by reducing Member States' rollover risk and of fostering the integration of financial markets through the creation of a safe and liquid asset. Such an asset would also contribute to reversing the trend towards market fragmentation and support monetary policy transmission.

- Introduction of any scheme of joint issuance could only be one step contributing to financial market integration, amongst other possibly needed steps, including those aiming at structurally strengthening Europe's banking sector. It should also be noted that no asset is completely risk-free. Creating a jointly issued government security that will be regarded as a safe asset for investors will thus imply some residual risk to governments participating in joint issuance.

2.2.1 SBBS[9]

In recent years, there have been many proposals for European financial assets that have been conceived from the top down to meet a perceived need to bolster the financial stability of the Eurozone. These plans include my own proposal for a Temporary Eurobill Fund, ESBIEs/SBBS, various shades of coloured bonds, and debt redemption funds. The European Commission actually published a proposal for SBBS, but it has made no progress. The key critique was made by the European Sovereign Debt Managers (ESDM) Committee, and I published a comparison of their criticism of SBBS with reasons why my TEF proposal avoided these problems.[10]

2.2.2 Corona Bonds

In a fast-changing situation, the European Council has agreed to the Eurogroup finance ministers' proposal for a €500 billion package of aid from the ESM, EIB, and the new SURE unemployment fund. This does not include any form of corona bond, as many protagonists are calling for mutual guarantees. However, ESM Director Regling has al-

---

8 The full Report of the Expert Group (last accessed May 2020).
9 The Sovereign Bond-Backed Securities are securities backed by a diversified portfolio of euro area central government bonds, proposed by the Commission in 2018, based on the European Systemic Risk Board (ESRB) task force's studies from 2016; source: European Commission, "What are SBBS?" (last accessed May 2020).
10 G. Bishop, "Commission to propose SBBS framework: But Temporary Eurobill Fund is very different – with wider benefits", grahambishop.com, 23 March 2018 (last accessed May 2020).

elf   www.liberalforum.eu

Two partial solutions to the imminent banking crisis

ready called for a further €500 billion of funding, and this appears to be politically feasible after the joint interventions of Chancellor Merkel and President Macron.

The European Parliament may have found the right form of words by calling for a massive recovery plan financed by an increased EU budget, existing EU funds and financial instruments, and 'recovery bonds' guaranteed by the EU budget but carefully ruling out the mutualisation of past debt. The Merkel/Macron proposal is that the European Commission could borrow in its own name – secured by a pledge of repayment from the EU's budget.

2.2.3 Eurobills

My proposal for a Temporary Eurobill Fund has always had three core objectives:

- Re-enforce financial stability.
- Provide: a safe asset for banks to reduce the 'doom loop' with their governments; a Risk-Free Rate yield curve to support CMU; a simple savings vehicle for citizens.
- Build trust amongst states, institutions, and citizens to assist a European *demos*.

The clear principles are also designed to foster progress in deepening EMU:

- No mutualisation of debts.
- Strengthen the post-GFC crisis economic governance system.
- A proper role for market discipline.
- Financial solidarity with states that respect the rules yet lose market access.

The Covid-19 crisis is only likely to re-enforce the need to achieve these objectives in a world of much larger public debts and where there is an increased risk of financial instability for the Eurozone as a whole, flowing from the interaction of both enlarged public debts and weakened banks. The doom loop has not been removed by policy actions since the GFC – despite the good intentions.

However, it feels extraordinary that until Covid-19 struck, there was a looming practical difficulty that would have to be faced by Eurozone debt management offices (DMOs): lower deficits and lengthening of debt portfolio maturities inevitably lead to more modest short-term debt issuance of bills. The natural result for many DMOs individually would have been lower liquidity and thus higher costs. But there would also have been a macro cost for the Eurozone: less attractive assets for global reserve managers and sovereign wealth funds, apart from ordinary institutional investors and banks. This detracts from the global role of the euro, and current proposals for funding Covid-19 aid have not been designed to rectify this problem as a by-product. This major goal of the EU may not be the top priority, in the heat of the crisis, but "*never let a good crisis go to waste*"!

2.2.4 The structural problem facing euro-denominated bonds (Detailed technical comments)

(Note: data as of mid-2019, but the picture will change rapidly as the huge Covid-19 deficits are funded in the months ahead)

- In aggregate, they are the second-largest sector, at 24% of the near €80 trillion of bonds in dollars, euro, sterling, and yen. US dollar bonds account for 53%. But the currency segments of global bond markets have very different structures: e.g., in the US, "mortgage-related" bonds are 62% of the size of the US treasury market itself. By contrast, European residential mortgages lie largely on private banks' balance sheets – hence the disproportionately large share of banks in the EU's financial system.

- Non-financial corporations: dollar bonds surpass the size of Eurobonds four times over – reflecting the dollar corporate bond market's role as the principal supplier of non-banking corporations worldwide. The big question for the Capital Markets Union (CMU) is whether the Eurobond market can become an equivalent credit supplier – first for the euro area itself and then, perhaps later, for those companies who trade with one of the world's major trading blocs.

- General government: The striking feature is the relative scale of Japan's government bond market – at 74% of total yen bonds, versus less than 50% in other regions.

- Maturity structures are strikingly different: the euro area's 1-to-3-year index bucket is just 19% of the total, versus 40% of North America's. However, it is the enormous liquidity of the shorter-term US Treasury markets that gives the US dollar a pivotal role as the global reserve currency.

The contrast with the US Treasury bills market is even starker: by Bloomberg's definitions, the US T-Bill market is €2.19 trillion outstanding. This is more than five times the aggregate size of the corresponding euro-denominated market and nearly 100 times the size of the market in Germany, which acts as a European benchmark. When global investors are looking for a quality, short-term, highly-liquid reserve asset, the relative size of these markets may well steer them away from euro-denominated assets to dollar assets – underlining the current reserve currency attraction of the US dollar. A suitable 'European safe asset' market could provide something of a counterweight.

2.2.5 A solution that will be even easier as Covid-19 reshapes public debt

The combination of lengthening maturity and declining deficits in the euro area has led to a major shrinkage in the volume of short-term paper outstanding. The ECB reports that the under-one-year sector of general government debt has declined by nearly a quarter, from 9.8% of GDP in 2014 to 7.5% in 2018. This rate of decline is nearly four times the rate of reduction in the over-one-year sector – indicating the execution of entirely understandable debt management decisions when interest rates are at a record

low. However, there are some logical consequences: Bloomberg reports that "central government bills" outstanding are now only €410 billion – 3.5% of GDP. Moreover, France and Italy account for more than half this total. Including Spain, these three issuers account for nearly three-quarters of the amounts outstanding. Surprisingly, Germany is only the fifth-largest issuer – accounting for just 6%.

An instrument such as the Temporary Eurobill Fund,[11] based on senior loans from the common issuer to the Member States, could be launched initially by a "coalition of the willing" Member States – rather than the whole of the euro area. A key step towards increasing the size to a globally significant scale could be encouraging participants to offer their national bonds to be converted into common bills once their bonds' remaining life shortens to match that of the longest bills. As an example – based on mid-2019 data – just the three largest bill issuers would thereby increase the TEF bills due for redemption by the end of 2020 from €0.3 trillion to €1.2 trillion. If the whole euro area participated, the bills outstanding would go from €0.4 trillion to €1.7 trillion – a globally significant market that should enhance the international role of the euro.

The euro area's struggle to develop a robust governance structure flows inexorably from its need to control the 'moral hazard' that is inherent in the creation of an economic and monetary union. During the original design process, few observers thought that the government of a Member State would ever actually behave in the way that Greek governments have now done repeatedly. The nightmare has turned into reality – and it cannot be allowed to happen again, as this has the scaled potential to put the very existence of the euro in doubt. Chancellor Merkel stated very plainly ahead of the March 2019 European Council, "*if the euro fails, Europe fails*". The euro is far more than just a currency. Alongside Europe's institutions, it is "the strongest expression of our will to bring the people of Europe together in friendship and in peace".

What is this moral hazard? The US economist Paul Krugman defined it rather pithily as "[…] *any situation in which one person makes the decision about how much risk to take while someone else bears the cost if things go badly*". The Greek situation now epitomises this dilemma, as the euro area wonders how much of its total public sector exposure – around €250 billion – will be at risk if 'things go badly'.

Beyond the direct benefits to financial integration and stability, a properly designed Eurobill system can provide a concrete, state-by-state mechanism:

- to reward good economic performance;
- penalise lack of effort;
- operate with the grain of the markets to graduate the carrot and stick incentives for each state; and
- minimise the eventual costs if a state insists on pursuing economic policies that are likely to end 'badly'.

As Eurozone debt managers gear up to fund huge additional borrowings, they will look across the maturity spectrum. This should be the time to look afresh at pooling short-term issuance, as the risk of moral hazard on behalf of any participant is greatly reduced by the short-term nature of the debt. If a state does not fulfil its promises, its access will be reduced naturally as the debts mature and are not renewed. But such pooling is a powerful political signal of solidarity at this moment of crisis. Should the European Commission take the lead when (still, if) it borrows in its own name?

11 G. Bishop, "Commission to propose SBBS framework: But Temporary Eurobill Fund is very different – with wider benefits", grahambishop.com, 23 March 2018 (last accessed May 2020).

2.3 Bank Capital
(technical comments)

The EBA has recently pointed out the massive shortfall in MREL issuance of these banks – even before Covid-19. Some banks face a daunting task in raising an additional €178 billions of MREL capital (EBA Report, February 2020),[12] quite apart from rolling over maturing bonds. The thicker the AT1 'buffer', the less likely is resolution – thereby reducing the cost of other MREL bail-in-able capital and (in the extreme) even its availability.

As already discussed, most EU banks probably cannot raise equity. This is indeed a major problem, but it could be minimised by encouraging these banks to boost their capital by issuing AT1 bonds. AT1 issuance must be equitable for investors, issuers, and society so as to contribute to solving the problems identified by the equity markets so vividly in the last month – contrasting the last few years. Investors providing this patient, long-term (perhaps permanent) capital should expect to be treated fairly, and certainly equitably, alongside other stakeholders in the bank. If they feel this is not the case, they will not supply it, so banks in need of capital will have to turn to the only other source – taxpayers.

I recall my earlier comments about the type of investor who might buy these AT1 instruments. They must be professional investors with a high-risk appetite and a diversified portfolio so that they themselves will not be de-stabilised by any losses. Under no circumstances should retail investors be allowed to take an uninformed and concentrated gamble by buying AT1 issued, for example, by their 'own' bank.

The European Union has expressed its view recently by enacting the CRR2 legislation; any developments must be consistent with its letter and spirit. The 'objectives' of the relevant provisions are clearly laid down in the guidance of the Preamble: "[...] *essential* [...] *the instruments have a high loss absorption capacity* [...]" and they "[...] *should not be subject to set-off or netting arrangements which would undermine their loss absorption capacity in resolution.*"

Could this open the way to novel AT1 instruments at this critical juncture? Now is surely the time for the regulatory community to take full note of ECOFIN's 16 April 2020 statement:

"*We welcome the recent statements by the European Commission, the European Central Bank, the Single Resolution Board, the European Banking Authority and the European Securities Markets Authority on the application of regulatory and accounting requirements for financial institutions in the current exceptional circumstances*".[13]

Should the flexibility stop with "*Finally, we welcome supervisory flexibility expressed by European supervisory authorities regarding deadlines of supervisory reporting and public disclosure*"?[14] The 'recent statements' called for maximum use of any flexibility in existing legislative texts, rather than maximum obstruction of use of the precise wording recently enacted by the co-legislators.

Why do banks not make maximum use already of AT1 opportunities to raise core capital – given that legislators have gone to substantial trouble to create the rules for their utilization? Explanations include:

12 European Banking Authority, "EBA shows banks' progress in planning for failure but encourages them to issue eligible debt instruments", eba.europa.eu, News&Press, 17 February 2020; (last accessed May 2020).
13 Council of the EU, "Statement of EU ministers of finance on continuing bank lending and on maintaining a well-functioning insurance sector amid the COVID-19 pandemic", Press Release, April 16th 2020 (last accessed May 2020).
14 Ibid.

- Regulators seem to discourage issues, as they may feel that political pressure from retail investors for a bail-out means that the loss absorption requirement cannot be fulfilled. The low levels of regulatory capital that trigger the loss-absorption characteristic mean that the bank will – in practice – already be a 'foregone concern', so AT1 capital may not aid the bank's recovery as an 'ongoing concern'.

- Issuers may be concerned by the relatively high coupon now required to induce investors to purchase. Their choice is between issuing equity to taxpayers that massively dilutes shareholders' stake in the business permanently OR an AT1 with a high coupon now but with a call option in five years (the minimum permitted by CRR2), once economies (and thus banks) have recovered so that more normal terms can be obtained for a re-financing.

- Investors do not feel they are being treated fairly, as the high coupon is non-cumulative – unlike other discretionary payments made by banks such as dividends or bonuses to the staff. Currently, the coupon for a reasonable bank may be around 5% (versus negative yields for many EU governments). So, a difficult year for a bank may mean a dividend cut, or their suspension that can be made up later, but the AT1 holder loses 5% permanently. Yet equity holders are meant to be shouldering the greater risk! AT1 may be trading currently at about 5% 'yields to maturity', where maturity never actualises because these instruments are perpetual – unless called. This feature makes them permanent capital, unlike a normal bond. But the 'yields to call' are in the 7-9% range. If investors became confident that very high yields could be earned even for just, say, five years, then capital inflows could be massive.

The purpose of non-cumulative AT1 Coupons

CRD IV Article 141[15] sets out the "*Capital Conservation Measures*" that impose restrictions on the Maximum Distributable Amount (MDA) that can be distributed if a bank's CET1 levels were about to fall below the combined buffer requirement once the distributions were made.

The key unfairness for AT1 holders is that (a) dividends and (b) discretionary bonus/pension/ etc. payments are not contractual commitments, so a decision not to act does not create the clear need for an accounting provision for a continuing liability. As these are discretionary payments, the bank is at liberty to make special payments when financial health is restored. Effectively, payments to these stakeholders can be cumulative.

However, the rule for AT1 coupons is entirely different. If a formal contractual obligation to pay a coupon were simply postponed and made cumulative, then the accounting profit for calculating the MDA would remain unchanged. Only cash flows would be reduced. That would defeat the entire purpose of the MDA calculation.

15 Directive of the European Parliament and of the Council of 20 May 2019, "Directive (EU) 2019/878" (amending Directive 2013/36/EU as regards exempted entities, financial holding companies, mixed financial holding companies, remuneration, supervisory measures and powers and capital conservation measures), eur-lex.europa.eu (last accessed May 2020).

www.liberalforum.eu

Comment on Chapter 2

Graham Bishop's proposals to stabilise the Monetary Union and the European Banking Union focuses on two aspects: the first concerns the refinancing of public debt in the near-term, as an alternative to Eurobonds; the second focuses on the problem of bank solvency.

First, the proposal for a Temporary Euro-Bill Fund (TEF) seems attractive because it is a market proposal. Secondly, it is a proposal that does not lead to a total mutualisation of national debts with risk sharing and moral hazard problems. Furthermore, thirdly, it is a proposal that does not create additional debt but contributes in every respect to stabilising market access and levelling out the cost of this access for all debt issues with a residual maturity of less than two years.

A TEF is highly advisable for its role in creating European solidarity, not in financing but in equalising market access in the various European countries, and it is also a very good proposal because it is easily achievable and it is able to create a new and highly attractive financial instrument for bank treasurers, corporate financial officers, insurers, and fund managers oriented towards safe, short-to-medium-term investments.

> **I hope that the European institutions will follow this suggestion, the essentials of which are well outlined in Bishop's chapter."**

I hope that the European institutions will follow this suggestion, the essentials of which are well outlined in Bishop's chapter and which perhaps requires a little more detail on the legal side.

With respect to the second aspect, namely the capitalisation of banks when a crisis occurs, it is well known that this condition of a new public equity offer launched on the market is a difficult move from the banking side. This is because the stock market prices of bank shares are listed below their respective book values and any new issue would mean a strong dilution among existing shareholders.

Bishop's solution is probably effective, and it is a solution that allows existing loans to be maintained. He proposes to act on the attractiveness of the market of alternative capitalisation instruments (AT1). These hybrid instruments (perpetual and callable) support banks' capital but are not very attractive to investors because of their issuance clauses, which basically prevent the return on these instruments from taking advantage of the market phases in which they are expected to rise. This could be resolved by changing the issuance clauses: for example, by providing for the cumulation of coupons when suspended due to adverse profit and loss numbers (they cannot be cumulated, according to today's rules). Cumulating the coupons could make these instruments attractive from the investor's side and allow for a real alternative to capital increases that punish shareholders.

This proposal could be completed with a review of fund managers' views and with an analysis of the sustainability of such cumulation, which could also result in the erosion of future dividends. However, Bishop's suggestion is acceptable and brilliant, and I hope it is taken into consideration by European banking authorities and managers.

Giuseppe Russo

List of Abbreviations

AT1:	Additional Tier-1 [bonds]
BRRD:	Bank Recovery and Resolution Directive
CET1:	Common Equity Tier-1
CRD:	Capital Requirements Directive
CRR:	Capital Requirements Regulation
EBA:	European Banking Authority
ECB:	European Central Bank
ECOFIN:	Economic and Financial Affairs Council
EMU:	Economic and Monetary Union
IFRS:	International Financial Reporting Standards
MREL:	Minimum Requirement for own funds and Eligible Liabilities
QE:	Quantitative Easing
SBBS:	Sovereign Bond-Backed Securities
SUERF:	Société Universitaire Européenne de Recherches Financières [European Monetary and Financial Forum]

Bibliography

I. Aldasoro, C. Borio, M. Drehmann, *"Early warning indicators of banking crises: expanding the family"*, BIS Quarterly Review, March 2018.

Lucia Alessi et al. *"Comparing different early warning systems: Results from a horse race competition among members of the Macro-prudential Research Network"*, Munich Personal RePEc Archive, Paper No. 62194, posted 20 February 2015.

L. Alessi, C. Detken, *"Identifying excessive credit growth and leverage"*, Journal of Financial Stability, April 2018.

J. Beutel et al., *"An Evaluation of Early Warning Models for Systemic Banking Crises: Does Machine Learning Improve Predictions?"*, Discussion Paper, Deutsche Bundesbank, No 48/2018.

G. Bishop, *"Commission to propose SBBS framework: But Temporary Eurobill Fund is very different – with wider benefits"*, grahambishop.com, 23 March 2018.

G. Bishop, *"Temporary Eurobill Fund (TEF): 30 FAQs"*, suerf.org, SUERF Policy Note, Issue No 36, June, 2018.

C. Bluhm, L. Overbeck, C. Wagner, "Introduction to credit risk modelling", 2nd edition, Chapman & Hall, London, 2010 (ISBN 9780429143403 - eBook).

C. W. Calomiris, *"The past mirror: notes, surveys, debates: Banking crises yesterday and today"*, Financial History Review 17.1 , Columbia Business School and NBER, pp.3-12, 2010.

M. Górajski, D. Serwa, Z. Wosko, *"Measuring expected time to default under stress conditions for corporate loans"*, Empirical Economics, n° 57: pp. 31-52, 2019.

Z. He, W. Xiong, *"Rollover Risk and Credit Risk"*, The Journal of Finance, vol. LXVII, No. 2, April 2012.

J. Schildbach, *"European banks in the corona crisis"*, SUERF Policy Note, Issue n°152, April 2020.

Other sources:

Council of the EU, *"Statement of EU ministers of finance on continuing bank lending and on maintaining a well-functioning insurance sector amid the COVID-19 pandemic"*, Press Release, April 16th 2020.

Directive of the European Parliament and of the Council of 15 May 2014, *"Establishing a framework for the recovery and resolution of credit institutions and investment firms"* n° 59/2014/EU.

Directive of the European Parliament and of the Council of 20 May 2019, *"Directive (EU) 2019/878"*, eur-lex.europa.eu.

ECB, *"Pandemic increases risks to financial stability"* Press Release, ecb.europa.eu, 26 May 2020.

European Banking Authority, *"EBA shows banks' progress in planning for failure but encourages them to issue eligible debt instruments"*, eba.europa.eu, News&Press, 17 February 2020.

European Parliament, *"Impediments to resolvability of Banks"*, In-depth analysis, Economic Governance Support Unit (EGOV) Directorate-General for Internal Policies, PE 634.360, December 2019.

27/28