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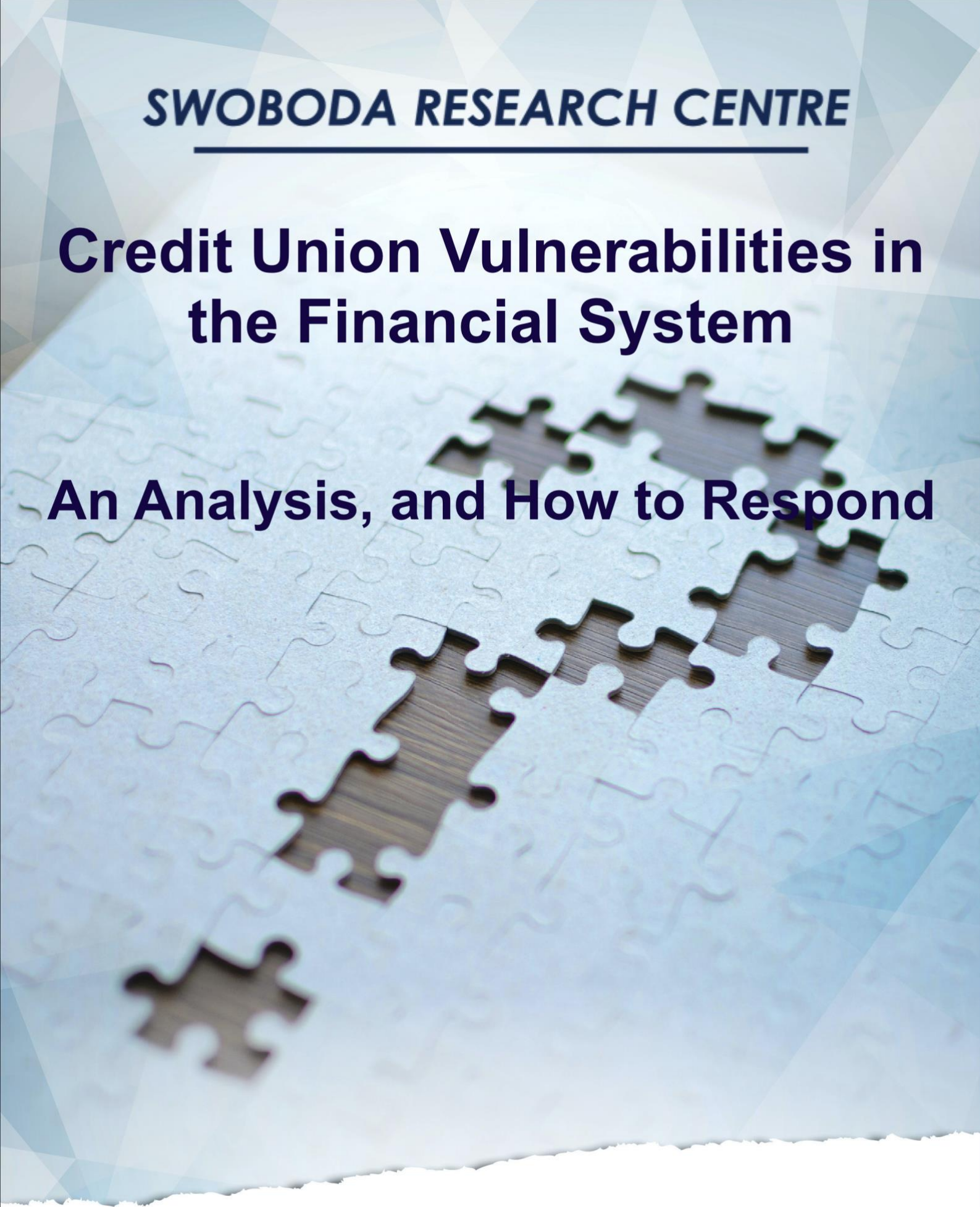
Credit Union Vulnerabilities in the Financial System

An Analysis, and How to Respond



Ismail Ertürk
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Credit Union Vulnerabilities in the Financial System: An Analysis and How to Respond

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The Centre is rooted in values of co-operation, participation, social and financial inclusion, transparency, integrity, and excellence. Much of its work is done in collaboration with Liverpool John Moores University.

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Table of Contents

Executive Summary **1**

1. Introduction **4**

2. Quantitative easing policies of central banks and ultra-low interest rates **7**

2.1. Low interest rates 7

2.2. The implications of government debt for interest rates 13

2.3. How quantitative easing has distorted markets for rational risk and return calculations to be made 16

3. The Basel-inspired capital adequacy framework: a problem not a solution for socially useful banking **19**

3.1. The Basel framework and capital adequacy 19

3.2. The Basel framework and management behaviours 24

4. FinTech: what kind of challenge for credit unions? **26**

4.1. FinTech, regulators and policy-makers 26

4.2. FinTech, consumers and credit unions 29

4.3. FinTech products and services 30

5. Conclusion **32**

References **34**

Appendix - Digital consumer products tested by the UK FCA's sandbox facility **37**

Membership of the Swoboda Research Centre **38**

Executive Summary

Credit unions in the financial system

The financial system within which credit unions operate to serve their communities has been radically transformed since the 2007 Great Financial Crisis (GFC), presenting a variety of challenges for the credit union business model and its contribution to socially useful finance.

This is ironic, because, after the 2007 GFC, the society, governments and regulators globally have expressed a strong desire to build a socially responsible and inclusive banking system.

Financial technology (FinTech) start-ups and challenger banks have been supported, even implicitly subsidised in various forms, to transition to socially useful and democratic banking services. But credit unions, which have a long track record in providing non-profit, essential banking services to their members, have found themselves suffering from the unintended consequences of the quantitative easing policies by central banks and the evolving global capital adequacy rules that are applied to credit unions without analytical adjustments for risk and business model characteristics.

This report argues that credit unions as socially useful community-based financial institutions face threats from the dysfunctionalities in the financial system created by the combined forces of a) central bank quantitative easing policies that were launched after the 2007 financial crisis and have further expanded after the 2020 Covid-19 health crisis, b) globally evolving capital adequacy rules with a one-size-fits-all regulatory approach to risk management and ignoring capital formation and profitability dynamics at credit unions, and c) regulatory and governmental support for FinTech businesses since the 2007 crisis.

Central bank interventions

Central bank quantitative easing policies since the 2007 GFC crisis, spurred on after the Covid-19 crisis, have introduced ultra-low interest rates that undermine the net-interest income business model of credit unions, and of all other similar for-profit financial intermediaries for that matter.

Evolving capital adequacy rules that are influenced by the Basel framework for risk in big banks, on the other hand, have introduced a risk algorithm that makes holding riskless liquidity on the balance sheet costly, and can inadvertently lead to a behaviour in financial institutions that prioritises the achievement of a formal mathematical calculation to the detriment of material achievements in socially useful lending. Following the regulatory risk algorithms leads to the desired capital adequacy but not necessarily to a balance sheet that serves society's needs for credit.

The one-size-fits-all logic of leverage ratio[1] that aimed to prevent regulatory arbitrage at banking conglomerates together with the complex risk-weighted capital algorithm is unsuitable for small banks and even for big banks under the Covid-19 conditions. In April 2020, when the Covid-19 lockdown was announced, the Federal Reserve in the US suspended the supplementary leverage ratio for big banks to increase their ability to provide credit to households and businesses.

Support for FinTech

And lastly, the well-intentioned support by financial regulators and governments for financial technology start-ups and challenger banks that aims to introduce competition and efficiency into banking and to democratise finance potentially creates an uneven playing field in digital capabilities in member acquisition and retention for credit unions.

Recommendations to counteract financial system threats to credit unions

Table 1 below provides a summary of these threats and recommendations to counteract them:

External threat	**Impact**	**Recommendations**
Persistence of ultra-low interest rates	Erodes net interest income and capital formation.	Search for volume solutions that meet members' and their households' needs like: - intergenerational credit products, - e-commerce linked credit, - restructuring expensive loans, - net-zero targets related green consumer loans.
Basel-inspired capital adequacy framework	Possible behavioural change in allocating credit that may not serve the needs of the members.	Creation of advocacy capability to engage with the regulators in a proactive manner to propose conceptual alternatives that reflect the true risk profile of credit unions.

[1] A leverage ratio is any kind of financial ratio that indicates the level of debt incurred by a business against other accounts in its balance sheet, income statement, or cash flow statement. These ratios provide an indication of how the company's assets and business operations are financed (Corporate Finance Institute)

The rise of and regulatory support for FinTech	Possible loss of revenue and members due to lack of digital services.	- Collective or individual creation of simple and low-cost digital infrastructure for mobile banking and electronic payments. - Using regulators' free sandbox services to test digital products and services. - Collaborate with reliable and proven FinTech firms with similar values to credit unions in developing or using digital solutions.

Table 1: Recommendations to counteract financial system threats to credit unions

This report sees these three threats not as temporary phenomena. Interest rates are likely to increase but as argued in detail in the full report such increases are not likely to be in full percentage points because of historically high levels of indebtedness at all sectors of the economy. The financial system is not likely to survive the consequences of very likely defaults that would be caused by steep interest rate increases. Therefore central banks will most probably keep interest rates at these ultra-low levels in the medium- to long-term but will make small basis point increases and, most importantly, signal willingness to increase rates without actually materially changing the net interest margins.

Banking regulators have invested huge amount of technocratic capital into the Basel capital adequacy framework and banks globally have invested in systems to implement it. And the recent concern about the financial risks from transitioning to a net-zero economy is likely to expand the Basel risk logic to manage credit risk to fossil fuel businesses. Unless there is a radical change in the regulatory understanding and awareness regarding risk supported or led by political authorities, Basel and its risk-weighted calculations will remain as the overwhelmingly dominant regulatory approach to capital adequacy, subscribed to by all the major central banks. Although Basel's unsuitability for small banks and non-profit financial institutions like credit unions is increasingly being accepted by the regulators its influence cannot be totally ruled out.

And finally, FinTech, too, is here to stay and is going to be supported for a variety of reasons as discussed in the full report. Therefore this paper believes that the recommendations outlined in the table above can be a useful framework for credit unions to explore responses to these three threats.

1. Introduction

Three post-Great Financial Crisis forces in the financial system can pose threat to the social value-driven business models of credit unions:

1. **Uncertainty of quantitative easing policies by central banks setting ultra-low interest rates and eroding net interest margin.**
2. **Evolving global capital adequacy frameworks that misunderstand risk transformation at credit unions and can potentially disturb socially useful credit allocation mechanism.**
3. **The rise of FinTech firms and digital finance that can potentially create uneven playing field and change member behaviour causing revenue loss.**

The financial system within which credit unions operate to serve their communities has been radically transformed since the 2007 Great Financial Crisis (GFC) presenting a variety of challenges for the credit union business model and its contribution to socially useful finance. This is ironic, because, after the 2007 GFC, society, governments and regulators globally have expressed a strong desire to build a socially responsible and inclusive banking system. Financial technology (FinTech) start-ups and challenger banks have been supported, even implicitly subsidised in various forms, to transition to socially useful and democratic banking services. But credit unions, which have a long track record in providing non-profit essential banking services to their members, have found themselves suffering from the unintended consequences of the quantitative easing (QE[2]) policies by central banks and the evolving global capital adequacy rules that are applied to credit unions without analytical adjustments for risk and business model characteristics.

This paper argues that credit unions as socially useful community-based financial institutions face threats from the dysfunctionalities in the financial system created by the combined forces of a) central bank QE policies that were launched after the 2007 financial crisis and have further expanded after the 2020 Covid-19 health crisis, b) globally evolving capital adequacy rules with a one-size-fits-all regulatory approach to risk management and ignoring capital formation and profitability dynamics at credit unions , and c) regulatory and governmental support for FinTech businesses since the 2007 crisis.

QE policies since the 2007 GFC crisis, spurred on after the Covid-19 crisis, have introduced ultra-low interest rates that undermine the net-interest income business model of credit unions, and of all other similar for-profit financial intermediaries for that matter. Evolving capital adequacy rules that are influenced by Basel framework for risk in big banks, on the other hand, have introduced a risk algorithm that makes holding riskless liquidity on the balance sheet costly and can inadvertently lead to a behaviour in financial institutions that prioritises the achievement of a formal mathematical

[2] Quantitative easing is a monetary policy in which the central bank increases the money supply in the banking system, for example by purchasing bonds from banks. A simple explanation of QE is provided here: https://www.bankofengland.co.uk/monetary-policy/quantitative-easing

calculation to the detriment of material achievements in socially useful lending. Following the regulatory risk algorithms leads to the desired capital adequacy but not necessarily to a balance sheet that serves society's needs for credit.

The one-size-fits-all logic of leverage ratio that aimed to prevent regulatory arbitrage at banking conglomerates together with the complex risk-weighted capital algorithm is unsuitable for small banks and even for big banks under the Covid-19 conditions. In April 2020, when the Covid-19 lockdown announced, Federal Reserve, the central bank in the US, suspended the supplementary leverage ratio for big banks to increase their ability to provide credit to households and businesses (Federal Reserve 2020). And lastly, the well-intentioned support by financial regulators and governments for financial technology start-ups and challenger banks to introduce competition and efficiency into banking and to democratise finance potentially creates an uneven playing field in digital capabilities in member acquisition and retention for credit unions.

The majority of lending FinTech firms are not subject to the regulatory taxes like capital adequacy and benefit from access to cheap venture capital because of sandbox type regulatory support, where the regulators signal to the investors the viability of FinTech financial products. A recent Bank for International Settlement (BIS) study found that regulatory support for FinTechs in the form of sandbox services, where financial regulators provide free testing of digital banking products with real customers, benefits FinTechs in access to venture capital (Cornelli et al. 2021). High valuations of FinTech companies due to explicit support from the regulators through sandboxes and open banking facilities allow them to invest in technology more competitively than credit unions.

Credit unions, unlike FinTechs and challenger banks, do not receive special support from the regulators for their contribution to the diversity in the financial system and to an inclusive and transparent finance. Not only are credit unions not acknowledged for their contributions to a financial system based on trust and social value, but the sustainability of their business models is also at risk from the malign consequences of the QE policies, regulatory capital calculations, and regulatory implicit subsidies for FinTechs.

This paper will evaluate each of these threats for credit unions and propose policy responses to counteract these threats.

This paper proposes that credit unions can respond to the current business model challenges in three ways:

1. **Increase loan volume to counteract margin deterioration by a) identifying members' and their families' new credit needs, especially intergenerational needs; b) exploring credit products related to net zero targets of governments and local authorities.**
2. **Advocate a capital adequacy framework that reflects credit unions' ownership and management structure rather than Basel's risk weighted approach that unintentionally crowd-out socially useful credit intermediation.**
3. **Develop further mobile phone apps capability and e-payment facilities to serve members and use the regulators' free sandbox services to develop low-cost digital products.**

The paper's policy proposals can be summed up as follows:

> Central bank-imposed, historically low interest rates are here to stay for the medium- to long-term. Credit unions can counteract the margin losses by volume solutions. Such volume solutions can be socially useful community lending to address financial problems related to intergenerational wealth balances, lack of first-time buyer mortgages, growing electronic payment-initiated borrowing, the need for restructuring expensive short-term household debts, and the need for credit products that can contribute to net zero targets of governments and local authorities.
>
> Credit unions should be aware of behavioural changes that the one-size-fits-all capital adequacy framework can cause in allocating credit and making investments that do not prioritise the social value for members who own and participate in the governance of credit unions.
>
> Credit unions should invest further in socially useful, potentially collectively built digital banking infrastructure that complements the existing branch delivery channel. Digital payments have become an essential financial service for society especially after the Covid-19 health crisis. Linking members' digital payments to their credit union savings, deposit and, where provided, current accounts becomes increasingly a necessity in serving members' needs, especially when central banks consider issuing central bank digital currencies provided through mobile wallets. Credit unions should explore sandbox facilities in developing mobile payment services and risk averse collaboration with the likeminded FinTech start-ups with business models based on providing socially useful digital financial services.

2. Quantitative easing policies of central banks and ultra-low interest rates

2.1. Low interest rates

Historically low interest rates that central banks globally have enforced since the 2007 GFC and further entrenched since the Covid-19 health crisis (see Figure 1) harm the net interest income-driven business models in financial services including credit unions. Therefore, the trajectory of interest rates in the medium- to long-term is of vital importance for credit unions' financial health. Ultra-low interest rates erode interest rate margins significantly as the rates paid back to members on deposits cannot go below zero, but the interest earned on credit union depositis with banks and other safe investments like government bonds now approach zero and can even be negative in some government bond investments. Additionally, post-Covid-19 savings growth has not been matched by a proportional increase in borrowing by credit union members, a development that has been similarly observed at traditional banks, further putting pressure on net interest income.

Although currently inflationary pressures everywhere raise the probability of interest rate increases globally, a full percentage point increase in policy rates is highly unlikely, because, due to historically high indebtedness of sovereigns, households, and non-financial firms, such interest rate increases are likely to cause serious defaults that could destabilise the global financial system.

As Jones et al. (2017) have noted in their analysis of the business model of Irish credit unions, citing an analysis by the Central Bank of Ireland, the combination of ultra-low interest rate environment and the declining share of loans on credit union balance sheets would expose about 50% of credit unions in Ireland to run annual losses. Therefore the trajectory of central bank monetary policy in mid- to longer-term needs to be assessed carefully to respond to the effects of narrowing interest rate margins on cost recovery and capital formation in credit unions.

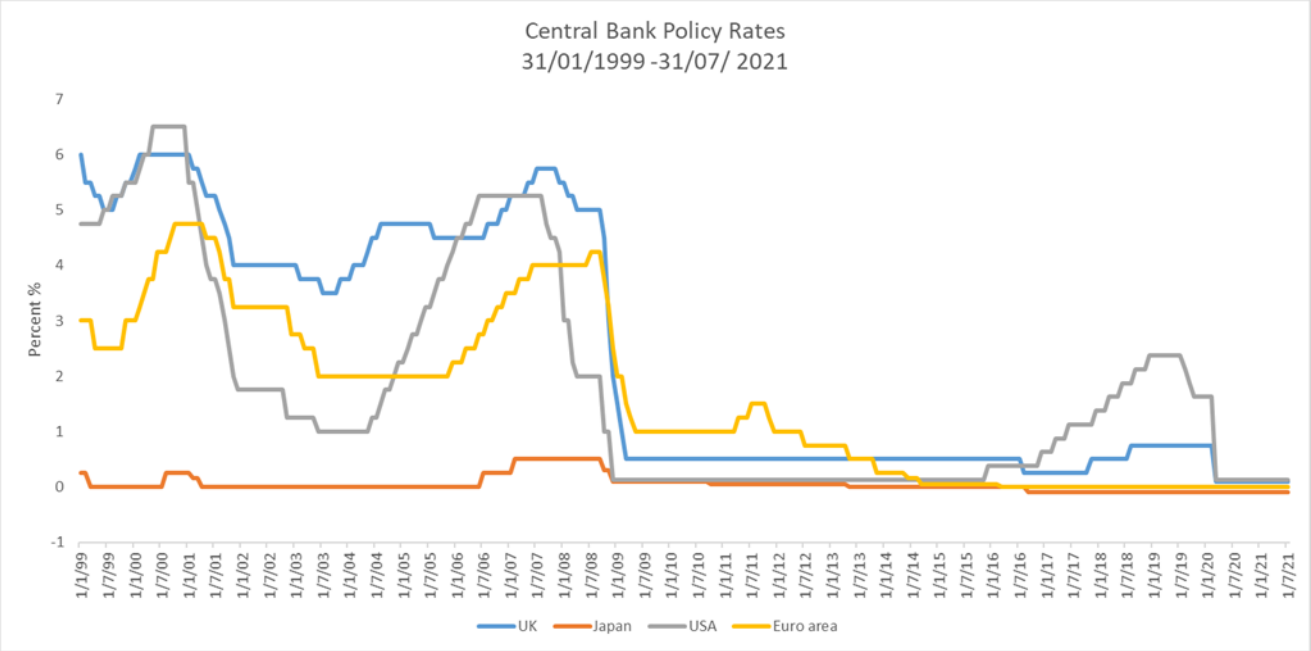


Figure 1: Central bank policy rates from 1999 to 2021
Source: Bank for International Settlement

Research by central bank economists have found that enduring low interest rates and central bank quantitative easing not only erode bank profitability they also have contractionary effect on the economy.

The low interest rate macro-economic environment is a financial stability concern for bank regulators too. Regulators are interested in the impact of enduring low interest rates and flattening yield curve on banks' profitability and hence the long-term financial health of the banking system. The Bank for International Settlements' (BIS)[3] economists carried out a comprehensive empirical work covering twenty-seven years between 1995 and 2012, and 109 large international banks headquartered in fourteen high-income countries. They found that "…over time, unusually low interest rates and an unusually flat term structure erode bank profitability." (Borio et al. 2015, p.3).

When Borio et al. (2015) looked at the period after the 2007 financial crisis, when QE had started, they found that low interest rates under "unusually accommodative monetary policy" had a positive effect on bank profitability only for two years, in 2009 and 2010, but turned negative the following four years from 2011 to 2014. Claessens et al. (2017), economists at the Federal Reserve in the US, focused primarily on the period when QE was introduced, the period between 2005 and 2013, and found similar negative relationship between bank profitability and low interest rates. They also established that, the higher the policy rate drop, and the longer the low interest rate

[3] The international central banking institution developing global banking regulatory frameworks

period lasts, the bigger the fall in net interest rate margin. Further work on the effect of prolonged low interest rates on bank profitability by Brunnermeier and Koby (2019), academics, and Konietschke et al. (2021), central bank economists at the European Central Bank and De Nederlandsche Bank, reinforced the earlier findings on the negative relationship between interest rates and bank profitability.

> *"We have shown the conditions for the existence of a reversal interest rate, the rate at which monetary policy stimulus reverses its intended effect and becomes contractionary. Its existence relies on the net interest income of banks decreasing faster than recapitalization gains from banks' initial holdings of fixed-income assets." (Brunnermeier and Koby 2019, p.31)*

Konietschke et al. (2021) added to these findings by Brunnermeier and Koby (2019) by establishing that although loan provisions are lower at low interest rates, improving banks' capitalisation, such positive impact disappears in prolonged low interest rate environment with declining net interest income counteracting the recapitalisation benefits from improving loan losses and provisions. Another finding of these works is that prolonged low interest rates do not lead to more lending by banks that stimulate the economy. On the contrary, prolonged low interest rates can be contractionary. Low interest rates also encourage more savings because households see the return on their retirement plans diminishing and interpret low interest rates as low future economic growth exposing them to probable future wage income losses:

> *"If interest rates are persistently low, negative income effects may become more prevailing. In these circumstances, households are concerned that low returns on savings render their lifetime savings insufficient for retirement." (Konietschke et al. 2021, p.2).*

Figure 2 below shows how the net interest margin of banks in the US has declined from 3.26% to 2.10% between the end of 2008 Q4 and the end of 2021 Q1. Net interest margin of the US banks had been declining since the early 1990s but has further deteriorated after the Federal Reserve launched QE policies following the 2007 banking crisis.

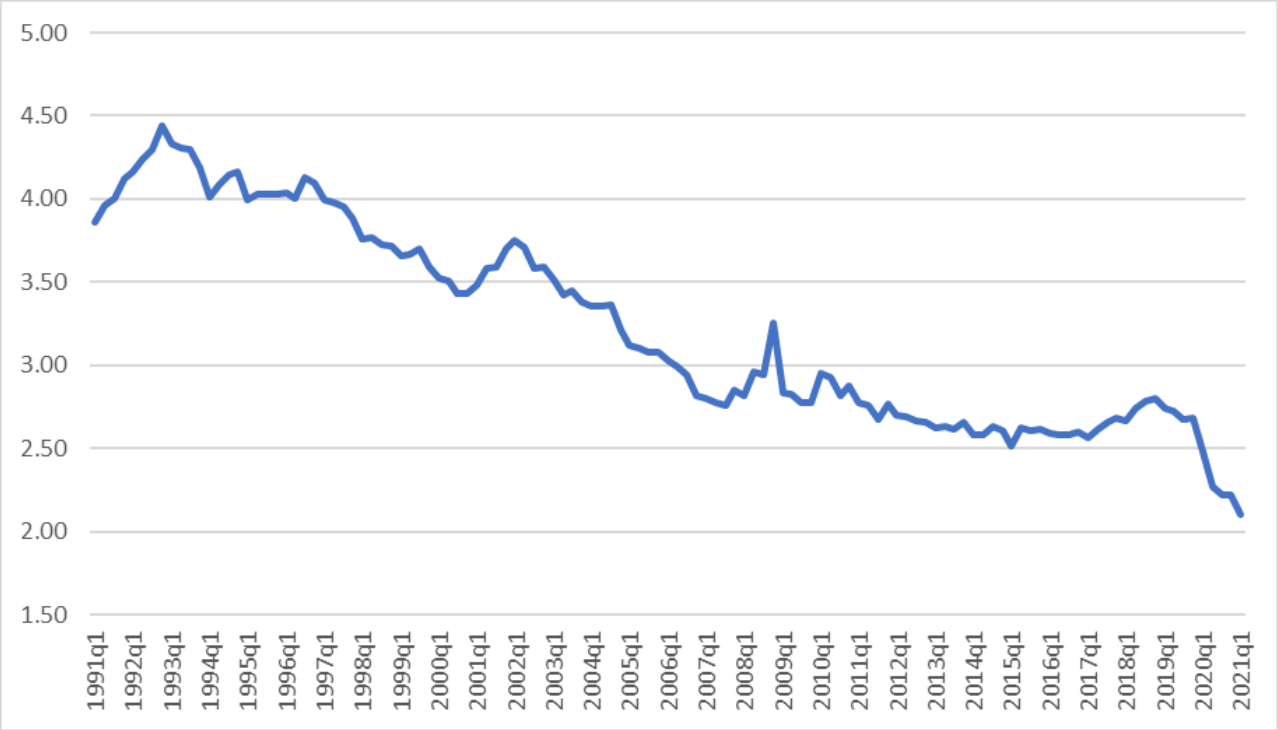
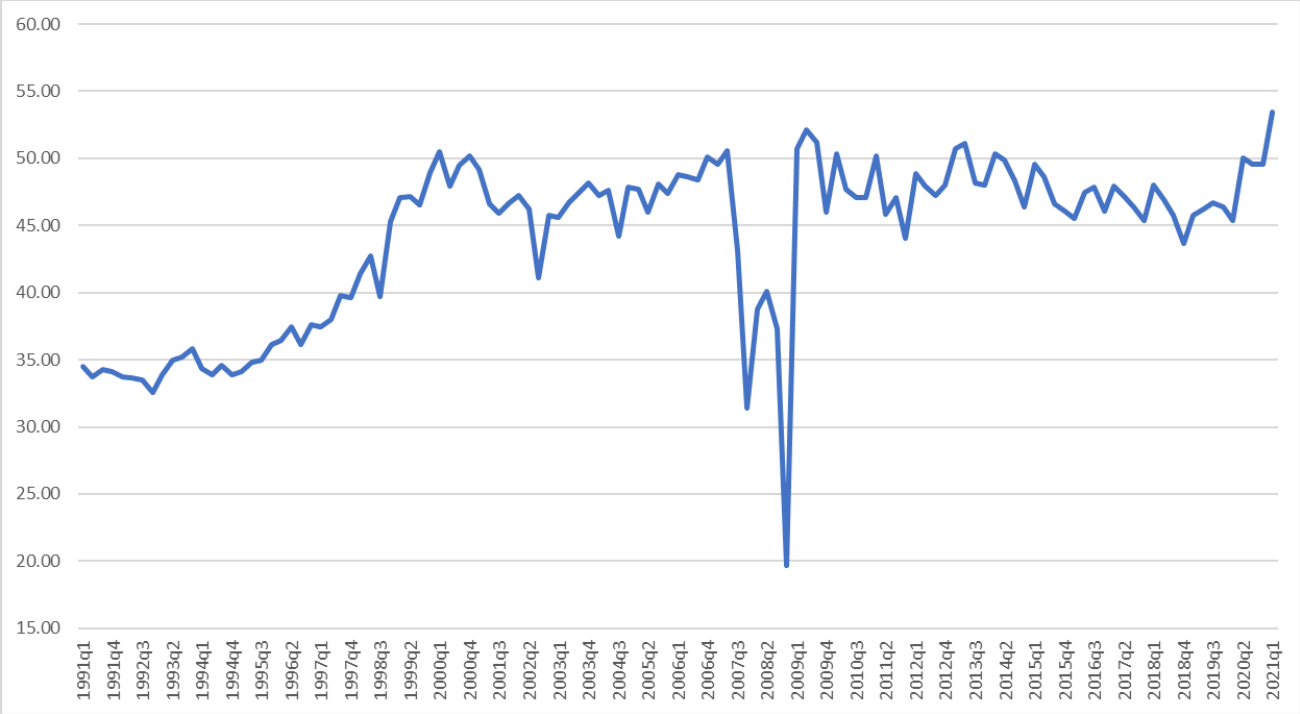


Figure 2: Net interest margin of the US banks
Source: Federal Reserve Bank of New York

The Covid-19 crisis added further downward spiral to interest rates globally and consequently the indebtedness of sovereigns, corporations, and households has reached historical highs, making them and the financial system in general exposed to great risks from rate rises of even smallest magnitudes.

QE has gained an extraordinary momentum after the Covid-19 pandemic hurting even the net interest margin of the big US banks with a sharp fall from 2.68% in 2019 Q4 to 2.10% 2021 Q1. But banks in the US could compensate the loss in net interest income by increasing the share of non-interest income in total income. Figure 3 below shows how non-interest income share has increased from 34.48% in 1991 Q1 to 53.48% in 2021 Q1, banks having recovered from the effects of 2007 banking crisis very quickly. Banks in the US have responded to the further erosion of net interest margin due to the post-Covid-19 QE policies by sharply increasing the share of non-interest income from 45.39% in 2020 Q1 to 53.48% in 2021 Q1. After the Covid-19 pandemic, the distribution of state guaranteed loans to SMEs and other firms has provided significant fee income for the banks. S&P estimated that the US Government's Paycheck Protection Program has provided about £20.3 billion in fee income for the US banks (S&P Global Market Intelligence 12 May 2020).

Figure 3: Non-interest income share in total income for the US banks
Source: Federal Reserve Bank of New York



In the UK, Lloyds Banking Group has responded to the low interest rate threat on its net interest income by moving into the rental housing market to reduce its reliance on interest income from lending (Hammond, 2021). Since credit unions in Britain and Ireland do not in general as well-developed alternative fee income sources as banks (by contract with credit unions in the US), this paper recommends that credit unions search new lending products that their members and the households of their members need as a result of changing intergenerational dynamics in savings and cost of borrowing.

Although the current post-Covid-19 economic recovery conjuncture has raised inflation in the US, the UK, and the EU and consequently the probability of policy interest rates has increased, this paper sees a significant hike in interest rates soon very unlikely. Central bankers, too, are not fully convinced that the recent high levels of economic growth are sustainable due to a host of reasons including the one for which we do not yet have conclusive scientific evidence - that the Covid-19 pandemic has truly ended. Therefore, the views that low interest rates are still necessary for sustainable economic growth continue to circulate in the markets (Luce 2021). A sudden increase in gas prices, post-Covid-19 shortage of labour, and the disruptions in supply chains recently have made inflation a real threat and stagflation probable. Therefore, central banks' monetary policy response to these new developments can be hawkish like we have seen recently in Norway, where the central bank increased the policy (base) rate by twenty-five basis points (0.25%) from a base of zero per cent, and the Bank of England has raised rates twice since December 2021, now at 0.5%.

However, there are two compelling structural reasons put forward by respectable academics and policy analysts arguing that low interest rates are here to stay for quite some time. One of these views argues that the historical trajectory of global low interest rates is caused more by structural macro-economic forces than QE policies of central banks. Some economists at the world's major central banks and policy institutions are of the view that the current low interest rates are the new normal in our economic system, reflecting an irreversible structural trend.

Some leading economists with a policy background, like Larry Summers, believe that current ultra-low interest rates are natural outcome in economic history and will stay at these levels regardless of quantitative easing.

For example, Bank of England research, analysing interest rates from the 14th century onwards (Schmelzing, 2020), claims that interest rates have been declining as a trend since the 14th century and the current and future interest rates are naturally and irreversibly approaching zero. One of America's best-known economists with both public and private sector background, Larry Summers, and the European policy-minded economists Coen Teulings and Richard Baldwin are among those who argue that current low interest rates are part of a long-term trajectory of economic forces (Summers 2015, Summers, and Lukasz 2019, and Teulings and Baldwin 2014).

The second view that sees low interest rates here to stay in the mid- to long-term believes that financial stability is at risk under increasing interest rate scenarios. According to this view without low interest rates, the global financial system is very likely to collapse because sovereigns (central governments), non-financial firms, and households have historically high levels of debt that cannot be serviced at higher interest rates. Defaults, that higher interest rates are likely to cause, would lead to a systemic collapse of banks and capital markets, starting a catastrophic global economic crisis as IMF's April 2021 *Financial Stability Report* has pointed out:

Whether current ultra-low interest rates are a historical economic inevitability or not, they are necessary to avoid a major financial and economic crisis at current levels of indebtedness at all economic sectors, starting with the governments. In 2020 total global debt stands at $281.5 trillion, over 355% of global GDP.

> *"Extraordinary policy measures have eased financial conditions and supported the economy, helping to contain financial stability risks. But actions taken during the pandemic may have unintended consequences such as stretched valuations and rising financial vulnerabilities." (IMF April 2021, p.ix).*

Another important international institution, the BIS, made a very similar assessment way back in 2015 after the post-GFC QE policies of central banks:

> *"The risk is that, over time, monetary policy loses traction while its side effects proliferate. These side effects are well known. Policy may help postpone balance sheet adjustments, by encouraging the evergreening of bad debts, for instance. It may actually damage the profitability and financial strength of institutions, by compressing interest margins. It may favour the wrong forms of risk-taking. And it*

can generate unwelcome spillovers to other economies, particularly when financial cycles are out of synch. Tellingly, growth has disappointed even as financial markets have roared: the transmission chain seems to be badly impaired. The failure to boost investment despite extremely accommodative financial conditions is a case in point." (BIS July 2014)

2.2. The implications of government debt for interest rates

In its February 2021 issue of *Global Debt Monitor*, the Institute of International Finance (IIF) reported that the global debt of governments, households, non-financial corporates, and financial sector had reached $281.5 trillion, over 355% of global GDP with thirty-five percentage points of it coming after the Covid-19 crisis in just one year (IIF 2021). In 2008 and 2009 after the GFC, the annual increases were only ten percentage points and fifteen percentage points, respectively. Figure 4 below shows how, since the 2007 GFC and the 2020 Covid-19 crisis, under the central bank QE policies and ultra-low interest rates global debts have reached historically unprecedented levels. More than half of the increase, over $12 trillion, in global debt after the Covid-19 crisis came from government borrowing, further increasing budget deficits, and putting global government debt to GDP ratio at 105% in 2020 compared to 88% in 2019.

The IIF expects global government debt to increase further in 2021, stretching budget deficits further. A substantial part of this increase in government debt is bought by central banks under the QE policies at very low interest rates. McKinsey & Company consultancy estimated that low interest rates under QE between 2007 and 2012 in the US government had saved $1,045 billion in interest expense, equivalent to 6.7% of the 2012 GDP (McKinsey Global Institute, November 2013, p.32). The International Monetary Fund (IMF), in its April 2021 *Fiscal Monitor* underlined how high levels of sovereign debt globally are affordable only because of central bank QE policies and consequently governments borrow more but pay less interest on higher levels of debt.

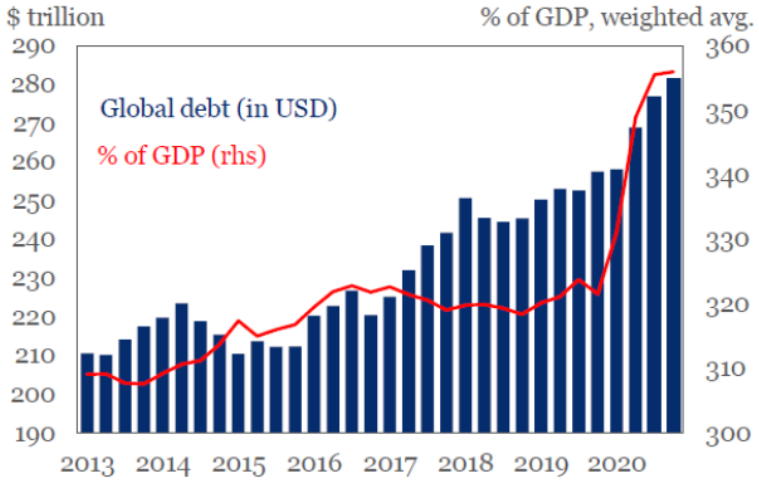


Figure 4: Global Debt (Government, non-financial corporates, financial sector, household)
Source: IIF (2021)

Figure 5 below shows that in 2007 high-income countries collectively had a sovereign debt to GDP ratio of 71.1% and their total interest expense was 2.6% of their GDP. In 2020 sovereign debt to GDP ratio has grown to a huge 122.5% but the interest expense has gone down to 1.7%. The findings of a *Financial Times* survey of leading bond investors for the UK are equally true for the US, the EU and Japan: QE programme is a "… thinly veiled attempt to finance the government's deficit to keep its borrowing costs down." (Stubbington and Giles 2021). Against such evidence we can safely predict that central banks are not likely to increase interest rates soon for at least no other reason than not to put their governments under fiscal pressure at a time when the countries have not fully recovered from the social and economic costs of the Covid-19 pandemic.

Quantitative easing programme is a "… thinly veiled attempt to finance the government's deficit to keep its borrowing costs down."

(Stubbington and Giles, Financial Times 2021)

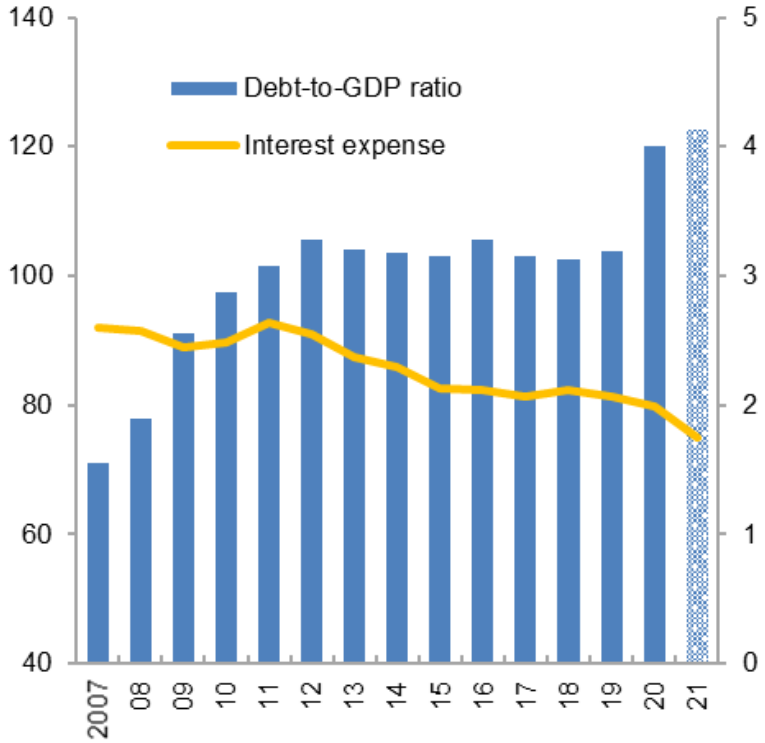


Figure 5: Debt and interest expense of governments in high-income countries
Source: IMF Fiscal Monitor April 2021

Similarly, even a small increase in interest rates of a magnitude of one per cent is likely to push the household sector into serious financial distress in servicing their mortgage debt and thus threatening the solvency of the banking sector. The Survey of Household Economics and Decision Making by the US Federal Reserve has revealed

The survey of Household Economics and Decision Making by the US Federal Reserve has revealed that in 2020 more than one third of US households would find it difficult to pay an emergency $400 expense.

that in 2020 more than one third of US households would find it difficult to pay an emergency $400 expense (see Figure 6). In 2013, half of US households would find it difficult to pay the same emergency expense (Federal Reserve 2021). Given that per capita individual debt in the US is $92,727 it is not difficult guess how even a one per cent increase in interest rates would put a large number of US households and their banks in financial distress.

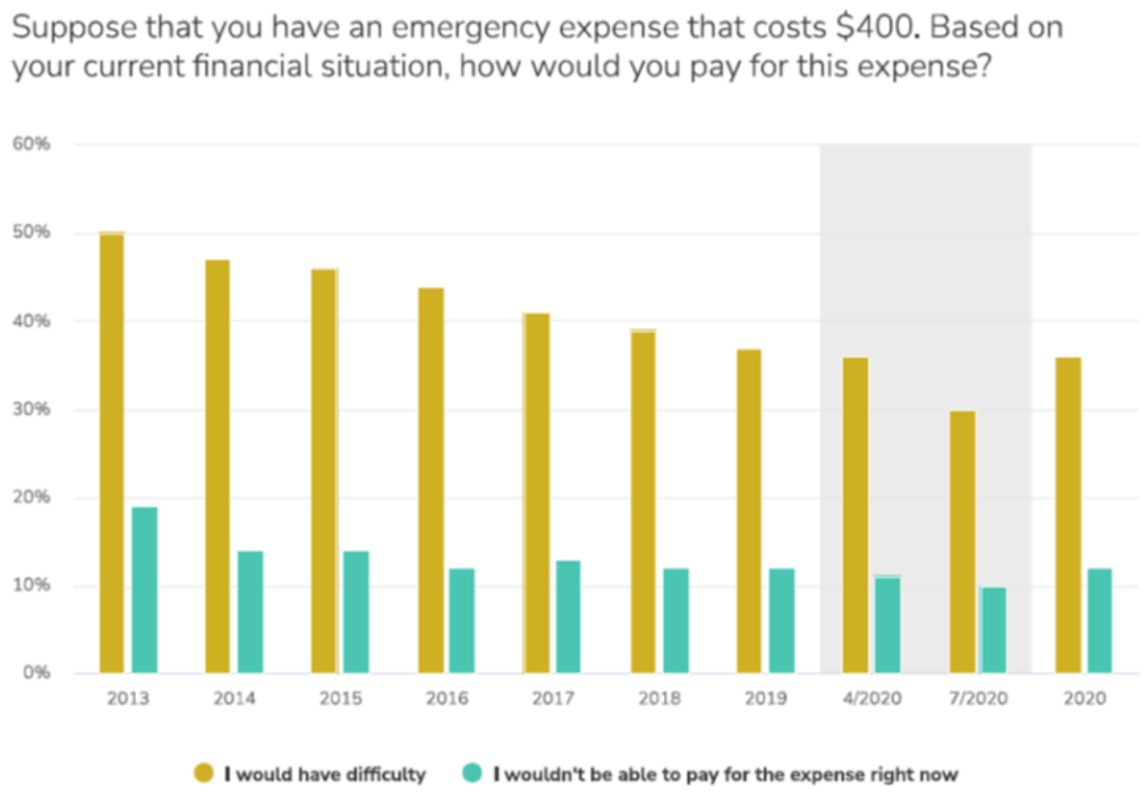


Figure 6: Survey of Household Economics and Decision Making in the US
Source: Grover (2021)

The 'zombie company' is a new concept introduced by central bank economists describing private companies that are extremely exposed to even very small increase in interest rates. Only ultra-low interest rates allow these companies to remain solvent.

Persistent low interest rates have also caused 'zombification' in the corporate sector. Banerjee and Hofman (2018), BIS economists, define zombie companies as those that are unable to cover debt-servicing costs from current profits over an extended period. But access to low interest loans allows these companies to remain solvent. Banerjee and Hofman's (2018) survey of fourteen high-income countries revealed that the share of zombie companies in total companies has increased from 2% in the late 1980s to around 12% in 2016. And the probability of a zombie company remaining a zombie in the following year increased from 60% in the late 1980s to 85% in 2016 (Banerjee and Hofman 2018, p.70).

Therefore, we can safely predict that given the enormous financial fragility of sovereigns, households and non-financial private companies, central banks are very likely to keep the interest rates at the current low levels. This means credit unions are very likely to live in a world of low interest rate margins for quite some time. High levels of sovereign debt and private debt will continue to affect central banks' decision on interest rates. Although central banks recently make announcements that interest rates are likely to go up in one- or two-years' time because of inflationary pressures we need to remember that communication has become a policy tool for central banks. Central banks aim to influence behaviour in financial markets by using communication about interest rates as much as actually changing the interest rates (see Campbell et al. 2012 and Holmes 2014). Therefore central banks' intention could well be to prevent further risk taking under ultra-low interest rates by making announcements about possible rate rise in the mid-term rather than actually increasing the interest rates and causing economically and socially costly financial instability. And, if central banks were to increase interest rates because inflation becomes a real concern the paper doubts that such increases would be higher than single- or double-digit basis points.

2.3. How quantitative easing has distorted markets for rational risk and return calculations to be made

There is a growing criticism of central bank QE policies that blames QE for distorting risk pricing in financial markets. As quoted above even the establishment institutions like the International Monetary Fund and the BIS have voiced in their reports that QE distorts efficient allocation of funds by the financial system by artificially creating low volatility and hence encouraging risk taking in financial markets rather than in productive economy.

"Leading central banks have adopted zero interest rate policy, forward guidance, quantitative easing (QE), qualitative easing and now negative interest rate policy, this "new abnormal" of policy-induced distortions undermining all "fundamental" approaches to "fair value" calculations in global markets."

(Donal O'Mahony, Davy Capital Markets, 2016)

The Netherland's Pensioen Federatie, the umbrella organisation that represents almost all Dutch pension funds, too, publicly expressed its concerns about QE distorting financial markets rather than providing economic stimulus (Pensioen Federatie May 2015 p.14). Ertürk (2014) has shown that unconventional policies in the UK and the US have failed to bring private investment as percentage of GDP back to the pre-crisis levels and investments in 2014 were still some 20% less than what they had been in 2007. But the stock markets both in the UK and the US have recovered and past their pre-crisis levels.

In a 2012 speech Ben Bernanke, then chairman of the Federal Reserve, explained the stock market recovery as a consequence of portfolio balancing channel under large scale asset purchases by the Federal Reserve and stated that "[t]his effect is potentially important because stock values affect both consumption and investment decisions" (Bernanke, 31 August 2012).

However high stock values instead led to significant increase in share buybacks and high premium mergers and acquisitions (BIS March 2015, McKinsey & Company 2015, OECD 2015). And more recently The *Financial Times* has reported (Arnold 2019) that a group of central bankers[4] warned that negative interest rates would "favour owners of real assets" and "create serious social tensions". They publicly announced that:

> *"The young generations consider themselves deprived of the opportunity to provide for their old age through safe interest-bearing investments. … The search for yield boosts artificially the price of assets to a level that ultimately threatens to result in an abrupt market correction or even in a deep crisis." (Arnold 2019).*

Well-known and respected fund manager Mohamed Aly El-Erian, chief economic adviser at Allianz and the ex-CEO and co-chief investment officer of PIMCO, one of the world's largest fixed income asset management firms, adds that the fragility and distortions created by QE have become even worse since the post-Covid-19 central bank QE policies:

> *"… with a Fed [Federal Reserve] reluctant to taper its stimulus, it faces lose-lose policy options - let the risk of financial instability rise and threaten the real economy or intervene further in the functioning of markets, worsen wealth inequality and risk more distortions that undermine efficient financial and economic resource allocations." (El-Erian 2021).*

It is safe to conclude that central bank QE policies since the 2007 crisis not only have eroded net interest margin at credit unions, putting their sustainability at risk, they have also distorted financial markets by creating inflation in asset prices, like residential real estate and stock markets, increasing fragility in the financial system. Like all financial institutions, credit unions too are exposed to financial risks that are systemic and any increased volatility in financial markets may have contagion effect on credit unions. One of the reasons why investments by credit unions in safe government bonds have such low return with unfavourable financial outcome for their members is because QE policies of central banks encourage risk taking in stock markets as the quote above from Bernanke demonstrates, in the hope that such risk-taking by investors in financial markets will cause economic growth through productive investments by those companies whose stock market valuations go up.

But instead, firms spend extra profits and use low-cost borrowing to do share buybacks to increase their share prices further. And inflated stock markets increase mergers and acquisitions. As such QE is a double whammy for credit unions - reducing interest margins and exposing them to the consequences of increasing financial stability risks. Low risk financial intermediaries like credit unions who are non-profit and work for their members suffer through multiple channels under the QE policies of central banks who encourage risk taking and guarantee high returns for risk taking by forward guidance,

[4] This group comprised Jürgen Stark and Otmar Issing, ex-ECB chief economists, Hervé Hannoun, a former deputy governor of the Banque de France, Klaus Liebscher, former head of the Austrian central bank, Helmut Schlesinger, former head of Germany's Bundesbank, and Nout Wellink, former head of the Dutch central bank

i.e. unconventional monetary policy that assures markets about the longevity of low interest rates.

Therefore, new safe investments and lending forms are needed in this radically changed financial environment that is not going to be transitionary. This paper recommends that credit unions can counteract the margin losses by exploring volume solutions. Such volume solutions can be socially useful community lending to address intergenerational wealth balances, lack of first-time buyer mortgages, growing electronic payment-initiated borrowing, the need for restructuring expensive short-term household debts with longer maturity, cheaper debt, and the need for credit products that contribute to net zero targets of governments and local authorities. Given that central and local governments need to meet their obligations to transitioning to a low carbon economy under the Paris Climate Agreement in 2015 and the Glasgow Climate Pact in 2022, deposits at credit unions can be used for social purpose in the interest of their members.

3. The Basel-inspired capital adequacy framework: a problem not a solution for socially useful banking

3.1. The Basel framework and capital adequacy

> **"... Basel risk weighting and the use of internal bank models for determining them leads to systematic regulatory arbitrage that undermines its effectiveness. …Where vast differences in business models are concerned it makes no sense to aim for a one-size-fits-all capital rule (neither Basel T1 nor LEV)."**
>
> (Blundell-Wigall et al., OECD economists, 2014)

The approach of regulators in Ireland and the UK to capital adequacy at credit unions has been shaped by the analytical thinking that is responsible for the evolving Basel framework. Although Basel risk algorithms are not applied to credit unions in the way they are applied to banks, the logic of Basel determines the regulators' risk modelling at credit unions. A flat 10% leverage ratio for credit unions in Ireland is such an example. It is a variation of post-GFC Basel leverage ratio that aimed to prevent gaming the risk-weighted asset calculations. Because credit unions in Ireland have not gamed the risk-weighted algorithms of Basel, it is not appropriate to introduce such a flat leverage ratio. And a 10% leverage ratio is even higher than what is applied in banking with much riskier assets than credit unions. Therefore, the debates about what capital adequacy framework is suitable for credit unions need to engage critically with the Basel system as this is the lens through which regulators see risk in all financial intermediaries exposed to credit risk. The credit union movement needs to build an advocacy capability to respond to regulators' universally applied analytical approach to risk. Therefore providing a sound critique of Basel inspired approach to risk in credit unions is an essential element of such advocacy capability.

The Basel capital adequacy framework, in its evolving trajectory from Basel I to future Basel Xs, has come under serious criticism for its conceptualisation of risk and the unintended consequences resulting from regulatory arbitrage that its complex risk-weighted algorithm allows. Therefore, the suitability and desirability of a Basel-inspired capital adequacy framework for a socially useful credit allocation are questioned, especially since the 2007 banking crisis. Risk-weighted assets on financial intermediary balance sheets tend to crowd out socially useful credit by changing the behaviour of managers who prioritise a technical regulatory capital ratio rather than the needs of the households and businesses. Therefore, any discussion of loss-absorbing capital calculations in the credit union sector needs to go beyond the confines of a Basel-inspired capital adequacy framework and consider the impact on management behaviour in lending and investing member savings and deposits. Given their ownership and management structures, credit unions are different from for-profit banks that prioritise shareholder wealth and are run by executives whose remuneration is disconnected from the interests of the retail depositors.

As Murray et al. (2021) have convincingly argued, Basel-inspired capital adequacy rules impede credit unions in serving their members and in the case of Ireland where the capital ratio is between 10% and 12.5%, much higher than other jurisdictions,

prevent capital growth dynamics. Murray et al. (2021) propose a less complex capital adequacy calculation framework based on credit union assets' risk characteristics that would allow superior levels of socially useful loans for credit union members. This paper argues that the unsuitability of the Basel-inspired approach for credit unions is not limited to its complexity regarding the risk weights of assets that are designed for larger banking conglomerates. The Basel approach has an unintended consequence of changing behaviour in lending institutions where assets' risk weights rather than their social and economic value determine credit allocation.

Management in shareholder value-driven banking tends to use Basel type of risk weighted capital adequacy models to achieve regulatory capital adequacy targets and, at the same time, a return on equity (ROE) target that is expected to positively affect share price. Satisfying the regulators and shareholders does not necessarily lead to a socially useful allocation of credit. For example, the Basel III framework that was introduced after the 2007 GFC has led to the US commercial banks allocating less credit to the economy but keeping more liquidity on their balance sheets to such a degree that cash has become the second largest item on their total assets, its share increasing from 2.9% in 2007 to 17.2% in 2015 (see Figure 7 below). Given that the US economy needed investments and growth after a historically devastating banking crisis in 2007, the banking sector failed to allocate credit for such purposes but satisfied the Basel III capital and liquidity ratios.

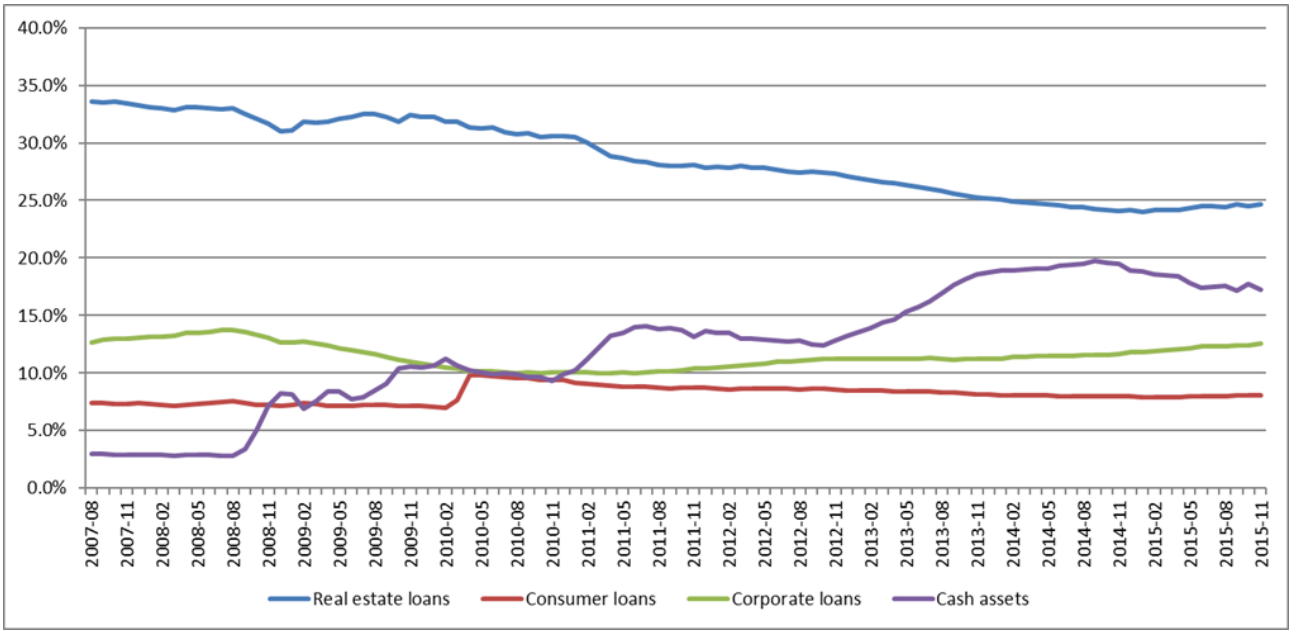


Figure 7: Asset composition at the US commercial banks – 2008-2015
Source: Ertürk (2016)

At the individual bank level we can look at the behaviour of the Lloyds Banking Group in the UK after the introduction of Basel III that aimed at de-risking and re-capitalising banks but without considering the consequences for credit allocation in the economy. Under the Basel III rules, Lloyds Banking Group has transformed its balance sheet in such a way that the bank has become well-capitalised, its Tier 1 capital ratio increasing from 11.6% in 2010 to 19.1% in 2020.

This high level of capital adequacy ratio has been achieved by reducing risk-weighted assets from 68.5% of total lending in 2010 to 40.6% in 2020 (see Table 2). Although total lending declined by £94 billion between 2010 and 2020, risk-weighted assets have declined £203 billion, more than double total lending. This is mostly due to lower risk-weighted mortgages increasing from 58% to 62% in total lending. But Lloyds Banking Group's lending to manufacturing companies has declined from 2% of total lending in 2010, already a low figure, to 1% in 2020 and to transport, distribution, and hotels from 6% to 3% during the same period (Lloyds Banking Group Annual Reports).

Under Basel III the biggest bank in the UK, Lloyds Banking Group, has become better capitalised by increasing the share of mortgages from 58% in 2010 to 62% in 2020 in its total lending. According to FCA statistics in 2020, only 29.2% of mortgage product sales were for first time buyers, the rest going to existing homeowners. Better capitalisation under Basel does not mean socially useful credit allocation.

In a way, the Basel capital adequacy framework produces an unintended consequence of less credit being allocated to the productive economy with adverse results in generating growth and jobs. Mortgages can be considered a socially useful form of lending, increasing home ownership, but the evidence suggests otherwise. The Financial Conduct Authority's (FCA, Bank of England) data on mortgage sales in the UK shows that only 29.2% of total mortgages sold in 2020 were for first time buyers, allowing home ownership for the younger population (see Table 3 below). Almost all remaining mortgage loans are for existing owners of homes either releasing equity from increasing real estate wealth- remortgages or existing homeowners borrowing to move house or buy a second house. The former motive accounts for 34.8% and the latter 30.6% of total mortgage loans sold in the UK in 2020. Under the Basel framework, banks become well-capitalised but their credit decisions do not necessarily serve socio-economic needs of the society. Basel seems to produce financially strong banks for the regulators but not so useful financial institutions for the society. Basel's risk-weighted capital logic tends to make credit institutions act in such a way that the outcome is not socially optimal. It could even be argued that Basel can be considered as a mechanism that causes waste in the use of economic capital.

Year	Risk Weighted Assets (RWA) (£bn)	Total Lending (£bn)	Tier 1 Capital ratio	RWA / Total Lending
2010	406	593	11.6	68.5%
2011	352	566	12.5	62.2%
2012	310	517	13.8	60.0%
2013	264	495	14.5	53.3%
2014	240	483	16.5	49.7%
2015	223	455	16.4	49.0%
2016	216	450	17.0	48.0%
2017	211	472	17.2	44.7%
2018	206	485	18.2	42.6%
2019	203	495	16.7	41.1%
2020	203	499	19.1	40.6%

Table 2: Lloyds Banking Group's balance sheet transformation under Basel III
Source: Lloyds Banking Group – Annual Reports and Accounts

	2016	2017	2018	2019	2020
Council/registered social landlord tenant exercising their right to buy	1.2%	1.2%	0.9%	0.9%	0.7%
First time buyer	28.8%	28.4%	27.7%	28.3%	29.2%
Home movers/second or subsequent buyers	32.0%	30.6%	28.6%	28.7%	30.6%
Other	3.8%	4.2%	5.0%	4.9%	4.8%
Remortgagors	34.2%	35.6%	37.8%	37.3%	34.8%

Table 3: Mortgage Product Sales in the UK
Source: Financial Conduct Authority, Bank of England

We must not forget that Basel capital adequacy framework failed to prevent bank failures during the 2007 GFC. In fact, the way securitisation and the use of credit

default swaps[5] were treated under Basel II internal rating method, had allowed Northern Rock to report high capital adequacy ratios (see Figure 8 below). As Figure 8 shows, instead of using 50% risk weight under Basel I for 77% of its assets, which were residential mortgage loans, Northern Rock used risk weight of less than 25% under Basel II that allowed the use of internal methods for risk weights for securitised mortgages.

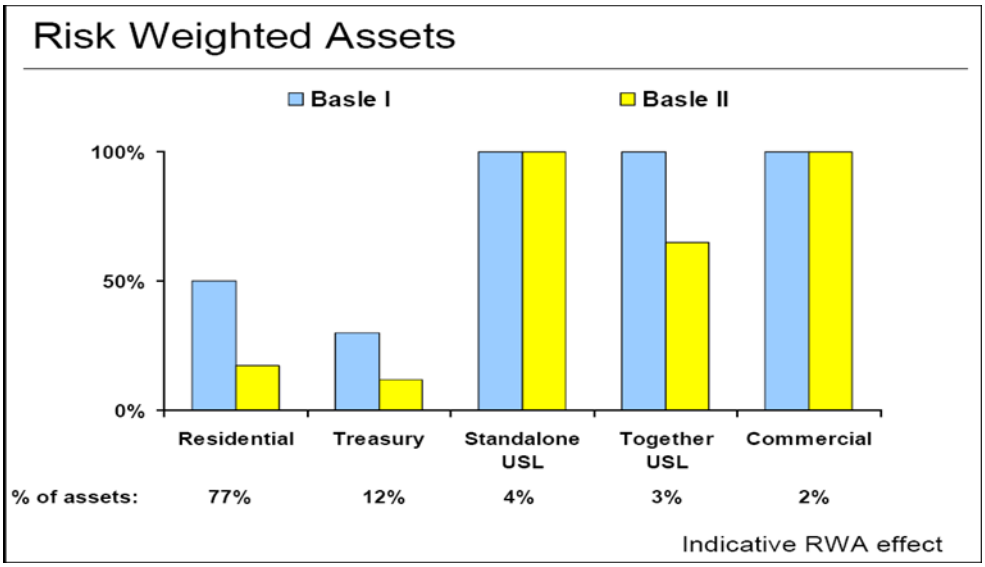


Figure 8: Northern Rock's regulatory arbitrage under Basel II

Source: Crowther and Ertürk (2017)

Therefore we cannot ignore the probability that any Basel-inspired or Basel-guided risk weighted capital methodology for credit unions can change asset structure at credit unions in such a way that the resulting balance sheets do not serve members' needs but serve instead the regulator's algorithms. It even leads to a perverse outcome in Ireland where credit unions prioritise capital accretion by shrinking their balance sheet and hence potentially damaging their income sources. Meeting regulators' algorithmic targets by shrinking earnings makes credit unions unsustainable over credit cycles but well-capitalised over the regulatory cycle. This may be an optimal outcome for regulatory purposes but does not serve credit unions' social purposes. As shown above Basel risk weights unintentionally exacerbate housing market problems by channelling funds to the existing owners of homes rather than to those who need homes but cannot borrow at Basel satisfying loan to value ratios.

[5] A credit default swap (CDS) is a type of credit derivative that provides the buyer with protection against default and other risks. The buyer of a CDS makes periodic payments to the seller until the credit maturity date. In the agreement, the seller commits that, if the debt issuer defaults, the seller will pay the buyer all premiums and interest that would've been paid up to the date of maturity (Corporate Finance Institute)

3.2. The Basel framework and management behaviours

Since the introduction of the Basel capital adequacy accords from the late 1980s onwards the calculation of ROE in banking has become more creative. The regulatory focus of Basel is optimum equity allocation against balance sheet and off-balance sheet risks in banking. The Basel capital adequacy accords, in all methods, have developed an algorithm where each bank activity both on balance sheet and off-balance sheet has a precise risk weight which then determines how much capital a bank keeps against this quantified credit or market risk. Therefore, banks can influence their ROE ratio by reducing the denominator in the equation as the OECD economists Blundell-Wignal and Atkinson (2010) have shown, by creatively applying the Basel risk algorithm.

As Engelen et al. (2011) have argued, bank business models are driven by the objective of maximising share price in the stock market in a shareholder value-driven system. Investors in stock markets traditionally demanded a 15% ROE from banks before GFC and still think that it should be the target, although lower ROE figures of 10%-12% seem to be the levels expected. Therefore, financial innovation, like Collateralised Debt Obligations[6] and credit default swaps before the GFC, tends to create lower risk-weighted assets for banks to achieve the required high ROE. Sovereign bonds, interbank lending, and real estate lending, too, are lower risk weighted than corporate and SME lending. Since the crisis central bank monetary policies aim to encourage banks to fund SMEs and corporations to spur economic growth. However, banks are unwilling to lend to SMEs and corporations because such bank assets are subject to higher risk weight under Basel capital rules and hence tend to reduce ROE. Especially in the UK, the government's lending for funding scheme that aimed credit flow to SMEs had been unsuccessful causing public criticism of new Basel capital rules by the then coalition minister for business Vince Cable. Not only do the re-capitalisation efforts under Basel III discourage capital flow to SMEs and to the industry, according to the OECD economists Blundell-Wignall, Atkinson and Roulet (2014):

> *"... Basel risk weighting and the use of internal bank models for determining them leads to systematic regulatory arbitrage that undermines its effectiveness. …The capital rule cannot possibly come close to making these banks safe without addressing the business model issues and too-big-to-fail (TBTF). … The bank regulators' paradox is that large complex and interconnected banks need very little capital in the good times, but they can never have enough in an extreme crisis. Separation of fundamentally different business segments is required to deal with this problem. …Where vast differences in business models are concerned it makes no sense to aim for a one-size-fits-all capital rule (neither Basel T1 nor LEV)."* (pp.16-17).

[6] A Collateralized Debt Obligation (CDO) is a synthetic investment product that represents different loans bundled together and sold by the lender (a bank) in the market. The holder of the collateralised debt obligation can, in theory, collect the borrowed amount from the original borrower at the end of the loan period. A collateralized debt obligation is a type of derivative security because its price (at least notionally) depends on the price of some other asset

Non-profit financial intermediaries like credit unions are not driven by a managerial behaviour aiming to maximise the ROE metric that is directly linked to the stock market valuation and executive remuneration in shareholder value-driven banks. Therefore, Basel risk-weighted approach to capital adequacy leads to a behaviour at listed banks that aims to meet two targets at the same time, the regulatory target for risk-weighted capital and the stock market target for ROE. The consequent asset structure of the bank then serves the regulators and the stock market investors and the executives with equity-linked bonuses. But the resultant asset structure does not necessarily serve the societal needs. Therefore, after the 2007 GFC the rationale for supporting FinTech firms included the need for a more inclusive finance and new credit providers to the SMEs. In the next section the paper will discuss the regulatory support for FinTech and how it can be assessed for the credit union industry.

4. FinTech: what kind of challenge for credit unions?

4.1. FinTech, regulators and policy-makers

> ***"It is also worth bearing in mind that what we need to evaluate is the way in which digitization opens the door to delivering new benefits rather than simply delivering digitally services that already exist. While the latter may make for greater convenience, improved customer retention, and increased speed and efficiency that could make financial institutions more profitable, all that, in itself, may well be desirable when viewed from the firm perspective, but does not deliver much meaningful new social value."***
>
> *(Ertürk and Zammit-Lucia, 2020)*

After the 2007 crisis financial technology (FinTech) firms were seen by the regulators as promoters of disruptive banking technology that would democratise finance, increase competition, and make banking efficient and more socially responsible. FinTech was supported to challenge the incumbent banks in which public and consumers had lost their trust. The superior technological capabilities of FinTech firms in digital data processing to assess risk and virtually interfacing with clients at speed using artificial intelligence could allow them to serve in particular SMEs that the post-crisis undercapitalised traditional banks were reluctant to lend to. Similarly, other higher risk consumers, who are financially excluded by big banks and could not open bank accounts, get mortgages, credit cards, etc., could now benefit from superior technological risk algorithms of FinTech companies to have access to vital financial products.

FinTech was also seen as an answer to the lack of competition in a highly concentrated banking market with open banking regulation allowing them to have access to bank customer data to develop digital products. Open banking would allow FinTech firms to serve the existing customers of traditional banks better by offering cheaper, faster, and customised financial products and services through digital channels and methods.

Given the narratives about FinTech companies' digital advantages one would expect that the Covid-19 crisis would have strengthened their competitive position and allow them to grow faster by gaining market share from the traditional incumbent banks. Instead the FinTech industry in general had experienced difficulties in valuations (see Figure 9 below where the FinTech Index in the US had the sharpest fall compared to NASDAQ Composite and S&P500) and the industry was shocked by two major scandals, Wirecard in Germany, and Greensill in the UK, where accounting fraud and financial misbehaviour led to their very public collapse, embarrassing regulators, and politicians.

German regulators should have been scrutinising Wirecard's business model and published accounts back in September 2018 when Wirecard's market capitalisation had reached €16.26 billion, more than twice that of Germany's leading financial institution Commerzbank. In both cases politicians and regulators have ignored and even challenged the investigative journalism of reputable financial media like *Financial Times* that alleged misbehaviour at these two FinTech firms. German politicians and regulators instead expressed trust in capital markets as objective valuers of innovation

and untested business models. As Figure 10 below shows, before its collapse Wirecard, like most FinTech firms, had a market valuation that was much higher than banks although banks had far superior stable earnings and much larger assets than Wirecard and similar FinTech firms.

We must remember that Basel II has introduced the pillar of market discipline to capital adequacy calculations believing that capital markets are better assessors of credit risk than banks and financial institutions. In the 2007 banking crisis the failure of credit rating agencies in assessing the true risk of credit derivatives related to subprime lending had shown that capital markets cannot be wholly trusted in assessing risks. Basel III has not discarded Pillar 3 in substance but elaborated on the transparency of risk measurement in individual banks for the benefit of the market. As Wilfried Wilms, Senior Policy Adviser at the European Banking Federation, noted, Pillar 3 under the Basel capital adequacy framework continues to blindside regulators on market's rationality on risk assessment (Wilms 2014).

Similarly, financial regulators are not equipped to control narratives in capital markets and business world that heavily influence valuation and legitimacy of innovative practices. The Nobel Prize-winning economist Robert Shiller has explained (Shiller 2020) how valuations in capital markets can be dangerously driven by stories, narratives, beliefs, and opinions rather than rational and factual calculations. Capital markets tend to overvalue untested innovations because a combination of under-researched financial media enthusiasm for things new and investment banking analysts' unrealistic assumptions and forecasts can create and sustain positive sentiments about firms and industries. Internet firms and anything with dot.com in the title in the late 1990s were such examples, until the bubble dramatically burst in 2000.

FinTech as disruptive technology in financial intermediation is a strong narrative propagated by media, academia, regulators, etc. that plays a significant role in the general acceptance of the FinTech phenomenon. Of course blockchain, digital algorithms in credit risk evaluation, use of artificial intelligence in processing data, etc. are all valuable technological innovations in finance. But the inflated claims and expectations that they can collectively lead to sustainable business models in a very short period of time and immediately disrupt banking conglomerates are highly suspect as the cases of Wirecard and Greensill have demonstrated.

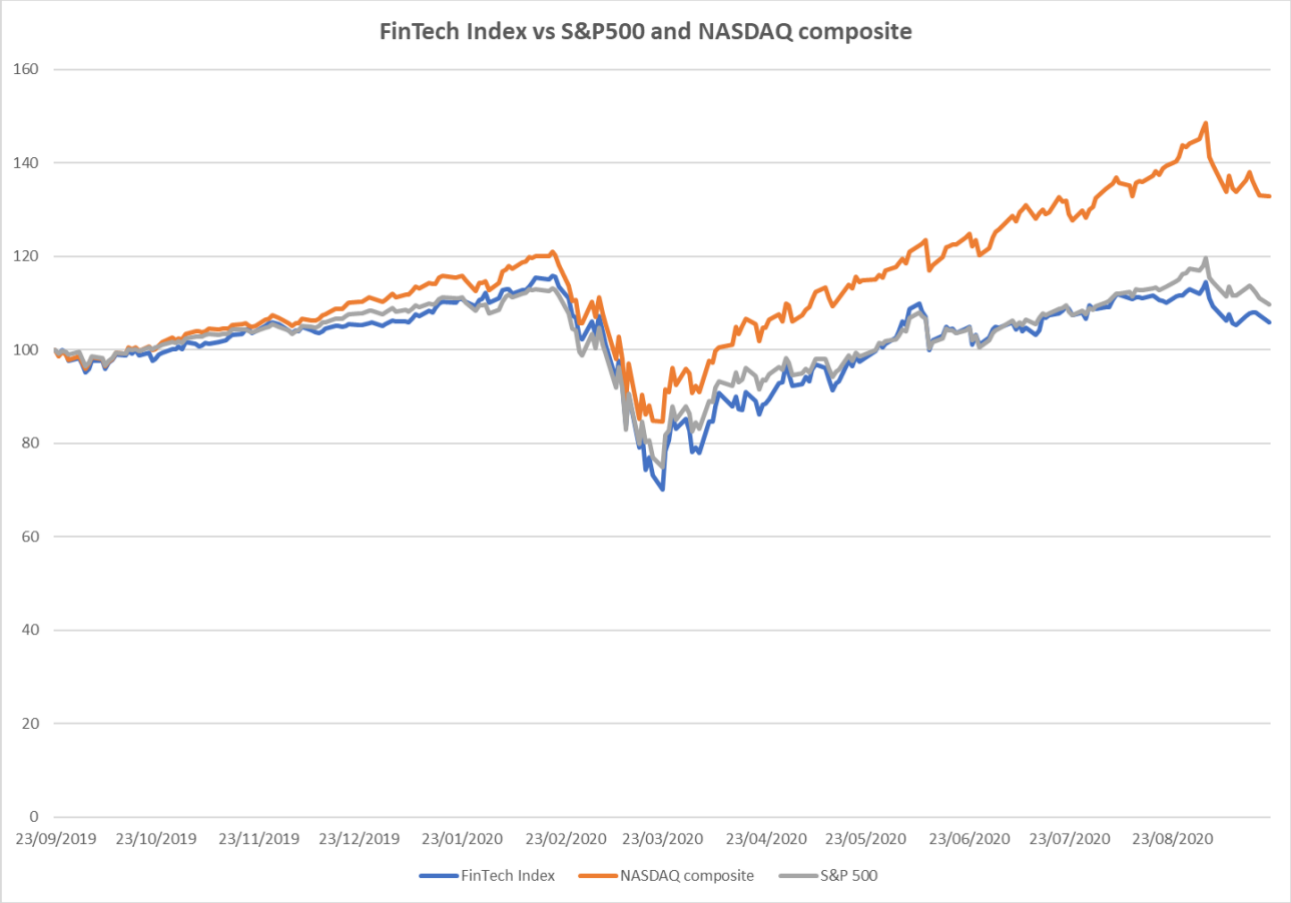


Figure 9: Impact of Covid-19 lockdowns on the valuation of FinTech firms in the US
Source: Ertürk and Zammit-Lucia (2020)

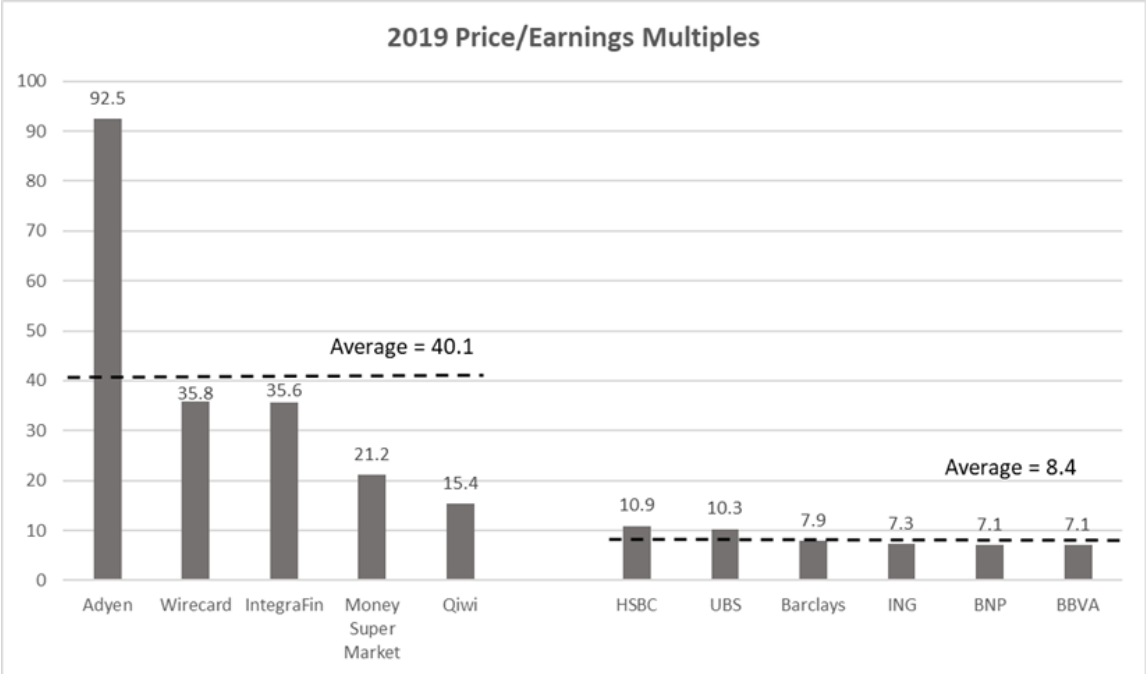


Figure 10: Market valuation of FinTech firms versus incumbent banks before Covid -19
Source: Finch Capital

4.2. FinTech, consumers and credit unions

One survey by the Federal Reserve Bank of New York (2017) (New York state's central bank) found that small business borrowers were more satisfied with non-FinTech providers than FinTech providers. Only 46% of borrowers were satisfied with online lenders whereas 80% and 78% of borrowers were satisfied with small banks and credit unions respectively (FRBNY 2017). FinTech firms can make lending decisions quicker but seem not to have expertise and resources to serve the clients after lending nor to monitor borrowers after lending to minimise default rates. Of course, some FinTech firms like Adyen in Figure 10, a digital payment company, have technological competences with realistically sustainable business models. PayPal is another example of FinTech firm with payment specialism that can generate sustainable revenues and profits.

A global survey of digitally active adults has found that FinTech adoption rate in money transfer and payment has increased from 18% to 75% between 2015 and 2019 (see Figure 11 below). According to this survey payments are the most successful FinTech products in consumer adoption. Borrowing is the least successful but nevertheless has increased in adoption from 6% to 27% between 2015 and 2019. The implication of this change in consumer borrowing channel in the US meant that credit unions fell behind FinTech lenders. In 2013 the share of credit unions in US consumer loans was 31% compared with FinTech companies' 5% share. By 2018 the share of credit unions has declined to 21% whereas FinTech firms' share has increased to 38%, the highest market share (see Figure 12 below).

Credit Unions, individually or collectively, can explore developing digital products and services for their members using the sandbox facilities. Mobile phones and digital payments are increasingly becoming ubiquitous in consumer banking. Credit unions can expand their socially useful financial services to their members by developing simple but reliable and transparent digital banking services to their members.

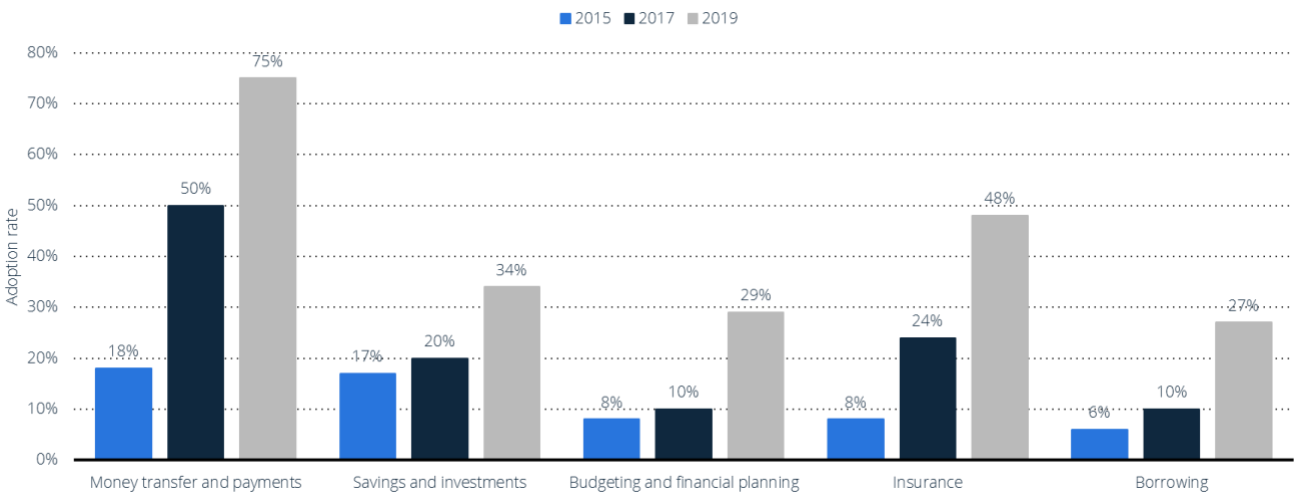


Figure 11: Global consumer fintech adoption rates 2015-2019, by category
Source: Statista

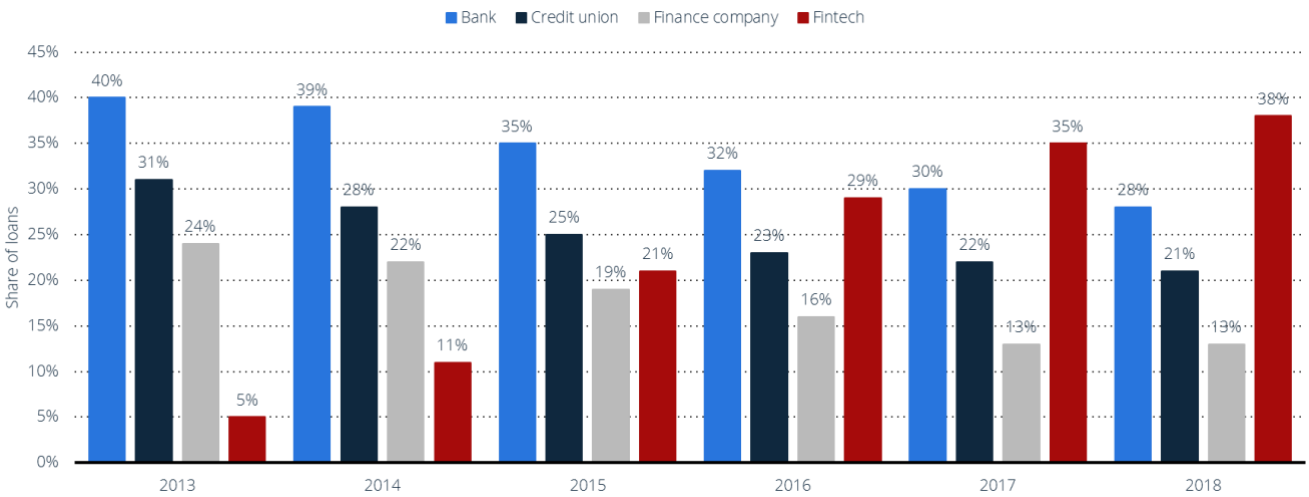


Figure 12: Distribution of personal loans in the US 2013-2018, by source
Source: Statista

So far central and local governments and financial regulators have invested heavily in resources in making FinTech a key element of the future of finance in an increasingly digitalising economy. Open banking regulation has been revolutionary around the globe giving FinTech third parties access to bank data to innovate digital banking products; financial regulators have set up sandbox facilities for FinTech start-ups to test their products freely and give them guidance on compliance; and local authorities globally have set up subsidised physical FinTech hubs to provide office space and networking opportunities to FinTech start-ups.

FinTech companies are not subject to banking regulation and therefore do not incur costs like capital adequacy and liquidity ratios. And they are rewarded by capital markets for increase in client base. Regulators do not intervene in capital market legitimisation of suspect FinTech business models where the valuations are based on growth in client numbers and some hypothetical revenue streams that are based on cross-selling financial products in the future. German Wirecard and the British Greensill are two FinTech failures where unsustainable business models were ignored or not understood by investors and stock markets.

4.3. FinTech products and services

Globally, financial regulators provide support for FinTech start-ups and other qualified financial institutions including incumbent banks in testing the market viability, technological operability, and legal compliance of their digital financial products. In the UK, the FCA started sandbox operations in 2016. The first cohort of firms and their products is shown in the Appendix. There are two big banks in this cohort, HSBC and Lloyds Banking Group, with products aiming at better retail banking service for their customers. These FinTech products are not necessarily complex digital applications using artificial intelligence or block chain technology. In many cases they are mobile phone apps that allow customers to access their accounts, to make financial plans, and to avoid online financial scams. FCA's sandbox services allow firms to test products and services in a controlled environment with real customers. Firms have the opportunity to introduce digital products and services quicker and at a lower cost.

Products and services that are tested in a sandbox have customer protection safeguards incorporated through the regulator's support, preventing regulatory consumer protection risks.

Credit unions, individually or collectively, can explore developing digital products and services for their members using the sandbox facilities. Mobile phones and digital payments are increasingly becoming ubiquitous in consumer banking. Credit unions can expand their socially useful financial services to their members by developing further the existing simple but reliable and transparent digital banking services for their members. Increasingly both FinTech companies and incumbent banks see digital payment products as entry for selling loans and other financial products. Credit unions are much better suited to make digital finance socially useful because of their ownership and governance structures.

There are FinTech companies that aim for socially useful finance. For example, during the Covid-19 lockdown charities had difficulty receiving donations because most of them did not have digital capabilities. FinTech companies could enable charities to accept donations digitally without incurring card interchange fees. Verifications of identity and bank account details digitally are also useful services for elderly and sick people who cannot leave home. Digital mobile apps can help consumers to make simple financial planning and to control their use of bank accounts with greater ease. Credit unions can explore possible collaboration with FinTech firms with proven socially useful business models.

5. Conclusion

This paper has identified three external threats to credit unions' business model and their socially useful role in meeting their communities' financial needs. These are 1) ultra-low interest rates that are enforced by central banks through their QE policies, 2) Basel-inspired capital adequacy framework that introduces a risk logic that is not suitable for members-owned non-profit financial institutions like credit unions, and finally 3) the regulatory support for FinTech firms that creates uneven playing field in developing digital distribution channel for existing socially useful providers of finance like credit unions. Table 4 below provides a summary of these threats and recommendations to counteract them:

External threat	**Impact**	**Recommendations**
Persistence of ultra-low interest rates	Erodes net interest income and capital formation.	Search for volume solutions that meet members' and their households' needs like: - intergenerational credit products, - e-commerce linked credit, - restructuring expensive loans, - net-zero targets related green consumer loans.
Basel-inspired capital adequacy framework	Possible behavioural change in allocating credit that may not serve the needs of the members.	Creation of advocacy capability to engage with the regulators in a pro-active manner to propose conceptual alternatives that reflect the true risk profile of credit unions.
The rise of and regulatory support for FinTech	Possible loss of revenue and members due to lack of digital services.	- Collective or individual further development of simple and low-cost digital infrastructure for mobile banking and electronic payments. - Using regulators' free sandbox services to test digital products and services. - Collaborate with reliable and proven FinTech firms with similar values to credit unions in developing or using digital solutions.

Table 4: Recommendations to counteract financial system threats to credit unions

This paper sees these three threats not as temporary phenomena. Interest rates may increase but as argued above in Section 1 such increases are not likely to be in full percentage points because of historically high levels of indebtedness at all sectors of the economy. The financial system is not likely to survive the consequences of very likely defaults that would be caused by steep interest rate increases. Therefore central banks will most probably keep interest rates at these ultra-low levels in medium- to

long-term but will make small basis point increases and, most importantly, signal willingness to increase rates without materially changing the net interest margins.

Banking regulators have invested huge amount of technocratic capital into the Basel capital adequacy framework and banks globally have invested in systems to implement it. And the recent concern about the financial risks from transitioning to a net-zero economy is likely to expand the Basel risk logic to manage credit risk to fossil fuel businesses.

Unless there is a radical change in the regulatory understanding and awareness regarding risk supported or led by political authorities Basel and its risk-weighted calculations will remain as the overwhelmingly dominant regulatory approach to capital adequacy, subscribed to by all the major central banks. Although Basel's unsuitability for small banks and non-profit financial institutions like credit unions is increasingly being accepted by the regulators its influence cannot be totally ruled out. And finally, FinTech, too, is here to stay for a variety of reasons as discussed in Section 3. Therefore this paper believes that the recommendations outlined in Table 4 above can be a useful framework for credit unions to explore responses to these three threats.

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Appendix - Digital consumer products tested by the UK FCA's sandbox facility

As identified in Section 4.3, financial regulators provide support for FinTech start-ups and other qualified financial institutions in testing the market viability, technological operability, and legal compliance of their digital financial products. In the UK, the FCA started sandbox operations in 2016. The first cohort of firms and their products is shown here.

Firm	Description
Billon	An e-money platform based on distributed ledger technology that facilitates the secure transfer and holding of funds using a phone based app.
BitX	A cross-border money transfer service powered by digital currencies / blockchain technology.
Blink Innovation Limited	An insurance product with an automated claims process, which allows travellers to instantly book a new ticket on their mobile device in the event of a flight cancellation.
Bud	An online platform and app which allows users to manage their financial products, with personalised insights, on a single dashboard. Bud's marketplace introduces relevant services which users can interact with through API integrations.
Citizens Advice	A semi-automated advice tool which allows debt advisers and clients to compare the key features of available debt solutions.
DISC Holdings Limited	A technology provider that has partnered with the Department for Work and Pensions (DWP) to determine the feasibility of making emergency payments using means other than cash or the Faster Payments Scheme. The payments platform will use blockchain to allow the DWP to credit value to a mobile device to transfer the value directly to a third party.
Epiphyte	A payments service provider that aims to provide cross-border payments using blockchain technology.
HSBC	An app developed in partnership with Pariti Technologies, a FinTech start-up, to help customers better manage their finances.
Issufy	A web-based software platform that streamlines the overall Initial Public Offering (IPO) distribution process for investors, issuing companies and their advisors.
Lloyds Banking Group	An approach that aims to improve the experience for branch customers which is aligned with the online and over the phone experience.
Nextday Property Limited	An internet-based property company that will provide an interest free loan for a guaranteed amount to customers if they are unable to sell their property within 90 days.
SETL	A smart-card enabled retail payment system based on their OpenCSD distributed ledger.
Tradle	An app and web-based service that creates personal or commercial identity and verifiable documents on a distributed ledger. In partnership with Aviva they will provide a system for automated customer authentication.
Tramonex	An e-money platform based on distributed ledger technology that facilitates the use of "smart contracts" to transfer donations to a charity.
Swave	A micro savings app that provides an across-account view; enables a round-up service every time a user spends money and calculates an affordable savings amount based on the user's spending behaviour.

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