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# FINANCE 21

DIGITAL CURRENCIES.  
AGUSTÍN CARSTENS REFLECTS  
ON THE SOUL OF MONEY IN  
THE DIGITAL ERA

GRAHAM BRIGHT CONSIDERS  
THE CHALLENGES AND  
OPPORTUNITIES FOR  
INTERNATIONAL TRADE

AVOIDING A DOOM  
LOOP. PATRICK MINFORD  
ADVISES AN OVERRULE OF  
CONVENTIONAL THINKING

21<sup>ST</sup> CENTURY FINANCE



# Foreword

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Welcome to the Spring edition of **FINANCE21**, a *World Commerce Review* supplement. This publication has been prepared in response to readership demand for an overview of the financial sector in these turbulent and unique times.

All aspects of the sector are examined, with the most respected authors providing the reader with the most comprehensive information available. Our brief is to provide all the data necessary for the readership to make their own informed decisions. All editorials are independent, and content is unaffected by advertising or other commercial considerations. Authors are not endorsing any commercial or other content within the publication. ■

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# Hope for the best, plan for the worst

Graham Bright considers the global trade landscape post pandemic, and with current international tensions says we should hope for the best outcome and plan for the worst



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**H**aving survived the rigours of Christmas, with panic buying now a distant memory, December saw a flurry of international trade activity, with deals signed between the UK and Australia, and digital trade deals with Singapore.

And rather than the expected lull in January activity, negotiations have commenced towards a free trade deal spanning 5 years between the UK and India. This cements a long-standing history of trade and investment, aimed to increase jobs and revenue in pharmaceuticals, leatherwear, textiles and footwear. Service sectors will also benefit in areas such as nursing, education and IT.

Additionally, the UK Department for international Trade has set its sights firmly on securing membership of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) by the end of 2022, giving access to trade worth USD13.5 trillion. Known as TPP-11, the member nations span the Far East, Australasia and South America incorporating such powerhouses as Japan and Singapore.

With this positive step, the agreement aims clearly to increase economic security, enable non-tariff barriers to trade to be removed help to diversify trade links and re-position the UK as a true global hub following Brexit and the challenges brought by the pandemic.

And, by trading with nations already acting in different FTA's, there should be even greater opportunities, markets and exchange of products and services, to fulfil the ambitions of all the member nations which in turn brings benefits and resources for people to work on problems that all nations are facing, in tech, the environment, healthcare and other sectors.



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So, a rosy outlook to start the year. But, major challenges are still ahead, as the world's second largest trading nation, China, with GDP larger than those of the next four economies - Japan, Germany, the United Kingdom, and India – combined, is facing a new reality when looking at sustainability of growth. Despite the intent, collaboration and reach of FTA's, some countries are maintaining their protectionist, restrictive access, subsidy driven stance.

After its rapid rise, China growth rates have slowed, with the biggest factor being the fall in production in domestic markets, ageing population and reduced numbers of workers estimated to be in the region of 35 million over the next 5 years.

Just as the UK Government has acted to raise the retirement age and keep people in employment longer, China aims to do the same to preserve tax contributions with creation of new jobs.

*We hope for the best outcome and plan for the worst. The next quarter will be critical*



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The global appetite for Chinese goods is insatiable, and as a prime example, the UK imported £40.5 billion more from China than it exported to the country in the year to June 2021, a rise of imports from China of 38% increasing the trade surplus to over USD670 billion. In the same period, UK exports fell by 34%, a picture reflected in many other nations internationally.

China is set on promoting more self-sufficiency, greater domestic consumption and less reliance on the export market long term. But when things go wrong, the repercussions are immense as 'debt bombs' are created with companies 'too big to fail'.

The Evergrande issue is ongoing, with unfulfilled debt obligations of USD300 billion, hundreds of unfinished properties now classified as distressed assets, thousands of unpaid workers, millions of jobs at risk and loss of home buyers.

Closer to home, international trade is not quickly returning to pre-COVID levels or pricing. Just as forward transactions in currency markets may secure future prices, so contracts in shipping were agreed months ago at a time where exporters could negotiate prices with the luxury of excess capacity.

How different it all seems today. Rates to move goods cross-border have never been higher, as contraction of supply chains has caused every player in the ecosystem of trade to review capacity. Starting with transport companies, prices are expected to double (not helped in the UK by additional demands for costly low emission or electric vehicles, highest ever diesel prices at pumps and congestion charges).

The freight sector, handling the physical movement of goods is also impacted in areas of warehouse costs, displaced containers, ocean shipping and local logistics. And companies are still subject to market demand and the influence of a rapidly changing spot market on a short-term basis.

One example is the Brent crude oil price, at USD55 per barrel one year ago is now standing at approx. USD90, with predictions of USD150 within three months.

In addition to containers being in the wrong place at the wrong time, with less overall capacity, we have already witnessed the staggering increase in spot prices for standard 40-foot containers, with prices up to 5 times higher than pre-pandemic levels and set to move higher still.

In some instances the cost of container transport even surpass the value of goods they contain, making it uneconomic and therefore impossible for smaller traders and niche businesses to sustain a healthy trade and cash flow.

Looking at the other areas of logistics in the supply chain, the cost of warehousing, increase in demurrage fees (namely the charge that the merchant pays for the use of the container within the terminal beyond the free time period), labour costs, increased fuel costs and shortage of drivers to move goods will lead to inevitable price rises.

With such uncertainty and taking into account the rising costs (up 25% on average for leasing warehouse space, it is no surprise that companies are not prepared to lock in long term leases and taking the financial hit on shorter terms.

Whilst in the past the demand for goods at low price has meant shippers absorbing costs, the time has come where increases have become so common and of such magnitude that these costs must be passed on to consumers. Even using AI technology for innovating least cost routing, consolidating shipments, sharing containers and only renting delivery vehicles when required, the choice is stark.



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Inflation is on the rise and consumers must pay more as shippers and other players in the global supply chain find themselves with drastically reduced margins, operating expenses and more pressure than ever to deliver at a price the consumer can afford.

But experts say companies have little choice other than absorbing the cost or passing it along to their customers. Overall, transportation rarely exceeds more than 7% of the cost of goods being shipped. For most companies, the value of the product being sold and the importance of that sale is much greater than a slight increase in transportation costs.

Companies always want the cheapest route to the client, but will not want to compromise long terms trade and future customers if the only differentiator is the cost of delivery.

The next big thing? The rise, appeal and acceptance of crypto and asset tokenization. With banks providing loans as far back as in Babylon in 1,800 BC, and 'modern' banking coming about in the 1470s, banks have not been the fastest innovators.

However, the past 10 years has seen more advanced products and more adoption of disruptive technology than in the previous 100 years, where traditional bricks and mortar, large branch network, limited product financial institutions have given way to mobile, agile, multi-currency, e-banking, global, internet driven service providers.

And it is not only the service delivery method that has changed so dramatically, but the pace of change, sparked by the inclusive nature and tech-savvy social media generation demanding faster, more diverse, secure services.



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The demand for data, information and financial services, and the technology to support vast data consumption now, has only been made possible by the advent of high-speed networks, smartphones and technology companies, translating those needs, enabling anyone, anywhere to trade international equities, bonds and derivatives, arrange a mortgage, make deposits, trade crypto currency, electronically sign and send vital documents, at the click of a button.

Whilst the past 20 years may be the era of internet banking, 2020 onwards has launched the decade of crypto. As of January 2022, there were approximately 10,000 cryptocurrencies in existence, many created for specific purposes with solid use cases, and others as speculative investment tools with spectacular volatility, few investors and even less volume.

Always a case of buyer beware, some earlier coin offerings experienced bad press through hacking, loss of consumer confidence, no activity, price collapse and where the mere mention of blockchain sent the investment community into a frenzy.

And how times have changed, with much more consumer demand, as, like bond and equity offerings, new coins are coming to market via initial exchange and security token offerings following extended due diligence by the trading platform.

Cryptocurrency (especially Bitcoin) is no stranger to volatility. However, in the past, the equities markets have also produced spectacular returns and losses, albeit across different timelines and remain considered a safer haven than crypto markets

Whilst the 1929 Wall Street Crash witnessed significant falls such as RCA common stock from \$505 to \$26 and DuPont from \$217 to \$80), black swan events have also elevated stock markets.

For example, Alcoa experienced 12 month returns of 217%, and risk averse long term portfolio holders have borne fruit with Monster, with shares at \$2 in 2005, hitting \$140 in 2015, and the darling of the equities market Amazon, with canny investors buying at \$2 in the 1990s, where today they trade at \$3,500.

Whilst equities still represent a more stable investment platform, crypto has captured a new imagination with a new demographic. With an almost baffling choice of cryptocurrencies, the key issue for investors will be the ability to seamlessly cash out of low volatility, low value stock and move in and out of fiat currency in deciding which type of coin best suits a long-term strategy.

So, with a requirement for a more stable, digital crypto instrument, the latest area of investor interest and some may say hype, is asset tokenisation. Blockchain technology remains the vital component, the mechanism and enabler to underpin crypto transactions.

In asset tokenization, digital tokens are used to fractionalize ownership of assets. Physical items are reflected on the blockchain which manages ownership rights – and anything from property to university degrees and from gold to stocks can be tokenised, with over USD500 million already tokenized in real estate.

These tokens are created during a so-called STO (Security Token Offering), in which the real estate is essentially split up into digital, tradable assets stored on a blockchain.

The idea of fractional real estate ownership is nothing new. Since 1960, REITs (Real Estate Investment Trusts) were introduced in the United States and by pooling investors' capital, the real estate market suddenly became much more accessible and makes it possible to invest in the underlying asset without having to buy or manage the entire property.

Fast forward to 2022 and the advent of more commercial tokenisation, where real estate is more readily fractionized into small pieces, namely tokens. What are the benefits?

Global increases in property prices, expensive and rising bank rates, less monetization opportunities, languishing assets earning low interest, high costs of ownership with less people able to afford current and future prices all of these can be managed, by fractionising and tokenization.

And as digital tokens on a blockchain can be securely and efficiently transferred without a middleman, trading of these asset-backed tokens suddenly becomes much easier and cheaper, leading to increased liquidity.

It's easy to see why investors of all sizes are enthusiastic about this development. With a much lower market entry point with less initial investment, the global real estate market is valued at around \$280 trillion, making it one of the largest, most illiquid, and non-transparent markets on earth.

And post pandemic, in an era of rising costs, there are many distressed assets where such an investment approach may provide an economic lifeline to owners, and competitive opportunities for smaller investors. One can almost imagine the scenario where an investor might be able to increase their international holdings through the purchase two tokens in a block or apartments in Chennai, ten tokens of a factory in Malaysia, and three tokens of a flat in Hong Kong - all payable in coins, through a single platform.



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Recognising this opportunity, Euro Exim Bank are investigating the tokenization of such assets and looking at offering several unique coins, asset backed by investment grade instruments in an easy to trade blockchain-based token.

Whilst the industry is always on the lookout for the next best thing, we believe the tokenisation projects will position the bank as a crypto provider of choice, with provenance, security, asset backing, assurance, and value.

In addition to our strategy on coins and tokens, our journey towards full digitisation of documents and digitalisation of processes across the extensive trade ecosystem continues apace.

Our lofty ambitions and aspirations are to be the premier provider of trade and crypto currency services through stable coins and tokens, contributing to better customer experience. With fast, cross border payments, low transaction fees, efficient settlement, and management of platforms, we will facilitate access to distributed financial services for the unbanked, ultimately enabling digital financial inclusion.

At the time of writing, with the UK COVID wine and cake Partygate debacle seriously overshadowed by ongoing international tension as Russia invades Ukraine, fears abound of its longer-term intentions to extend its reach to re-establish a power bloc similar to the former multi-state Soviet Union.

The West will need to be mindful and fully prepared to deal with trade implications, sanctions, which have now started, repercussions in the event of invasion, NATO and European military support, and how to handle possible nation state cyber-attacks on all manner of businesses across the supply chain.

With such a fluid situation, whilst free trade agreements were supposed to bring unity, collaboration and increase in collective wealth, their purpose is clearly being eroded as former allies become enemies, and protectionism, nationalism and isolationism become the new order.

We hope for the best outcome and plan for the worst. The next quarter will be critical. ■

**Dr Graham Bright is the Head of Compliance and Operations at Euro Exim Bank**





# Recalibrating global growth



The British Virgin Islands has steadily increased its role in the global financial system. Elise Donovan discusses how the BVI will aid the post-COVID recovery





**W**ith the second anniversary of COVID-19 now behind us, there are many reasons to be optimistic about a resurgence in global investment, growth and productivity. Emerging and developing economies are displaying impressive resilience and, with the help of global finance and investment, are making strides in the areas of financial technology, digital infrastructure, and green energy.

The British Virgin Islands (BVI) is set to play a crucial part of this recovery. Over the last three decades, the BVI has steadily increased its role in the global financial system, responsible for mediating the equivalent of six percent of all sectors total cross-border liabilities, contributing tens of billions in tax to national revenues, and supporting millions of jobs worldwide (Source: Capital Economics).

We are now in a great position to help in the post-COVID economic recovery, facilitating collaboration across borders and enabling growing economies and markets to access the finance and investment they need to thrive.

### **Asian Tigers rising**

According to Morgan Stanley, as the pandemic eases Asia will post the largest increase in GDP over the next two years. Asia's GDP is expected to expand in nominal terms from \$33 trillion in 2021 to \$39 trillion in 2023.

This presents a growth opportunity for the BVI which has built an enviable reputation in the region. The 'BVI Company' has become the premium choice for investors, business and entrepreneurs that combined, have driven the Asian Tiger economic model and led to decades of growth, jobs and prosperity.

Our longstanding relationship with Asia, particularly Mainland China and Hong Kong, therefore remains, as BVI structures have proven successful for Asian corporates, high-net-worth individuals, and investors over the last three decades.

With approximately 75 percent of companies listed on the Hang Seng Index having BVI companies incorporated into their structures, our support for Asian businesses is evident and is always evolving (Source: Capital Economics).

The recent recognition by the BVI Financial Services Commission of the Fusang Exchange, Asia's leading fully regulated end-to-end digital security exchange, is another example of this. The first of its kind to be recognised by the BVI FSC, the move will pave the way for Asian-based BVI companies to benefit from the efficiencies of listing their shares digitally via equity token.

*A vibrant global economy requires international collaboration [... the BVI's] role in facilitating cross-border business and providing pathways for investment to flow into developing and emerging markets has never been so crucial*

Staying on track with global financial trends is a top priority for us and this move will allow us to enable Asian-based companies to embrace the opportunities in the new digital financial ecosystem.

In South Asia, Singapore, India and Indonesia are also showing impressive growth and the development of financial technology and digital infrastructure for their vast populations. This is creating strong opportunities for global investment to have a long-term impact that we are well positioned to strengthen our relationships across the region and contribute to this economic growth.

### **Africa: the next frontier**

With its young population, abundance of natural resources, and growing focus on digital innovation in the finance and energy space, countries across the African continent are emerging as the next frontiers for global growth.

The post-pandemic restart of the Africa Continental Free Trade Agreement (AfCFTA), the revival of tourism and a rebound in commodities prices provide a positive outlook. The success of the next decade will now rely on policy makers recognising the importance of international investment, diversifying their economies and focusing on job creation.

The BVI specialises in creating neutral platforms to facilitate cross-border trade, investment and finance and can play an integral role in the development of AfCFTA and the continent. By creating effective vehicles for joint ventures, the BVI brings parties together to participate and invest in economic opportunities.

Africa is also making major inroads in the fintech space. According to Briter Bridges, [investment into African tech](#) has grown at a rapid pace, rising from \$2.4 billion in 2020 to \$4.9 billion in 2021, with fintech leading the way.

The BVI is perfectly placed to harness this opportunity. In 2020, the BVI introduced the Regulatory Sandbox for Fintech Innovation, creating an ecosystem where tech start-ups and traditional financial institutions alike can innovate and create new solutions for financial services without outdated regulatory burdens.

The rise in popularity in cryptocurrencies and other digital assets such as Non-Fungible Tokens (NFTs) has been phenomenal in recent years, and although jurisdictions and traditional financial institutions across the world are still figuring out how best to regulate and integrate them, staying ahead of the trends and exploring ways to best harness the opportunities will be vital.

Looking ahead at Africa, climate change and the transition to green energy will be a major focal point across the continent, with 'green finance' taking a particularly important role. The opportunities for global investment in this area will be significant and will be essential for empowering communities across Africa to make real progress on these urgent issues.

### **A global view**

The BVI is unique for its fully global view and commitment to international finance. For example, around 20 percent of our BVI Businesses Companies are based in Latin America and Caribbean, and we expect this relationship to grow further as our estate planning products and world-class trust legislation gain increased interest in the region (Source: Capital Economics).

We also see further growth opportunities in the Middle East – particularly building on the BVI's growing reputation in trust and estate planning. We know that family businesses are the foundations of the economy across many Middle Eastern states and PwC has estimated that over \$1 trillion of assets will pass from one generation to the next in a decade in the region.



As businesses become more intricate and multi-jurisdictional, there has been a rise in demand for UHNW family offices to manage global portfolios of assets. Many families are using offshore structures within or on top of local structures, allowing them to organise and better manage international assets, such as foreign-based properties.

Holding relatively illiquid assets, such as foreign property within a BVI structure makes them easier to sell as part of the succession process.

BVI structures enable these businesses to be managed in a tried-and-tested jurisdiction that operates under English common law and with robust internationally recognised regulatory standards to thwart financial crime globally.

As a conduit for global trade and investment, the BVI contributes towards the creation of millions of jobs worldwide with a fifth of these being in Europe (Capital Economics). BVI companies are also used by major international financial institutions such as, the International Finance Corporation and the European Bank for Reconstruction and Development to help fund projects around the world, and this collaborative approach will be increasingly essential during the global post-COVID recovery.

### **Meeting the challenges of tomorrow**

From Africa to Asia and the Middle East to Latin America, our optimism for the future of global growth remains as strong as ever.

A vibrant global economy requires international collaboration – that is one lesson we have learnt over the last two years – and as the world embarks on the road to recovery, our role in facilitating cross-border business and providing pathways for investment to flow into developing and emerging markets has never been so crucial.

Over the next decade our global economy will continue to evolve as we rise to meet the challenges that lie ahead; from combatting climate change and tackling inequality, to incorporating new digital assets and currencies into our global financial structures. The BVI will remain steadfast in our commitment to recalibrating global growth and remaining at the forefront of these developing trends. ■

## Elise Donovan is CEO of BVI Finance



*Elise Donovan is the Chief Executive Officer of BVI Finance and brings to the role wide-ranging work experience in Asia, North America, the Caribbean and Africa. Elise has played a major role in expanding and deepening the BVI's financial services footprint in cities around the world, specifically in the Asia Pacific region, through strategic relationship building, conducting forums and seminars on the BVI's financial services business, including at major financial institutions.*



# Climate finance and development

Climate finance is treated as a form of aid support. Saliem Fakir argues that a shift is needed to investment support that would economically transform Africa



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Climate finance is largely viewed as a form of finance that is locked in narrow negotiations at the UNFCC Paris process and climate talks revolving around the \$100 billion/annum target. This target is still to be met but it is also clear it will be a trickle compared to the needs for energy transitions and global resilience investments that need to be put in place.

Also, it has largely been treated as a form of aid support, particularly for adaptation work in Africa, rather investment support needed for economic transformation on the continent.

Climate finance needs to be linked to the development pathways that Africa needs for the next two decades; particularly around sustaining reasonable and balanced economic growth – meeting the need for increasing national income and income for households.

Such economic growth should unlock potential in other low carbon economic sectors such as in renewables, electric vehicles and batteries amongst other things. In the long run this should reduce dependency on the export of raw commodities and helps to diversify African economies through a structured process of industrialization and for that matter exports of high value agricultural products and services. It ought to also reduce imports of fossil fuels.

The work of the African Climate Foundation as a philanthropic foundation is to identify a pipeline of initiatives, which we refer to as country platforms to support energy and resilience transitions.

One example of this is the Just Energy Transition Transaction (JETT) for South Africa that has secured a pledge for \$8.5 billion worth of climate finance from bilateral and multilateral sources of funding (largely public funding).



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The \$8.5 billion package is currently being negotiated between the South African government and international partners who have committed to ensuring that this deal will support various infrastructure financing needs for South Africa's energy transition.

The deal is meant to provide blended finance options and facilities that catalyses on a much larger scale South Africa's transition to clean energy and a managed phase out of coal.

South Africa needs much more than \$8.5 billion for the transition but the idea would be that additional domestic public and private finance would be mobilized on the back of international climate finance.

*Climate finance needs to be linked to the development pathways that Africa needs for the next two decades; particularly around sustaining reasonable and balanced economic growth*



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The deal is meant to steer support for scaling in three areas:

- Scaling of renewables, linked to the repurposing of coal plants and doubling the current provisions within the Integrated Resource Plan (IRP).
- Supporting the scaling of electric vehicles in South Africa
- Building a stronger green hydrogen economy, which South Africa has potential to exploit.

This deal that South Africa and its partners announced in Glasgow is a unique type of climate finance package, which is tied to South Africa's nationally determined contributions.

It is a way in which advanced economies, in accordance with Article 9 of the Paris agreement, have the historical responsibility to assist developing countries in their transitions.

The deal is aimed at reducing the country's dependency on coal and de-risk South Africa's economy from the problem of having coal stranded assets that could pose systemic risk to financial sector, but also the electricity utility Eskom and the South African economy.

Crucial matters that need still be resolved is unpacking what the pipeline of projects look like – how much of public finance is needed and the cost of that public finance.

It is also recognised that the \$8.5 billion is insufficient where \$30 – \$35 billion is needed and a large part of that will have to be financed from other sources.



More importantly, the financing package needs to reduce debt, not increase it, and it must also support the 'just' dimensions of the transition.

The JETT sets a framework of how to use climate finance across the African continent. There is a growing interest beyond South Africa to do a South African-type deal. This is also the case for other emerging economies like Indonesia, Vietnam and the Philippines where there is dependency oil, gas and coal to generate electricity.

This model of country platforms, like the one for South Africa, is a recipe that sets a useful framework for designing catalytic financing initiatives in other parts of the world.

It is an interesting model to turn climate finance as an instrument for strengthening investments in energy transitions on the continent and crowding in other sources of finance. ■

## **Saliem Fakir is Executive Director of the African Climate Foundation**

### **ABOUT THE ACF**

*The African Climate Foundation is a new philanthropic re-granter on the African continent. Its primary aim is to support the achievement of climate and development nexus outcomes.*

*The key is to understand climate risks as well as opportunities and use philanthropic support to drive new investment pathways that climate-proof African economies and increase investments in new infrastructure as well as protection of climate vulnerable sectors important for jobs and exports.*



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# A deeper shade of green?



Martijn Groot considers the reasons why ESG data integration is the key for finance firms



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**T**he concept of making responsible investments according to ESG criteria has been around for decades. In the past, however, this was a niche area and was generally the focus of highly specialist companies, often known as impact, or green investors.

They developed their own data collection process in-house and frequently built their own, what we would now call, environmental, social and governance (ESG) data hub to supply their analysts and portfolio managers. This data was then used as the basis for asset allocation, helping to support firms in the screening of companies and selecting the ones that aligned with their investment philosophy.

When other firms started to collect data to identify ESG risks and growth opportunities, they too treated it as a separate silo or bucket. The focus was on homegrown data management, with firms evolving the data over time into their own in-house ESG hub.

However, as we have moved into 2022 and the deadline for key ESG related regulations such as the [Sustainable Finance Disclosure Regulation](#) draws nearer, firms will need to do more to fully integrate ESG data across the business and firms will increasingly need to integrate this information into the whole investment management process: from research and asset allocation, to portfolio monitoring, to client and regulatory reporting.

### **Scoping out the use cases**

The number of use cases for ESG data is growing rapidly. The need to disclose data to meet regulatory reporting requirements is a major driver for buy side firms like investment managers or asset managers and owners, as SFDR approaches.



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Firms are obligated to report on a number of criteria. SFDR prescribes the reporting on 18 mandatory PAI (Principal Adverse Impact) Indicators for corporates, real estate investments and sovereigns. Effectively, any firm that sells or distributes investment products into the European Union has to do that.

Paradoxically, the disclosure requirements for corporates themselves lag behind the disclosure requirements of their investors. This has caused the need to estimate information or rely on third party expert opinion to fill the gaps in the data that portfolio managers and analysts need to support their decision-making around new product development, for instance.

*They need to effectively cover the E of ESG - in other words the environmental aspect [...] data will need to be gathered around specific companies' carbon emissions, pollution footprint, water usage and biodiversity*



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Investors have also acquired more appetite for making investment choices based on green criteria, so fund managers and wealth managers too need relevant data to help develop client reports for those investors.

Those are among the key requirements for asset managers and asset owners but there is also a growing need for ESG-data on the banking or sell-side of financial services. ESG data, for example, is much needed to support customer onboarding and, in particular Know Your Client (KYC) processes.

In core banking and in corporate lending, in particular, banks will, in the future, have to report on the composition of their loan book: what firms are they lending money to, for example, and what are the main business activities of those firms? The European Union has developed the EU Taxonomy which provides a classification of business activities.

So, in the future, if a company signs up to get a bank loan, as part of the screening criteria, it will be asked to disclose what kinds of business activities it is involved in and what kinds of sustainability criteria it has in place. Banks may then also be incentivised to give a cut on the interest rate on loans made to more sustainable businesses.

Banks and other sell-side financial services firms will also frequently screen their suppliers, as part of a process known as KY3P (Know Your Third Party) or KYC (Know Your Supplier). They like to know in detail who they are doing business with, so they can then report on that in their annual report to shareholders.

Another key use case for banks is climate stress testing. Banks have to stress test the products they hold in their trading book for their own investment against certain climate scenarios – two degrees temperature change by 2050, for instance, to give one example.

ESG data also has a role to play in the way banks manage their mortgage book. Banks are increasingly looking for geospatial data, for example to work out the flood risk of the properties they finance. Are they next to the ocean, for example? Are they in a flood plain of a river? A lot more attention is being paid today to the banking book and trading book and, more generally, to retail and residential commercial real estate funding.

As part of this process, both sell-side and buy-side financial services companies will need to integrate ESG data with data from the more traditional pricing and reference data providers.

That will give them a composite view, incorporating not just the prices of instruments and the terms and conditions but also the ESG characteristics – all in a single place. Firms will also need to put the right data quality metrics and governance on top of all this in terms of onboarding new data sets; requesting new metrics and new screening criteria.

If they get all this right, firms will usher in the coming of age of the ESG data function as it transforms from a homegrown cottage industry into fully-integrated core business function. ESG considerations, like all of sound decision making, requires good quality data. The process of ESG data collection, vetting and integration will mature and will be integrated with financial, regulatory and client reporting functions.

Decisions taken in business processes using ESG criteria will be documented and tracked. Firms will make different trade-offs and use different 'shades of green' but all will have to communicate, track and report.

Like all of data management, consistent and high-quality information on ESG now needs to percolate across the whole organisation and be put on a firmer footing. It needs to integrate with all the different data sets to provide a composite picture.



That can then become a key source of intelligence, not just for the front office but also for multiple business functions, including supply, client reporting, regulatory reporting and portfolio construction.

### Challenges to negotiate

Today, companies are maturing fast in their approach to ESG data management. But there are nevertheless barriers along the way. One of the big challenges is data availability. There are different types data providers on the scene today. These include firms that aggregate third party disclosures and bundle them into their enterprise data offerings.

Another source of ESG data that financial services firms need to tap into, given the gaps in corporate disclosures, comes from rating providers, who provide their expert judgment as to how green firms are or how well they are achieving against a broader range of ESG criteria.

However, there are challenges here also. It is not always transparent as to how these providers have arrived at their ratings, what input data and what weights they have used to arrive at a single rating, so like-for-like comparisons are not easy as ratings are subjective.

The third area of data that financial services firms need to access relates to expert opinion, often generated by third parties. [CDP](#), the not-for-profit charity that estimates carbon emissions, is a case in point. The fourth key element is around sentiment data: how a company is perceived in the market.

Often this includes an assessment of how a given firm is covered in the traditional news media and also on the public Internet and how it is regarded in social media discussions. Typically, this is more useful in helping to form a view over the short-term because opinions in this area inevitably change quickly.

Data quality is often a further challenge. Many data sets are incomplete or suffer from spotty coverage. Attaining a complete data set is in itself challenging. And because not every rating provider provides information on how they arrive at their rating, it is often difficult to compare rating A to rating B, for example, and then aggregate it at portfolio level.

Another important challenge is workflow integration. The biggest issue here often is how to anchor the ESG data in a range of different business processes in order to put users on a common footing.

First of all, financial services firms need a common data set on the ESG characteristics of all the companies they deal with, whether they invest in them, whether they lend to them, whether they supply them with goods and services. They need a broad range of data.

They need to effectively cover the E of ESG - in other words the environmental aspect. That means data will need to be gathered around specific companies' carbon emissions, pollution footprint, water usage and biodiversity, for example.

Equally, this data set should include content relevant to the S of ESG (the social element of the term). That might cover areas like the gender pay gap and human rights and so on. Finally, the G covers areas like board composition and general governance.

Firms also need workflow integration in the technical sense meaning the ability to mould data into different shapes so it can be fed into different applications that may have their own data models their own technical standards definitions and data dictionaries.



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It then needs to be cross-referenced, supplied, sourced and published via streaming data. Businesses need to put all of this kind of wiring in place as a process that comes after building the common composite data set.

Then, of course, over and above the common footing of ESG data, firms will also need for certain use cases, specific criteria that they use when it comes to what is sometimes called the 'secret sauce' around front office asset allocation, where each individual organisation may well build their own metrics, ratings and criteria on whether or not they invest in something. But that is built on top of the common foundation.

It is effectively a different kind of data management. There is the data management for control, where firms need data quality, data lineage, proper quality assurance carried out on the data before they hand it over. That is typically used for business as usual (BAU) applications and operations.

It can be contrasted with data management for insight where firms are looking to add value and build up their own intelligence and metrics to support portfolio managers, quants and analysts that work in the front office.

### **Finding a way forward**

So, ESG data is increasingly in demand by financial services companies, both buy side and sell side. However, accessing it, ensuring it is of good quality, comparable with other ESG data sets and well-integrated within existing workflows is challenging and difficult.

Fortunately, data management solutions are now coming on stream that enable companies to start providing a process of collecting and aggregating ESG data, comparing it for quality, proofing it and enabling users to fill in the blanks through business rules and their own metrics.

Firms will need to cross-reference, match and combine the data, as well as assimilating it with traditional data on companies and their financial products. The traditional prices and security terms and conditions of financial services providers helps build a composite picture from those sources. The wider variation can be that firms can choose how they interpolate, or proxy, missing data fields or build their own metrics on top.

Then there is the distribution side. There are now various ways of distributing data via streaming and different files to make sure that the last mile integration can be done quickly and effectively and that they can rapidly onboard new consuming applications.

Again, technology is increasingly available to enable firms to do all this. This kind of capability can already been offered on site hosted as application management, or as a data as a service solution in the cloud.

In other words, the challenge of ESG data integration can now be met by financial services businesses. They can increasingly move to a 'deeper shade of green', safe in the knowledge that the technology is available to support them in that critically important journey. ■

**Martijn Groot is VP Marketing and Strategy at Alveo**



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# Avoiding a doom loop

Patrick Minford argues that British economic strategy post-COVID should prioritise growth and overrule conventional Treasury thinking



**G**rowth is the sine qua non of Britain's future, just as it is for countries everywhere. With it we can raise productivity, create jobs, generate profits underpinning pension returns and produce the tax revenues to pay for vital public services. As a side effect the state will pay off its debt and bring the public debt ratio down to the low safe level we achieved before the financial crisis.

This should be obvious. Yet we recently had a Budget in which our Chancellor, Rishi Sunak, presented himself as wanting the low taxes he knows are needed for growth and yet in practice putting taxes up nevertheless, for reasons of public finance. This stance is self-contradictory and flies in the face of economic sense.

The whole point of government borrowing and public finance, is to enable tax and public spending to be set according to the long-term needs of the economy, with short term pressures dealt with by borrowing- an idea known as the 'tax-smoothing' role of borrowing.

Of course, we have just had a good example of that in action during the COVID crisis in which the temporary support needs of the economy were met by borrowing. But just as it would have been wrong not to support the economy during COVID for misplaced fear of borrowing, so it is wrong not to support the economy's need for growth post-COVID on these grounds.

The economy is now recovering from the pandemic and growth in 2021 turned out at 7.5%, a strong recovery from last year's collapse and the resulting run-up in public debt to pay for the emergency. Post-Brexit and post-COVID there are major challenges for government policy; the recovery needs to be sustained, and policies must be put in place for solid long-term growth and 'levelling-up' (catching-up by slower-growing regions). This policy formulation requires the government to take a long-term view and not to panic in the face of short-term pressures.



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One of those pressures is the sharp rise in public debt due to COVID, to around 100% of GDP. Over recent years the government has been concerned to bring the debt ratio down, especially after the financial crisis hit.

So the natural instinct of a Conservative government is to revert to the same austerity policies. We recently had a report from the Public Accounts Committee<sup>1</sup>, warning us of the dire state of the government finances post-COVID. The PAC joins the lugubrious OBR - the Office of Budget Responsibility - in its reports.

*... good policy needs to balance risks against returns;  
and most important of all, it must take a long-term  
view at this crucial junction in our history, with the  
overwhelming need to boost growth and bring  
down regional inequality*



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Mind you, we should not be surprised at or critical of these bodies. They were set up with the role of standing guard over the public finances, and their job is, Cassandra-like, to warn about the downside risks.

However, unlike Cassandra, these bodies are wrong in their forecasts; and good policy needs to balance risks against returns; and most important of all, it must take a long-term view at this crucial junction in our history, with the overwhelming need to boost growth and bring down regional inequality.

Currently, there is a huge return from bold policies designed to boost post-COVID growth. It is growth and to a lesser extent inflation that will bring down the ratio of public debt to GDP over the long term, as it has done before in our history, as shown in Figure 1.

You can see the gradual fall of the debt ratio from peaks of over 200% after the Napoleonic wars and WW2. During these long adjustments there was never any panic over UK solvency, as can be seen in the second chart of market/par value.

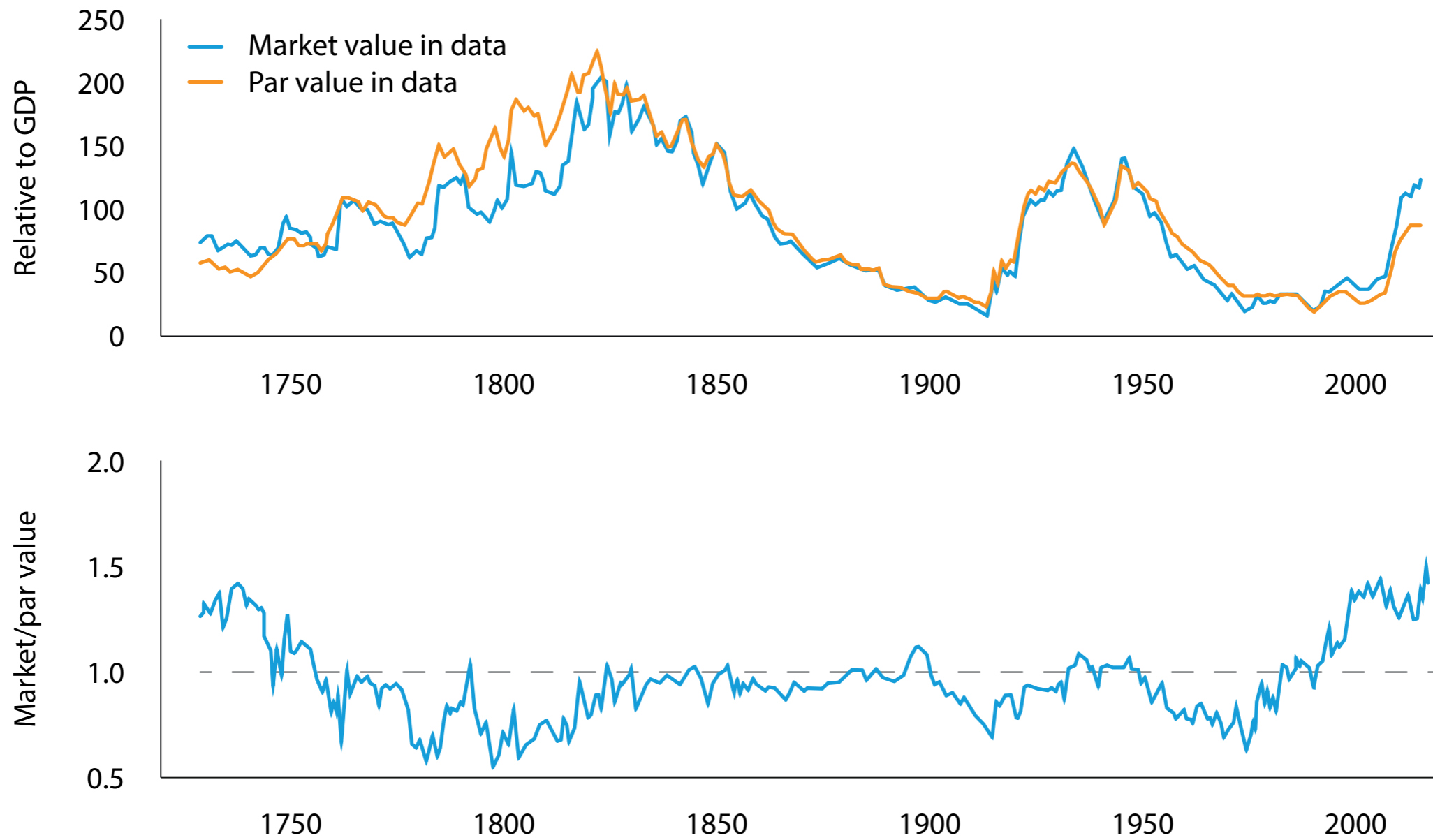
This fluctuates around unity; the fluctuation reflects fluctuating market interest rates compared with issue rates. Feared insolvency would show up as a collapse in the ratio, which we do not see. The UK has never defaulted; and it is not about to do so now.

**The OBR has been too gloomy about growth and the finances: without tax increases the debt ratio will fall steadily anyway**

In the current post-COVID situation, there has been a big bounce back in GDP, and with it will come a bounce back in tax revenues net of welfare payments, with a fall off too in emergency spending.



**Figure 1. Market value of debt in UK since 1694**



Source: Ellison and Scott (2017) '323 years of UK national debt'.

So the PSBR, the Public Sector Borrowing Requirement, will fall back to a modest level quite quickly. A cautious approach to the finances implies keeping the PSBR low enough to ensure that growth in nominal GDP gradually brings down the debt ratio.

Overleaf is an updated forecast by my Cardiff research group for the public finances to the 2030s, assuming no change in policies. It also projects 2% growth with no change in policies; this is about the same as growth over the past thirty years on average (1989-2019).

The OBR has been too gloomy, as the tables show. In spring 2021 - Table A - they said growth in 2021 would be only 4%; it has come out at 7.5%. Even the Consensus, hostile to Brexit and so gloomy too, was closer to the outcome. The OBR has also had to revise its March 2021 PSBR forecast down for 2021-22 - Table B - as the outturns have improved.

Turning to the latest OBR forecasts for the economy and public borrowing, they remain excessively gloomy. As just noted, this comes from the OBR's professional bias as the appointed 'keeper of the budget rules'. The OBR figures are overleaf.

As can be seen from our forecasts set out, they are for much larger borrowing than ours. For example, borrowing in 2024-25 is £46 billion in the OBR forecast, against £22.7 billion in ours, where the economy returns to its trend.

The discrepancy comes about from the OBR's pessimistic GDP outlook; GDP grows by 15.9% from 2020 to 2024, against our 20.9% in our Quarterly Bulletin of the same date.



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**Table A. The OBR forecast of GDP for 2021**

	OBR	Cardiff	Consensus	Latest estimate
GDP growth (%) 2021	4.0	5.4	5.4	7.5 (latest ONS)
PSBR (£billion) 2021	234	140	223	183 (Jan 2022 consensus)

Source: OBR, Office of National Statistics, ONS, and HM Treasury 'Forecasts for the UK economy — a comparison of independent forecasts'; Consensus is forecast average.

**Table B. OBR forecasts of the PSBR**

	£ billion						
	Outturn		Forecast				
	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
March 2020 forecast	54.8	66.6	61.5	60.2	57.9		
March 2021 forecast	354.6	233.9	106.9	85.3	74.4	73.7	
October 2021 forecast	319.9	183.0	83.0	61.6	46.3	46.4	44.0

Source: OBR Report on Economy, October 2021.



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**Table 1. Basic Forecast - Public Finances without tax increases**

	Nom PSBR	Nom GDP	Nom Pub Spend	Spend/ GDP	PSBR/ GDP	Nom debt	Debt Interest	Debt/ GDP	Net Taxes	Net Tax Rate
2019/20	49.1	2,196.3	472.2	21.5	2.2	1,621.0	48.1	73.8	471.2	21.5
2020/21	306.6	1,990.1	468.9	23.6	15.9	1,932.2	39.8	97.1	202.1	10.2
2021/22	179.5	2,307.1	526.7	22.8	7.8	2,111.7	42.6	91.5	389.8	16.9
2022/23	57.8	2,562.1	561.2	21.9	2.3	2,169.5	41.1	84.7	544.5	21.3
2023/24	42.0	2,721.0	600.5	22.1	1.5	2,211.5	42.9	81.3	601.4	22.1
2024/25	23.3	2,859.9	639.5	22.4	0.8	2,234.8	41.1	78.1	657.4	23.0
2025/26	3.7	2,974.3	669.5	22.5	0.1	2,238.5	44.7	75.3	710.4	23.9
2026/27	0.2	3,093.3	720.9	23.3	0.0	2,238.7	48.0	72.4	768.8	24.9
2027/28	0.2	3,217.0	780.5	24.3	0.0	2,238.9	51.2	69.6	831.5	25.8
2028/29	0.0	3,345.7	845.1	25.3	0.0	2,238.9	54.3	66.9	899.4	26.9
2029/30	0.0	3,479.5	915.6	26.3	0.0	2,238.9	57.1	64.3	972.7	28.0
2030/31	0.0	3,618.7	992.2	27.4	0.0	2,238.9	59.9	61.9	1,052.1	29.1
2031/32	0.0	3,763.4	1,075.5	28.6	0.0	2,238.9	62.5	59.5	1,138.0	30.2
2032/33	0.0	3,914.0	1,165.9	29.8	0.0	2,238.9	65.0	57.2	1,230.8	31.4
2033/34	0.0	4,070.5	1,264.0	31.1	0.0	2,238.9	67.3	55.0	1,331.3	32.7
2034/35	0.0	4,233.4	1,370.4	32.4	0.0	2,238.9	69.5	52.9	1,439.9	34.0

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This 5% discrepancy has a massive effect on net revenue/GDP, the average net tax rate, as we will explain in more detail below, implying a difference of 2.3% of GDP, or about £50 billion pa. by 2024. So the OBR is greatly downplaying the way recovery will raise gross revenues and lower benefit payments.

Our forecast by contrast shows the PSBR dropping steadily and both enabling public spending to rise and pushing the debt ratio down to around 50% by the mid-2030s. There is no need for tax increases.

This clearly implies that the tax increases imposed in the Budget are a bad mistake. These include not indexing income taxes to inflation, so pushing people into higher bands; raising National Insurance Contributions by 1.25% for both employees and employers; and raising Corporation Tax from 19% to 25%.

These tax increases will depress growth, investment and employment; and they should be rescinded as soon as possible, as now widely demanded in response to the fall in living standards looming over the coming year.

However, a serious strategy for growth would not merely rescind these wrong-headed tax rises but go a lot further and cut the UK tax burden over the longer term.

This, our research finds, would not just stimulate growth but do so relatively more in the 'northern' slower-growing parts of the UK, so contributing to the levelling-up objective of this government. In the next section I explain how this programme would work.

**Instead of tax rises tax cuts are both necessary for growth and affordable**

Hence we must not forget that tax/spending policy must not merely avoid damaging growth but also sustain and

encourage it. In truth projected growth of 2% with constant policies is low and we can do better. Higher growth in turn will bring down the debt ratio, so in effect paying for those policies.

These growth-supporting policies involve supply-side tax-cuts and spending rises whose short-term effect is of course to increase the deficit. But in the long run they bring the debt ratio down, so in effect paying for themselves- as I illustrate below.

These very policies also generate levelling-up where growth in the North exceeds that in the South- we define the South as consisting of London, the South East and the South West and the 'North' as all other regions (with apologies to Wales, the Midlands and the east).

My research group in Cardiff has been working for the past two years on a new regional model of the UK to frame the best way for policy to address this agenda. Our work<sup>2</sup> produces the policy results shown in Table 2.

**Table 2. Long run effects of different tax/regulative measures on North and South according to Regional Model - each measure costing £10 billion pa.**

Percentage change in	GDP <sub>N</sub>	GDP <sub>S</sub>
Cut standard rate of income tax or VAT or other general income/consumption tax	1.1	0.5
Cut corporation tax rate	0.8	0.4
Cut marginal tax rate and regulative burden on entrepreneurs/SMEs	2.0	17.0
Increase infrastructure spending in North	1.6	-



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The model is based on well-known and well-tried ideas of supply-side channels through which targeted tax cuts and regulative reform raise entrepreneurial incentives to innovate as well as creating labour market flexibility and lowering labour costs.

Previous work has shown that these sorts of policy have worked well in the UK to boost the economy in the 1980s and 1990s. Later in this piece I show fuller details of these effects, in the form of a full proposed policy package combining them all.

Much policy commentary has criticised the government for aiming at levelling-up without any strategy for achieving it. I show here that there is a potential strategy that is feasible without affecting public sector solvency; also, that it levels up the North without cutting down the South - all boats rise in this strategy.

To embark on this strategy the main need is to close our ears to the voices of gloom that urge the need to raise taxes and cut spending to reduce the COVID debt - that way lies only a downward spiral of falling growth and a rising debt ratio - a 'doom loop' of stagnation, austerity and worsening finances.

I now turn to the prospects for growth, taxes and debt in the context of the post-COVID economic prospects. Begin by noting that the progressiveness of our tax and benefit system causes a 1% rise in GDP to raise net taxes, ie. taxes minus benefits (tax credits) by about 3%, an 'elasticity' of 3. By implication the average net tax rate rises by 2%, an elasticity of 2.

Hence growth has a tonic effect on taxes and the public finances. Our research in turn shows that the policy package proposed in Table 3 will raise growth by 2.3% per annum, that is to 4.3% against the 2% baseline assumed

**Table 3. A fiscal stimulus package costing £100 billion pa.**

Tax cuts	Amount
Cut corporation tax by 10%	£32 billion
Abolish the very top additional 5% rate	£1 billion
Cut the top rate of income tax to 30%	£15 billion
Cut the standard rate of income tax by 5%	£28 billion
Total Tax cuts <sup>1</sup>	£76 billion
Public spending <sup>2</sup>	£24 billion
Total package	£100 billion

*1 Representing a weighted average tax cut across all income of about 15%*

*2 On public services and infrastructure*

**Table 4. Effects on growth in Regional Model (% of GDP over next decade) from full policy package of £100 billion pa.**

Percentage change in	GDP <sub>N</sub>	GDP <sub>S</sub>	GDP
Cut standard rate of income tax or VAT or other general income/consumption tax	3.3	1.5	2.4
Cut corporation tax rate	2.4	1.2	1.8
Cut marginal tax rate and regulative burden on entrepreneurs/SMEs	20.0	17.0	18.5
Increase infrastructure spending in North	3.8	-	1.9
Total	29.5	<u>19.2</u>	24.6



above (see Table 4 for the model-based growth effects). For the sake of caution we will assume only a 1% uplift to 3% per annum in our projections for the finances in Table 5.

In Table 5 I show projected rising spending against rising tax receipts net of tax credits. In the Base Run forecast shown above, where current policies continue, the debt/GDP ratio falls to 52% by 2034/35, illustrating the point that there is no need to rush and pay off a large debt ratio after a crisis such as a war or COVID - it will fall steadily to a safe sustainable level with growth.

Then when we implement the Fiscal-Fund-plus-Reform package of tax cuts and infrastructure spending, we get the forecast set out in Table 5 below. As noted above, according to our Regional Model the package raises growth by 2.3% pa. over the decade to 2034/35; but in Table 5 we have conservatively projected a higher growth rate of only 1% pa. to remain on the cautious side.

With this higher growth comes a rising average net tax rate after the initial drop in revenues from the programme. Again the debt ratio falls with now faster growth to a safe and sustainable 45% by 2034/35. In effect the package pays for itself.

These tables show that the fiscal package pays for itself via higher growth. What does it do for the regional picture according to our new Regional Model?

On our cautious assumptions in Table 5 the gap is reduced by 4%, even while both North and South grow more strongly, with average GDP up 10% over the decade. During this period the growth of the North is roughly double that of the South. The policy effect is therefore levelling up without pushing down.



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**Table 5. Variant Forecast — Public Finances including Fiscal Stimulus Package, with assumed effect on growth of +1% pa.**

	Nom PSBR	Nom GDP	Nom Pub Spend	Spend/ GDP	PSBR/ GDP	Nom debt	Debt Interest	Debt/ GDP	Net Taxes	Net Tax Rate
2019/20	49.1	2,196.3	472.2	21.5	2.2	1,621.0	48.1	73.8	471.2	21.5
2020/21	306.6	1,990.1	468.9	23.6	15.9	1,927.6	39.8	96.9	202.1	10.2
2021/22	179.5	2,307.1	526.7	22.8	7.9	2,111.7	42.6	91.5	389.8	16.9
2022/23	57.8	2,562.1	561.2	21.9	2.3	2,169.5	41.1	84.7	544.5	21.3
2023/24	42.0	2,721.0	600.5	22.1	1.5	2,211.5	42.9	81.3	601.4	22.1
2024/25	127.9	2,859.9	662.8	23.2	4.5	2,234.9	41.2	81.8	576.1	20.1
2025/26	97.6	3,002.9	693.6	23.1	3.2	2,437.0	45.2	81.2	641.2	21.4
2026/27	80.7	3,153.0	745.1	23.6	2.6	2,517.7	49.2	79.9	713.6	22.6
2027/28	63.8	3,310.7	804.9	24.3	1.9	2,581.5	53.2	78.0	794.3	24.0
2028/29	42.7	3,476.2	869.7	25.0	1.2	2,581.5	57.1	75.5	884.0	25.4
2029/30	17.4	3,650.0	940.4	25.8	0.5	2,641.6	60.9	72.4	983.9	27.0
2030/31	-13.4	3,832.5	1,017.4	26.5	-0.3	2,628.2	64.4	68.6	1,095.1	28.6
2031/32	-50.4	4,024.2	1,100.9	27.4	-1.3	2,577.9	67.6	64.1	1,218.9	30.3
2032/33	-94.5	4,225.4	1,191.6	28.2	-2.2	2,483.3	70.4	58.8	1,356.6	32.1
2033/34	-147.0	4,436.6	1,290.1	29.1	-3.3	2,336.4	72.8	52.7	1,509.9	34.0
2034/35	-209.1	4,658.5	1,397.0	30.0	-4.5	2,127.3	74.4	45.7	1,680.5	36.1

According to the Regional Model (Table 4), the extra growth is more than double what is assumed in Table 5, implying even stronger finances, with growth in the North nearly 3% pa. higher than base and in the South, about 2% higher, and the North-South gap reduced by 8% over the decade.

To look at this another way, our Regional Model implies that we could achieve the same growth outlook assumed in Table 6 at just a third of the fiscal cost in tax cuts and higher spending; that would mean that by 2035 the debt ratio would have fallen to 32% of GDP.

### **Conclusions: low taxes boost growth and make all round sense for the economy**

In spite of all this, some voices have been raised recently to urge tax rises and expenditure cuts by the government to push down the high post-COVID public debt/GDP ratio rapidly; these voices are dominant in UK official circles, led by HM Treasury, and as we have seen have led to substantial announced tax rises.

However, for the long-term good of the country fiscal policy should now focus on boosting growth, particularly in the 'Northern' regions outside the relatively prosperous South.

As we have seen, our research implies that reversing the announced tax rises and instead embarking on a bold package of tax cuts and targeted spending on infrastructure will boost growth across the country, but particularly in the North, reducing the North-South gap, and will also pay for itself through its long-term effect on the public finances.

According to our Regional Model, to get these growth effects the package adopted need only be a third of the size I have set out above.



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The Chancellor, Rishi Sunak, claimed in his budget that there was a 'morality' behind low taxes and controlling the size of the state. Nevertheless, his plans push up the prospective UK tax take to over 36% of GDP, while projecting real growth of public spending of 3% per annum.

His reasons for the spending rises are simply plain politics: the government needs them to satisfy public opinion on the requirements of the NHS and other key public services, plus the levelling-up agenda.

His reason for raising taxes was to satisfy short run budget rules on borrowing. The latest form the 'rules' have taken is that the current budget must be balanced over the forecast horizon.

These rules, to repeat, make no sense. The government on behalf of the people it serves must simply obey the arithmetic of the government budget and so be solvent, which means that it must commit to raising in future taxation sufficient in present value to pay the interest on its debts; in practice it means that the public debt ratio will come down in the long term to a safe level.

It can do this in numerous ways; there is nothing that compels it to balance the current budget at any pre-set point in time. As I have shown above, there is a baseline downtrend in the debt ratio.

Furthermore, lowering taxes boldly would increase growth and push that trend down further. So there is no case for raising taxes now that is based on solvency considerations.

However, the Treasury, backed by the OBR, has pushed the government into raising taxes prematurely. The Chancellor says he aims to cut them later. But by then the damage to growth will have been done.



Better to support growth now through low taxes. That is best both for the economy and the public finances in the long run. ■

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*Endnotes*

1. Covid19 Cost Tracker update - <https://committees.parliament.uk/publications/6953/documents/72750/default/>
2. Written up in [http://carbsecon.com/wp/E2020\\_14.pdf](http://carbsecon.com/wp/E2020_14.pdf)



# Recollections on financial stability

Jon Cunliffe reflects on the key lessons he has learnt about financial stability and highlights longer-term challenges such as climate change and crypto, as well as the current situation, for financial markets



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**A**lmost exactly 25 years ago, on the day after a general election, I was handed the incoming government's surprise, detailed plan for giving the Bank of England operational independence in monetary policy making.

I was a Treasury official at the time. I was allowed to tell only a couple of colleagues and together we worked through that night and over the subsequent Bank Holiday weekend so that, three days after taking office, the new Chancellor could announce not just that he was giving the Bank monetary policy independence from that day but the key details of how the new system would work.

Over subsequent months, we prepared the necessary legislation, redrawing the functions of the Bank of England, and managed its passage through Parliament until the Bank of England Act 1998 was on the statute book<sup>1</sup>.

The Act did not mention financial stability, even though the legislation transferred the Bank's responsibility for the supervision and surveillance of banks to a new authority, the Financial Services Authority. The reforms to the Bank were focussed on the pressing issue of the time – the UK's high and volatile record on inflation.

There was, it is true, some consideration at the time of how the Bank, the Financial Services Authority and the Treasury should work together on financial stability issues. This was codified in a memorandum of understanding between the three authorities later that year, clarifying the roles of each and setting up the so called 'Tripartite Committee' to pursue *"the common objective of financial stability in the UK."*

But there was no statutory backing for this objective – nor was the Bank or the Financial Services Authority given any specific powers to secure it<sup>2</sup>. The Bank did not get a financial stability objective until 2009.



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I should emphasise at this point that this was not some idiosyncratic UK blind-spot<sup>3</sup>. As the Global Financial Crisis was to reveal brutally, some 10 years later, the increasing integration and liberalisation of the global financial system that had been in train since the last decades of the 20<sup>th</sup> century had not been accompanied by anything like a commensurate attention to financial stability. Warning signs were not recognised. And when the crisis struck, institutional arrangements were found sorely lacking in all of the key jurisdictions.

The depth and duration of the economic damage done by the near death of the global financial system over 10 years ago, led to a general realisation of the cost of losing financial stability<sup>4</sup> and the need for greatly reinforced mechanisms to prevent it happening again.

*... securing financial stability means ensuring the financial system has the resilience to withstand severe and unanticipated shocks, however generated*



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In the UK, following the model of the monetary policy reforms ten years before, an independent committee of the Bank of England – the Financial Policy Committee (the FPC) – was established, armed with serious powers and charged with the responsibility of ensuring financial stability.

And, shortly after its formal establishment, in 2013, I was appointed Deputy Governor for Financial Stability. I have often, by the way, wondered whether this twist of fate was poetic justice for the failure of my younger self to understand the fundamental importance of financial stability back in 1997.

I have, in any event, spent the last 8 years, trying to embed and develop the domestic and international machinery to ensure we can have a vibrant and innovative financial system – but without periodic financial stability crises.

I want to set out some of the key lessons over that period I have learned about financial stability – about the FPC's objectives and its scope and also to talk a little about some of the challenges it currently faces.

### **The objective: what are we trying to achieve?**

I'll start with a question that I have been asked many times over the last 8 years: "*what exactly are you trying to achieve?*" It is a very reasonable and a rather awkward question. While there are many indicators of financial activity, there is no single metric, no quantified objective for financial stability.

My answer is rooted in the human characteristic that makes financial activity – and indeed, economic growth – possible: our ability to envisage the future. Human beings are probably unique in being able to imagine the future. I say 'probably' because there may be evidence that suggests that some animals may share, to a limited degree, our ability to engage in what has been termed 'mental time travel' – the ability we have in our minds not only to recall the past but to use past experience to form expectations of the future.



Mental time travel no doubt evolved because it gave us advantages as a species. It is fundamental to the development of economic life which is inextricably bound up with our ability to form expectations about the future and to make claims upon it<sup>5</sup>.

However, though we can envisage the future, we cannot know it. Whether we form our expectations by extrapolating our memory of the past or whether they are rationally formed on the basis of all available evidence, they are expectations, no more. And when, for whatever reason, the future does not match those expectations there has to be a correction.

Such corrections happen every day, of course. The future, when it arrives can exceed or disappoint expectations and investors make or lose money as a result. However, if the correction is very large and widespread, the shock can endanger the financial system as a whole, particularly if the dynamics in the system amplify rather than dampen the impact.

The correction can come because expectations of the future have become highly unrealistic and cannot be sustained, as happened in the years leading up to the Global Financial Crisis<sup>6</sup>.

But it can also happen because an unanticipated event causes a sharp adjustment of expectations, as happened at the onset of the COVID pandemic two years ago – and indeed may be happening now as expectations adjust to the reality of the invasion of a peaceful European country by its neighbour.

Such corrections cannot be avoided. They are a feature of the financial system, generated by the fact that we can envisage the future but we cannot predict it.

The task of financial stability authorities is to ensure that when shocks occur, the financial system is resilient so that it does not amplify the impact on the real economy but rather, to the extent possible, is able to absorb them<sup>7</sup>.

### **It's the tail that matters**

It follows from this that financial stability authorities must focus on what could happen rather than just what is most likely to happen. This is very different to monetary policy. For the MPC the key question is: *“what is our central forecast – the most likely outcome<sup>8</sup> – for inflation and GDP, and in the light of that how should policy respond?”*

The FPC's primary concern is not the central probability – what is most likely to happen – but rather the severe but plausible possibilities that lie in the 'tail' of the probability distribution, so called 'tail events'. The key question for FPC is *“what could plausibly happen and, if it happened, would the financial system amplify or dampen the shock?”*

This is the basis on which we stress test the core banking system every year. To be clear, we do not try to anticipate specific types of shock – such as pandemics or wars.

Rather, using historical data, we anticipate the impacts a major shock could have on the economy – on growth, inflation, unemployment, house prices and financial markets, for example interest rates, asset prices and currencies. We then test the major banks to ensure they can withstand a stress scenario comprising those economic and market impacts.

The benefits of focussing on the tail were demonstrated vividly at the outset of the COVID crisis two years ago. The realisation of the impact of the pandemic and of the restrictions on economic activity that would be required to contain it led to an abrupt and very large correction in expectations of economic prospects.



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Unlike the Global Financial Crisis, however, that correction did not lead to a loss of confidence in the banking system, to fears that it did not have the resilience to absorb the hit.

Governments, as we now know, subsequently stepped in with fiscal support to cushion the impacts on the real economy and which minimised the impact on the banking system. But in those early weeks, before the extent of fiscal support was known, the banking system remained robust and indeed was able to meet a dramatic increase in precautionary borrowing by the corporate sector<sup>9</sup>.

One cannot of course assume that Governments will always be able or willing to provide fiscal support to cushion a shock. That is why it was important, throughout the COVID crisis to continue to test the banking system to see if it could withstand a further major shock of similar severity – but without government support to the economy. The results confirmed that it could.

Focussing on the tail has been a key to ensuring the banking system, which was the epicentre of the 2008 financial crisis, supports financial stability. But, this leads me to the second lesson I have learned over the past 8 years: financial stability is about more than the banking system.

### It's not just banks...

Non-bank finance – the vast ecosystem of investment funds, pension funds, insurance companies, sovereign and private wealth funds – now accounts for around half of global financial assets<sup>10</sup>.

Most of the growth in finance since the Global Financial Crisis has come on the non-bank rather than the bank side<sup>11</sup>. This growth in non-bank finance helped to support the real economy as it recovered from the downturn.

Non-bank finance carries different and perhaps lesser risks than banks<sup>12</sup>. Unlike banks it is less an issue of large systemic institutions but more of correlated actions by a large number of diverse players. But the sector presents its own financial stability risks.

It can be subject to 'run risk' where investors seek to redeem their investments and this leads to demand for liquidity to meet these redemptions, often in illiquid markets.

Non-banks are highly interconnected with the rest of the financial system, which means that shocks transmit quickly, including to systemic institutions, such as banks.

The FPC has been concerned for a number of years about how market-based finance might behave under a systemic stress<sup>13</sup>. But the breadth of the sector, the number and diversity of participants, the lack of data and the cross border nature of non-bank finance have made it far harder to apply a stress test approach like we do for banks.

We do, however, now have the result of a real life stress event, the COVID shock of two years ago. This exposed some important vulnerabilities in non-bank finance.

In February 2020, as the implications of the COVID pandemic became clearer, there was a 'flight to safety'. Investors shifted from riskier assets to safer and more liquid assets. The prices of safe assets like government bonds and gold rose. Such a shift is the correction one would expect given the adjustment in expectations of global economic prospects.

But the non-bank financial system proved unable to manage the correction. Around the first week of March 2020, what had been a move to safe assets turned into an accelerating 'dash for cash'.

In order to obtain cash – and with markets for less liquid assets effectively closed – investors sold their safest assets because they needed to meet margin and redemption requirements.

As the price of safe assets dropped, the ‘dash for cash’ was amplified: money market funds, investment funds, hedge funds, pension funds and others were forced to sell more assets in order to meet redemption requests, pay margin calls and reduce leverage. Core government bond markets began to seize up<sup>14</sup>.

At a time of great stress when the global economy needed the support of easier financing conditions, the opposite was happening. Market interest rates rose. In a nutshell, the ‘dash for cash’ was amplifying the economic stress of the pandemic.

These dynamics were halted only by massive central bank intervention to support the market and restore order. Around the world central banks announced plans to purchase more than \$1.5 trillion of additional assets in total in March 2020. In the UK, the MPC quickly increased the stock of asset purchases by £200 billion<sup>15</sup>.

The real-life stress test of March 2020 demonstrated how non-bank finance can amplify shocks. In November 2020 the Financial Stability Board published its initial analysis of how the various elements of the system may have contributed to the stress. Further, more detailed work is underway<sup>16</sup>.

But with one or two exceptions, we are still a long way from agreement about whether and how policy action should be taken to make the non-bank financial system more resilient to the stress of a large correction. And until we take coordinated international action in the areas identified by the Financial Stability Board, we remain, in my view, vulnerable to the risk that non-bank financial system amplifies a future major correction to expectations.



I will return to this concern later when I address the financial stability challenges we face today. But first I want briefly to touch on two other lessons I have learned about financial stability.

### **It's not just the financial sector...**

The first is that financial stability is about more than the financial sector.

As I noted at the outset, the economic damage to the UK from the Global Financial Crisis was exceptionally deep and the recovery was slower than the recovery from the great depression of the last century.

One material reason for that, was that in the crisis highly indebted households cut back more sharply on their consumption. This in turn deepened and prolonged the recession, adding further to the damage to the financial sector<sup>17</sup>.

Household debt relative to household income is an important metric for financial stability. There is a sizeable body of research on the link between rapid increases in household debt and financial crises<sup>18</sup>. High levels of household debt relative to income are also associated with longer and deeper recessions<sup>19</sup>. In the UK, household debt is driven primarily by mortgage borrowing, which in turn is driven by demand for housing and house prices<sup>20</sup>.

In 2014, the FPC decided to introduce policy measures to constrain the growth of household mortgage debt to income, particularly in the event of a housing boom. Last year it published its latest review of those measures<sup>21</sup>.

We have published extensive evidence and research on the impact these measures have had and the role they play<sup>22</sup>. I will not go into this in detail.

However, it is, I think, reasonable to conclude that they have had an impact in keeping household debt, in aggregate, growing in line with household income. And, though this is less well-established, keeping house price growth more in line with income growth.

The FPC's action on mortgages can be viewed through same the lenses of expectations, corrections that I used earlier. When household expectations of future prospects and income have to adjust sharply, the correction is more damaging – to the economy and to the financial sector – if household debt to income is high.

### **It isn't just financial risk**

The final lesson that I will touch on briefly is that financial stability is about more than the financial risks when expectations have to adjust. The financial system is also vulnerable to operational risks which, were they to crystallise could bring key elements of the system down and cause a financial crisis.

Quite early in its existence, the FPC recognised the importance of the risks of cyber attacks on the financial system and instituted a programme of cyber penetration testing of key financial firms and of cyber stress tests of key parts of the system. I have to say that these risks look less and less like tail risks by the day.

This focus has also broadened to cover system resilience to operational risk more generally. This area of the FPC's work is very different to the work of ensuring the banking system can absorb losses or that the non- bank financial system is not prone to severe liquidity stress. But it is, as recent events perhaps demonstrate, an essential part of ensuring financial stability.



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## Future challenges

Having looked back at some of the lessons of the last 8 years, I want to conclude by looking forward at some of the challenges to financial stability going forward.

I will begin by briefly highlighting two challenges that are likely to be with the FPC for many years and long after I have left the committee – climate and crypto. I will then spend a little more time on the immediate challenges to financial stability of the current conjuncture of high inflation, tightening monetary policy and a war in Europe.

Climate change is in many senses the most systemic risk we face, as the IPCC's latest report reminds us. The physical effects of climate change, such as more frequent severe weather events, and the policies necessary to reach net zero have financial sector risks.

While many in government, industry, and finance are working to support the transition to a net zero economy, the future temperature pathway and policy outlook remains uncertain. To help the financial system navigate through this uncertainty we can use climate scenario analysis and stress testing to explore a range of possible futures.

We are currently considering the responses of the UK's first stress exercise to assess the resilience of the core financial system to different climate scenarios.

Over time these types of exercises and improvements in the underlying scenarios should give us a good understanding of the climate-related vulnerabilities that exist across the financial system and better inform our policy response. This will be an increasing focus of the FPC's work in coming years.



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The advent of crypto technology in finance poses a very different set of questions. Recording and transferring ownership of assets is the bedrock of the financial system's role in storing value and in making transactions.

Crypto technology enables recording and transfer to take place without the banks or custodians that have historically carried out this function. At present, these technologies have been used in finance mainly to create speculative investment assets like Bitcoin. These are highly volatile because they have no intrinsic value – in other words as there is nothing behind them there is nothing to prevent their value going to zero.

The value of such assets has grown very rapidly over the past few years, and they are beginning to become connected to the conventional financial system. We have also seen strong growth, though from a lower base, in so called 'stablecoins' – cryptoassets used for crypto payments like Tether.

And, more recently, we have seen early examples of the combination of crypto technology and the public blockchain with so called 'smart contracts' to offer financial services like lending or derivatives, algorithmically and wholly outside the conventional financial system – and outside regulation.

A great deal has been said recently about the financial stability risks from crypto<sup>23</sup>. In a nutshell, crypto is not at present large enough or connected enough to represent a financial stability risk. But it is growing and developing fast.

I am not a technologist but I think it is a fair bet that the use of these technologies in finance will offer benefits in finance and will grow. And as it does so the distinction between the crypto world and the world of conventional finance will become less and less clear.



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Regulatory authorities are now engaging to ensure that as this technology is used to a greater extent and in different ways the same risks are protected to the same extent, whether a financial activity is carried out using crypto technology or conventional finance. This will be a major focus of financial stability and other authorities in coming years.

### **The current conjuncture**

I want to return now to non-bank finance and the nearer term challenges of the current conjuncture. As I noted earlier, non-bank finance now makes up about half of the global financial system. The growth of this channel of finance has benefits.

One of the lessons learned in the financial crisis was that economies that were over dependent on the banking channel for providing credit to the economy suffered more when that channel broke down. In contrast, economies like the US that also had a strong non-bank finance channel suffered less economic damage.

But the growth of non-bank finance since the Global Financial Crisis has also been characterised by the so called 'search for yield'. These markets have expanded in the world of very low interest rates and abundant liquidity that has been necessary to return chronically low inflation to target and support growth.

Over the period, as investors have searched for higher returns they have had to take on more risk. There has been marked growth in riskier types of debt and in equity markets. The leveraged loan market – riskier lending to corporates that already have high levels of debt – has grown rapidly<sup>24</sup>. Lending standards have also weakened, increasing the risk.



The level of risk taking reached particular highs in 2021 as the world economy started to emerge from the pandemic<sup>25</sup>. At the same time, the compensation for risk bearing is, for many assets, close to historic lows<sup>26</sup>.

Economic and financial conditions are now changing. The restarting of the world economy following the pandemic has led to major supply side disruptions and strong inflationary pressures.

In many advanced economies, central banks have entered a tightening phase. As interest rates rise to combat inflation, and QE comes to an end or goes into reverse financial asset prices will change and investors will rebalance their portfolios.

The adjustment to the new environment has already started. The price of riskier assets has fallen as expectations of higher interest rates have increased since the beginning of the year<sup>27</sup>.

To be clear, a period of adjustment to bring the price of risky assets in line with the new economic and financial environment is not necessarily a financial stability event.

But the necessary adjustment is not without risks. Market expectations of interest rates should, of course, already be factored into financial asset prices. But if those expectations were to change suddenly and markets began to expect much higher rates, we could see sharp moves out of risky assets.

Moreover, if expectations of economic prospects deteriorated – if weaker growth and higher inflation were expected – concerns about creditworthiness could reinforce movement out of risky corporate debt and equities.

To these challenges, we must now add the impact of the Russian invasion of Ukraine – the first such event in Europe for over 70 years. As with the COVID pandemic, the events of the last few days have led to an abrupt shift in our expectations of the future and an increase in uncertainty.

It is not yet clear how these events will play out or what their longer-term impact will be – including in economic and financial terms. Russia is a relatively small part of the world economy, accounting for around 2% of world GDP. It accounts however for a much larger share of the world supply of energy and other commodities.

The sanctions that have been announced will do severe damage to the Russian economy but should not in and of themselves pose material risks to financial stability more broadly.

But the heightened perception of geopolitical risks, and the potential impacts on growth and inflation, can only increase risks around the adjustment away from riskier assets that is already underway<sup>28</sup>. And this comes during a period of relatively low market liquidity<sup>29</sup>.

All this comes in the context of the vulnerabilities in non-bank finance, exposed in the ‘dash for cash’ two years ago, that can lead to powerful and adverse liquidity dynamics under stress. While, as I have set out, there has been considerable and valuable work to analyse and understand these, we have not actually taken any steps to mitigate them.

Financial stability authorities like the FPC are of course closely watching how these adjustments unfold. And we will act as necessary to protect financial stability.

I am not saying that markets will be unable to manage the necessary adjustments. Nor that we will experience another 'dash for cash'.

But all of this, in my view, underlines my first lesson: that securing financial stability means ensuring the financial system has the resilience to withstand severe and unanticipated shocks, however generated.

And that it is able to dampen rather than amplify their impact. We have made great progress towards this over the last 8 years. But there is still, I think, much to do. It is important that we maintain our commitment and take the necessary action to ensure our financial system is resilient.

I started by recalling how we did not pay sufficient attention to financial stability 25 years ago.

The subsequent lessons we learned about its importance were painful and hard won. I very much hope that, as those events become more distant, we do not forget them. ■

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## Endnotes

1. The Bank of England Act received Royal Assent on 23 April 1998 and came into force on 1 June 1998.
2. The Financial Services and Markets Act in 2000 did not mention financial stability.
3. Note that the Maastricht revisions to the EU treaty that created the ECB did not include a reference to financial stability.
4. The Global Financial Crisis led to a loss of economic activity equivalent to around £20,000 per person in the UK, based on the net present value of the shortfall in income since 2007 compared to its pre-2007 trend ([Brazier 2019](#)). The level of real GDP in the UK did not return to its 2007 level until 2012 and it has remained below its pre-2007 trend ever since.
5. Expectations is an important topic in economics. The workhorse macroeconomic model that the MPC uses to produce its forecast assumes that consumers and firms have rational expectations – so they can correctly analyse the available information and work out its implications for the future. But there is also evidence that in practice people extrapolate the recent past to form their expectations of the future ([Shiller 2000](#)).
6. See [Shleifer and Gennaioli \(2018\)](#).
7. See [Brunnermeier \(2021\)](#) for a broader discussion of resilience.
8. The MPC also routinely considers the risks around its central forecast and publishes ‘fan charts’ to reflect that.
9. In March 2020 net bank lending to UK corporates was almost 30 times its average over the prior three years.
10. The share in the UK is in line with the global average, at around 50%.
11. Global bank balance sheets have grown by 60% over the period whereas non-bank finance has grown by 120%.
12. For example, it generally uses far less leverage. Investors are often also only entitled to the market value of their investment whereas bank depositors are entitled to their money back.
13. The FPC did its first in-depth assessment of non-banks – focusing on investment funds – in 2015.
14. 10-year US treasury yields spiked by 75 basis points in a week, and the average price fell by 6%, even though there was essentially no change in CDS and therefore the market-implied credit risk of the US government. Similar falls were seen in other government bonds including the UK, Germany and France.
15. The Fed announced up to \$700 billion in asset purchases and the ECB announced €750 billion.



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16. See the Financial Stability Board's *Progress report* in November 2021 and Box B of the Bank of England's *Financial Stability Report* in December 2021.
17. See *Kovacs, Bunn and Rostom (2018)*.
18. See *Jordà, Schularick and Taylor (2016)*.
19. See, for example, *Mian, Sufi and Verner (2017)* and *Bridges et al (2017)*.
20. See *Cloyne et al (2019)*.
21. See Section 3 of the *December 2021 Financial Stability Report* and a recent *consultation paper* on the FPC's proposal to withdraw its affordability test Recommendation.
22. The FPC's most recent analysis was published in the *Technical annex to the December 2021 Financial Stability Report*.
23. See *Cunliffe (2021)* and the *recent report* by the Financial Stability Board.
24. Leveraged loan issuance has grown by a quarter since the Global Financial Crisis and there is now a stock of \$4 trillion.
25. The issuance of riskier high-yield debt in major advanced economies in 2021 was more than 50% higher than the average of the past decade.
26. Although risk premia – the compensation that investors demand for bearing risk embedded in the prices of financial assets – have increased somewhat in recent months, the premia for many assets remain near the bottom of their historical distributions. This includes corporate bonds, leveraged loans and equities, particularly in the US.
27. The prices of US tech stocks in the NASDAQ index, which are more vulnerable to rising rates than other stocks because of their longer-dated cash flows, have fallen by more than 10% this year. Corporate bond spreads have also widened, although they remain well below historical averages.
28. Equity prices have fallen slightly and corporate bond spreads have risen slightly in the UK and Europe over the last week. At the same time, 10-year government bond yields have fallen and the dollar has appreciated.
29. Some measures of market liquidity such as market depth and bid-ask spreads were already showing signs of illiquidity ahead of the Russian invasion of Ukraine, and have worsened since.



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# Digital currencies and the soul of money

What holds the monetary system together at its core?  
Agustín Carstens takes inspiration from Germany's literary giant Goethe to reflect on the soul of money in the digital era



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In a speech four years ago I addressed the growth and pitfalls of cryptocurrencies such as Bitcoin<sup>1</sup>. Since then, the debate on the future of money has grown much broader, but it continues to touch on the very foundations of the monetary system.

I will take inspiration from Goethe. The great Johann Wolfgang von Goethe was a well-travelled cosmopolitan and a true universalist. He was a poet and novelist, a playwright and theatre director, a scientist and statesman. Remarkably, his work anticipated some key economic issues of our time, including central bank independence<sup>2</sup>.

Goethe's work confronts fundamental questions. In his masterpiece, Faust, he addresses the "*Gretchenfrage*" – a term that has become synonymous with a fundamental question of life. For central bankers, the Gretchenfrage has always been: what is the soul of money?

Today, technologists, innovators and futurists are offering new answers to this question. Some say that in the future, money and finance will be provided by just a few big tech corporations. Others dream of a decentralised system in which blockchains and algorithms replace people and institutions. And maybe, all of this will take place in the Metaverse<sup>3</sup>.

My main message is simple: the soul of money belongs neither to a big tech nor to an anonymous ledger. The soul of money is trust. So the question becomes: which institution is best placed to generate trust? I will argue that central banks have been and continue to be the institutions best placed to provide trust in the digital age. This is also the best way to ensure an efficient and inclusive financial system to the benefit of all.

Let me elaborate on this theme, starting with the institutional foundations of money.

## **The institutional foundations of money**

Money is a societal convention. People accept money today with the expectation that everyone else will accept it tomorrow.

At its core, trust in the currency holds the monetary system together. Like the legal system, this trust is a public good<sup>4</sup>. Maintaining it is crucial for the effective functioning of societies.

*Central banks and public authorities are still the glue that holds the monetary and financial system together. Private sector services and innovation are essential and should thrive on this foundation. But trust can never be outsourced nor automated*



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Trust requires sound institutions that can stand the test of time. Institutions that ensure the stability of the currency as the economy's key unit of account, store of value and medium of exchange, and that guarantee the safety and integrity of payments<sup>5</sup>.

Throughout a history measured not in years but in centuries, independent central banks have emerged as the key institutions that underpins this trust in money. Alternatives have often ended badly<sup>6</sup>.

It is for good reason that most countries have established central banks with a clear mandate to serve society. As public policy institutions, central banks have proven successful in upholding trust while adapting to societal and economic change<sup>7</sup>.

In pursuing these mandates, central banks have managed to constantly adapt to technological, economic and societal changes. This is why central banks are actively engaging with digital innovation. They are working on new central bank public goods such as wholesale financial market infrastructures, retail fast payment systems and central bank digital currencies.

Of course, in a market-based system, the private sector remains the main engine of the economy. In today's two-tier monetary system, deposits are by far the most prevalent form of money held by the public, since cash holdings are relatively small. Banks, in turn, place their own deposits with the central bank as 'bank reserves'.

In this case, central banks provide an open, neutral, trusted and stable platform. Private companies use their ingenuity and dynamism to develop new payment methods and financial products and services. This combination has been a powerful driver of innovation and welfare.



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But we cannot take this successful symbiosis for granted. Some recent developments may threaten money's essence as a public good, if taken too far. To illustrate this, let me offer three plausible scenarios for the future of money.

- In the first, big tech stablecoins compete with national currencies and against each other too, fragmenting the monetary system.
- The second relates to the elusive promise of crypto and decentralised finance, or 'DeFi', which claims to offer a financial system free from powerful intermediaries, but may actually deliver something very different<sup>8</sup>.
- The third realises the vision of an open and global monetary and financial system that harnesses technology for the benefit of all. You can probably guess which vision I espouse. I will close by discussing what it will take to achieve it.

### **Big tech stablecoins**

Let's start with stablecoins issued by big techs. Stablecoins are cryptocurrencies that base their value on collateral, often in the form of deposits with commercial banks or other regulated financial instruments. They thus piggyback on the credibility of sovereign currencies. Stablecoins are issued in this first scenario by big techs, or large companies whose primary activity is digital services.

Big techs have made important contributions to financial services. Their new and innovative products have allowed hundreds of millions of new users into the formal financial system<sup>9</sup>. In the process, they have also achieved systemic relevance in several major economies. For example, big techs channel 94% of mobile payments in China<sup>10</sup>.

This trend could accelerate if one of these firms were to grow in an unfettered way and create a dominant, closed ecosystem around its own global stablecoin<sup>11</sup>.

Once established, a company is likely to erect barriers against new entrants, leading to market dominance, data concentration and reduced competition. In addition, its stablecoin could disintermediate incumbent banks, which could even pose a risk to financial stability.

Moreover, if one big tech stablecoin takes hold, others will seek to imitate it. We may end up with a few dominant walled gardens that compete both with each other and with national currencies, thus fragmenting the national and global monetary systems. As the initial benefits fade, the well-known problems of market concentration will quickly follow.

In addition, the same economic forces that foster inclusion can also cause discrimination, privacy violations and market concentration. One reason is that data are subject to large externalities. For example, one person's data can reveal information about others<sup>12</sup>.

Moreover, it is possible that the data holder ends up knowing more about users' behaviour than users do themselves<sup>13</sup>. Armed with exclusive access to data, big techs can quickly scale up and dominate markets.

Let me be clear: it is undesirable to rely solely on private money. Users may initially find great convenience in paying with a big tech global stablecoin. But in doing so they may be handing the keys to our monetary system over to private entities, driven by profits and accountable only to their shareholders and other insiders. Such an arrangement could erode trust. A public good like money needs oversight with the public interest in mind.



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## The elusive promise of decentralisation

A second plausible scenario for the future of money has attracted a growing number of enthusiasts. This vision replaces institutions with distributed ledger technology (DLT), in principle allowing anyone to be a validator in a shared network. It is embodied in the growth of cryptocurrencies and applications that build on them, such as so-called decentralised finance, or 'DeFi'<sup>14</sup>.

DeFi's enthusiasts hold out some very appealing promises: DLT will 'democratise finance', cutting out middlemen such as big banks. More generally, new decentralised protocols will lay the groundwork for 'Web 3.0', or simply 'web3'. In this world, data will be reclaimed from the big techs, and entrepreneurs and artists will keep a greater share of the value they create<sup>15</sup>.

Decentralisation can be a noble goal. In many applications, governance improves when power is genuinely dispersed, with appropriate checks and balances. This principle is embodied in free and competitive markets.

But this principle is not what DeFi applications are delivering. There is a large gulf between vision and reality.

To date, the DeFi space has been used primarily for speculative activities. Users invest, borrow and trade cryptoassets in a largely unregulated environment. The absence of controls such as know-your-customer (KYC) and anti-money laundering rules, might well be one important factor in DeFi's growth.

Indeed, a parallel financial system is emerging, revolving around two elements.

The first is automated, self-executing protocols, or 'smart contracts'. But these contracts will never be smart enough to cover every possible eventuality, and someone must therefore write and update the code, and run the platform.



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In practice, there is a lot of centralisation in DeFi. BIS economists have discussed this ‘decentralisation illusion’ in recent research<sup>16</sup>.

The second element is, again, stablecoins. These grease the wheels of DeFi. As they aim to maintain a fixed value to fiat currencies, they allow transfers across platforms, and form a bridge to the traditional financial system. Stablecoins are the settlement instrument in DeFi, alongside governance tokens and other more volatile cryptoassets<sup>17</sup>.

But stablecoins may not be sound money. One drawback is the fact that they have to tie their value to regulated assets to borrow their credibility. Their issuers have an inherent incentive to invest reserve assets in a risky manner to earn a return. Without appropriate regulation, issuers can diverge from full backing, or test the margins of what counts as a safe asset – as experience has repeatedly shown<sup>18</sup>.

More fundamentally, decentralisation comes at a cost. Trust in an anonymous system is maintained by self-interested validators who ensure the integrity of the ledger in the absence of a central authority<sup>19</sup>. So the system must generate enough fees, or rents, to provide these validators with the right incentive.

These rents accumulate mostly to insiders, such as Bitcoin miners, or those who hold more governance tokens<sup>20</sup>. These rents are also a reason why DeFi platforms have been so attractive for venture capital investment<sup>21</sup>. Many protocols entrench insiders, as those with more coins have more power.

Ultimately, high rents for insiders mean high costs for users. So, while insiders who have sold coins to new users have made spectacular returns, efficiency gains for average users have so far failed to materialise. And in the absence of regulation, fraud, hacks and so-called rug pulls have become rampant<sup>22</sup>.

In addition, this structure makes it hard for fully decentralised systems to scale up. Achieving agreement in a large network takes time and effort, and consumes energy. The larger the ledger, the harder it becomes to update it quickly.

This is why many DLT systems can only handle a small volume of transactions to date, and often suffer from network congestion. This is also the reason why Bitcoin requires so much electricity. There are a variety of technical proposals to address this trade-off, but they all lead to greater complexity.

Indeed, the need for rents to maintain incentives in a blockchain is a feature, not a bug; it is a case of 'the more the sorrier' instead of 'the more the merrier'.

And the growing proliferation of different blockchains means that many competing candidates aim to be a single arbiter of truth.

Meanwhile, DeFi is subject to the same vulnerabilities as are present in traditional financial services. High leverage, liquidity mismatches and connections to the formal financial system mean vulnerabilities in DeFi could undermine the stability of the broader financial system<sup>23</sup>.

As with money market mutual funds, there is a risk that, during a shock, stablecoins could face runs. With automated protocols, there may also be unpredictable interactions, as liquidity dries up and losses cascade through the system.

Thus, there is a risk that this 'magic', once launched, may spin out of control. As in Goethe's *Zauberlehrling* (*The Sorcerer's Apprentice*), DeFi applications could take on a life of their own, interacting with one another



in unpredictable ways. When a crash happens and money is lost, users will inevitably turn to a trusted and experienced party – the public authorities – to tame the unleashed spirits and restore order.

A better approach is possible. Building on sound money, new applications could stand on a stronger footing. They should not be based on anonymity but on identification and trust. And they should comply with financial regulation that is designed to keep the system safe.

Wherever private stablecoins are issued, they need to be adequately regulated to address the risks that they pose, such as runs, payment system risk and concentration of economic power<sup>24</sup>.

We also need effective and consistent international policy on stablecoin arrangements<sup>25</sup>. Innovators should not fear regulators but work with them, to make their products more sound and more sustainable.

### **An open and global system as a public good**

In a third scenario, incumbent financial institutions, big techs and new innovative entrants compete in an open marketplace that guarantees interoperability, building on central bank public goods. This means that end users can seamlessly interact across different providers – both domestically and across borders<sup>26</sup>.

This would bring about continued innovation, and ever better outcomes for the economy as a whole<sup>27</sup>. Trust in money remains the bedrock of stability. End users would see low costs and convenient services, with safety, privacy and a broad range of payment choices.

This scenario harnesses the benefits of big data and DLT with market structures that foster competition and promote the public good nature of the monetary system.

In this vision, the monetary system is not fragmented into separate walled gardens, nor is it dominated by a few large corporations. There are also no high rents for insiders in anonymous networks.

At the core of this system are central banks. They do not aim for profits, but to serve society. They have no commercial interest in personal data. They act as operators, overseers and catalysts in payments markets, and regulate and supervise private providers in the public interest.

Working together, they can provide central bank digital currencies (CBDCs). Unlike stablecoins, CBDCs do not need to borrow their credibility. As they are directly issued by the central bank, they inherit the trust that the public already places in their currency. They can thus serve as a sound foundation for future innovation.

Central banks can provide this foundation domestically, but also on a global scale. Imagine a global network of CBDCs. Different central banks would design and issue a new form of public money, tailored to their economies and societies' preferences.

Importantly, central banks could work with one another, and with the private sector, to ensure that these domestic CBDCs are interoperable across borders. This would require technical compatibility, the ability for systems to 'speak each other's language' and agreement on rights and obligations<sup>28</sup>.

To obtain this, central banks could choose whether to build a network of bilateral links, or they could adopt a hub-and-spoke model or a single common platform. DLT could be used to connect multiple CBDCs issued by different central banks. This would be useful as no single central bank could straddle all the different currencies in the system.

Such a network would be a global version of domestic monetary systems grounded in the trust placed in central banks. It could lower the cost of cross-border payments; increase their speed and transparency; and broaden access to users in different countries. Private providers could interact with clients, conducting know-your-customer and other compliance checks.

The private sector could build a host of financial services on top of such a system, from innovative payments to lending, to insurance and investment services. But safeguards can give users control over personal data. This does not require the selling of speculative coins that serve only to enrich insiders.

The BIS Innovation Hub is working actively to make this vision a reality, with several experiments involving cooperation between central banks and the private sector. What is notable is that many of these projects are based on DLT, where the central banks play the key role. Based on trust instead of rents, these systems overcome the inherent issues with scaling up. They also offer greater safety and efficiency.

Three important BIS Innovation Hub projects all make use of a DLT platform upon which multiple central banks issue their own wholesale CBDCs so that they can be traded between participants to enable faster, cheaper and safer cross-border settlements.

- In Project Jura, each central bank maintains individual control over its own CBDC on a single platform with separate subnetworks<sup>29</sup>.
- In project mBridge, each participating central bank issues its own CBDCs and operates a validating node in a shared system<sup>30</sup>.



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- Project Dunbar explores the advantages and disadvantages of different DLT prototypes and validating mechanisms to support a common multi-CBDC platform<sup>31</sup>.

Overall, these projects show that there is significant potential in new technologies, including DLT, if they are applied in a way that builds on the monetary system's existing institutional framework. Central banks, as validating nodes, are not there to make money by mining coins. Instead, they perform this role as part of their public service mandate.

Working in a controlled environment and with industry partners, the BIS and host central banks are developing public goods that can be thoroughly tested and ready to be rolled out in the real world.

### **Conclusion**

The future of money is ours to shape. While central banks share the excitement around digital innovation, we are aware of the potential consequences of some of its incarnations.

The design of money has consequences that concern all of society: the integrity and stability of money and payments, market concentration, consumer rights and efficiency. Hence, central bankers must work with other public authorities and private stakeholders to make the vision I have described a reality.

Let's innovate in a sound, sustainable way, harnessing the benefits of digital technology in a way that is consistent with our shared values. In particular, let's ensure that our financial system builds on the existing governance of money, serves the public interest, and works cooperatively with the private sector.



So, let me go back to where I started, to Goethe. The answer to the Gretchenfrage has not changed: central banks and public authorities are still the glue that holds the monetary and financial system together. Private sector services and innovation are essential and should thrive on this foundation. But trust can never be outsourced nor automated. ■

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### Endnotes

1. See A Carstens, "Money in the digital age: what role for central banks?", speech, House of Finance, Goethe University, Frankfurt, 6 February 2018.
2. See J Weidmann, "[Money creation and responsibility](#)", speech, 18 September 2012; H Binswanger, C Binswanger and J Harrison, *Money and Magic: a Critique of the Modern Economy in the Light of Goethe's Faust*, University Of Chicago Press, 1994.
3. See P Clark, "The Metaverse Has Already Arrived. Here's What That Actually Means", *Time*, 15 November 2021. The concept of the metaverse is often traced back to N Stephenson, *Snow Crash*, New York: Bantam Books, 1992. This fictional metaverse was conceived of as a 100-metre-wide street around a spherical planet that users could access with virtual reality goggles or from booths, and in which users would be represented as 'avatars'.
4. A Carstens, "The future of money and the payment system: what role for central banks?", lecture at Princeton University, 5 December 2019.
5. BIS, "Central banks and payments in the digital era", *Annual Economic Report, Chapter III*, June 2020; C Borio, "On money, debt, trust and central banking", *BIS Working Papers*, no 763, January 2019.



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6. See J Frost, HS Shin and P Wierds, "An early stablecoin? The Bank of Amsterdam and the governance of money", BIS Working Papers, no 902, November 2020.
7. C Giannini, *The age of central banks*, Edward Elgar Publishing, 2011.
8. DeFi refers to financial applications built on permissionless distributed ledger technology (DLT). See below.
9. See K Croxson, J Frost, L Gambacorta and T Valletti, "Platform-based business models and financial inclusion", BIS Working Papers, 10 January 2022.
10. In India, big techs provide third-party services in the Unified Payment Interface (UPI), accounting for 90% of transactions on UPI, but the funds remain with banks. See D D'Silva, Z Filkova, F Packer and S Tiwari, "The design of digital financial infrastructure: lessons from India", BIS Papers, no 106, 15 December 2019.
11. There is an important distinction between big techs offering payment services with other firms' stablecoins and issuing their own stablecoins. In the United States and Guatemala, Meta's subsidiary Novi is currently piloting a wallet product using the Paxos stablecoin. The issuance of the Diem stablecoin is on hold. See Novi, "Pilot Version of Novi Now Available", press release, 19 October 2021.
12. See D Bergemann, A Bonatti and T Gan, "The Economics of Social Data", Cowles Foundation Discussion Papers, no 2203R, September 2019.
13. M Brunnermeier, R Lamba and C Segura-Rodriguez, "Inverse Selection", working paper, 2020.
14. See S Aramonte, W Huang and A Schrimpf, "DeFi risks and the decentralisation illusion", BIS Quarterly Review, December 2021; F Schär, "Decentralized Finance: On Blockchain- and Smart Contract-Based Financial Markets", Federal Reserve Bank of St Louis Review, vol 103, no 2, 2021; N Carter and L Jeng, "DeFi Protocol Risks: The Paradox of DeFi" in B Coen and D Maurice (eds), *Regtech, Suptech and Beyond: Innovation and Technology in Financial Services*, Risk Books, 2021.
15. See B Allen, "People are talking about Web3. Is it the Internet of the future or just a buzzword?", NPR, 21 November 2021. For critical takes, see J Geuter, "The Third Web", 17 December 2021; M Elgan, "You can safely ignore Web3", *Computer World*, 28 December 2021.

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16. Aramonte et al (2021).

17. Governance tokens are a cryptoasset that grants voting power to its holder for decisions in the shared system.

18. D Arner, R Auer and J Frost, "Stablecoins: risks, potential and regulation", Bank of Spain, Financial Stability Review, no 39, Autumn. There are also decentralised stablecoin designs that eliminate the need to trust an intermediary, but these generally must be highly overcollateralised, limiting their usefulness for mainstream applications. See C Catalini and A de Gortari, "On the Economic Design of Stablecoins", mimeo, 5 August 2021.

19. R Auer, C Monnet and HS Shin, "Distributed ledgers and the governance of money", BIS Working Papers, no 924, November 2021.

20. In some automated trading platforms, there is the potential for large validators to front-run other users and 'win' the next block in the ledger. This is sometimes referred to as 'miner extractable value'.

21. See G Cornelli, S Doerr, L Franco and J Frost, "Funding for fintechs", BIS Quarterly Review, September 2021. Investment in crypto and DLT firms has boomed in 2021, in line with strong interest in DeFi applications.

22. A rug pull refers to the development team of a cryptocurrency or Defi project abandoning their project and absconding with the investors' funds. According to Chainanalysis, investors around the globe were defrauded by over USD 2.8 billion in 2021 alone. See <https://www.afr.com/companies/financial-services/the-rug-pull-crypto-investors-lose-4b-in-a-new-scam-20220111-p59nan>

23. Aramonte et al (2021).

24. See US President's Working Group on Financial Markets, Federal Deposit Insurance Corporation (FDIC) and Office of the Comptroller of the Currency (OCC), Report on stablecoins, November 2021.

25. In this light, the BIS Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) have proposed guidance on the application of their standards, the Principles for Financial Market Infrastructures, to stablecoin arrangements. See CPMI and IOSCO, "Application of the Principles for Financial Market Infrastructures to stablecoin arrangements", 6 October 2021.



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26. See C Boar, S Claessens, A Kosse, R Leckow and T Rice, "Interoperability between payment systems across borders", *BIS Bulletin*, no 49, 10 December 2021.
27. On the ability of ('neck-and-neck') competition between firms to drive innovation, see P Aghion, N Bloom, R Blundell, R Griffith and P Howitt, "Competition and innovation: An inverted-U relationship", *Quarterly Journal of Economics*, vol 120, no 2, 2005, pp 701–28.
28. Boar et al (2021).
29. Banque de France, BIS and Swiss National Bank, "Project Jura: Cross-border settlement using wholesale CBDC", 8 December 2021.
30. BIS Innovation Hub Hong Kong Centre, Hong Kong Monetary Authority, Bank of Thailand, Digital Currency Institute of the People's Bank of China and Central Bank of the United Arab Emirates, "Inthanon-LionRock to mBridge: Building a multi CBDC platform for international payments", 28 September 2021.
31. BIS, "BIS Innovation Hub and central banks of Australia, Malaysia, Singapore and South Africa will test CBDCs for international settlements", press release, 2 September 2021. The project involves the Reserve Bank of Australia, Central Bank of Malaysia, Monetary Authority of Singapore and South African Reserve Bank.

This article is based on a [speech](#) delivered at the Goethe University's Institute for Law and Finance (ILF) conference on 'Data, Digitalization, the New Finance and Central Bank Digital Currencies: The Future of Banking and Money', 18 January 2022



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# Preparing for the financial system of the future



Lael Brainard pits the case for the role a US CBDC could play in bolstering financial stability as the use of stablecoins and cryptocurrency grows and other countries issue their own CBDCs



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**T**he financial system is undergoing fast-moving changes associated with digitalization and decentralization. Some of these innovations hold considerable promise to reduce transaction costs and frictions, increase competition, and improve financial inclusion, but there are also potential risks. With technology driving profound change, it is important we prepare for the financial system of the future and not limit our thinking to the financial system of today<sup>1</sup>.

### **The evolving digitalization and decentralization of finance**

In recent years, there has been explosive growth in the development and adoption of new digital assets that leverage distributed ledger technologies and cryptography. The market capitalization of cryptocurrencies grew from less than \$100 billion five years ago to a high of almost \$3 trillion in November 2021 and is currently around \$2 trillion<sup>2</sup>.

In parallel, we have seen rapid growth in the platforms that facilitate the crypto finance ecosystem, including decentralized finance (DeFi) platforms. These crypto platforms facilitate a variety of activities, including lending, trading, and custodying cryptoassets, in some cases outside the traditional regulatory guardrails for investor and consumer protection, market integrity, and transparency.

The growth in the crypto finance ecosystem is fueling demand for stablecoins—digital assets that are intended to maintain stable value relative to reference assets, such as the US dollar. Stablecoin supply grew nearly sixfold in 2021, from roughly \$29 billion in January 2021 to \$165 billion in January 2022.

There is a high degree of concentration among a few dollar-pegged stablecoins: as of January 2022, the largest stablecoin by market capitalization made up almost half of the market, and the four largest stablecoins together made up almost 90 percent<sup>3</sup>.



Today, stablecoins are being used as collateral on DeFi and other crypto platforms, as well as in facilitating trading and monetization of cryptocurrency positions on and between crypto and other platforms.

In the future, some issuers envision that stablecoins will also have an expanded reach in the payment system and be commonly used for everyday transactions, both domestic and cross-border. So it is important to have strong frameworks for the quality and sufficiency of reserves and risk management and governance.

As noted in a recent report on stablecoins by the President's Working Group on Financial Markets, it is important to guard against run risk, whereby the prospect of an issuer not being able to promptly and adequately meet redemption requests for the stablecoin at par could result in a sudden surge in redemption demand<sup>4</sup>.

*The digital financial ecosystem is evolving rapidly and becoming increasingly connected with the traditional financial system*



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It is also important to address settlement risk, whereby funds settlement is not certain and final when expected, and systemic risk, whereby the failure or distress of a stablecoin provider could adversely affect the broader financial system<sup>5</sup>.

The prominence of crypto advertisements during the Super Bowl highlighted the growing engagement of retail investors in the crypto ecosystem<sup>6</sup>. In late 2021, Pew Research found that 16 percent of survey respondents reported having personally invested in, traded, or otherwise used a cryptocurrency—up from less than 1 percent of respondents in 2015<sup>7</sup>.

There is also rising interest among institutional investors<sup>8</sup>. So it is perhaps not surprising that established financial intermediaries are undertaking efforts to expand the crypto services and products they offer.

If the past year is any guide, the crypto financial system is likely to continue to grow and evolve in ways that increase interconnectedness with the traditional financial system.

As a result, officials in many countries are undertaking efforts to understand and adapt to the transformation of the financial system. Many jurisdictions are making efforts to ensure statutory and regulatory frameworks apply like rules to like risks, and some jurisdictions are issuing or contemplating issuing central bank currency in digital form<sup>9</sup>.

### **Preparing for the payment system of the future**

The Federal Reserve needs to be preparing for the payment landscape of the future even as we continue to make improvements to meet today's needs. In light of the rapid digitalization of the financial system, the Federal Reserve has been thinking critically about whether there is a role for a potential US central bank digital currency (CBDC) in the digital payment landscape of the future and about its potential properties, costs, and benefits.

Our financial and payment system delivers important benefits today and is continuing to improve with developments like real-time payments. Nonetheless, certain challenges remain, such as a lack of access to digital banking and payment services for some Americans and expensive and slow cross-border payments. Growing interest in the digital financial ecosystem suggests that technology is enabling potential improvements that merit consideration<sup>10</sup>.

In addition, it is important to consider how new forms of cryptoassets and digital money may affect the Federal Reserve's responsibilities to maintain financial stability, a safe and efficient payment system, household and business access to safe central bank money, and maximum employment and price stability.

It is prudent to explore whether there is a role for a CBDC to preserve some of the safe and effective elements of the financial system of the present in a way that is complementary to the private sector innovations transforming the financial landscape of the future.

The public and private sector play important complementary roles within the financial system in the United States. From Fedwire to FedNow, the Federal Reserve has over a century of experience working to improve the infrastructure of the US payment system to provide a resilient and adaptable foundation for dynamic private sector activity<sup>11</sup>.

In parallel, private sector banks and nonbanks have competed to build the best possible products and services on top of that foundation and to meet the dollar-denominated needs of consumers and investors at home and around the world. The result is a resilient payment system that is responsive to the changing needs of businesses, consumers, and investors.

While the official sector provides a stable currency, operates some important payment rails, and undertakes regulation and oversight of financial intermediaries and critical financial market infrastructures, the private sector brings competitive forces encouraging efficiency and new product offerings and driving innovation.

Responsible innovation has the potential to increase financial inclusion and efficiency and to lower costs within guardrails that protect consumers and investors and safeguard financial stability.

As we assess the range of future states of the financial system, it is prudent to consider how to preserve ready public access to government-issued, risk-free currency in the digital financial system—the digital equivalent of the Federal Reserve’s issuance of physical currency.

The Board recently issued a discussion paper that outlines the Federal Reserve’s current thinking on the potential benefits, risks, and policy considerations of a US CBDC<sup>12</sup>. The paper does not advance any specific policy outcome and does not signal that the Board will make any imminent decisions about the appropriateness of issuing a US CBDC.

It lays out four CBDC design principles that analysis to date suggests would best serve the needs of the United States if one were created. Those principles are that a potential CBDC should be privacy-protected, so consumer data and privacy are safeguarded; intermediated, such that financial intermediaries rather than the Federal Reserve interface directly with consumers; widely transferable, so the payment system is not fragmented; and identity-verified, so law enforcement can continue to combat money laundering and funding of terrorism.

### **Financial stability**

Given the Federal Reserve’s mandate to promote financial stability, any consideration of a CBDC must include a



robust evaluation of its impact on the stability of the financial system—not only as it exists today but also as it may evolve in the future.

In consideration of the financial system today, it would be important to explore design features that would ensure complementarity with established financial intermediation. A CBDC—depending on its features—could be attractive as a store of value and means of payment to the extent it is seen as the safest form of money<sup>13</sup>.

This could make it attractive to risk-averse users, perhaps leading to increased demand for the CBDC at the expense of other intermediaries during times of stress.

So it is important to undertake research regarding the tools and design features that could be introduced to limit such risks, such as offering a non-interest bearing CBDC and limiting the amount of CBDC an end user could hold or transfer.

As I noted at the start, the digital asset and payment ecosystem is evolving at a rapid pace. Thus, it is also important to contemplate the potential role of a CBDC to promote financial stability in a future financial system in which a growing range of consumer payment and financial transactions would be conducted via digital currencies such as stablecoins.

If current trends continue, the stablecoin market in the future could come to be dominated by just one or two issuers. Depending on the characteristics of these stablecoins, there could be large shifts in desired holdings between these stablecoins and deposits, leading to large-scale redemptions by risk-averse users at times of stress that could prove disruptive to financial stability.



In such a future state, the coexistence of CBDC alongside stablecoins and commercial bank money could prove complementary, by providing a safe central bank liability in the digital financial ecosystem, much like cash currently coexists with commercial bank money.

It is essential that policymakers, including the Federal Reserve, plan for the future of the payment system and consider the full range of possible options to bring forward the potential benefits of new technologies, while safeguarding stability.

### **International considerations**

Analysis of the potential future state of the financial system is not limited to the domestic implications. The dollar is important to global financial markets: it is not only the predominant global reserve currency, but the dollar is also the most widely used currency in international payments<sup>14</sup>.

Decisions by other major jurisdictions to issue CBDCs could bring important changes to global financial markets that may prove more or less disruptive and that could influence the potential risks and benefits of a US CBDC.

Thus, it is wise to consider what the future states of global financial markets and transactions would look like both with and without a Federal Reserve-issued CBDC. For example, the People's Bank of China has been piloting the digital yuan, also known as e-CNY, in numerous Chinese cities over the past two years<sup>15</sup>.

The substantial early progress on the digital yuan may have implications for the evolution of cross-border payments and payment systems. And it may influence the development of norms and standards for cross-border digital financial transactions.

It is prudent to consider how the potential absence or issuance of a US CBDC could affect the use of the dollar in payments globally in future states where one or more major foreign currencies are issued in CBDC form.

A US CBDC may be one potential way to ensure that people around the world who use the dollar can continue to rely on the strength and safety of US currency to transact and conduct business in the digital financial system.

More broadly, it is important to consider how the United States can continue to play a lead role in the development of standards governing international digital financial transactions involving CBDCs consistent with norms such as privacy and security.

Given the dollar's important role as a payment instrument across the world, it is essential that the United States be on the frontier of research and policy development regarding CBDC, as international developments related to CBDC can have implications for the global financial system.

### **Technology research and experimentation**

Given the range of possible future states with significant digitization of the financial system, it is important that the Federal Reserve is actively engaging with the underlying technologies. Our work to build 24x7x365 instant payments rails leverages lessons from some of today's most resilient, high-performing, and large-scale technology platforms across the globe. It is providing important insights on the clearing and settlement models associated with real time payments as well as on fraud, cyber resilience, cloud computing, and related technologies.

In parallel with the Board's public consultation on CBDC, the Federal Reserve Bank of Boston, in collaboration with the Massachusetts Institute of Technology, has developed a theoretical high-performance transaction processor for



CBDC<sup>16</sup>. They recently published the resulting software under an open-source license as a way of engaging with the broader technical community and promoting transparency and verifiability<sup>17</sup>.

Moreover, the Board is studying how innovations, such as distributed ledger technology, could improve the financial system. This work includes experimentation with stablecoin interoperability and testing of retail payments across multiple distributed payment ledger systems.

The Federal Reserve Bank of New York recently established an Innovation Center, focused on validating, designing, building, and launching new financial technology products and services for the central bank community<sup>18</sup>. These technology research and development initiatives are vital to our responsibilities to promote a safe and efficient payment system and financial stability, whatever the future may bring.

## Conclusion

The financial system is not standing still, and neither can we. The digital financial ecosystem is evolving rapidly and becoming increasingly connected with the traditional financial system. It is prudent for the Board to understand the evolving payment landscape, the technological advancements and consumer demands driving this evolution, and the consequent policy choices as it seeks to fulfil its congressionally-mandated role to promote a safe, efficient, and inclusive system for US dollar transactions<sup>19</sup>.

To prepare for the financial system of the future, the Federal Reserve is engaging in research and experimentation with these new technologies and consulting closely with public and private sector partners. ■

**Lael Brainard is a Federal Reserve Board Governor**



## Endnotes

1. I am grateful to Alexandra Fernandez, Lacy Douglas, David Mills, Sonja Danburg, and David Pope of the Federal Reserve Board for their assistance in preparing this text. These views are my own and do not necessarily reflect those of the Federal Reserve Board or the Federal Open Market Committee.
2. CoinMarketCap, [“Total Cryptocurrency Market Cap,”](#) last modified on February 16, 2022.
3. [“Total Stablecoin Supply,”](#) The Block, last modified on February 14, 2022.
4. President’s Working Group on Financial Markets, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency, [Report on Stablecoins \(PDF\)](#) (Washington: President’s Working Group on Financial Markets, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency, November 2021).
5. See [“Virtual Hearing - Digital Assets and the Future of Finance: The President’s Working Group on Financial Markets’ Report on Stablecoins,”](#) February 8, 2022.
6. Khristopher Brooks and Aimee Picchi, [“Super Bowl ads 2022: Crypto companies are spending millions to win over viewers,”](#) CBS News, February 11, 2022.
7. The 2015 survey focused on Bitcoin use. See [“16% of Americans say they have ever invested in, traded or used cryptocurrency,”](#) Pew Research Center, last modified on November 11, 2021.
8. Fidelity Digital Assets, [“71% of Institutional Investors Plan to Buy or Invest in Digital Assets in the Future,”](#) July 20, 2021.
9. See Financial Stability Board, [Regulation, Supervision and Oversight of ‘Global Stablecoin’ Arrangements: Final Report and High-Level Recommendations \(PDF\)](#)(Basel: Financial Stability Board, October 2020), and International Monetary Fund, [Behind the Scenes of Central Bank Digital Currency](#) (Washington: International Monetary Fund, February 2022).
10. Lael Brainard [“The Future of Retail Payments in the United States”](#) (speech at the FedNow Service Webinar, Washington, D.C., August 6, 2020).
11. See Board of Governors of the Federal Reserve System, [“Major Events in the History of the Federal Reserve’s Role in the U.S. Payment System \(PDF\),”](#) in *The Fed Explained: What the Central Bank Does*, 11<sup>th</sup> ed. (Washington: Board of Governors of the Federal Reserve System, December 2021).



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12. Board of Governors of the Federal Reserve System, *"Money and Payments: The U.S. Dollar in the Age of Digital Transformation (PDF),"* research paper (Washington: Board of Governors of the Federal Reserve System, January 2022).
13. Bank for International Settlements, *Central bank digital currencies: financial stability implications (PDF)* (Basel: Bank for International Settlements, September 2021).
14. Carol Bertaut, Bastian von Beschwitz, Stephanie Curcuru, *"The International Role of the U.S. Dollar,"* October 6, 2021.
15. Coco Feng, *"China's digital currency: e-CNY wallet nearly doubles user base in two months to 261 million ahead of Winter Olympics,"* South China Morning Post, January 19, 2022. See also Working Group on E-CNY Research and Development of the People's Bank of China, *"Progress of Research & Development of E-CNY in China (PDF),"* white paper (Beijing: People's Bank of China, July 2021).
16. Federal Reserve Bank of Boston, *"Project Hamilton Phase 1 A High Performance Payment Processing System Designed for Central Bank Digital Currencies,"* news release, February 3, 2022.
17. "A transaction processor for a hypothetical, general-purpose, central bank digital currency," GitHub, <https://github.com/mit-dci/opencbdc-tx>
18. Federal Reserve Bank of New York, *"New York Fed Launches the New York Innovation Center to Support Financial Technology Innovation in Central Banking,"* press release, November 29, 2021.
19. See Board of Governors of the Federal Reserve System, "Fostering Payment and Settlement System Safety and Efficiency" in *The Fed Explained*, 11<sup>th</sup> ed.

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# Stablecoins: growth potential and impact on banking

Stablecoins have experienced explosive growth. Gordon Liao and John Caramichael consider the broad impacts on the financial system



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## Summary

Stablecoins have experienced tremendous growth in the past year, serving as a possible breakthrough innovation in the future of payments. In this paper, we discuss the current use cases and growth opportunities of stablecoins, and we analyze the potential for stablecoins to broadly impact the banking system.

The impact of stablecoin adoption on traditional banking and credit provision can vary depending on the sources of inflow and the composition of stablecoin reserves. Among the various scenarios, a two-tiered banking system can both support stablecoin issuance and maintain traditional forms of credit creation.

In contrast, a narrow bank approach for digital currencies can lead to disintermediation of traditional banking, but may provide the most stable peg to fiat currencies. Additionally, dollar-pegged stablecoins backed by adequately safe and liquid collateral can potentially serve as a digital safe haven currency during periods of crypto market distress.

Stablecoins are digital currencies that peg their value to an external reference, typically the US dollar (USD). Stablecoins play a key role in digital markets, and their growth could spur innovations in the broader economy.

In the past year, USD-pegged stablecoins circulating on public blockchains have seen explosive growth, with a combined circulating supply of nearly \$130 billion as of September 2021 – a more than 500% increase from one year ago.

As stablecoins gain increasing attention in public discourse, a host of issues have been raised, including the stability of their pegs, consumer protection, know-your-customer and anti-money laundering compliance, and the



scalability and efficiency of settlements<sup>1</sup>. In this note, we focus our discussion on the potential impact of stablecoins on the banking system and credit intermediation<sup>2</sup>.

While a range of stablecoin-related issues may be resolved with appropriate institutional safeguards, regulations, and technical advancements, sustained growth in stablecoins in circulation would ultimately impact the traditional banking system in significant ways that are important to understand.

We first discuss the basics of stablecoins, their current use cases, and their growth potential. Second, we study historical behaviours of stablecoins during past episodes of crypto and broad financial market distress. We find that dollar-pegged stablecoins have exhibited safe asset qualities in that their prices in the secondary market temporarily rise above the peg during times of extreme market distress, incentivizing the issuance of more stablecoins. We also highlight the risk of a 'run' on certain stablecoins that are backed by non-cash-equivalent risky assets.

Finally, we outline possible scenarios for bank reserves, credit intermediation, and central bank balance sheets should stablecoins gain broader traction. Our research suggests the broad adoption of asset-backed stablecoins can potentially be supported within a two-tiered, fractional reserve banking system without a negative impact on credit intermediation.

In such a framework, stablecoin reserves are held as commercial bank deposits, and commercial banks engage in fractional reserve lending and maturity transformation as they normally would with traditional bank deposits<sup>3</sup>.

We also find that the replacement of physical cash (banknotes) with stablecoins could result in more credit intermediation. In contrast, a narrow banking framework, in which stablecoin issuers are required to back their

stablecoins with central bank reserves, minimizes the risk of 'runs' on stablecoins but can potentially reduce credit intermediation.

### **I. The basics of stablecoins**

Stablecoins are digital currencies recorded on distributed ledger technologies (DLTs), usually blockchains, that are pegged to a reference value<sup>4</sup>. The majority of outstanding stablecoins are pegged to the US dollar, but stablecoins can also be pegged to other fiat currencies, baskets of currencies, other cryptocurrencies, or commodities such as gold. Stablecoins serve as a store of value and a medium of exchange on DLTs, which enable stablecoins to be exchanged or integrated with other digital assets.

*... dollar-pegged stablecoins can serve as a safe haven relative to other cryptoassets during times of market distress if they are perceived to be sufficiently collateralized*



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Stablecoins differ from traditional digital records of money, such as bank deposit accounts, in two primary ways. First, stablecoins are cryptographically secured. This allows users to settle transactions near-instantaneously without double-spending or an intermediary that facilitates settlements. On public blockchains, this also allows for 24-hours-a-day/7-days-a-week/365-days-a-year transactions<sup>5</sup>.

Second, stablecoins are typically built on DLT standards that are programmable and allow for the composability of services<sup>6</sup>. In this context, 'composability' means stablecoins can function as self-contained building blocks that interoperate with smart contracts (self-executing programmable contracts) to create payment and other financial services<sup>7</sup>.

These two key features underpin the current use cases of stablecoins and support innovation in both the financial and non-financial sectors.

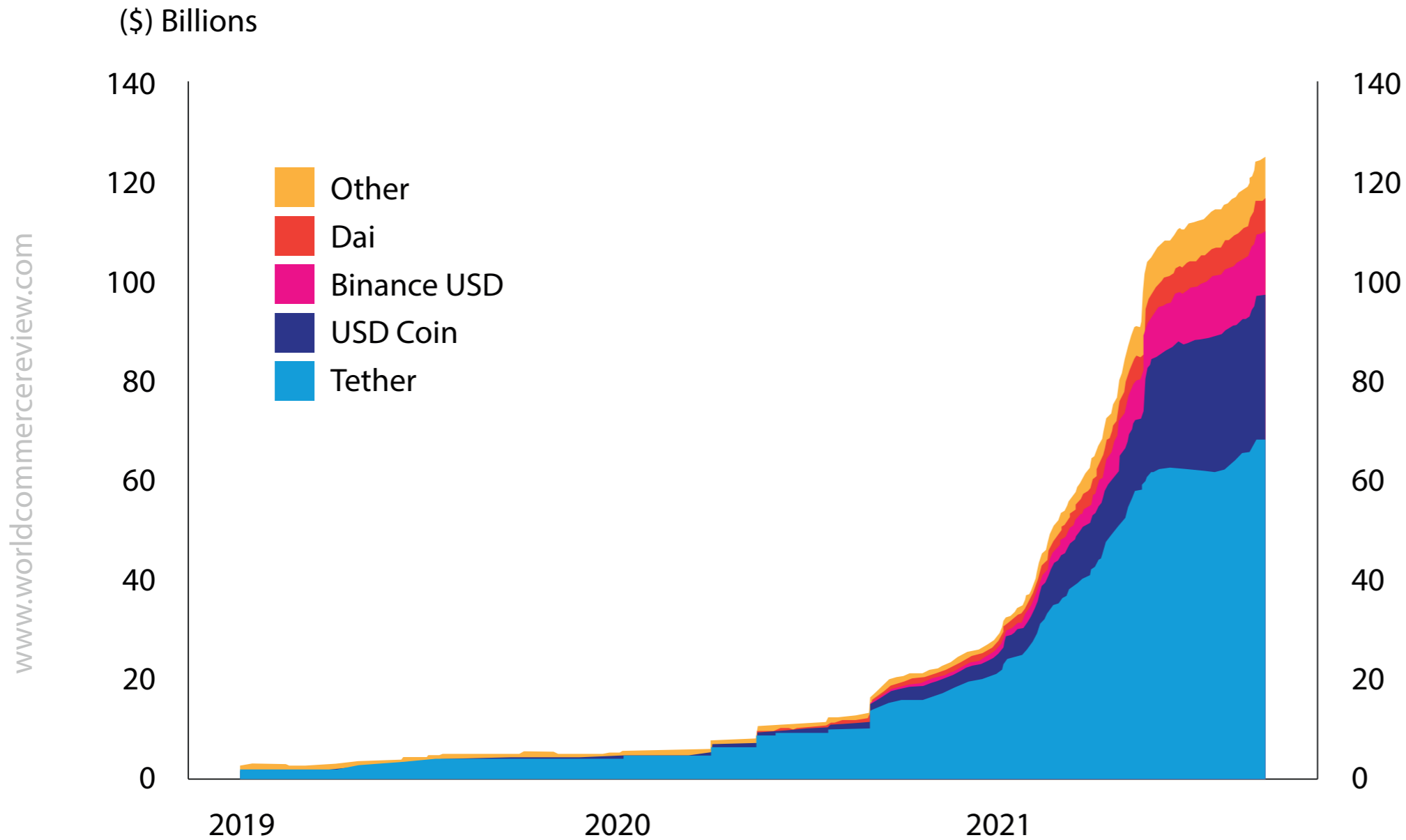
The use of stablecoins recorded on public blockchains such as Ethereum, Binance Smart Chain, or Polygon has surged since 2020. As of the end of September 2021, the circulating supply of the largest USD-pegged public stablecoins was almost \$130 billion. In Figure 1, we show that the growth in the circulating supply of public stablecoins was especially strong in early 2021, averaging around 30% month-on-month for the first five months of the year.

### Current types of stablecoins

The stablecoin is a nascent, broadly defined technology that can potentially take many forms. This technology is currently implemented in specific forms that we describe below and summarize in Table 1. However, note that stablecoin technologies are in their infancy with a high potential for innovation. The current implementations of



**Figure 1. Circulating supply of USD-pegged public stablecoins**



Circulating supply of the ten largest USD-pegged public stablecoins by market capitalization. Data extends from January 2019 through September 2021. Other category consists of Fei, TerraUSD, TrueUSD, Paxos Dollar, Neutrino USD, and HUSD. The legend corresponds to the position of each stablecoin in the figure. Source: Author calculations based on public blockchains.

stablecoins discussed below, as well as their current status in the regulatory landscape, do not reflect all potential deployments of stablecoin technologies.

### *Public reserve-backed stablecoins*

Most existing stablecoins circulate on public blockchains, such as Ethereum, Binance Smart Chain, or Polygon. Of these public stablecoins, most are backed by cash-equivalent reserves such as bank deposits, Treasury bills, and commercial paper.

These reserve-backed stablecoins are also referred to as custodial stablecoins, as they are issued by intermediaries who serve as custodians of cash-equivalent assets and offer 1-for-1 redemption of their stablecoin liabilities for US dollars or other fiat currencies. The full backing and soundness of some public reserve-backed stablecoins have been called into question.

In particular, Tether, the largest stablecoin by circulating supply, agreed to pay \$41 million to settle a dispute with the US Commodity Futures Trading Commission, which alleged that Tether misrepresented the sufficiency of its dollar reserves<sup>8</sup>. Other widely used reserve-backed USD-pegged public stablecoins with varying levels of financial audits include USD Coin, Binance USD, TrueUSD, and Paxos Dollar.

### *Public algorithmic stablecoins*

The remaining fraction of existing public stablecoins use other mechanisms to stabilize their price instead of relying on the soundness of underlying reserves. These stablecoins are often called algorithmic stablecoins. While reserve-backed stablecoins are issued as a liability on the balance sheet of a legally incorporated firm, algorithmic stablecoins are maintained by systems of smart contracts that operate exclusively on a public blockchain.



**Table 1. Current types of stablecoins**

Type	Description	Examples
Public reserve-backed	Backed by cash-equivalent reserves (deposits, T-bills, commercial paper), issued by centralized firms.	Tether, USD Coin (USDC), Binance USD (BUSD), Paxos Dollar (USDP).
Public algorithmic	Backed by overcollateralized cryptocurrency and/or smart contracts that automatically defend the peg by buying or selling the stablecoin.	Dai, TerraUSD, Fei, IRON (failed), Basis (failed).
Institutional or private	Issued by financial and non-financial institutions for internal account transactions, liquidity management, and transactions between user accounts within the same private network.	JPM Coin*

\* Tokenized deposits issued on permissioned blockchain.

The ability to control these smart contracts is often conferred by the possession of a governance token, a specialized token primarily used for voting on changes to protocol or governance parameters. These governance tokens can also potentially serve as direct or indirect claims on future cash flows from the usage of a stablecoin's protocols.

The public algorithmic stablecoin sector is highly innovative and difficult to categorize. However, one can generally think of the design of these stablecoins as based on two mechanisms: (1) the collateralized mechanism and (2) the algorithmic peg mechanism. Collateralized public stablecoins, such as Dai, are minted when a user deposits a volatile cryptocurrency, such as Ethereum, into Dai's smart contract protocols<sup>9</sup>.

The user then receives a loan of Dai (which is pegged to the dollar) against their crypto collateral, at a greater than 100% collateralization ratio. If the value of the Ethereum deposit falls below a certain threshold, the loan is automatically liquidated.

In contrast, the algorithmic peg mechanism uses automated smart contracts to defend the peg by buying and selling the stablecoin against an associated governance token<sup>10</sup>. However, these pegs may experience instability or design flaws that lead to de-pegging, as exemplified by the temporary collapse of Fei, a public algorithmic peg stablecoin that briefly de-pegged after its launch in April 2021.

Additionally, some algorithmic stablecoins use a blend of the collateralized and algorithmic peg mechanisms. For example, the failed IRON public algorithmic stablecoin drew elements from both mechanisms, as its peg was partially backed by USD Coin, a public reserve-backed stablecoin, and TITAN, the governance token for the IRON Finance protocol.



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### *Institutional or private stablecoins*

In addition to reserve-backed stablecoins that circulate on public blockchains, traditional financial institutions have also developed reserve-backed stablecoins, also known as 'tokenized deposits'<sup>11</sup>.

These institutional stablecoins are implemented on permissioned (private) DLTs, and they are used by financial institutions and their clients for efficient wholesale transactions. The most well-known institutional stablecoin is JPM Coin<sup>12</sup>. JPMorgan and its clients can use JPM Coin for transactions such as intraday repo settlements and to manage internal liquidity<sup>13</sup>.

These private, reserved-backed stablecoins are functionally and economically comparable to products offered by some money transmitters. For example, PayPal and Venmo (a PayPal subsidiary) allow users to make near-instant transfers and payments within their network, and balances held at these firms are backed similarly to a reserve-backed stablecoin. The key difference is the use of centralized databases rather than a permissioned DLT.

### *Other potential types of stablecoins*

As noted previously, the stablecoin is an incipient technology, and it is possible to imagine many ways stablecoins could be implemented throughout the global financial system. For example, payments companies could use an internal, permissioned DLT to settle payments efficiently, which would be conceptually equivalent to a stablecoin.

One implementation of this is Visa's B2B Connect system, a DLT-based payment system for wholesale interbank transactions. We may also see exchanges and clearinghouses rely on stablecoins or stablecoin-like products for transacting in tokenized financial markets.



In the following section, we discuss the current use cases that are driving the growth of existing stablecoins, as well as potential innovations that could drive further growth and more diverse implementations in the future.

## II. Use cases and growth potential of stablecoins

Robust use cases are driving the current growth in various forms of stablecoins. We summarize these use cases in Table 2. The most important current use case of stablecoins is their role in transacting in cryptocurrency on public blockchains.

Investors often prefer to use public stablecoins instead of fiat balances to trade cryptocurrency, because this allows for near-instantaneous 24/7/365 trading without relying on non-DLT payment systems or custodial holdings of fiat currency balances<sup>14</sup>.

Besides their use in crypto trading, both public and institutional stablecoins are currently used for their near-instant, 24/7, non-intermediated payments with potentially low fees<sup>15</sup>. This is especially relevant for cross-border transfers, which ordinarily can take multiple days and demand high fees.

Firms are also using institutional stablecoins to near-instantly move cash across their subsidiaries to manage internal liquidity, and to facilitate wholesale transactions in existing financial markets, such as intraday repo transactions.

And finally, because public stablecoins are programmable and composable, they are used heavily in decentralized, public blockchain-based markets and services, known as decentralized finance or DeFi<sup>16</sup>.



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**Table 2. Current stablecoin use cases**

Use case	Details
Digital markets	Stablecoins are used to trade digital assets and serve as an onramp from fiat currency to digital assets recorded on blockchains.
Payments	Stablecoins are used to facilitate fast peer-to-peer and cross-border payments. They also hold the potential for new payment innovations, such as programmable money (see below).
Internal transfers and liquidity management	Institutional stablecoins facilitate transfers of funds within a firm and allow efficient movement of internal cash across subsidiaries to manage liquidity risk and regulatory requirements.
DeFi	The programmability and composability of stablecoins currently supports decentralized, blockchain-based cryptocurrency markets and services, known as decentralized finance or DeFi. Protocols allow for market making, collateralized lending, derivatives, asset management, and other services.

Systems of DeFi protocols allow users to use stablecoins to directly and transparently participate in a variety of cryptocurrency-related markets and services, such as market-making, collateralized lending, derivatives, and asset management, without traditional intermediaries. As of September 2021, about \$60 billion in digital assets were staked (locked) in DeFi protocols<sup>17</sup>.

### Future growth potential

The defining features of stablecoins, their cryptographic security and programmability, support the robust use cases that are currently driving the usage of existing public and institutional stablecoins.

However, these features have the potential to drive innovation beyond current uses cases, which are mostly confined to cryptocurrency markets, certain peer-to-peer payments, and institutional liquidity management by very large banks.

Looking forward, stablecoin technologies may see diverse implementations and drive innovation in several growth areas: more inclusive payment and financial systems, tokenized financial markets, and the facilitation of microtransactions for technological advancements such as Web 3<sup>18</sup>.

### *More inclusive payment and financial systems*

Stablecoins have the potential to spur growth and innovation in payment systems, allowing for faster, cheaper payments. Because stablecoins can be used to transfer funds near-instantaneously peer-to-peer between digital wallets for potentially low fees, stablecoins may lower payment barriers and exert pressure on existing payment systems to provide better services<sup>19</sup>.



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This is especially important for cross-border transfers, which can take several days to clear and carry high fees. These fees and delays are a burden on low and middle-income countries, which receive financial support from remittances<sup>20</sup>.

Stablecoins may also support a more inclusive financial system through the growth of DeFi, which likely requires stablecoins as a necessary building block. It should be noted that DeFi faces serious challenges, including a complex user experience, a lack of consumer protection, frequent hacking, protocol dysfunctions, and market manipulations.

Additionally, virtually all DeFi protocols only support the trading or lending of cryptocurrencies or non-fungible tokens (NFTs). Should DeFi protocols mature beyond the current state and become integrated with the broader financial market to support real-world economic activities, DeFi could encourage a more inclusive financial system that allows investors to directly participate in markets without intermediation. This growth in DeFi would likely drive growth in the usage of stablecoins.

### *Tokenized financial markets*

Additionally, stablecoins may play a key role in tokenizing financial markets. This would entail converting securities into digital tokens on DLTs and trading and servicing them with stablecoins. For delivery-versus-payment (DvP) transactions, such as security purchases, a tokenized market would allow for real-time settlement at very low costs.

This could increase liquidity, transaction speeds, and transparency while reducing counterparty risk, trading costs, and other barriers to market participation. This might especially benefit certain asset classes, such as real estate, by allowing for fractional ownership of tokenized assets and more transparent price discovery.



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For payment-versus-payment (PvP) transactions, such as a cross-currency swap, tokenization would also allow for near-instantaneous execution instead of the market's current conventional T+2 framework, in which a swap's payments are settled two business days after the swap is struck.

Moreover, for both kinds of transactions, tokenized financial markets would benefit from the programmability of DLTs, which could automate security servicing and regulatory requirements such as required holding periods. If financial markets were to become partially or completely tokenized, this would likely drive further growth in stablecoin usage.

### *Next-generation innovations*

Finally, stablecoins hold the potential to support next-generation innovations. One example of such an innovation is Web 3, a possible move away from centralized web platforms and data centers towards decentralized networks<sup>21</sup>.

Under this paradigm, internet services and social media platforms would shift their revenue from advertisements to microtransactions, facilitated by the advent of efficient, integrated online payment systems. One could imagine, for example, a search engine or video streaming platform supported by near-instant micropayments of stablecoin instead of advertising revenue and the sale of user data. If this shift in web services were to take hold, it would likely drive further growth in stablecoins.

In conclusion, the current usage of stablecoins is primarily driven by cryptocurrency trading, limited peer-to-peer payments, and DeFi. Looking forward, stablecoins may see further growth through their facilitation of more inclusive payments and financial systems, the tokenization of financial markets, and possible next-generation innovations such as Web 3.



### III. Peg stability

The stability of a stablecoin's peg to its reference value is a central issue. It is not the focus of our paper, but we briefly discuss this important issue here<sup>22</sup>.

In this section, we will first outline the sources of peg instability for current public reserve-backed stablecoins and discuss how those sources may be addressed. We will then review how stablecoins could serve as a potential safe asset in digital markets, and provide evidence that current public reserve-backed stablecoins may already serve that role in cryptocurrency markets.

Presently, peg instability for public reserve-backed stablecoins comes in two forms: investor redemption risk from the issuer and secondary market price dislocations. The former relates to the safety and soundness of a stablecoin's reserves.

If stablecoin holders lose confidence in the soundness of a stablecoin's backing, a run dynamic could ensue. A run on a stablecoin poses a risk of spillovers to other asset classes, as stablecoin reserves are sold off or unloaded to meet the redemption demand<sup>23</sup>.

Additionally, a run on a stablecoin could disrupt the markets and services that rely on the stablecoin via interoperable smart contracts, causing further distress.

We think this type of instability is addressable with proper institutional and/or regulatory guardrails such as transparent financial audits and adequate requirements on the liquidity and quality of stablecoin reserves. The concerns surrounding redemption risk and the extent to which they can be addressed have been noted recently in Quarles (2021).

The second form of peg instability for public reserve-backed stablecoins arises from supply and demand imbalances in the secondary market. As these stablecoins are traded on both centralized and decentralized exchanges, they are vulnerable to demand shocks that may temporarily dislocate their peg until the stablecoin issuer adjusts the supply.

In particular, because public stablecoins serve as a store of value on public blockchain-based markets, these stablecoins experience high demand during crypto market distress as investors rush to liquidate their speculative positions into stablecoins.

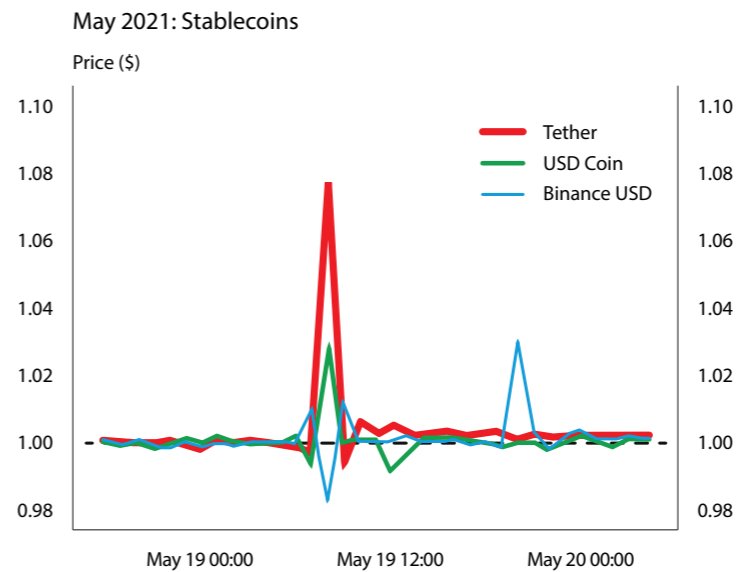
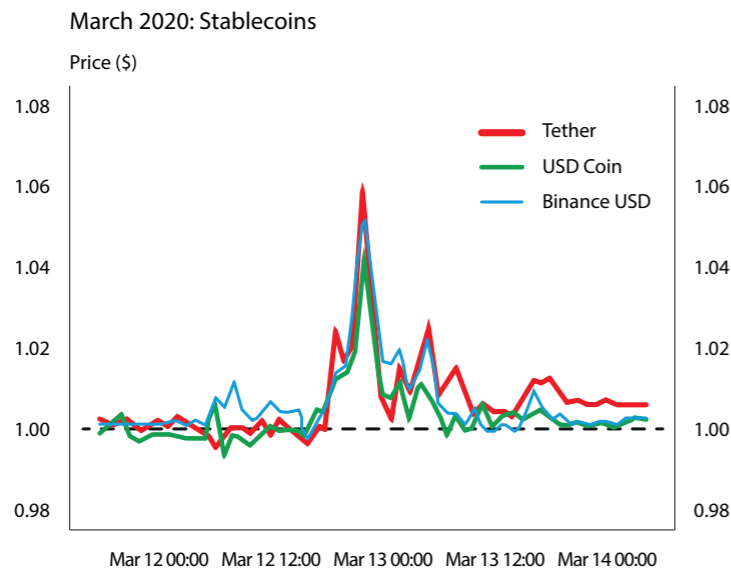
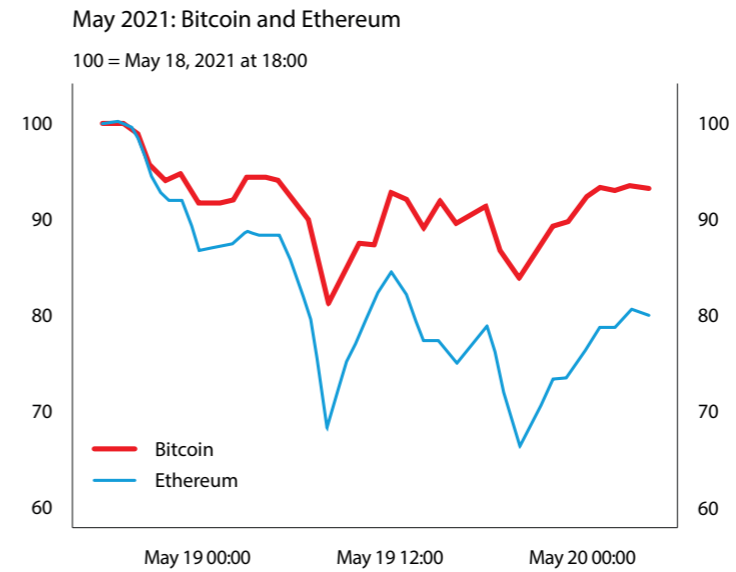
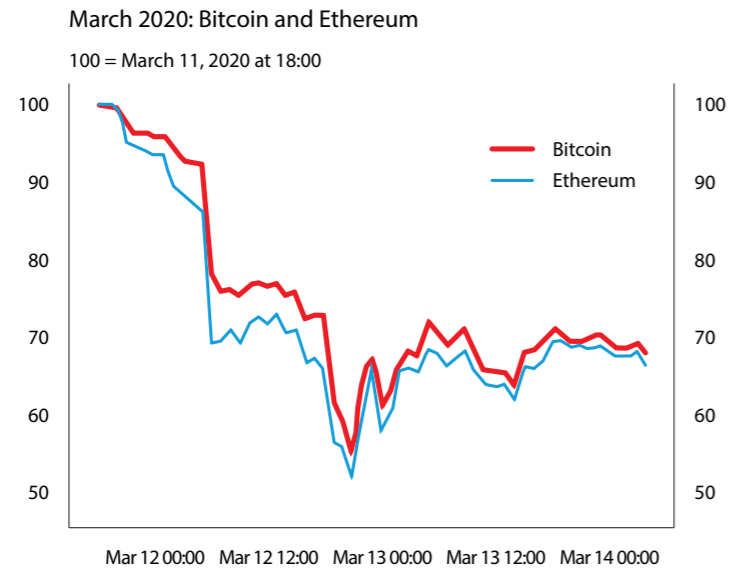
During these episodes, the price of major public reserve-backed stablecoins tends to temporarily appreciate until the issuer adjusts the supply. To provide an example, Figure 2 displays the crypto market crashes on March 12, 2020 and May 19, 2021.

The first episode occurred during a period of general market turmoil surrounding concerns with the spread of COVID-19. The second episode occurred in a crypto market downturn associated with heavy deleveraging.

In both periods, as the price of the speculative cryptocurrencies Bitcoin and Ethereum crashed 30 to 50 percent, the prices of major public reserve-backed stablecoins largely spiked upwards<sup>24</sup>.

For these episodes of extreme crypto market distress, stablecoins served as a digital safe asset, appreciating while more speculative crypto assets were temporarily in freefall, until the stablecoin issuers were able to increase their supply and purchase reserves and/or the stablecoins experienced downward price pressure from arbitrageurs<sup>25</sup>.

## Figure 2. Public stablecoins appreciate during crypto market distress



Note: Hourly prices of stablecoins, Bitcoin and Ethereum. Time is in GMT. Bitcoin and Ethereum prices are in US dollars, indexed to March 11, 2020 and May 18, 2021.  
Source: CryptoCompare API.

The behaviours of these public stablecoins are unique and differentiated from prime money market funds, which experienced large outflows that prompted selling of commercial paper holdings during the height of the 2008 Global Finance Crisis and the 2020 COVID-19 market turmoil<sup>26</sup>.

These episodes demonstrate the potential for stablecoins to serve as a digital safe haven during market distress. While discussions about the financial stability risk from public reserve-backed stablecoins have largely focused on redemption risks that are unique to the form of reserves of individual stablecoins, our analysis suggests that counter-cyclical demand for stablecoins in the secondary market can ameliorate risks of redemption runs during times of broader market downturns.

With appropriate safeguards and regulations, stablecoins have the potential to provide a level of stability that is on par with traditional forms of safe value.

#### **IV. The potential impact of stablecoins on credit intermediation**

If stablecoins were to see broad adoption throughout the financial system, they could have a significant impact on the balance sheets of financial institutions. Regulators, market participants, and academics are particularly focused on the potential for stablecoins to disrupt bank-led credit intermediation<sup>27</sup>.

In this section, we analyze several plausible scenarios in which reserve-backed stablecoins see widespread adoption in the financial system. We focus on reserve-backed stablecoins, rather than algorithmic stablecoins, as reserve-backed stablecoins are currently the largest and the most closely tied to the existing banking system.

Using these scenarios, we highlight how the impact of stablecoin adoption on credit provision depends critically on two factors: the sources of inflow into stablecoins and the composition of a stablecoin's reserves<sup>28</sup>.

We summarize our results in Table 3. We find that in most scenarios we consider, credit provision would likely not be negatively affected. In fact, the replacement of physical currency (banknotes) by stablecoins could potentially allow for more bank-led credit provision.

A notable exception that can lead to sizable credit disintermediation is the scenario in which stablecoins are required to be fully backed by central bank reserves, which we call the narrow bank framework. In this framework, redemption run risk is minimized at the expense of larger credit disintermediation.

### Sources of inflows

If stablecoins were to see widespread adoption, major inflows could come from three sources: physical currency (banknotes), commercial bank deposits, and cash-equivalent securities (or money market funds). These sources of inflows are summarized as rows in Table 3.

First, as a form of digital currency, stablecoins stand to replace some portion of banknotes in circulation, especially as the economy becomes more digital. In some of our scenarios, as users substitute away from physical cash into reserve-backed stablecoins, we see an increase in credit provision.

This is because banknotes, which are a direct liability of the central bank, are replaced by reserve-backed stablecoins, which can be instruments of credit creation via loans or security purchases, depending on the reserve framework.

Second, stablecoins could see inflows from commercial bank deposits should households and firms prefer to hold stablecoins instead of a traditional balance at a commercial bank.



**Table 3. Impact on credit intermediation by stablecoin reserve framework and source of inflow**

	Stablecoin reserve framework		
Source of inflow	<u>Narrow bank</u> : Stablecoin deposits placed in segregated accounts with full reserves held at the central bank	<u>Two-tiered intermediation</u> : Stablecoin deposits held as transactional deposits in commercial banks	<u>Security holdings</u> : Cash-equivalent securities held as reserve collaterals for stablecoins
Cash substitution	<i>Neutral.</i> Physical cash is tokenized and backed with full reserves held at the central bank	<i>Positive.</i> Physical cash is replaced with stablecoins, which are backed by deposit held at commercial banks performing fractional reserve credit intermediation	<i>Positive.</i> Physical cash are used by stablecoin issuers to purchase securities, lowering equilibrium financing cost overall. Security sellers likely deposit proceeds in banking system
Deposit substitution	<i>Negative.</i> As regular commercial bank deposits migrate to segregated stablecoin deposit accounts that hold full reserves at the central bank, the deposit-backed funding for credit intermediation is reduced	<i>Neutral.</i> Deposits from stablecoin issuers replace deposits from households dollar-for-dollar at commercial banks. The effect is neutral if stablecoin deposits are treated the same as retail deposits	<i>Neutral to possibly negative.</i> Commercial bank deposits are converted to stablecoin issuers' security holdings. Security seller deposits proceeds back into banks. Commercial banks partly substitute the lost deposits with other debt liabilities and may contract overall balance sheet
Security substitution	<i>Neutral.</i> The conversion of cash-equivalent securities and money market fund holdings into stablecoins effectively tokenizes the securities. This conversion has minimum impact on the overall deposits held at commercial banks and bank-led credit creation		

This source of inflow is of great interest to policymakers, as there is a common concern that a significant substitution away from deposits could disrupt credit provision by commercial banks. We show that the impact of deposit substitution on credit provision can be positive, negative, or neutral, depending on the reserve framework.

Finally, stablecoins could see inflows from cash-equivalent securities (or equivalently, money market funds). This would likely have no impact on credit provision, as it would entail recycling funds back into the banking system, which we discuss in a later section.

### Composition of reserves

The impact of widespread reserve-backed stablecoin adoption on credit provision also depends on the composition of stablecoin reserves. We present three plausible stablecoin reserve frameworks: narrow bank, two-tiered intermediation, and security holdings. These frameworks are summarized as columns in Table 3.

Under the narrow bank framework, stablecoins would be required to be backed by commercial bank deposits that are fully backed by central bank reserves. Equivalently, it is possible commercial banks could issue stablecoins (or tokenized deposits) that are fully backed by central bank reserves.

The narrow bank approach is roughly equivalent to a form of retail central bank digital currency where the digital currency is a liability of the central bank but accessed by households and firms through an intermediary such as a commercial bank or fintech company.

This framework has been adopted by the People's Bank of China in its state-backed digital currency known as Digital Currency and Electronic Payments, the digital yuan, or e-CNY. The requirement for stablecoins to maintain

reserves at the central bank has also been mentioned as a possibility in the proposed STABLE Act in the United States<sup>29</sup>.

While a narrow bank framework would guarantee the stability of a stablecoin's peg as it is effectively a pass-through central bank digital currency (CBDC), this reserve framework poses the largest risk of credit disintermediation.

Periods of financial stress or panic could lead to large migrations of regular commercial bank deposits into narrow bank stablecoins, which could disrupt credit provision. Though this credit disruption effect could be mitigated by limits on stablecoin holdings and differential reserve interest rates, the overall structure of the narrow bank approach to stablecoin reserves is potentially destabilizing for the banking system.

Additionally, the narrow bank approach could lead to an expansion of the central bank's balance sheet in order to accommodate the demand for reserve balances from stablecoin issuers.

These concerns about narrow bank stablecoins mirror the concerns about narrow banking more generally, which have been noted by the Federal Reserve.

In a recently proposed regulation that would impact narrow banks (officially, pass-through investment entities or PTIEs), the Federal Reserve stated that it was *"concerned that [narrow banks] could disrupt financial intermediation in ways that are hard to anticipate, and could also have a negative effect on financial stability"* (Regulation D: Reserve Requirements of Depository Institutions, 2019).

Additionally, the Federal Reserve outlined serious concerns about the demand for reserve balances, stating, *"The demand for reserve balances by [narrow banks] could become quite large. In order to maintain the desired stance of*

*monetary policy, the Federal Reserve would likely need to accommodate this demand by expanding its balance sheet and the supply of reserves.”*

In contrast to the narrow bank framework, under the two-tiered intermediation framework, stablecoins would be backed by commercial bank deposits that are used for fractional reserve banking. Equivalently, it is possible that commercial banks issue stablecoins or provide tokenized deposits that are used for fractional reserve banking.

To be clear, this does not mean that the stablecoins are not fully backed. Rather, the stablecoin issuers rely on commercial bank deposits as assets, and the commercial banks practice fractional reserve banking with the stablecoins and/or stablecoin deposits, meaning the stablecoins are ultimately backed by a mix of loans, assets, and central bank reserves.

It would effectively relabel some portion of regular deposits as stablecoin deposits. Importantly, for bank intermediation to remain the same, the treatment of stablecoin deposits has to be the same as non-stablecoin deposits in terms of the required reserve ratio, liquidity coverage and other regulatory and self-imposed risk limits<sup>30</sup>.

Finally, stablecoin issuers could hold cash-equivalent securities such as Treasury bills and high-quality commercial paper instead of depositing their funds at commercial banks. These securities could be purchased directly or indirectly through money market funds.

This is the main framework adopted by current issuers of public reserve-backed stablecoins, such as Tether, which Federal Reserve Chair Jerome Powell recently noted are *“like money market funds”* (Oversight of the Treasury Department’s and Federal Reserve’s Pandemic Response, 2021).

## Scenario construction

In our scenarios, we consider the impact if one or several fiat-reserve backed stablecoins were to gain broad adoption within a stylized version of the banking system. The baseline balance sheet of this banking system is displayed in Table 4.

Specifically, we consider a scenario in which households and firms substitute \$10 away from banknotes, commercial bank deposits, or securities, and we then conduct an accounting exercise to determine how the stablecoin's adoption impacts the balance sheets of the central bank, commercial banks, and households and firms.

We analyze how this impact differs depending on the stablecoin's reserve framework and its source of inflows.

**Table 4. Baseline balance sheet**

Central bank		Commercial banks				Households/Firms					
Assets		Liabilities		Assets		Liabilities		Assets		Liabilities	
Securities	18	Reserves	8	Reserves	8	Deposits	80	Deposits	80	Debt & equity	200
		Physical cash	10	Loans & securities	92	Debt & equity	20	Physical cash	20		
								Securities & other	100		



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It is important to note that in constructing these scenarios, we are making several key assumptions. The first is that we are agnostic on the specific form of the stablecoin that is adopted. Our scenarios are not intended to analyze, for example, the specific impact of the widespread adoption of existing stablecoins such as Tether.

We do not distinguish whether the adopted stablecoin is an institutional tokenized deposit, or a stablecoin circulating on a public blockchain, or some other form.

Second, we are only presenting illustrative edge cases that are not exhaustive. In reality, stablecoins can see inflows from multiple sources and hold a variety of assets as reserves.

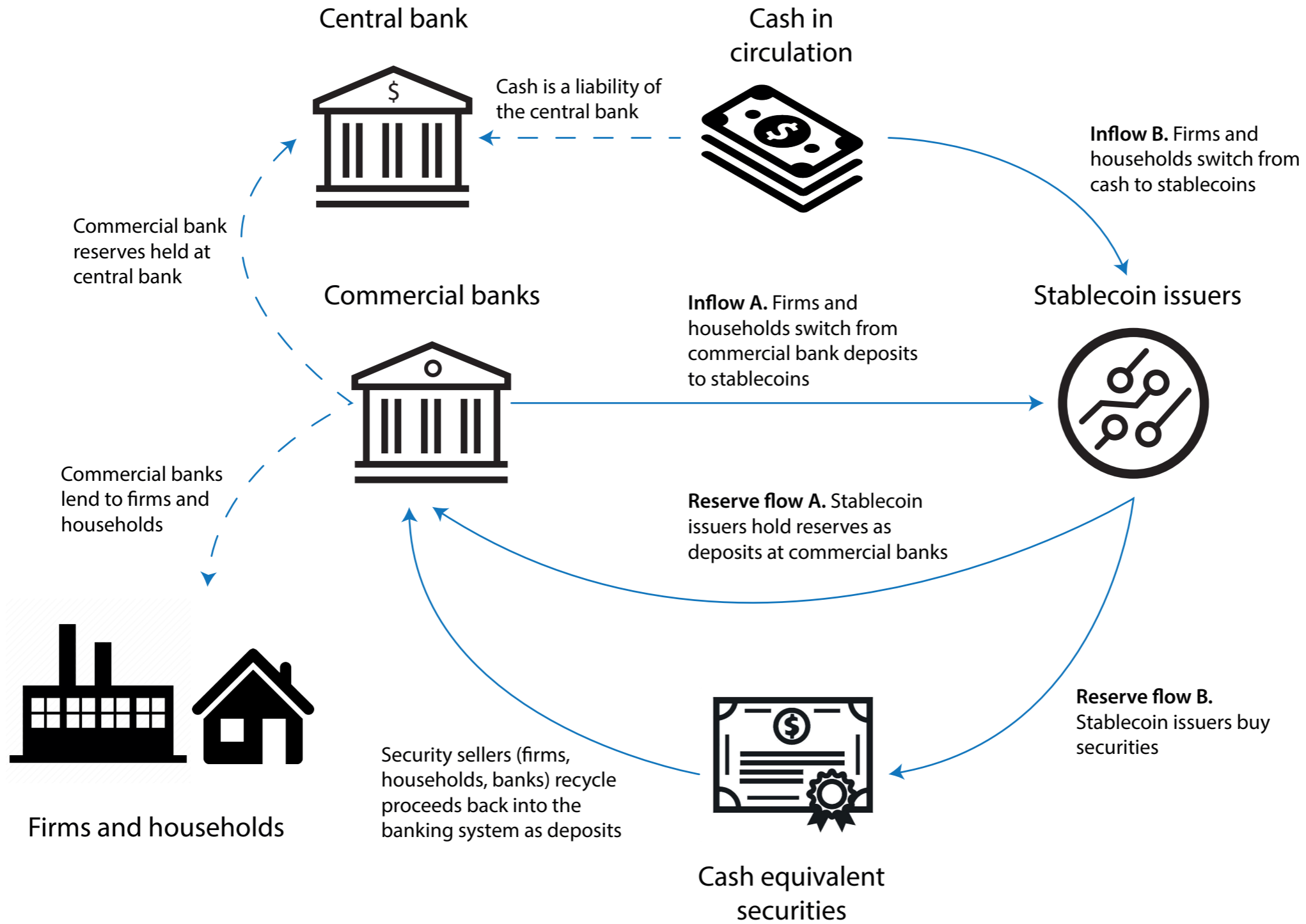
Third, these scenarios do not capture secondary knock-on effects or feedback loops, and they do not address heterogeneous within-sector impacts. Finally, we assume that traditional deposits at commercial banks have a 10% required reserve ratio.

To illustrate the complex flows between the various parts of the banking system that underpin our edge case scenarios, we visualize in Figure 3 a subset of the stablecoin inflows and reserve allocations we have discussed.

Specifically, we use a diagram to show the flows of commercial bank deposits (Inflow A) and banknotes (Inflow B) into stablecoins, as well as the allocation of those funds into reserves in the form of commercial bank deposits (Reserve flow A) and securities (Reserve flow B)<sup>31</sup>.

In Figure 3, we see how stablecoin inflows and reserve flows are interconnected. In the diagram, firms and households substitute away from deposits (Inflow A) and banknotes (Inflow B) into stablecoins.

**Figure 3. Illustration of stablecoin inflows and reserves**



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The stablecoin issuer deposits some of these funds back into the commercial banking system to hold reserves as commercial bank deposits (Reserve flow A), and also uses the funds to purchase securities for reserves (Reserve flow B).

These security purchases also recycle funds back into the banking system, because the sellers of the securities ultimately take the proceeds of the security sales and deposit them back into the banking system.

As illustrated in Figure 3, these flows impact the central bank, which maintains cash and central bank reserves as liabilities, as well as firms and households, which receive loans from commercial banks.

While this diagram does not capture the full set of flows between these entities, it is emblematic of how the widespread adoption of stablecoins could reshuffle complex financial relationships within the banking system.

### Scenario analysis

#### *Narrow bank framework*

As discussed earlier, the narrow bank framework poses the largest risk to credit provision, depending on the source of inflow. In our narrow bank scenarios, depicted in Table 5, we find that physical cash inflows into narrow bank stablecoins would have a neutral effect on credit provision, while commercial bank deposits would disrupt credit provision.

In Panel A, the cash inflows scenario, we see stablecoins replacing cash on the household and firm balance sheet. This influx of cash results in a pass-through increase in the commercial bank balance sheet and the commercial bank's reserves. The central bank's balance sheet is reshuffled, with reserve liabilities replacing cash liabilities.

The net effect is that the commercial bank balance sheet expands, but there is no change in credit provision. This scenario assumes that banks are not balance-sheet size constrained. That is, narrow bank deposits and associated reserve holdings are exempt from leverage ratio calculation. This type of leverage ratio exemption for central bank reserve holdings has been previously applied by regulators in different jurisdictions<sup>32</sup>.

Panel B presents the narrow bank scenario with deposits migrating into stablecoins. As stablecoin deposits are fully reserved on commercial banks' balance sheets, banks must reduce asset holdings to accommodate the decline in non-stablecoin deposit funding.

The central bank balance sheet then expands to accommodate the increased demand for reserve balances without an offsetting decline in cash liabilities.

In this scenario, we assume the central bank will accommodate the increased demand for reserves by purchasing securities. This assumption of central bank accommodation is informed by previous Federal Reserve proposed rulings on narrow banks as discussed above relating to Regulation D: Reserve Requirements of Depository Institutions (2019).

However, should the central bank fix the size of its balance sheet, we present two alternative scenarios in Table A1 in the appendix. In the first alternative scenario, the commercial banks significantly contract their balance sheets to compensate for the lack of deposit funding.

In the second scenario, the commercial banks compensate for the lost deposit funding by issuing debt securities. The result is an even larger reduction in bank-led credit creation<sup>33</sup>.

**Table 5. Changes from baseline for narrow bank stablecoins**

**Panel A: Physical cash inflows**

Central bank		Commercial banks				Households/Firms	
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
	Reserves +10	Reserves +10	Stablecoin deposits +10	Stablecoins +10			
	Physical cash -10				Physical cash -10		
Net	0	+10	+10		0		

**Panel B: Commercial bank deposit inflows**

Central bank		Commercial banks				Households/Firms	
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Securities +9	Reserves +9	Reserves +9	Stablecoin deposits +10	Stablecoins +10	Debt (loans)* -9		
		Loans -9	Retail deposits -10	Deposits -10			
					Securities <sup>†</sup> -9		
Net +9	+9	0	0		-9		-9

\* The households and firms sector could possibly experience credit contraction as commercial banks' loan books are reduced.

† Households would have to sell assets to meet repayment of loan obligations. These asset sales are illustrated as security sales, matching central bank security purchases. Though in reality, household assets could take other forms (eg. real estate) that are securitized as mortgages. A decline in the household sector's securities holdings is similar to a reduction in real assets under this example.



We do not visualize the scenario in which narrow bank stablecoins see large inflows from security holdings. In this scenario, the impact on credit provision would likely be neutral.

Under the same assumption as above in which the central bank accommodates the increased demand for reserves by purchasing securities (from households), the net impact on credit provision should be minimal.

Instead of holding securities directly, a migration to stablecoins would see households owning stablecoins backed by central bank reserves, which are in turn backed by securities. This scenario also makes the assumption that the added narrow bank reserves are exempted from leverage ratios as discussed earlier.

### *Two-tiered intermediation framework*

For the two-tiered intermediation framework, presented in Table 6, we find that large inflows into stablecoins would have a neutral to positive impact on credit provision.

Panel A shows the case in which cash is exchanged for stablecoins. As commercial banks engage in fractional-reserve banking with stablecoin deposits, their balance sheet expands with expansions in credit and security holdings accounting for most of the expansion.

The central bank shrinks its balance sheet on the net, as reserves increase slightly while cash liabilities decrease significantly. Households accumulate more assets, funded by the expansion in bank loans. The effect on credit provision is positive.

Panel B shows the two-tiered intermediation scenario with deposit substitution. The overall balance sheets and asset holdings of commercial banks and the central bank are unchanged.

The only shift is in the composition of commercial bank liabilities, as regular deposits are shifted into stablecoin deposits. As noted earlier, this scenario assumes the treatment of stablecoin deposits is the same as non-stablecoin deposits in terms of the required reserve ratio, liquidity coverage, and other regulatory and self-imposed risk limits.

### *Security holdings framework*

The impact of widespread adoption of security-backed stablecoins, presented in Table 7, is the most difficult to anticipate. Many scenarios are possible.

In Panel A, we present a scenario in which security-backed stablecoins see inflows from commercial bank deposits. We assume the stablecoin issuer is sourcing securities from the commercial banks, not the households and firms sector.

In this scenario, as households exchange deposits for stablecoins, commercial banks make up the lost deposit funding by conducting their own security issuance<sup>34</sup>. Additionally, commercial banks can reduce their security portfolio to accommodate the loss in deposit funding.

The size of banks' loan portfolios can possibly remain unchanged if banks adjust the asset side of the balance sheet primarily by changing security holdings. In this scenario, the central bank balance sheet also shrinks slightly due to loss in banking reserves.

Panel B of Table 7 presents a scenario in which households exchange holdings of cash-equivalent securities for stablecoins. This would lead to effective tokenization of cash-like securities without a direct impact on credit provision by the banking system.

**Table 6. Changes from baseline for two-tiered intermediation stablecoins**

**Panel A: Physical cash inflows**

Central bank		Commercial banks				Households/Firms					
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities						
Securities	-9	Reserves	+1	Reserves	+1	Stablecoin deposits	+10	Stablecoins	+10	Debt (loans)	+9
		Physical cash	-10	Loans	+9			Physical cash	-10		
								Securities & other*	+9		
Net	-9		-9		+10		+10		+9		+9

**Panel B: Commercial bank deposit inflows**

Central bank		Commercial banks				Households/Firms					
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities						
				Stablecoin deposits	+10	Stablecoins	+10				
				Retail deposits	-10	Physical cash	-10				
Net					+10		0				

\* Households/firms use the added bank loan funding to purchase more assets, possibly in the form of securities from the central bank. Alternatively, households/firms can increase real asset holdings (eg. houses and factories).



**Table 7. Changes from baseline for security-backed stablecoins**

**Panel A: Deposit substitution**

Central bank		Commercial banks		Stablecoin issuers		Households/Firms	
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Securities -1	Reserves -1	Reserves -1	Security issuance +5	Securities +10	Stablecoins +10	Stablecoins +10	
		Securities -4	Retail deposits -10			Deposits -10	
Net -1	-1	-5	-5	+10	+10	0	

**Panel B: Household security substitution**

Central bank		Commercial banks		Stablecoin issuers		Households/Firms	
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
				Securities +10	Stablecoins +10	Stablecoins +10	
						Securities -10	
Net				+10	+10	0	

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We also consider an alternate scenario (not shown) in which security-backed stablecoins experience deposit inflows from households and firms sector that simultaneously sells security holdings to the commercial banks. The security seller is the households and firms sector instead of commercial banks as depicted in Table 7 Panel A.

The net impact on credit provision is neutral, as the commercial bank deposit balances held by the households and firms that purchase stablecoins are ultimately recycled back into the banking system by transferring them to other households and firms that sell securities to the stablecoin issuer.

This reshuffling of security holdings is illustrated in Figure 3 by Inflow A and Reserve flow B. The end result is a balance sheet shift that is the same as Table 7 Panel B.

Finally, we do not depict the scenario where security-backed stablecoins see inflows from physical cash. However, this could have a neutral or positive impact on credit creation. If the stablecoin issuers use the banknotes to purchase existing securities, and those banknotes are ultimately not deposited into the banking system, this would have no impact on credit provision as it would constitute a direct exchange of banknotes for securities.

However, if the banknotes from purchases of existing securities are deposited into the banking system, or if the banknotes are used to fund the issuance of new securities, this could increase credit provision by increasing loans and security purchases by commercial banks or by lowering the equilibrium cost of issuing securities. Altogether, the likely impact would be a modest increase in credit provision.

## V. Conclusion

Stablecoins have grown tremendously over the past year as digital assets gain broader adoption and the use cases



of programmable digital currencies are clarified. This rapid ascension has raised concerns that there might be negative impacts on banking activities and the traditional financial system.

In this note, we discuss the current use cases and potential growth of stablecoins, analyze historical episodes of peg instability, and illustrate different scenarios of stablecoins' impact on the banking system. As noted in the introduction, this paper does not consider all the potential impacts of stablecoins on financial stability, monetary policy, consumer protection, and other important unexplored issues. We focus on the balance sheet effects and credit intermediation under a set of plausible assumptions.

We examine reserve-backed stablecoins and find the impact of stablecoins' adoption on traditional banking and credit provision can vary depending on the source of inflow and the composition of stablecoin reserves. Among the various scenarios, a two-tiered banking system can support both stablecoin issuance and maintain traditional forms of credit creation. In contrast, a narrow-bank stablecoin framework can bring the most stability but at the potential cost of credit disintermediation.

Finally, dollar-pegged stablecoins can serve as a safe haven relative to other cryptoassets during times of market distress if they are perceived to be sufficiently collateralized. ■

**Gordon Liao was a Senior Economist, and John Caramichael is a Researcher, at the Board of Governors of the Federal Reserve System**



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## Endnotes

1. Among the various issues associated with stablecoin adoption and regulations, the stability and 'run risk' are of primary concern. See Gorton and Zhang (2021) for a discussion of regulatory safeguards surrounding stablecoins.
2. This paper does not consider all potential impacts of stablecoins on the banking system. For example, several key areas remain unexplored, such as changes to leverage ratios; liquidity coverage and the run rate of different forms of bank deposits; net stable funding ratios; the distribution of deposits and reserves across banks; the challenges of know-your-customer and anti-money laundering policies; and the transmission of monetary policy.
3. This necessarily assumes that stablecoin deposits are treated similarly as transactional deposits for liquidity management, depository insurance, and regulatory purposes.
4. A distributed ledger technology (DLT) is a decentralized database distributed across multiple nodes (devices). DLTs are cryptographically secured and use a consensus mechanism to synchronize the database across their nodes instead of relying on a centralized administrator. A blockchain is a form of DLT where lists of records, or blocks, are chained in sequence.
5. For discussions on DLTs in payments, clearing, and settlements, see Mills et al (2016).
6. Composability is a systems design principle emphasizing interoperability of individual components in forming a more complex system.
7. See Lee et al (2021) for a discussion of "What is programmable money?" and Szabo (1994) for a discussion of smart contracts.
8. See Prentice (2021). Tether has also been investigated by the New York Attorney General's office, and the US Department of Justice is reportedly investigating whether Tether committed bank fraud (Schoenberg, Robinson, & Faux, 2021).
9. In practice, Dai's collateral also includes public reserve-backed stablecoins such as USD Coin. In the future, the protocol may further diversify its collateral to perform liquidity transformation. Recently, a digital currency-focused subsidiary of Societe Generale submitted an application to receive \$20 million in Dai in exchange for a tokenized AAA-rated euro-denominated bond.



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10. This is roughly analagous to how a central bank might defend a currency peg by buying and selling its currency against foreign currency reserves. The key difference is that instead of another cryptocurrency as its 'foreign currency reserves', the algorithmic peg mechanism uses the governance token.
11. While these stablecoins are often described as 'tokenized deposits', they share many similarities. The main difference appears to be the private and closed nature of its network (JPMorgan, 2020).
12. In a recent earnings call, JPMorgan's CFO Jennifer Piepszak stated that JPM Coin is not a stablecoin, but rather a form of 'tokenizing deposits to make payments easier for clients' (4Q20 Financial Results: Earnings Call Transcript, 2021).
13. JPMorgan (2019) provides example usage of JPM Coin. See Correa, Du, and Liao (2020) and Copeland, Duffie, and Yang (2021) for in-depth discussions of internal liquidity constraints and intra-day liquidity needs in the banking sector.
14. Many exchanges do not allow users to convert their crypto holdings into a fiat currency balance, so the use of stablecoins on these exchanges is particularly important.
15. In this context, a non-intermediated transaction does not rely on a centralized intermediary to validate the transaction and prevent double-spending.
16. For an overview of developments in DeFi, see DeFi Beyond the Hype (2021).
17. Source: The Block.
18. Additionally, Wong and Maniff (2020) outline further use cases of a digital currency issued by a central bank.
19. As Governor Christopher Waller recently noted, "One can easily imagine that competition from stablecoins could pressure banks to reduce their markup for payment services" (Waller, 2021).
20. The World Bank estimated that in 2020, low- and middle-income countries received about \$540 billion in remittances, with transaction fees averaging 6.5% – a loss of about \$35 billion in financial support (Ratha, Kim, Plaza, & Seshan, 2021).
21. For a general discussion of Web 3 and the next generation of payments, see Dixon (2018) and Dixon and Haun (2020).
22. For discussion of the stability of stablecoins, see Lyons and Viswanath-Natraj (2020). Additionally, Gorton and Zhang (2021) outlines possible regulations that could mitigate concerns around stablecoin stability.



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23. *As a concrete example, a 'run' on Tether could conceivably force the issuer to sell off its purportedly sizable portfolio of commercial paper, which could cause distress in the short-term funding market.*
24. *One exception is that Binance USD temporarily de-pegged on the downside.*
25. *Griffin and Shams (2020) find an increase in Tether purchases and issuance following large declines in crypto prices through analysis of blockchain data.*
26. *Baba, McCauley, and Ramaswamy (2009); Eren, Schrimpf, Sushko, et al (2020)*
27. *For example, a recent Bank of England discussion paper posited a scenario in which outflows from commercial bank deposits into stablecoins led to higher interest rates (New forms of digital money, 2021).*
28. *Other studies have also analyzed balance sheet impacts from the introduction of digital currencies either issued by the central bank (Central bank digital currencies, 2018) or the private sector (Malloy & Lowe, 2021). Relative to these studies, we analyze a greater set of possible scenarios with more focus on the general equilibrium outcome and emphasis on the impact on credit intermediation.*
29. *STABLE Act of 2020 (HR 8827), for instance, sets forth a requirement for central bank reserve backing of stablecoins, "Any issuer of stablecoins shall deposit reserves with the applicable Federal reserve bank in a segregated account in an amount equal to the nominal redemption value of all outstanding stablecoins issued by the issuer, and such reserves shall serve as collateral for such stablecoins."*
30. *It is conceivable that deposits associated with stablecoin issuance are categorized as either transactional or brokered deposits. The former type has a lower assumed 'run rate' in assessments of liquidity coverage. To achieve full equivalence to retail deposits, stablecoins would also require FDIC insurance.*
31. *In Figure 3, we separate stablecoin issuers from commercial banks, but it is plausible that commercial banks directly issue stablecoins.*
32. *For instance, the Federal Reserve and the European Central Bank both exempted central bank reserves in the calculation of supplementary leverage ratio in 2020 due to the influx of deposits and expansion in bank balance sheets.*



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33. As illustrations, these scenarios might not capture the full spectrum of scenarios and secondary effects stemming from stablecoin growth. For instance, an expansion of the central bank balance sheet requires asset purchases that might spur security issuance by households or commercial banks. This could lead to a lower cost of financing and credit expansion. The central bank could also source the security purchases from the asset holdings of commercial banks leaving the banks' loan portfolios and household debt unchanged.

34. Issuing of debt securities by commercial banks might affect the banks' regulatory metrics such as Net Stable Funding Ratio. We assume here that these effects are second order.

### References

4Q20 financial results: Earnings call transcript. (2021). JPMorgan Chase & Co.

Baba, N, McCauley, RN, & Ramaswamy, S (2009). US dollar money market funds and non-US banks. *BIS Quarterly Review*, March.

Central bank digital currencies. (2018). Bank for International Settlements.

Copeland, AM, Duffie, D, & Yang, YD (2021). Reserves were not so ample after all.

FRB of New York Staff Report(974).

Correa, R, Du, W, & Liao, GY (2020). US banks and global liquidity (Tech. Rep.). National Bureau of Economic Research.

Defi beyond the hype. (2021). Wharton Blockchain and Digital Asset Project and the World Economic Forum.

Dixon, C (2018). *Introducing a16z crypto*. Andreessen Horowitz.

Dixon, C, & Haun, K (2020). *Crypto fund II*. Andreessen Horowitz.

Eren, E, Schrimpf, A, Sushko, V, et al (2020). US dollar funding markets during the covid-19 crisis-the money market fund turmoil. Bank for International Settlements.

Gorton, GB, & Zhang, J (2021). *Taming wildcat stablecoins*. SSRN.

Griffin, JM, & Shams, A (2020). *Is bitcoin really untethered?* *The Journal of Finance*.



**EURO EXIM BANK**

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- JPMorgan (2019). Corporate investment bank. Retrieved from <https://www.jpmorganchase.com/content/dam/jpmc/jpmorgan-chase-and-co/inves>
- JPMorgan (2020). Blockchain, digital currency and cryptocurrency: Moving into the mainstream?
- Lee, A, et al (2021). What is programmable money? FEDS Notes.
- Lyons, RK, & Viswanath-Natraj, G (2020). What keeps stablecoins stable? NBER Working Papers.
- Malloy, M, & Lowe, D (2021). Global stablecoins: Monetary policy implementation considerations from the US perspective. FEDS Working Papers.
- Mills, DC, Wang, K, Malone, B, Ravi, A, Marquardt, J, Badev, AI, Kargenian, V (2016). Distributed ledger technology in payments, clearing, and settlement. FEDS Working Papers.
- New forms of digital money. (2021). Bank of England.
- Oversight of the Treasury Department's and Federal Reserve's Pandemic Response. (2021). House Financial Services Committee, 116<sup>th</sup> Congress.
- Prentice, C (2021). Crypto firms Tether, Bitfinex to pay \$42.5 mln to settle US CFTC charges. Reuters.
- Quarles, R (2021). Parachute pants and central bank money. Speech at the 113<sup>th</sup> Annual Utah Bankers Association Convention, Sun Valley, Idaho.
- Ratha, D, Kim, E, Plaza, S, & Seshan, G (2021). Migration and development brief 34. KNOMAD-World Bank.
- Regulation D: Reserve Requirements of Depository Institutions. (2019). Board of Governors of the Federal Reserve System.
- Schoenberg, T, Robinson, M, & Faux, Z (2021). Tether executives said to face criminal probe into bank fraud. Bloomberg.
- Szabo, N (1994). Smart contracts.
- Waller, CJ (2021). CBDC: A solution in search of a problem? Speech at the American Enterprise Institute.
- Wong, P, & Maniff, J (2020). Comparing means of payment: What role for a central bank digital currency? FEDS Notes.
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**Table A1. Alternate narrow bank scenarios**

**Panel A: Commercial bank balance sheet shrinks**

Central bank		Commercial banks				Households/Firms			
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
		Loans	-45	Stablecoin deposits	+5	Stablecoins	+5	Debt (loans)	-45
				Retail deposits	-50	Deposits	-50		
Net			-45		-45		-45		-45

**Panel B: Commercial banks issue debt securities**

Central bank		Commercial banks				Households/Firms			
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
				Stablecoin deposits	+5	Stablecoins	+5		
				Retail deposits	-50	Deposits	-50		
				Debt securities	+45	Securities	+45		
Net					0		0		



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# Cryptocurrencies and the war in Ukraine



Jon Danielsson argues that the implications for the future of cryptocurrencies will be considerable



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**T**he cryptocurrency exchanges have only done what is legally required of them when sanctioning Russia for its invasion of Ukraine, unlike the mainstream financial institutions whose restrictions on the Russians generally exceeds what is required by law.

The fundamental idea behind cryptocurrencies was the creation of a currency and a financial system that exist outside of the mainstream, motivated by libertarian visions of the world. The crypto advocates often say the mainstream system is corrupt, and the only way to fix it is technology that is pure. A lovely idea in theory, but what about practice?

The financial authorities don't like financial intermediation that bypasses their demands. Standards such as know your customer (KYC) and anti-money laundering become meaningless if the unsavoury elements of the financial world can do their business in crypto exchanges that refuse to comply with what the financial authorities see as legitimate demands and bypass any inconvenient rules (Bindseil *et al* 2022).

For the crypto exchanges, however, reality came knocking. The financial authorities were too powerful, and most crypto exchanges now comply with KYC and anti-money laundering demands.

After all, the alternative is being cut off from the rest of the financial system, which would not be good for business. If one cannot make a round trip from fiat to crypto back to fiat, most clients will allocate money elsewhere. Some rogue exchanges have refused, catering to the diehard libertarians (plus criminals and those subject to sanctions).

The crypto exchanges maintain their independent streak. When Russia invaded Ukraine, the governments in the West imposed sanctions, targeting a small set of individuals intimately connected with the Russian regime (Kwon *et*



al 2022). Many mainstream financial institutions, such as Visa and MasterCard, have gone above and beyond that to further limit Russian access to their firms' services.

Russian names find it very difficult to operate in the West, not usually for legal reasons but because the financial firms servicing them have opted not to do business with them. Whether legal or not, these firms act with the connivance of the financial authorities and the strong support of political leadership and popular opinion.

*Crypto has joined the mainstream. The war in Ukraine exposes the consequences. Exciting times for it*



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Not crypto. The crypto exchange Binance said, *“To unilaterally decide to ban people’s access to their crypto would fly in the face of the reason why crypto exists.”* And its competitor Kraken was more explicit: *“Bitcoin is the embodiment of libertarian values, which strongly favour individualism and human rights.”* It cited the law, saying it *“cannot freeze the accounts of our Russian clients without a legal requirement to do so.”*

How important is crypto to Russia? I suspect the Russian government couldn’t care less what the crypto exchanges do and that its longer-term goal is to prevent crypto use in Russia, as it gets in the way of social control.

Crypto is especially useful in countries where the government is most likely to dislike it, places where governments like to closely monitor and control citizens and/or extract significant rent from the financial system. Most legal restrictions on crypto use come from such countries (Danielsson 2021).

While the Russian government might not like crypto, that does not apply to the regular Russian citizen. On the contrary, they are enthusiastic crypto users, in the top 20 of crypto adoption and third in crypto transfers.

The difference in attitude between the crypto exchanges and mainstream financial institutions raises interesting questions that will continue to reverberate. For example, suppose the consensus is that Russian names should be punished for what the Russian government is doing, for whatever reason. In that case, those Western firms that refuse to do so are put under a difficult political spotlight.

The political attitude of the crypto experiences can only strengthen the hand of crypto opponents. Expect to see increased calls for restrictions on crypto activity in the West, motivated by the Ukraine innovation and the prevalence of bitcoin as ransomware payments.



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The crypto exchanges do not want to engage with these issues and have remained neutral on the Russian sanctions, citing political ideology for only doing what is required by law. The reason is clear. The most vocal crypto advocates are the libertarians who want to keep their money outside the mainstream. The crypto exchanges need to be seen as echoing those views, regardless of what they do in reality. That political mission is key to crypto success.

Compliance with legal and political demands from financial and political authorities, as well those of the public, threatens crypto adoption and the price of cryptocurrencies, raising interesting questions about the future of crypto. The libertarian values, so dear to crypto advocates, are meaningless if the financial authorities can compel the crypto exchanges to comply with their demands.

The crypto exchanges will be in a particularly tricky situation if the Russians are seen to be using cryptocurrencies on a large scale to avoid Western financial sanctions, both legal and political.

The crypto exchanges might be damned if they do and damned if they don't.

Suppose they operate in a jurisdiction that complies with the demands of the mainstream system. In that case, the authorities can force them to cut off today those Russians that the governments put on their sanctions list and then to comply with whatever the authorities choose to demand in the future.

Some crypto exchanges will find a way to operate outside of the long arm of the Western financial authorities. Even then, it will be a struggle for them to maintain access to mainstream financial institutions that can provide fiat settlement.

When the crypto exchanges comply, they join the mainstream, taking cryptocurrencies with them. So, the ideology is flushed down the drain, and one of the main selling points, if not the main selling point, for crypto is gone. So, it would not be good for the price of bitcoin.

If the crypto exchanges do just the bare minimum and issue political statements justifying that, like Binance and Kraken, they are seen as favouring the opponent of the day – today Russia, tomorrow, who knows? That creates opposition, fuels calls for banning crypto and makes regular investors reluctant to invest in crypto. Not good for value either.

Crypto has joined the mainstream. The war in Ukraine exposes the consequences. Exciting times for it. ■

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#### References

Bindseil, U, P Papsdorf and J Schaaf (2022), *"The Bitcoin challenge: How to tame a digital predator"*, VoxEU.org, 7 January.

Danielsson, J (2021), *"What happens if bitcoin succeeds?"*, VoxEU.org, 26 February.

Kwon, O, C Syropoulos and Y Yotov (2022), *"Extraterritorial sanctions: A stick and a carrot"*, VoxEU.org, 4 March.

*Author's note: I received excellent comments from Nikola Tchouparov on this piece. All errors and opinions are mine. This article was originally published on [VoxEU.org](https://voxeu.org)*



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# A lose-lose policy for global recovery



**DEBT**

Joseph Stiglitz and Kevin Gallagher argue that the IMF surcharges worsen potential outcomes for both the borrowing country and its investors



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**T**he IMF has imposed significant surcharges on countries that have had to undertake large borrowings and are unable to pay their debts back quickly. This column argues that these surcharges are pro-cyclical financial penalties imposed on countries precisely at a time when they can least afford them.

They worsen potential outcomes for both the borrowing country and its investors, with gains accruing to the IMF at the expense of both. This transfer of resources to the IMF affects not just the level of poverty, health, education, and overall wellbeing in the country in crisis, but also its potential growth.

The IMF plays a critical role in the global economy as lender of last resort to countries facing dire economic outlooks. When countries opt to seek IMF support, it is typically because they have no other choice. In return, they are forced to surrender some – often considerable – sovereignty over their economic policies.

The theory behind such support is simple: markets are often irrational. Give them time to reflect, combined with some ‘reforms’ within the country, confidence will be restored and a crisis may be averted.

But it hasn’t always played out so well, often because the IMF has imposed counterproductive conditionality that leads to economic contraction, and because the Fund has failed to impose conditionalities restricting private creditors from quickly pulling their money out of the country. Together, these factors undermine confidence, explaining why so many IMF programmes often fail.

More recently though, a new problem has arisen. The IMF has imposed significant surcharges<sup>1</sup> on countries that have had to undertake large borrowings and are unable to pay their debts back quickly. The IMF estimates that borrowing countries will pay over \$4 billion in extra surcharges on top of interest payments and fees from the beginning of the COVID-19 crisis through the end of 2022 (IMF 2020).



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These surcharges, payable in hard currency, are imposed on countries just at the time when they are typically facing a real shortage of such currency. Surcharges are counterproductive, because they are pro-cyclical.

To meet the additional foreign exchange requirements, countries may be forced to take even more contractionary policies, like reducing imports, at enormous costs to society in every dimension, including an increase in poverty. The IMF thus exacerbates the underlying problem.

*"Suspending surcharges would provide some breathing room for affected countries and allow time for a fuller review of the surcharges system with a view to eliminating them completely"*



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As a result of the unprecedented economic impacts of the COVID-19 pandemic, these excessive fines are putting a further squeeze on the most desperate countries precisely when they need to be investing in response and recovery.

Going forward, unless IMF policies change, these surcharges are expected to grow – to the point where they are expected to provide a substantial part of the funding of the IMF’s basic operations. It is ironic that the poorest and most desperate countries should be asked to finance one of the most important global institutions – but one in which their voice carries little weight.

### **A blow to both countries and investors**

The theoretical design of IMF support is to use low interest loans and debt restructuring to achieve debt sustainability and resuscitate growth.

In a recent policy brief (Stiglitz and Gallagher 2021), we illustrate how forcing excessive repayments lowers the productive potential of the borrowing country, but also harms even creditors – a phenomenon with ample evidence in past debt restructurings (Panizza *et al* 2009), often leading to more drastic debt reductions within a few years.

As pro-cyclical financial penalties are imposed on countries when they can least afford them, surcharges are a further blow to outcomes for the borrowing country, its investors, and private creditors, with gains accruing to the IMF at the expense of all.

This transfer of resources to the IMF has especially profound consequences for the borrowing country, as it affects not just the level of poverty, health, education, and overall wellbeing in the country in crisis, but also its potential growth and capacity to regain market access.



Surcharges substantially increase the cost of borrowing from the IMF. For the 14 countries affected by surcharges, these are estimated to increase IMF borrowing costs on average by 64.1% (Munevar 2021), and effectively double borrowing costs for some.

While wealthy countries have been able to spend trillions of dollars in pandemic stimulus to resuscitate their economies, surcharges deter a corresponding response in the countries most in need, fuelling severe divergence in the global recovery<sup>2</sup>.

Middle-income countries (MICs) with lower quotas have been disproportionately affected by these soaring fees at the same time as they are left out of pandemic response initiatives such as the G20's bilateral debt suspension<sup>3</sup> or the IMF's debt relief trust<sup>4</sup>.

According to the Washington-based Center for Economic and Policy Research (Arauz *et al* 2021), Argentina will spend \$3.3 billion on surcharges from 2018 to 2023, equivalent to nine times the amount it would have to spend to fully vaccinate every Argentine against COVID-19. The study also finds surcharges are an estimated 45% of all non-principal debt service owed to the IMF from the five largest borrowers.

Penalising the most distressed countries for basic support from the world's critical financial institution will not help the global economic recovery and it undermines the IMF's mission at a moment of critical need.

### **Are there justifications for these fines?**

The oft-cited rationale for surcharges is to offset the risk of non-repayment, to encourage borrowers to pay back ahead of schedule, and to limit demand for IMF programmes (IMF 2016). However, these arguments are flawed.



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Non-repayment is simply not a common occurrence as a result of the IMF's preferred creditor status and the central role it plays in the international financial system. There is simply no actuarial basis for these surcharges; the amounts imposed are made up out of thin air.

Indeed, additional charges may in fact push the dial *towards* non-repayment by impacting a borrower's debt sustainability and foreclosing any capacity for early repayment. This is especially true of the contemporary crisis, where so many countries have accrued debt burdens beyond levels they would have normally undertaken.

The argument about disincentivising use of IMF facilities is also peculiar. There is no automatic right to access the IMF. If the IMF wanted to limit excessive borrowing, it simply need not respond to a country's request. Besides, few, if any, countries turn to the IMF unless they have to. It is typically a matter of last resort.

The IMF has also claimed<sup>5</sup> surcharges are necessary to support lending to lower-income countries. There is, however, no evidence that IMF's lending capacity is constrained. Even if it were, it makes no moral or economic sense to place this burden on the countries most in need.

On the other hand, the IMF estimates surcharges have become the Fund's largest source of revenue (IMF 2020), projected to continue growing as countries suffer. This is a perverse business model for the IMF to pursue, forcing desperate countries to pay disproportionately more for its operations<sup>6</sup>, with the double blow that they continue to be underrepresented in its governing structure.

Of course, it is important to have a well-resourced IMF that is resilient to the anticipated shocks of a climate-changed planet, but regressive and pro-cyclical surcharges will only exacerbate global inequities.



## What can be done?

A growing chorus is advocating for the immediate suspension of surcharges, including the G24<sup>7</sup>, current and former UN experts and CSOs<sup>8</sup> and most recently, a group of US legislators<sup>9</sup>. Suspending surcharges would provide some breathing room for affected countries and allow time for a fuller review of the surcharges system with a view to eliminating them completely.

Finally, addressing surcharges should lead to broader institutional reform. Regressive surcharges are but one instance in a collection of shortcomings that has been exposed by the international community's response to the pandemic, which includes vaccine apartheid, a failure to develop an effective response to the looming debt crisis, and inadequate financial support to help resuscitate developing country economies.

Some of these deficiencies have been outright foolish policies that left so much of the world unvaccinated and provided enhanced opportunity for mutations from which the entire world has suffered. So too, a strong global economic recovery may be impaired if there is economic and political instability in some parts of the world.

The ultimate pandemic lesson is that we need a more resilient economic architecture. Critical parts of the plumbing are in desperate need of a retrofit. The IMF achieved vital milestones in 2021: an historic allocation of Special Drawing Rights<sup>10</sup>, the foundations of a new Resilience and Sustainability Trust<sup>11</sup> and movement towards a debt and climate initiative<sup>12</sup>. Suspending surcharges is an obvious way to build on this progress in 2022, giving the affected countries and the global economy the best chance to recover better and stronger than before. ■

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## Endnotes

1. *"The IMF's surcharges are unfit for purpose"*, Financial Times, 2 March 2021.
2. *"Two-speed pandemic recovery will worsen inequality, World Bank warns"*, Financial Times, 11 January.
3. *"Debt Service Suspension and COVID-19"*, World Bank.
4. *"Catastrophe Containment and Relief Trust"*, IMF.
5. *IMF Press Briefing*, 11 March 2021.
6. *"IMF Surcharges: A Necessary Tool or Counter-Productive Obstacle to a Just and Green Recovery?"* (event transcript available [here](#)).
7. *"The G24 seeks the IMF to eliminate surcharges on loans due to their 'regressive nature'"*, [www.g24.org](http://www.g24.org), 5 April 2021.
8. *"IMF surcharges punish developing countries"*, Bretton Woods Project, June 2021.
9. *"Lawmakers urge U.S. Treasury's Yellen to back review of IMF surcharges"*, Reuters, 10 January 2022.
10. *"IMF Governors Approve a Historic US\$650 Billion SDR Allocation of Special Drawing Rights"*, IMF Press Release, 2 August 2021.
11. *"Experts React – G20 Calls for a Resilience and Sustainability Trust at the IMF"*, Boston University Global Development Policy Center, 14 October 2021.
12. *"IMF, World Bank to unveil 'green debt swaps' option by November, Georgieva says"*, Reuters, 8 April 2021.

## References

- Arauz, A, M Weisbrot, J Sammut and C Laskaridis (2021), *IMF Surcharges: Counterproductive and Unfair*, Washington, DC: Center for Economic and Policy Research.
- IMF (2016), *"Review of Access Limits and Surcharge Policies"*, IMF Policy Paper, April.
- IMF (2020), *"Review of the Fund's Income Position for FY 2020 and FY 2021-2022"*, IMF Policy Paper 2020/037.
- Munevar, D (2021), *"A guide to IMF surcharges"*, eurodad, 2 December.



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Panizza, U, F Sturzenegger and J Zettelmeyer (2009), *“The Economics and Law of Sovereign Debt and Default”*, *The Journal of Economic Literature* 47(3): 651-698.

Stiglitz, JE and KP Gallagher (2021), *“Understanding the Consequences of IMF Surcharges: The Need for Reform”*, GEGI Policy Brief 017.

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