Andrew Bailey: Are we underestimating changes in financial markets?

Speech by Mr Andrew Bailey, Governor of the Bank of England, at the University of Chicago Booth School of Business, London, 11 February 2025.

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I am going to spend most of the time today setting out the scale and significance of changes in financial market activity in recent years, and what this means for financial stability. My main message is that the significance of these changes has not been fully taken on board in many assessments of the challenges facing financial stability and the tools we need to assess the risks the changes have created. I will also put these issues into some broader context, around the role of central banks and of regulation.

An important theme here is that of moving to a financial system in which the presence and impact of non-banks and market-based finance is much larger. In this context, I will set out the importance of two recent Bank of England innovations which are I think pioneering in the central banking world: these are our System Wide Exploratory Scenario, a new form of stress test tool, and the introduction of our new contingent liquidity facility for some non-banks. There is another important area of focus involving non-bank finance, namely the growth of private credit. That is not my focus today.

Let me start with the broader context. Four points stand out.

First, we have learned from long experience that central banks have two core purposes, monetary and financial stability, and that while policies in respect of each need to be focused and thus separate, they are dependent on one another to a very high degree. Specifically, for much of the existence of central banks, financial stability has not had the prominence or institutional development that has occurred with monetary policy. Even today, it can at times feel as if it is living in the shadow. Some central banks, like the Bank of England, have gone further and operate with an institutional structure that ensures equal ranking across the two core purposes, but that is by no means universal.

Second, central banking is inherently a counter-cyclical activity. It took time for this to become monetary orthodoxy in the nineteenth century, and even more time for it to become explicitly part of the macroprudential approach to financial stability after the experience of the Global Financial Crisis (GFC) over 15 years ago.

Third, central banking policy making has to incorporate a substantial global context. Ultimately, the policies are national ones, but they have to reflect and incorporate global risks and events. This has been the case since at least the 1870s, which saw probably the first globally synchronised financial crisis. Global standards are an anchor for national standards. Set right, they facilitate openness and economic growth.

Fourth, one of the orthodoxies of central banking is that we act as the ultimate providers of liquidity to our banking system. In doing so, we seek to achieve our critical outcomes, namely: implementing the chosen official interest rate as the means to anchor monetary policy and achieve low inflation and price stability; achieving financial stability via the provision of high quality liquidity in the form of so-called central bank money; and third, achieving and preserving the singleness of money, so that all forms of money have an assured equal nominal value (the pound in my bank is worth the same as the pound in your bank, and will remain so).

It has over time become central bank canon law that we transact with banks. In other words, the banking system has a special place, as the conduit for the transmission of central bank policies. This is the central bank equivalent of the old Heineken advert, "Refreshes the Parts Other Beers Cannot Reach". The key point here is the assumption that in all states of the world – non-stressed and stressed – central bank liquidity supplied through the banks would reach those parts of the financial system and economy in need.

Moreover, you don't have to go far back in time, certainly not to the start of my career forty years ago, to find that the Bank of England's interface was with a small number of banks – though admittedly they represented a large share of the system (and in saying that I am deliberately overlooking the role of discount houses – a rather unique British feature). During the operation of these arrangements, there were times when strains in terms of the efficiency of the liquidity flow were evident, but for a long time this system held together.

However, over time the issue of whether financial stability policies which are aimed at the banking system can be relied upon to ensure stability across the whole financial system has come increasingly to the forefront. In this sense, the issue is not new. This year marks forty years since I joined the Bank of England. One of the first things I worked on after joining in 1985 was to have a very small role in a BIS study called Recent Innovations in International Banking, chaired by Sam Cross of the New York Fed. In thinking about my remarks today, I went back to that report – after a long break – and particularly the conclusions it drew on so-called macro-prudential policy, and the role of the non-bank financial system. It's worth drawing out again five points made in the report:

- With the highest quality borrowers increasingly turning to direct credit markets, the average quality of banks' loan assets may gradually decline by comparison;
- In view of its narrower base, the international banking system might become less responsive to sudden liquidity needs or other shocks in the corporate or other borrowing sectors;
- A greater share of credit is likely to flow through capital market channels, which may be characterised by less supervision, but less complete information on which to base credit decisions, and by more distant business relationships between debtor and creditor, perhaps complicating the task of arranging rescheduling or financing packages for those with debt servicing problems;
- Both banks and non-bank financial institutions (NBFIs) are relying more on income from off-balance sheet business; and
- The distinction between banks and other financial institutions is becoming progressively blurred.

Sounds familiar? Bear in mind, this was written 20 years before the GFC. As a spoiler for what's to come, I asked myself the question, what did the report miss that we now know? Two things stand out I think: the growth of leverage in the non-bank sector; and the growth of markets in sovereign tradeable debt – the report was focused much more on corporate debt.

So, what happened after that report was published? The regulatory world focused more on regulating financial stability through regulating the banking system. This was the emerging world of the Basel Agreements. The GFC rocked that world.

Out of that experience came several things: more Basel, in terms of microprudential regulation; mandatory clearing and placing clearing houses at the centre of the system to enhance resilience; a much enhanced focus on global macro financial stability, with the Financial Stability Board to the forefront; and a recognition that there needs to be a more explicit role for macroprudential policy.

What also came out of the GFC and post-GFC policies was a further shift in the balance of financial intermediation from the banking to the non-banking system, with the non-bank sector now making up nearly 50% of global financial assets compared to 40% for the banking sector. And so for the last fifteen years we have increasingly seen the emergence of risks to financial stability originating in the non-bank system.

This is the backdrop to the next section of my remarks today, which seeks to draw out just how much the system has changed in the last few years.

The key theme here is how much activity and risk in core financial markets now largely resides outside the banking system. This is not a new theme, given the post GFC changes, and it was the correct response to the dangers realised in the GFC of inappropriate risk inside the banking system. Our assessment is that the pace and scale of change in this direction continues to gather momentum. The footprint of hedge funds and non-bank market makers has grown substantially in recent years. Alongside this, what I will – without in any sense wishing to be disparaging – call the more traditional asset management industry has refocused towards passive investment strategies. Meanwhile, the role of banks has shifted towards providing risk warehousing and financing to markets and NBFIs. These are fundamental changes in the dynamics of markets.

Three non-bank business models stand out as dominant players in this rapidly evolving landscape.

First, we've seen the rise of multi-manager hedge funds in which individual portfolio managers – or "pods" – trade independently from one another under the banner of a single fund. These funds are large, sophisticated and manage risk centrally to ensure sufficient diversification. Their diversification means that they can benefit from a high degree of leverage from banks. They've also benefitted from an influx of talent from banks. There are benefits of this type of fund structure. It is a world where more and more portfolio managers operate under sophisticated umbrella risk management which can lean against large fund-level concentrations. However, there could be circumstances in which the means by which multi-manager funds protect themselves in this respect can create risks to the system. Specifically, where risk management results in pods de-risking aggressively in a shock, this could result in these funds amplifying market moves.

Second, systematic strategies which trade based on complex statistical models and rules and market signals rather than fundamentals are becoming more popular. These strategies were at one time the preserve of the FX and equity markets but are now becoming more prevalent in the fixed income world enabled by technological innovation. Their presence has increased the speed at which markets react as well as the number of instances of technical-driven corrections that are difficult to explain based on the fundamental outlook. They too obtain a high degree of leverage from banks.

Third, non-bank market makers, notably high frequency and principal trading firms, have grown substantially in scale and scope globally. They previously undertook intra-day market activity but are now moving into carrying risk for longer periods of time. Market liquidity in normal times appears to have improved because of their presence. To illustrate this, throughout the substantial movements in bond yields during recent months we have not seen stress in terms of market functioning. The evidence of whether these entities help or hinder market liquidity in stress is more mixed.

Whilst the growing scale of these non-bank exposures has been absorbed by banks acting as prime brokers so far, such trends, if they continue, could have a profound effect on banks ' balance sheet capacity in the future. As fund leverage increases and risk asset prices rise inexorably over time, there comes a point at which an inevitable strain is placed upon the system. An excess of demand for financing resources over their supply could lead to repricing, tempting existing players to overreach and take on more risk than they should. Conversely, new entrants which are ill equipped to scale up quickly could be exposed to risks that could be highly damaging.

In sum, the market looks very different to what it was only five years ago. It involves large shifts in leverage, pricing power, speed of trading and liquidity provision. To be clear, these changes are not inherently bad, but they could create a new set of financial stability vulnerabilities which we need to understand and monitor and adapt new tools and approaches where appropriate.

Among these potential vulnerabilities, I would highlight a number:

- An increased likelihood and severity of procyclical jumps to illiquidity and large market moves that are unexplained by fundamentals. Multi-manager funds can make individual "pods" deleverage rapidly in stress conditions, which can exaggerate market moves. Smaller funds are more exposed to banks withdrawing financing. Systematic funds can deleverage automatically in response to a change in price signals. And,
  non-bank market makers, while active in normal times may withdraw liquidity in a stress;
- Second, there is a tendency towards increased concentration and interconnectedness given that these large hedge funds and market makers operate across all significant financial markets and represent the bulk of banks' prime brokerage balance sheets;
- Third, there is greater evidence of correlated activity. The funds are generally well capitalised and have longer gating periods than in the past, but both their trading and risk management strategies tend to be quite similar, increasing the prospect

of common responses. While multi-managers are well placed to avoid correlations within each fund, correlation can still emerge across different funds as different multi-managers are often attracted to similar types of strategies; and

- Fourth, opacity and limited visibility in certain markets tends to lead to crowded trades, impairs risk management, and is more likely to prompt a rush to the exit in times of stress. We have seen evidence of this in a number of market events in recent years. An example is the Archegos incident where the limited visibility of the overall position made it hard for any single participant to manage and scale their exposure and in my assessment made the eventual problem when it materialised more of a threat to market stability.

I am going to use the rest of my time to answer the question, what do we do about the risks and vulnerabilities that can arise from this change of market structure? To be clear, the answer is not to seek to stand in the way of change. That's not sensible. There are good reasons why these changes are happening. Many of the trends being seen can support smoother and more efficient market dynamics and pricing in normal times, as well as increased and improved liquidity. They also provide an opportunity to diversify finance and lending to the real economy and if undertaken in a sustainable way then these developments can play a role in supporting growth.

There are good reasons why moving activity out of the banking system has happened. There are areas of risk taking that are not suited to being directly backed by deposits, and thus putting those deposits at risk. That was a lesson of the financial crisis. They are better being directly backed by what I would describe as investment capital. But a key point here is that it needs to be very clear to the providers that the investment capital is at risk, and that this is what goes with the returns. Mostly this understanding is in place, but sometimes it turns out not to be.

But if that takes care of the direct risk, we are still left with a substantial financial stability vulnerability arising from the more indirect risks, those that are less well understood, and can often put the system more broadly into difficulty. This is classic modern financial stability risk. The banking system may not be directly exposed to these risks, but in my experience there is a limited understanding of indirect risks which can arise at times of stress. And we seem to be more reliant on market-making and market liquidity provision from firms which are not so directly wired into the more assured forms of backstop liquidity, including from central banks. Likewise, the transparency of margining practices to increase predictability and thus liquidity management for NBFIs has become a focus of international work.

To be clear, this is not a pitch for the necessity and inevitabilities of more regulation. We are now in a world where attitudes towards regulation have changed, not I should say for the first time in my career. Hyman Minsky wisely pointed out that as memories of crises past recede, so attitudes towards regulation change. To paraphrase the historian Tony Judt, it is wise to avoid the idea that regulation is the best solution to any problem, but let's not fall into the opposite notion that it is by definition and always the worst available
option.[1]

It is important in today's setting that we have a fully informed debate about the role of regulation. That said, I want to emphasise three points. First, there is not a fundamental trade off between growth and financial stability. We must always assess the best choices to make in terms of the tools that we use, but the financial crisis demonstrated that there is no sustainable growth without financial stability. The issue of low potential growth and thus low actual growth that is with us today is not a creation of recent times; rather it goes back to the financial crisis, the serious recession that followed and the long-term loss of output. Second, we must not abandon or compromise our commitment to the surveillance of risks to financial stability – to pointing out the vulnerabilities and their potential consequences – the more so in view of the fundamental changes to the system I have just described. And, third, we must retain the ability to act on these risks, and always ensure that we have the ex-ante tools to deal with potential problems.

Surveillance enables us to be targeted in our regulatory approach, and focus on the most important financial stability risks and have the right tools to deal with the problems we identify.

On surveillance, we have undertaken a path-breaking new exercise at the Bank of England, our System-Wide Exploratory Scenario Exercise, or SWES (because we like acronyms). We conducted it with help from the Financial Conduct Authority and the UK Pensions Regulator. It is more of a flow type stress test than a traditional bank stress test. In other words, we explored injecting stress into the financial system and the consequences of its flowing through the system.

The SWES tested the resilience of markets that are core to the UK's economy by enhancing the understanding of the behaviours under stressed conditions of banks and NBFIs active in those markets. The primary objectives were to:

- enhance understanding of the risks to and from NBFIs, and the behaviour of NBFIs and banks in stress, including what drives those behaviours; and
- investigate how these behaviours and market dynamics can amplify shocks in markets and potentially pose risks to UK financial stability.

This exercise was a first of its kind. It involved more than 50 market participants and covered a wide range of business models. It provided insights into the behaviour of different parts of the financial system under stress, and into the market dynamics and financial stability risks driven by their interactions. The SWES was not a test of the resilience of individual participants, but instead focused on system-wide resilience, with a focus on core UK financial markets.

The findings from the SWES provided insights into how, although rational individually, the behaviours of market participants could combine in ways that pose systemic risks. The exercise highlighted mismatches in firms' expectations of how others would act in a stress scenario. It also improved the understanding of risk management within the financial system and informed work to address vulnerabilities in market-based finance.

The SWES scenario comprised a rapid and significant shock to rates and credit spreads triggering significant losses and margin calls, with margin flowing from NBFIs to banks and central clearing parties (CCPs). The large and rapid market shock generated a significant liquidity need for many NBFIs in the form of margin calls and redemption requests. This liquidity impact combined with leverage and risk constraints, as well as investment strategies and other commercial drivers of behaviour, led to some

NBFIs having to recapitalise and/or deleverage rapidly. Banks had limited appetite to take on additional risk in some core UK markets. Through derisking and deleveraging, the financial system acted to distribute and amplify the impact of the shock and some core UK markets came under pressure.

The SWES has provided us with important insights. In particular, I would highlight:

- **Understanding financial institutions' behaviours and interactions:** The exercise highlighted how the behaviours of different financial institutions can interact to amplify market shocks, for example how calls for additional capital from leveraged entities can result in automatic and correlated sales of securities. This understanding is crucial for developing policies that mitigate systemic risks.
- **Mismatches in expectations of counterparties' actions under stress, and risk management improvements:** The SWES identified mismatches in firms' expectations of each other's actions during stress. For instance, users of cleared derivatives struggled accurately to estimate increases in initial margin due to the lack of transparency in CCP models, and users of repo markets overestimated their access to new repo funding under stress. This insight supports better risk management practices and helps firms prepare for potential market disruptions.
- **Enhanced surveillance and systemic risk assessment capabilities:** The SWES provides a more comprehensive view of the financial system's dynamics under stress, which enhances our surveillance capabilities. This allows for more proactive identification and mitigation of systemic risks and the SWES report makes recommendations for UK markets.
- **Insights into potential cross border spillovers:** For example, we also saw that hedge funds are particularly sensitive to conditions in the US Treasury repo market. A sudden increase in haircuts or contraction in repo availability would have a significant impact on a number of hedge funds. Their response to a shift in repo financing conditions would not necessarily be contained to US Treasuries and could impact upon other markets.
- **Policy development:** The findings from the SWES are informing policy work to address vulnerabilities in market-based finance. This includes enhancing the resilience of core UK financial markets and improving the overall stability of the financial system. In many cases the exercise provides further evidence to support existing policy work and new areas.

The SWES has demonstrated that such a system-wide approach is a valuable way to understand systemic risk in core markets.

We intend to invest in system-wide capabilities building on the SWES lessons learned. There are two main components to this. First, the SWES has allowed us to start to build modelling capability that could support lighter touch versions of SWES-type exercises for core UK markets in the future, supplemented with targeted engagement with financial firms to ensure behavioural assumptions remain appropriate. Second, we will consider whether to use SWES style exercises to explore risks in other markets over time. These exercises are particularly well suited to markets where interconnections and feedback are key, and where key firms are at the edge of the regulatory perimeter, where behavioural assumptions are critical, or where there are significant data gaps.

Moreover, for such an exercise to be most effective and targeted, prudential supervisors need to have a clear view of where risks are building within the system. Supervisors need to employ methods that are designed to identify and assess areas of potential vulnerability, using tools such as thematic reviews of emerging or growing risks, co-ordinated
multi-jurisdictional examinations of key global business lines (with home and host supervisors working together), and other techniques that enable effective peer comparison across banks.

I want to end back on the subject of liquidity provision in times of stress. I set out the canon law of central banking that liquidity goes through the banking system on the basis that the Heineken ad principle will apply in terms of the reach of these central bank lending facilities.

However, what we saw in the so-called Dash for Cash in early 2020 with the onset of Covid, and then the 2022 LDI episode were conditions in markets that demonstrated how vulnerabilities in NBFIs can propagate liquidity stress in core UK financial markets, notably the gilt market, and create a prospect of forced selling of gilts that could jeopardise financial stability.

NBFIs should manage the risks they face, and in some parts of the system it is appropriate that regulations are in place to provide more assurance of this management taking place. This is a key objective of the global Financial Stability Board. That said, it is not feasible or economic for NBFIs to maintain resilience to ensure self-insurance against the most extreme system-wide stresses, where the consequences may be forced selling and wider market disruption and a risk to financial stability. And, if the Heineken ad principle can't always be relied on in view of the changes in markets that I have described, in such circumstances central bank facilities should support financial stability by providing backstop liquidity to NBFIs and thus reduce the need to sell assets on a forced basis.

With this in mind, we have developed the Contingent NBFI Repo Facility, or CNRF, to tackle severe disruption in the gilt market that threatens financial stability due to shocks that increase the demand of NBFIs for liquidity.

The CNRF is a contingent facility to be activated at our discretion in view of the scale of the systemic stress in core markets and the ability of our traditional lending facilities for banks to mitigate that stress. It is not a standing facility. It will lend cash against gilt collateral to participating insurance companies, pension funds and liability-driven investment funds for a short term. The pricing will reflect the principle that it should be at a penalty rate.

This does widen the direct reach of our liquidity provision to eligible NBFIs that demonstrate an appropriate level of financial health. We think this is appropriate in view of changes to the financial system and the risks to financial stability from outside the banking system. But, it does not change a key central banking principle, namely that the standing provision of liquidity to support the so-called singleness of money goes only to the banks.

Both standing facilities and contingent facilities are available to banks because they create money and we need to ensure its singleness both in normal times and in times of severe market dysfunction and financial instability. There is no rationale for standing facilities for non-banks as they do not create money. There is only a rationale for a contingent facility because the evidence suggests that we need to adapt the Heineken principle only when there is a market dysfunction and on a temporary basis. In other words, it modifies and extends the Heineken ad approach, but does not change the principle that the scope and definition of money is limited to the central bank and commercial banks.

In conclusion, my title today posed the question: "Are we underestimating changes in financial markets?" You may have decided by now that my answer to this question is yes. Moreover, the pace of change shows no signs of dropping off. As authorities responsible for ensuring financial stability, both domestically and globally, we have to keep our assessment and understanding up to speed. On this point, I want to thank all those, in the UK and overseas, who work with our teams at the Bank of England to inform our assessment and understanding. We couldn't do this without the time that you give to us.

Our assessment tools need to change, as do our tools of intervention. I have focused on two big changes that we have made.

The first is to introduce more dynamic – flow-style – market stress exercises alongside the more established and more static institutional stress tests. This allows us to stress test markets more efficiently, and, critically, as part of that test the assumptions that market participants make about the reactions and behaviour of each other, and thus of markets as a whole. This process of holding a mirror up is crucial. The second change is the introduction of a contingent liquidity facility for certain non-banks, designed to act as protection against stress in core markets.

Finally, there is a reaction taking place against regulation, and the responses to the GFC. We must not forget the lasting damage done by the GFC. There is no trade off between economic growth and financial stability. That said, there are usually choices about how we deal with evidence of vulnerabilities. It is critical that we have and develop tools of assessment and intervention. But these interventions may not always need to be more regulation. They can be liquidity facilities, and they can be to improve areas of the financial infrastructure, such as introducing clearing for gilt repo, a conclusion of our SWES. We should approach the response to vulnerabilities with an open mind.

Thank you.

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[1] Tony Judt applied this to the role of the state, contrasting the post-War liberal approach with the later neo-liberal approach. His conclusions can be read across to the role of regulators [Tony Judt, "Ill Fares the Land: A Treatise on our Present Discontents" Penguin 2010, P202].