



- **Brief introduction and thanks**: It is a pleasure to be here today at the Boston Fed among my peers to discuss an important matter in today's economic reality: an increasing debt burden and how to mitigate its potential risks for the financial system and the real economy.
- **Perspective of the presentation ('practitioner')**: There are many ways to approach this subject, but I will do so from the perspective of a practitioner within the Netherlands, discussing the tools that we as the Dutch central bank have or do not have available.
- Although this topic has been around for a long time, it is even more pressing today due to the massive financial support provided to households and corporates during the coronavirus crisis.

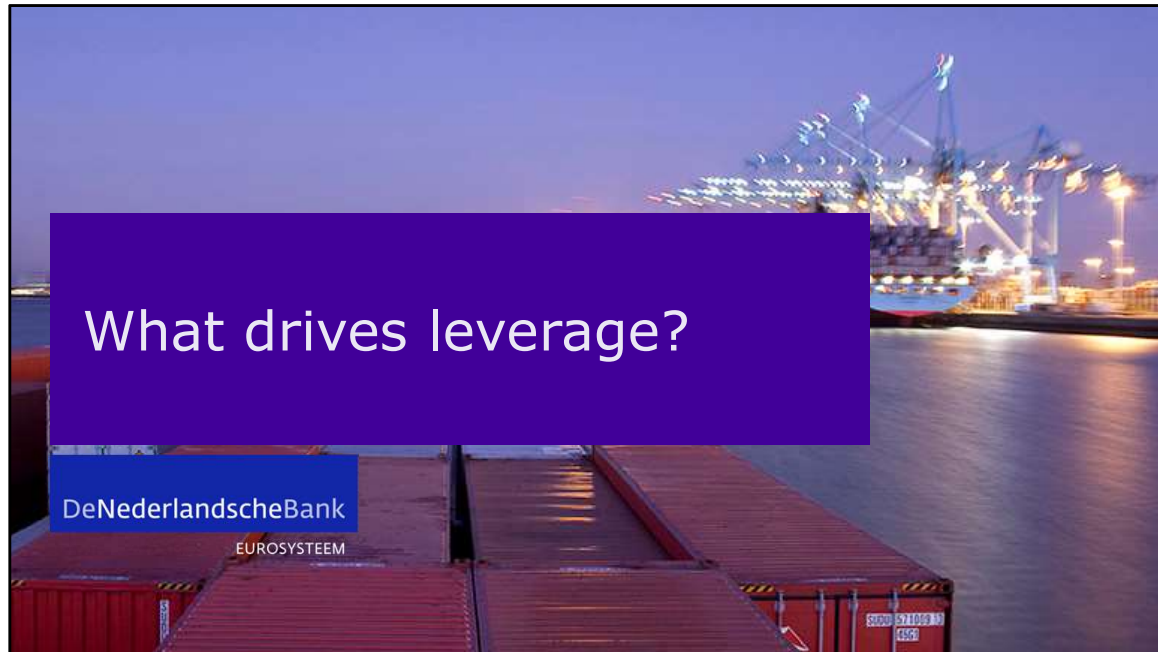
Agenda

1. What drives leverage?

2. What makes leverage a concern?

3. What policies can be used to mitigate the risks of leverage?

- **Structure of the presentation:** I have structured the discussion as follows:
- I will provide a Dutch perspective on leverage and macroprudential policy, going through the incentives that drive corporate and household leverage, its risk, and potential mitigating tools.
- **Focus on private debt, not public:** While a high public debt burden is also an important point of concern for many advanced and emerging economies, public spending has been stable in the Netherlands over time and its recent increase due to Covid-19 has been relatively contained in comparison to other countries (CBS reports that the Netherlands had the lowest increase in public debt in comparison to Italy, France, Belgium, the UK and Germany in 2020- it also has the lowest level), therefore I will focus my presentation on private debt.



- Before we can begin to think of a toolkit of policies to mitigate the risks stemming from corporate and household leverage, we must understand what drives leverage, as well as when it actually becomes an issue.

Leverage is driven by various factors

Corporates (financial)

- Tax shield – leverage can act as a gain (or loss) amplifier
- Easier to raise than external equity (i.e. barriers to equity financing)
- Protection of existing shareholders
- Cheaper than equity

Households

- Interest tax deductibility (promotes home ownership)
- For wealthier households, borrowing will be driven by the expectation of higher future income
- For the typical household, borrowing will be determined by the increase in asset values and the down-payment required by the lender.

- **Touch upon main drivers** – this is a non-exhaustive list – many other factors also play a role, here we are just looking at a few main ones that can then be coupled with potential mitigating policies.

Corporates

- **Capital structure and the tax-shield**

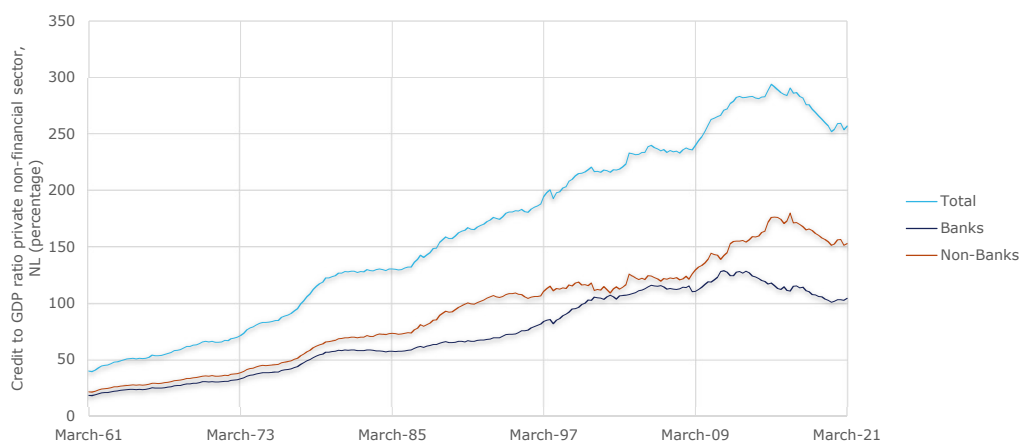
- Choice of capital structure matters: In a perfectly competitive world, the choice of capital structure (i.e. debt vs equity) makes no difference, and therefore there is no optimal leverage ratio. But in this world, full of friction, where bankruptcy is a real possibility, companies have to pay taxes and some agents have more information than others – capital structure makes all the difference.
- The tax shield makes debt more attractive than equity: For companies operating in this environment, debt may be a more attractive choice than equity due to the tax-shield. As such, leverage can act as a gain (and loss) amplifier. My reference to the MM theorems will not be new to any of you, but I believe they are important to take into account when we consider which policies can be useful to mitigate excessive corporate leverage (especially when thinking of fiscal policy).

- **Lower cost:** For corporates, debt is often much cheaper than equity since debt holders have a preferential treatment compared to shareholders (i.e. they get paid first).
- **Other reasons why debt may be preferred:** include the protection of the interests of existing shareholders (i.e. to not dilute ownership, use debt to pay dividends), as well as the ease with which debt can be raised compared to external equity.
- For some (SMEs), debt financing may actually be their only choice.

Households

- **Mortgage interest tax deductibility:** Tax incentives that favor debt over equity, such as the mortgage interest tax deduction play a key role in the financing decisions of households.
- **Wealthier (unconstrained) vs Typical (constrained) Households**
 - For households, increases in borrowing will be driven by different factors depending on whether households are constrained or unconstrained.
 - If households are unconstrained, borrowing will be driven by the expectation of higher future income.
 - On the other hand, if households are constrained, borrowing will be determined by the increase in asset values and the down-payment required by the lender (Emiris and Koulischer, 2021).
- **Role of mandatory pension savings in the Netherlands:** In part, the high levels of borrowing by Dutch households are the flipside of high mandatory pension savings in the Netherlands, where contribution rates of around 20% of gross income are not exceptional.

Debt levels are steadily increasing



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Source: BIS credit statistics

- **Increasing debt levels:** Aggregate debt levels for the private non-financial sector (households and corporates) have been steadily increasing.
- **Role of banks and non-banks:** As you can see in the graph here, in NL, debt financing to corporates and households is provided both by banks and non-banks alike.
- This highlights the importance of thinking of policies to mitigate leverage beyond banking.

Supported by record low borrowing costs...



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Source: MFI Interest Rate Statistics, DNB

- **The current low interest environment has further tipped the balance toward debt**, making it even more attractive and bearable than before.
- **The loose financial conditions have spurred a search for yield for several years, which has been exacerbated by the Covid-19 crisis.** The risk premiums on risky bonds have fallen sharply, and high-yield bond issuance in the Euro area is at an all-time high in 2021. In addition, the issuance of lower-rated corporate bonds is at the highest level since the financial crisis and the issuance of leveraged loans set a new record in Europe in the first half of 2021 (Fitch, 2021).
- **The steady increase in asset prices has further sustained the credit boom.** This also means though that the system is increasingly more reliant on low rates and high asset prices to shoulder its debt burden, and therefore more vulnerable to a potential correction.
- **In contrast to debt, the cost of equity has remained relatively stable** ([ECB, 2018](#)), driven by a persistently elevated equity risk premium (ERP).
- **Link to the Fall 2021 OFS:** This increasing reliance on low rates (and hence the presumption of low inflation) was a special topic in our most recent Financial Stability Report, as well as the potential consequences in the case of a tightening of financial conditions. For example, an unexpected stronger or more sustained rise in inflation could put the value of risky assets under pressure and trigger a

deleveraging cycle. Market sentiment can also worsen in light of tapering and a possible increase in interest rates. We are currently at an inflection point with two possible paths: either high inflation finds its peak and proves to be transitory or inflation stays high for longer. Most indicators still suggest that inflation is transitory, but the possibility of high inflation for longer cannot be ruled out.



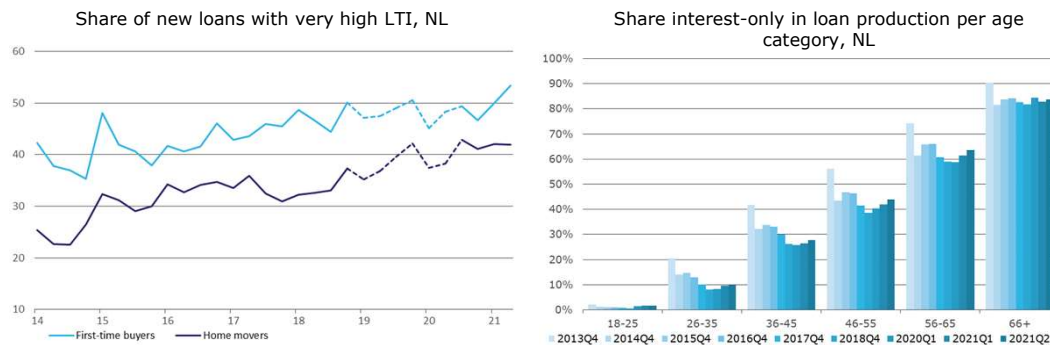
What makes leverage a concern?

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- Now that we have gone through the main drivers and recent trends in leverage, we can dive into what makes leverage a concern for the financial system and the real economy.
- In the next slides, I will go through some of the cyclical and structural vulnerabilities that make leverage a concern within the Netherlands, and dive into when the risk of leverage actually materializes (i.e. when liquidity is not sufficient).

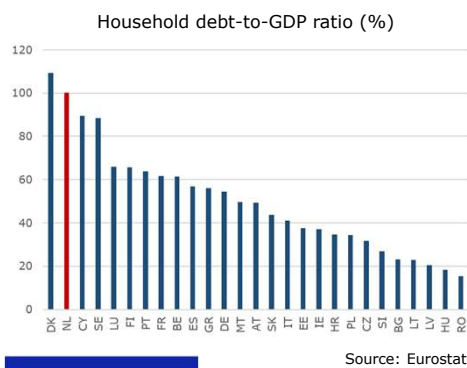
Home-buyers are borrowing more... and more risky



- **Cyclical risks: borrowers are showing more risky behavior.**
 - Loan-to-income ratios of new loans are increasing, and the share of home-buyers with very high LTI-loans is increasing. Currently, half of the first-time buyers is borrowing more than 90% of the maximum amount indicated by the LTI norm.
 - In addition, we see risky behavior such as bidding races and sales prices far above the listing price. In order to win the bidding race, households stretch their borrowing capacity and choose increasingly for (partial) interest-only mortgages again, especially relatively older households (46 to 65 years) that are still entitled to full mortgage interest rate deductibility on their interest only loans if they renew their contract after the fixed interest rate period comes to an end.

And structural vulnerabilities remain high

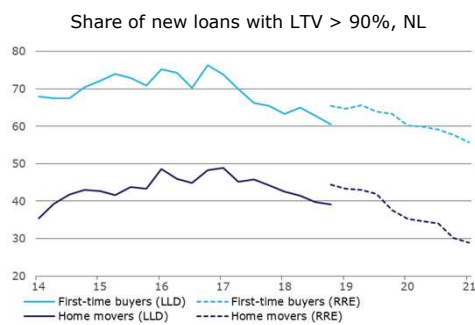
In the Netherlands, household debt is high...



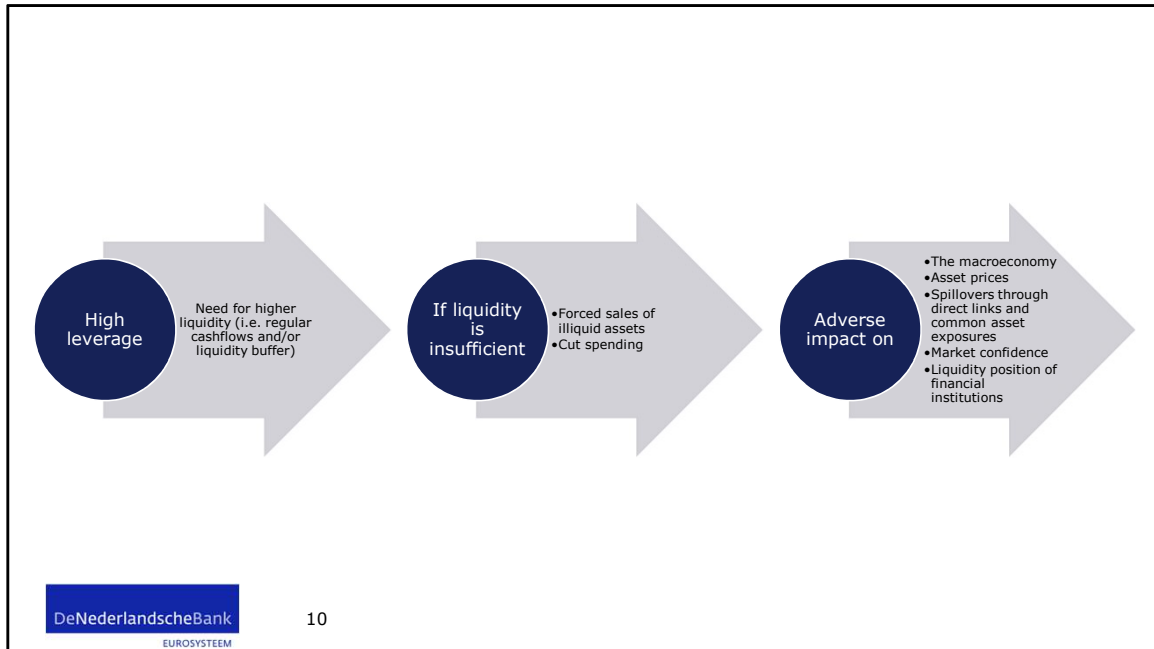
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... and home buyers are highly leveraged



- **The cyclical vulnerabilities come on top of already high structural vulnerabilities**, mainly related to high household indebtedness and high loan to value ratios.
- **Household debt to GDP in the Netherlands is the highest in the Eurozone** : 104.5% of GDP (see graph on the left). In comparison to other countries, high debt levels in NL are primarily driven by a combination of three factors: 1) a very generous fiscal subsidy on mortgage interest payments, 2) high initial LTV-ratios and 3) a large share of non-amortizing loans.
- **LTV ratios of new loans remain very high, although they have gradually decreased over the past years** (see graph on the right). More than half of first-time buyers take out mortgage loans with an LTV ratio of 90% or more, and a third borrows the full purchase price of the house.
- **As a result of the high indebtedness, households are more vulnerable in case of a housing market shock.** This is what we observed after the 2008 financial crisis, when house prices fell by more than 20%. Many households were in a situation of negative equity, and reacted by increasing their savings. The negative impact on expenditure amplified and prolonged the economic downturn.
- **Debt sustainability issues could resurface if market sentiment shifts and risk premia were to increase.**



- **Leverage results in a higher (short-term) liquidity need from borrowers in order to make their payments on time** (the higher the leverage, the higher the need and the shorter the maturity, the better timed it must be).
- **This increased liquidity need requires either regular cashflows** (in terms of income) **or** for the company/household to keep a **sufficiently large liquidity buffer** to make payments if income is insufficient. Neither one of these two liquidity sources is a 100% certain (i.e. income can be lost, and the liquidity of assets can be overestimated due to a liquidity illusion or simply be insufficient).
- **If available liquidity is insufficient, companies and households must do something to find it (i.e. either sell [illiquid] assets or cut spending).**
- **This is where a problem arises.**
 - Selling of assets can lead to fire sales if they are illiquid and adversely impact asset prices
 - Cutting spending can adversely impact the macroeconomy
- If households/corporates fail to make payments on time, the lender will be forced to bear the loss.
- **Credit losses can reduce lenders' equity and thus their ability to lend to the real economy,** hampering economic growth.
- **Market confidence may weaken,** making it more difficult for lenders to raise





funding and obtain new capital.

- **Forced asset sales to mitigate losses may drive down the price for these assets,** affecting other institutions with common exposures.
- **Liquidity of financial institutions may worsen** due to the asset price impact, lack of funding, and potential redemptions.
- **A cycle of fire sales and deleveraging can occur** (as was the case during the GFC).



- Having gone through the main drivers of leverage, recent trends, and the risks that it can pose to the financial system and the real economy, it is now time to dive into what we can actually do about it.
- I will focus here on what tools we have/do not have available within the Dutch central bank.

	Banks	Non-banks	Households/ corporates
credit growth	<ul style="list-style-type: none"> • CCyB • Leverage ratio 	<ul style="list-style-type: none"> • Leverage ratio (AIFMD) 	<ul style="list-style-type: none"> • Tax regime
public / private debt	<ul style="list-style-type: none"> • Sectoral risk-weights • Sovereign risk-weights/ concentration limits 	-	-
real estate markets	<ul style="list-style-type: none"> • Discretionary measures • Sectoral risk weights 	-	<ul style="list-style-type: none"> • LTV/LTI/DSTI • Supply measures • Subsidies / tax regime
liquidity risk	<ul style="list-style-type: none"> • LCR and NSFR (only micro) • Stricter national measures 	<ul style="list-style-type: none"> • Liquidity risk management rules • Suspension of redemptions (AIFMD/UCITS) 	-
systemic relevance / concentration	<ul style="list-style-type: none"> • O-SII/G-SII-buffer • SRB 	<ul style="list-style-type: none"> • SII-framework 	-

 available
  limited effective
  not available
  non-existent

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- **Mitigating the risk of leverage is challenging:** The wide array of incentives that drive financing decisions, as well as the many possible channels through which contagion can occur make coming up with a policy solution for leverage a challenge.
- **There is no one-size-fits all approach** – instead, a broad policy agenda is warranted with borrower based, (macro) prudential, monetary and fiscal tools working hand in hand.
- **We need to be realistic in our expectations on what macroprudential policies can deliver under the current circumstances to safeguard financial stability.** The macroprudential toolkit is limited in scope and impact to mitigate systemic risks.
- **Details on the table:** The table in this slide provides for a mapping of our current macroprudential toolbox, based on EU/Dutch legislation. The green boxes indicate the instruments that most central banks have at their disposal. The light purple colored boxes are measures that can be applied by macroprudential authorities, but whose effectiveness in mitigating systemic risks is generally perceived to be limited. The red boxes indicate instruments that could be applied, but are currently not within the remit of most central banks. Finally, there are several white boxes which indicate that no specific instrument is available.
- **What can we conclude from the table?**

- **(Macro) prudential measures such as capital requirements increase the resilience of financial institutions directly, but only limit the level of leverage at an individual level indirectly** (i.e. the assumption here is that higher own funds requirements will force lenders to internalize more of the potential social costs of credit defaults or charge a higher rate due to the higher cost of capital). In the next slide, I will elaborate on some recent measures that we have introduced in the Netherlands.
- **An important limitation is that macroprudential tools only work through the entities to which they are applied.** Enhancing the macroprudential toolkit for non-banks is therefore key, including both activity and entity-based regulation. DNB is currently operationalizing the AIFMD leverage monitoring. DNB can decide to impose a leverage limit if excessive use of leverage by funds is deemed to contribute to the build-up of systemic risk in the financial system.
- **While micro-prudential liquidity tools are readily available at a micro level for banks and (some) non-banks, preventive macroprudential liquidity tools to mitigate systemic liquidity risk are either lacking or cumbersome to operationalize in a situation where immediate action is required. Most importantly, no liquidity measures exist to increase the liquidity risk bearing capacity of households and corporates.** For banks, it is possible to implement a macroprudential measure through Article 458 CRR but the long and formal process needed for its activation does not fit the short-term cyclical nature of systemic liquidity risk. For non-banks, no preventive measures are available at a macro-level. Ex-post measures, in the form of suspension of redemptions are available for funds, but this only allows regulators to step in once liquidity risk has already materialized.
- **Borrower based tools (LTVs, DSTIs, LTIs) are the first line of defense against excessive leverage since they limit the leverage of individual borrowers directly but these tools do not fall within the remit of the central bank.**
- **Favorable tax treatments, which are one of the main drivers behind debt financing are also outside of the remit of central banks.** As we already discussed before, one of the primary incentives to choose debt over equity is its tax advantage. Eliminating this advantage gradually would level the playing field between both types of financing and limit excessive leverage, as well as procyclicality.
- **On monetary policy:** You will notice that monetary policy is not within this table – that’s because ‘it falls within the cracks’ – but its role is still important to mention. As we already discussed, a main incentive to pile on debt is its low cost compared to equity, largely facilitated by the current accommodative monetary policy stance.
- **I would like to conclude this slide by highlighting the importance of not**

**considering policies in isolation, but instead, considering a broad policy agenda
(i.e. macroprudential policy is helpful but it is not omnipotent).**

Recent measures in the Netherlands

1. Increasing risk weights for mortgages

- ❖ Motivation: risk weights do not currently reflect the level of systemic risk in the housing market.
- ❖ Main goal: improve the resilience of banks against a significant drop in house prices.

2. Introducing a new CCyB framework

- ❖ Motivation: there is limited room to release capital in response to cyclical shocks.
- ❖ Main goal: facilitate a more active use of the buffer to respond to cyclical risks.

- Having provided an overview of possible mitigating measures to mitigate the degree of leverage, I would now like wrap up the presentation by giving a brief update on two macroprudential measures that we are currently operationalizing in the Netherlands:

1. Increasing risk weights for mortgages:

- **Risk weights do not reflect systemic risk:** In light of the cyclical and structural risks within the housing market that we discussed earlier today, DNB concluded that the risk weights which banks currently assign to their mortgage loans do not reflect the increased systemic risk inherent in the housing market.
- **Therefore, DNB announced its intention to impose a floor on the risk weights of mortgage loan portfolios**, to improve the resilience of banks against a significant drop in house prices.
- The floor is risk sensitive: it increases with the LTV ratios of the underlying loans. The floor will be higher for banks with more high-LTV loans. By designing the measure in this way, we price the externality related to high-LTV loans, and limit the incentive to shift to riskier lending, which is an important drawback of a fixed floor.
- **The COVID-19 crisis influenced our decision-making:**

- In Spring 2020, DNB announced to postpone the introduction of this measure, which released banks from the requirement to hold an additional EUR 3 billion in capital for the mortgage portfolio.
- This spring, however, we found that the housing market seems relatively untouched by COVID effects, while systemic risks continue to increase, as showed in the previous slides.
- Therefore, DNB announced in its financial stability review that we will no longer postpone the introduction of the minimum floor and will introduce the measure from January 1st 2022.

2. DNB is in the process of introducing a new CCyB framework that will facilitate a more active use of the buffer:

- Partially as a result of limited credit growth, few authorities built up a CCyB before the Covid Crisis. This limited the room to release capital in response to (cyclical) shocks.
- Hence, when confronted with the Covid-crisis, DNB decided to reduce its Systemic Risk Buffer for the three largest banks, and to eventually replace this with a CCyB in a neutral environment.
- With this CCyB, it would be possible to respond more actively to cyclical risk.
- As we intend to use the CCyB more actively, we also require a more detailed framework to measure cyclical risk, that we have split into four phases: recovery, normal, heightened risk and materializing risk.
- One key take-away is to not focus narrowly on credit growth when determining these phases, but to also use a wide set of economic and financial indicators for monitoring.