



Navigating a Limited Landscape

2023 Banking Outlook

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Executive summary

1

Gloomy economic conditions would likely put a strain on credit growth, which is projected to grow between 9 - 10% YoY in 2023. The growth of third-party funds is also expected to align with credit, with a likelihood of it growing slightly faster due to a high rates. Nevertheless, there are actions taken by the central bank and the government to help support banks' credit growth and liquidity.

2

The continued recovery of the banking sector throughout 2021 and 2022 could help them handle the upcoming economic challenges. Bank's profitability has improved along with its capital buffer, in line with better earnings. However, the performance gap between large and small-mid banks appears to be growing due to the pandemic.

3

Certain sectors, which have relatively low levels of leverage and are showing improvements in NPL levels, still show potential for credit growth in 2023. The end of the government's original restructuring plan in March 2023 will cause NPL to rise in all sectors, except for SMEs and companies in the textile, footwear, accommodation, and food and beverage industries, which received a one-year extension. Due to the more tertiary nature of owning homes and vehicles, demand for mortgages and automotive loans would also likely be more limited in a high interest rate environment.

4

A downturn in the global liquidity cycle would likely pose challenges to the progress of new financial services products, such as CBDCs and BNPL. This slowdown could be a silver lining for traditional banks, as it provides them with an additional time buffer to adjust to evolving trends. At the same time, recent exponential advancements in AI could pose both direct and indirect threat that banks need to assess immediately.

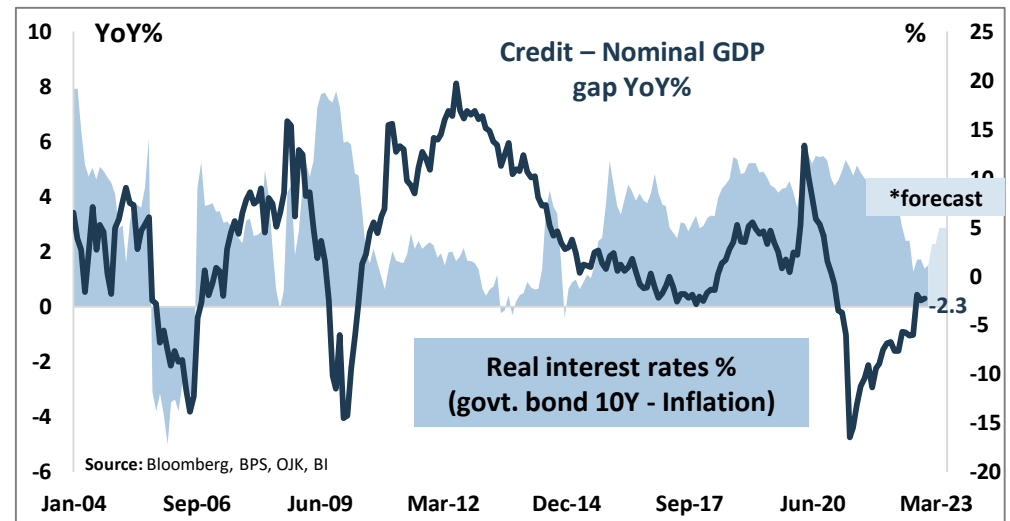
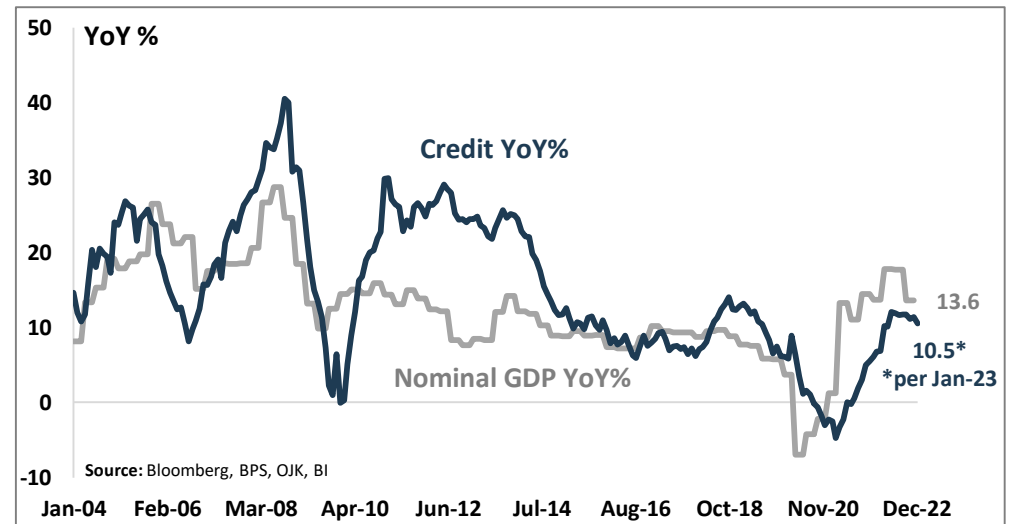
Part 1: A Bumpy Road

The global slowdown will likely have a moderate impact on Indonesia, with the growth of credit and third-party funds predicted to only reach 9 – 10%. Nevertheless, regulations by the gov't and central bank can help support banks' credit growth and liquidity.

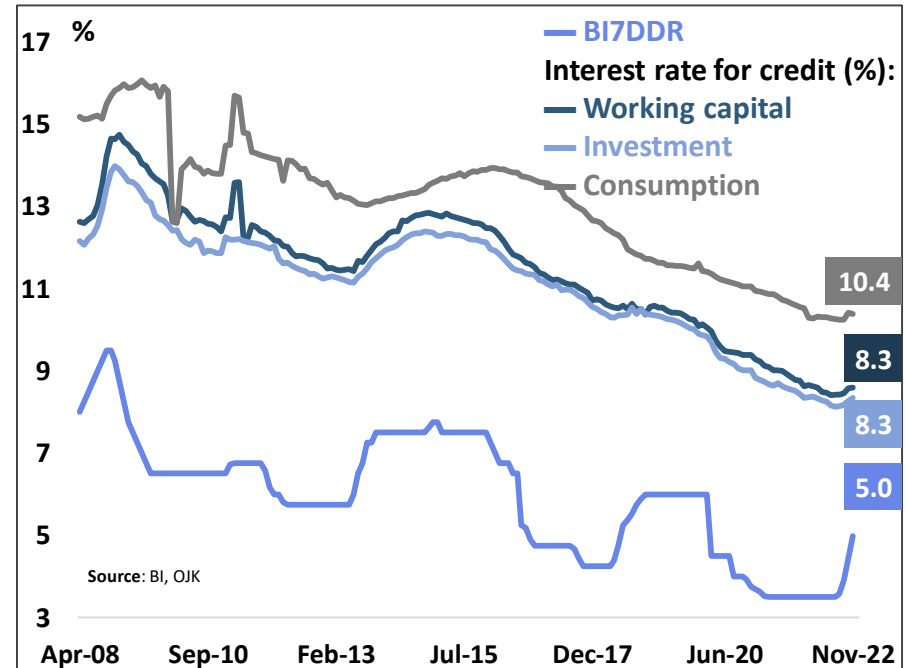
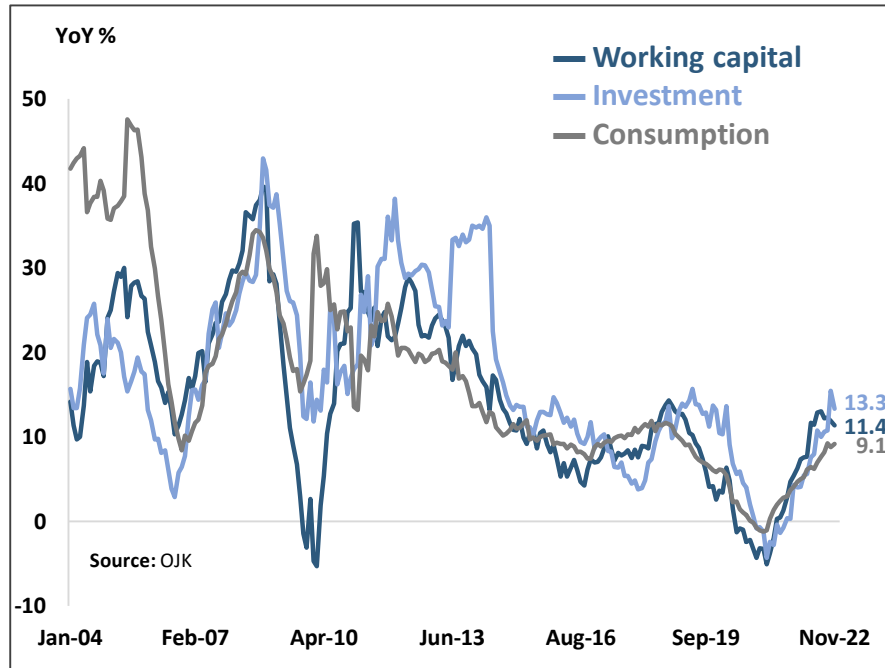


Higher rates and slowing GDP are expected to put a strain on credit growth...

- One and a half month into the new year, the global economic landscape remains uncertain due to the challenges posed by high inflation, high interest rates, and uncertain geopolitical conditions. We anticipate that global growth downturn will have a moderate effect on Indonesia, leading to a slower nominal GDP growth, which is projected to be between 8 - 10% YoY in 2023, compared to the 17.7% YoY growth recorded in Q3-2020.
- All industries, including banking, are facing potential negative impact. Another factor to add is expected real interest rates, which can go higher due to a gradual decline in inflation while BI keeps the policy rate (BI-7DRR) at a high terminal rate. Historically, high expected real rates are correlated with low excess loan growth (i.e. loan growth above nominal GDP) or deleveraging on a debt-to-income basis. With slower aggregate demand, credit growth may only reach 9 – 10% YoY in 2023, which is roughly in alignment with the predicted growth rate of nominal GDP.



... but the transmission of BI's interest rate hike on loan rates will not happen overnight



- However, the impact of a rise in the policy rate typically takes 3 - 4 months to be reflected in banks' interest rates, and 6 - 7 additional months for those changes to affect credit demand. Moreover, while some sectors are indeed becoming more cautious amid global uncertainty (plus, domestically, the uncertainty ahead of 2024 Elections), there are some sectors that had benefited massively in 2021-22 – most notably commodities – and have therefore accumulated a sizable liquidity buffer.
- These sectors could potentially contribute to loan growth by expanding their business lines away from areas that are currently facing uncertainty (e.g. coal) into those that could grow faster (e.g. renewable energy). Meanwhile, BI's macroprudential policies also continue to support demand for consumer and SME loans.

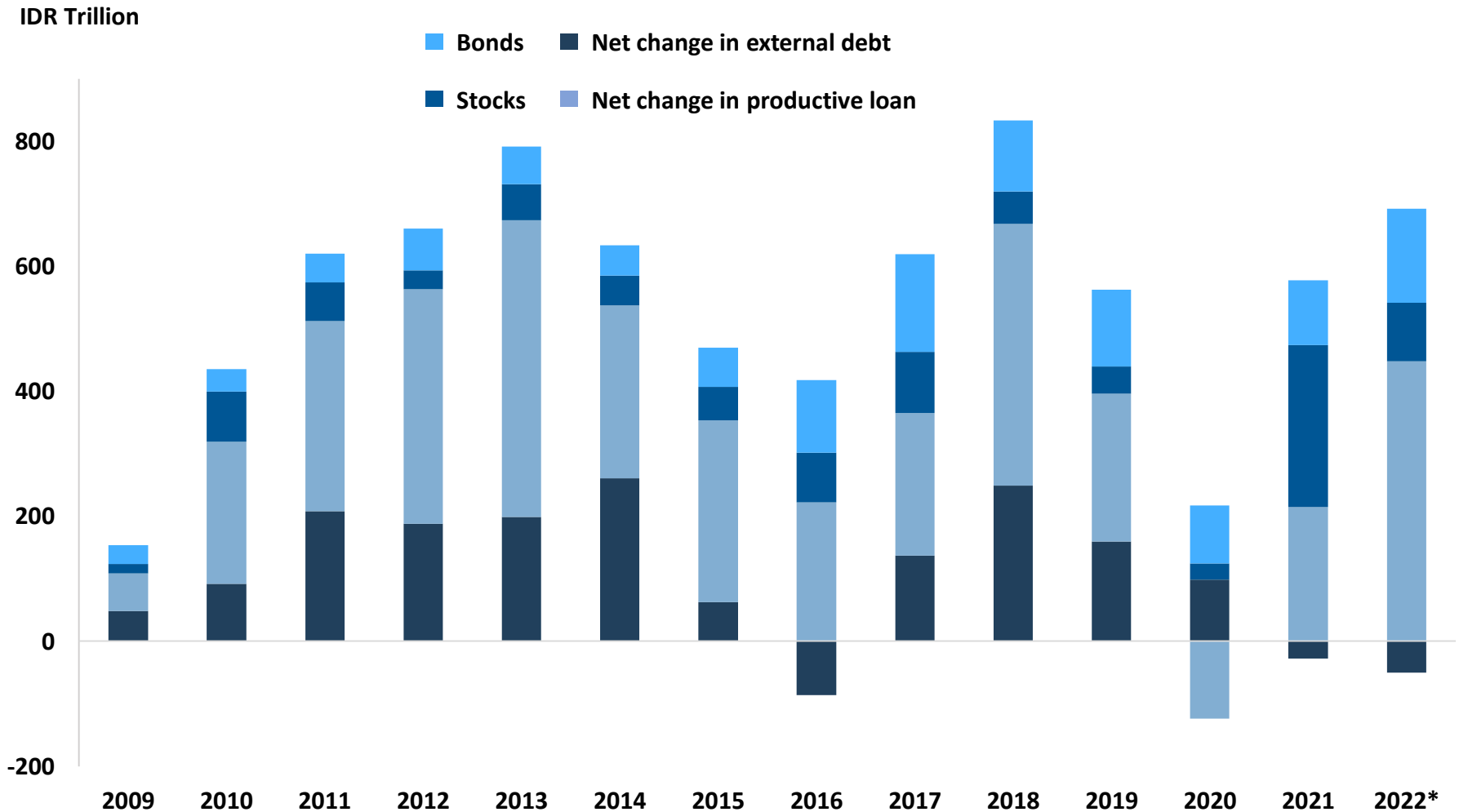
The impact of pre-election periods to loan growth is mostly neutral

	<i>GFC</i>			<i>Taper Tantrum</i>			<i>Trade War</i>		
	2007	General election (2008-2009)	Diff (bps)	2012	General election (2013-2014)	Diff (bps)	2017	General election (2018-2019)	Diff (bps)
Credit YoY%	20.3	24.9	457	24.4	19.2	-521	8.4	10.2	177
3 rd PF YoY%	15.6	15.9	27	20.0	13.8	-619	10.2	7.1	-304
ROA (%)	2.9	2.7	-26	3.2	3.0	-21	2.5	2.5	2
CAR (%)	21.3	18.0	-330	17.7	19.1	137	23.1	23.0	-8
NIM (%)	5.8	5.6	-21	5.4	4.8	-66	5.3	5.0	-34
LDR (%)	63.7	73.7	995	82.0	88.7	668	89.2	93.3	413
NPL (%)	5.6	3.7	-185	2.2	2.0	-14	3.0	2.7	-33

Source: OJK

- Despite the increased policy uncertainties, the sales of food and beverage, retail, and media products typically rise in the lead-up to general elections, which could result in more loan demand from these sectors. However, calculating its impact on banks on the basis of data presented here is a fool's errand, both due to the small sample size and the presence of confounding global developments that had even more impact, especially the GFC and the taper tantrum.

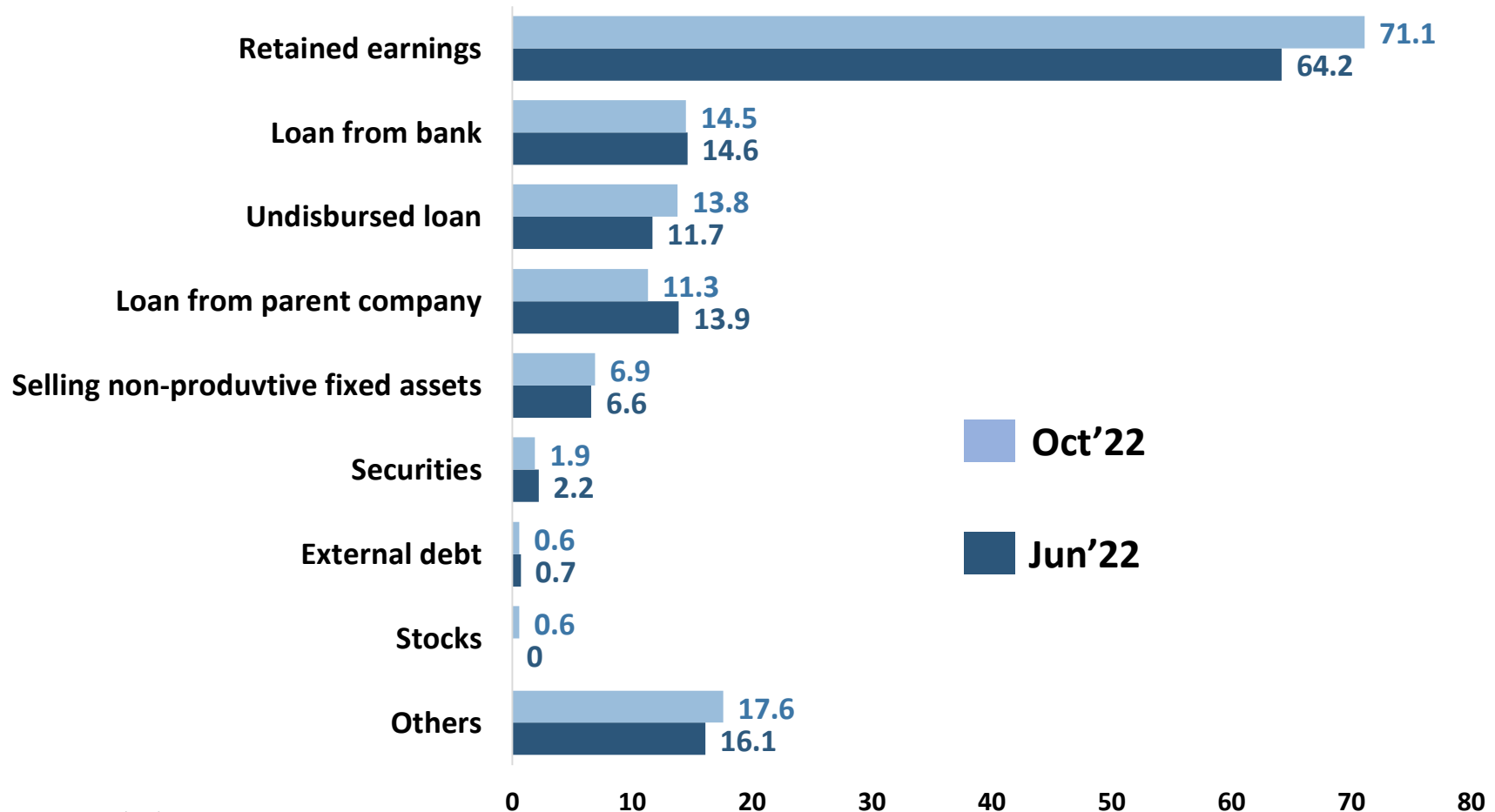
Financing through all channels could slow down amid global uncertainty ...



* Until November

Source: OJK

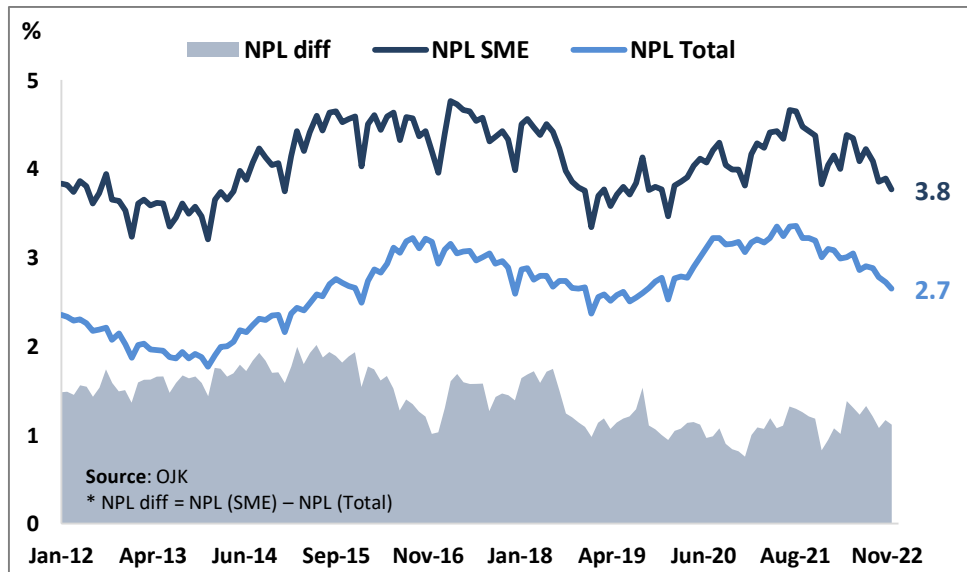
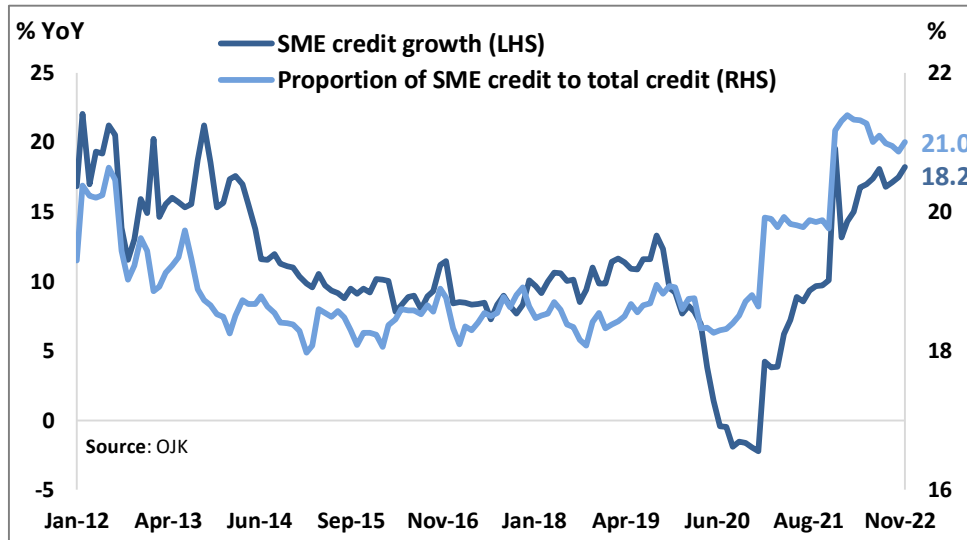
... and there is also increasing preference to use retained earnings as a means of financing



Source: Bank Indonesia

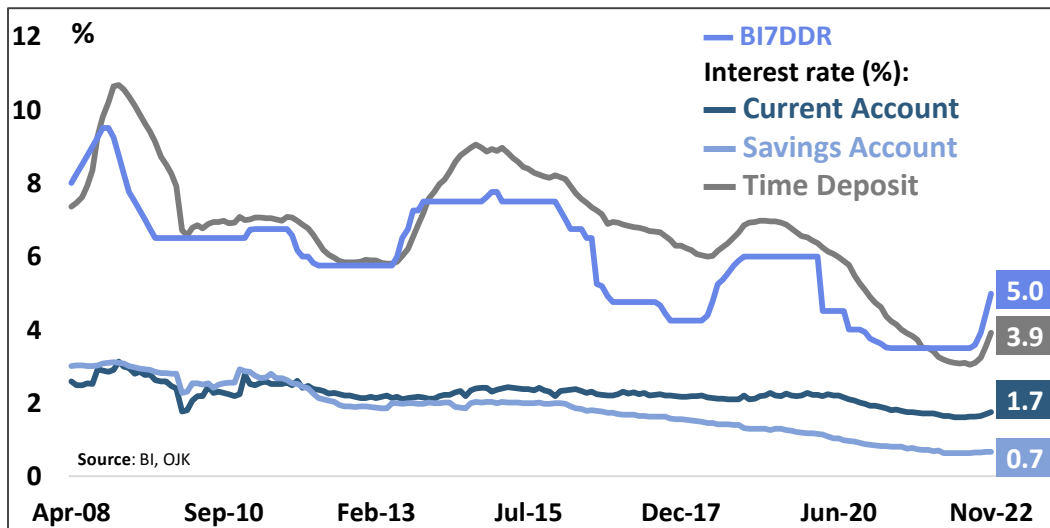
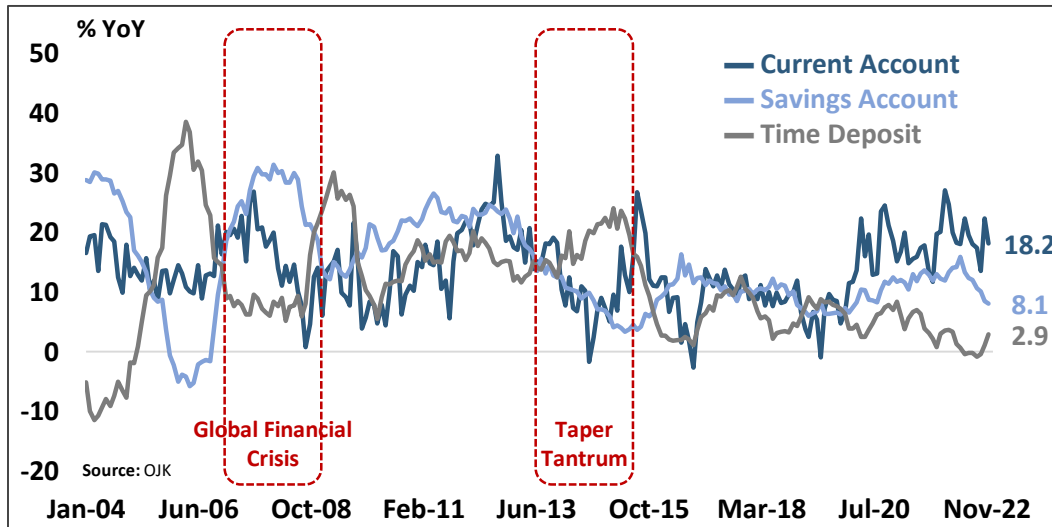
- Sectors with massive cash buffer may be more confident and secure to pursue CAPEX in 2023, but they might also obtain more of their financing needs through retained earnings instead of seeking external funding.

SME segment has seen faster growth and better credit quality over the past decade



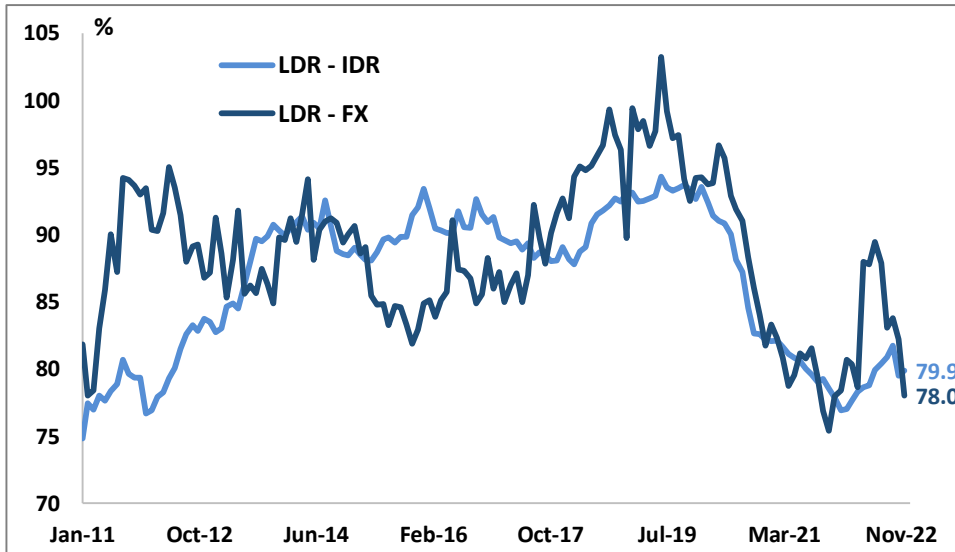
- After BI's implementation of the Macroprudential Inclusive Financing Ratio (RPIM), which enforces certain minimum ratios of banks' loan portfolio for SME loans (20% by 2022, 25% by 2023, and 30% by 2024), SME loans have seen a significant rise.
- Although the NPL level of the SME segment remains higher compared to the overall NPL, this gap has been gradually closing over the past decade, making banks fundamentally more likely to grant loans to SMEs.
- The government has also implemented policies that provide financial incentives for banks to lend more to SMEs. For instance, OJK has extended the loan restructuring period for SMEs and certain industries until March 31, 2024 (in contrast to March 31, 2023 for other sectors), which gives banks with larger SME exposures a chance to keep their NPL levels under better control.

Higher rates will accelerate time deposit growth, as impact of policy rate hike becomes gradually felt

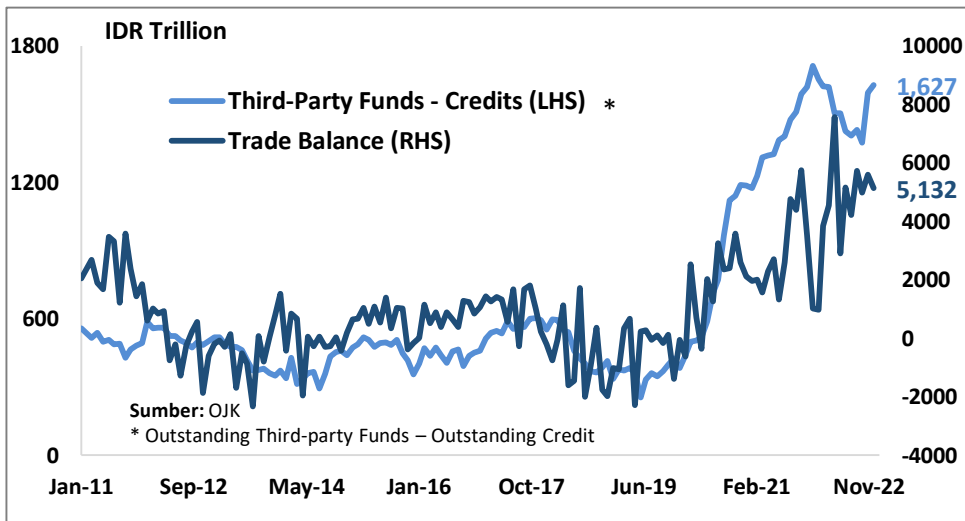


- Deposit growth is expected to align with – but perhaps slightly lower than – the growth of credit, but the impact of higher interest rates would start to be felt, which could affect the composition of TPF.
- One potential source of this growth could be the revival of time deposits, which have been on a downward trend since the pandemic. However, due to ample liquidity, we have seen a very slow transmission from BI rate hike to bank's deposit interest rates, especially for the larger banks.
- It usually takes 3 – 4 months for changes in policy rates to be reflected in time deposit rates, and about 5 – 6 months for an increase in time deposit rates to affect time deposit growth, as revealed by cross-correlation analysis.

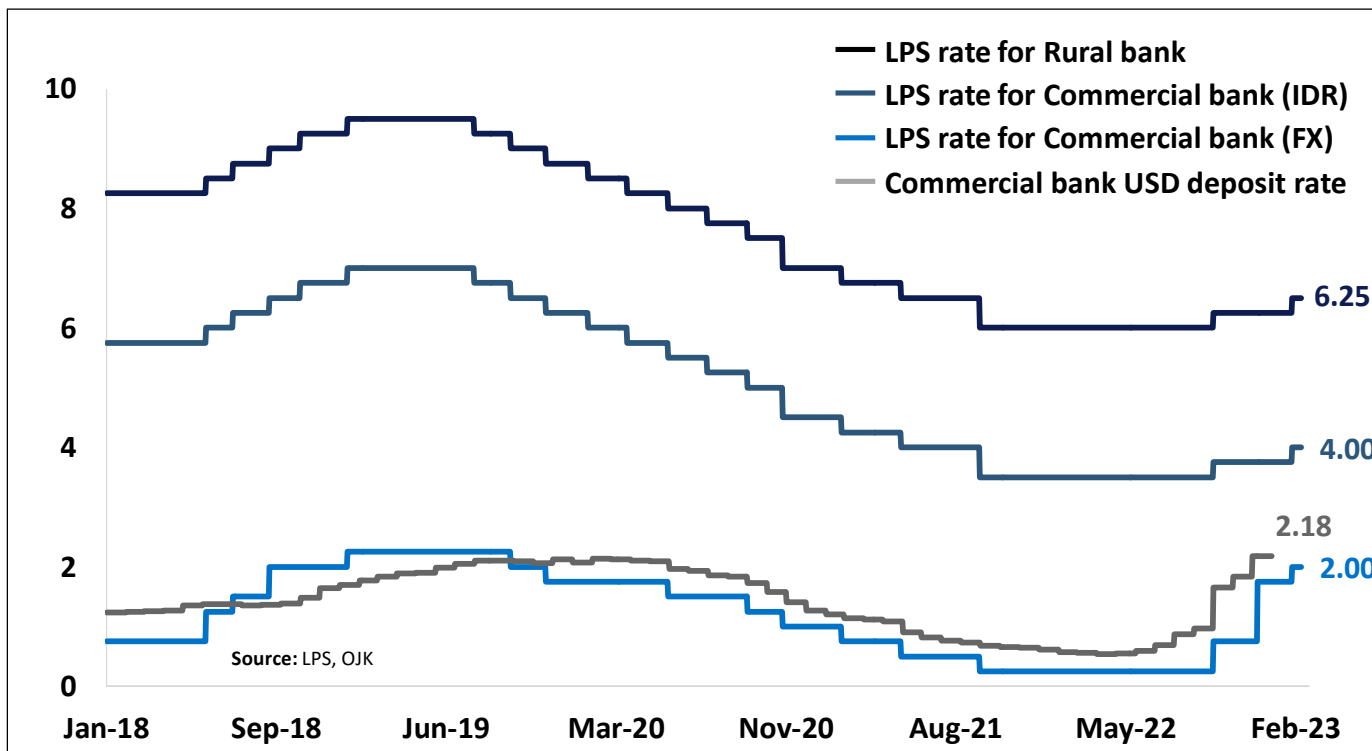
LDR is expected to grow moderately higher amid lower trade surplus



- The projected lower trade surplus in 2023 may put upward pressure on the LDR, since the trade balance has an inverse relationship with the LDR. This will probably translate to lower CASA growth, contrasting with faster TD growth due to rising rates.
- In addition, as the government reduces its fiscal deficit (less dissaving), it would have to be balanced out by private dissaving, if the current account is to turn towards a deficit. Specifically, this means a shift away from government bonds towards private-sector loans. With the government's pledge to keep the budget deficit to under <3%, this trend is likely to continue in 2023, resulting in a moderately higher LDR level of 85% - 95%.

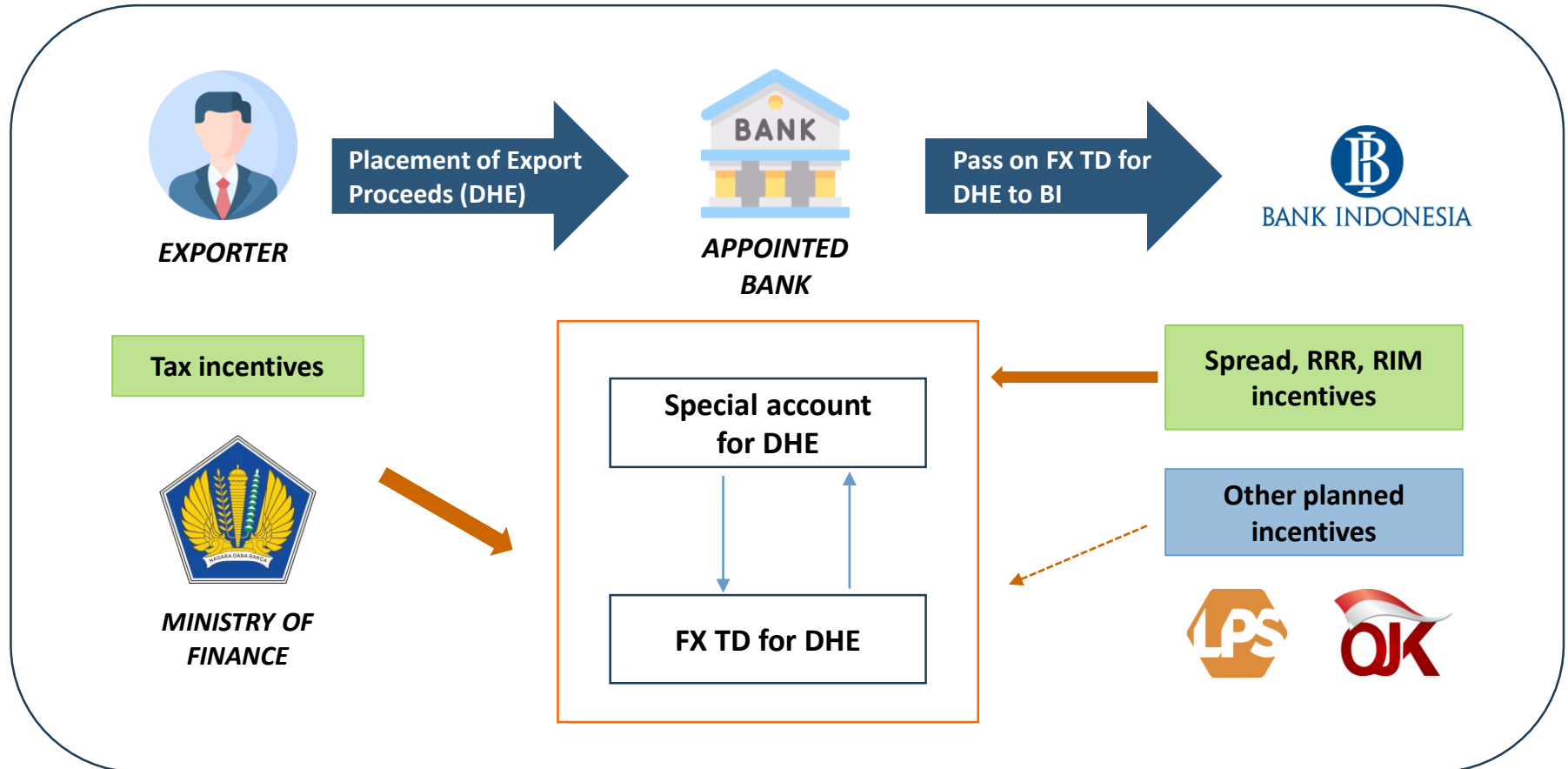


BI and LPS move to strengthen FX liquidity in the banking industry



- Indonesia's FX LDR sharply increased to almost 88% in July 2022, due to high domestic demand for FX while a significant portion of FX received from exports are not repatriated back to Indonesia. However, FX LDR has begun to normalize in the past 3 months in part due to rising LPS FX deposit rates for commercial banks.
- BI's new term deposit to accommodate export receipts – starting in March 1st – should boost the repatriation of funds back to Indonesia by providing domestic banks and their exporter clients with more favorable returns. Nevertheless, the policy's overall impact is somewhat muted by the expected decrease in export value in 2023.

DHE regulations provides appointed banks with certain incentives



Government regulations support the banking industry amid the global uncertainty (I)

Regulation		Impact
Financial sector development and reinforcement bill (RUU PPSK)	Rural Banks (BPR) are allowed to go public (IPO)	BPR could raise more capital
	<ul style="list-style-type: none"> BPR are allowed to perform a wider range of services, such as foreign exchange and money transfer Sharia Rural Banks (BPRS) are also given new tools, including the right to acquire funds from the public (via the capital market) and the right to place capital in a BPRS supporting institution 	These new tools allow BPR and BPRS to better compete with larger banks
	The Indonesia Deposit Insurance Corporation (LPS) will take a more active role in helping a “Bank in Resolution” before it experiences solvency issues	Early intervention could prevent banks from collapsing and boost public sentiment toward Indonesia’s financial sector
Bank Indonesia (BI) introduced the Macroprudential Inclusive Financing Ratio (RPIM) which requires Commercial and Commercial Sharia banks to have at least 20% of MSME loans in their loan portfolio in 2022, before increasing to 25% in 2023, and 30% in 2024 (NOMOR 24/3/PBI/2021)		The outcome of this regulation will be varied, depending on the individual bank’s market focus and specialization
BI issued new securities backed by SME loans (SBPI) to support banks in meeting the RPIM requirement (NOMOR 24/3/PBI/2021)		Banks that specialize in disbursing SME loans would be able get additional liquidity, which would in turn incentivize other banks to give out more loans to the SME segment
BI extended its 0% down payment policy for both mortgages and automotive loans until December 31, 2023 (NOMOR 24/16/PADG/2022)		Encourage consumer credit growth

Government regulations support the banking industry amid the global uncertainty (II)

Regulation	Impact
BI would further increase the Reserve Requirement Ratio (RRR) incentive to a maximum of 280 bps to banks that extend credit to priority sectors, People's Business Credit (KUR), and "green" credit starting in April 1, 2023	A potential reduction in operating expenses for banks that disburse a significant proportion of loans to these segments
BI issued new foreign exchange monetary operation (MO) instruments to boost placement of Export Proceeds. These instruments are applied with competitive yields based on a transparent market mechanism. Banks can also pass on these MO instruments to BI with attractive interest rates	Maintain ample FX liquidity in the banking industry
LPS hiked the foreign exchange interest rate by 100 bps to 1.75% on December 2022	Maintain ample FX liquidity in the banking industry
OJK extended its Covid-19 restructuring policy until March 31, 2024 for MSMEs and companies in the textile, footwear, accommodation, and food and beverage industries	Banks could minimize the ratio of reserves and reduce operating expenses
OJK requires banks to have a minimum core capital of IDR 3 trillion by December 2022 (NOMOR 12 /POJK.03/2020)	A bank that does not meet the requirement need to merge with other banks or convert into a BPR

Part 2: A Sturdy Fortress

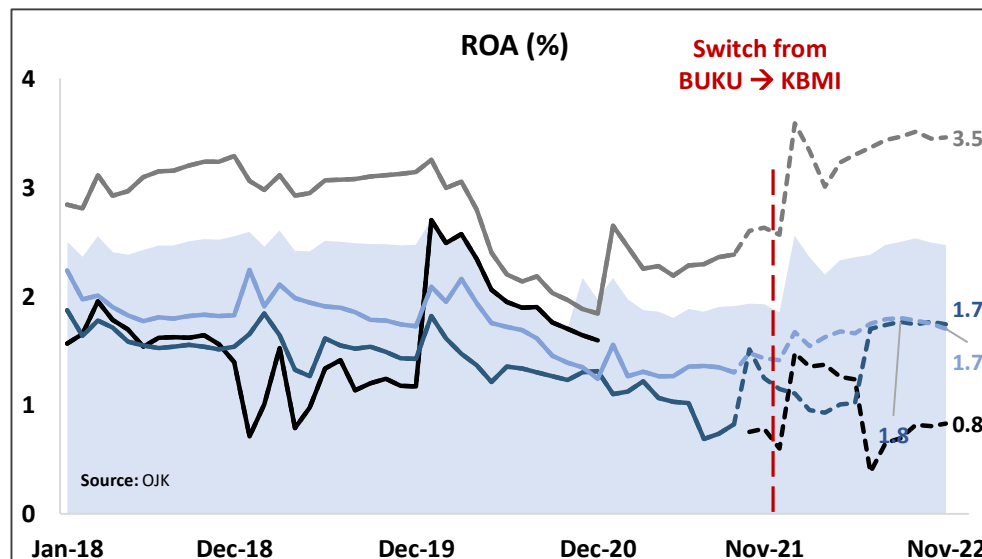
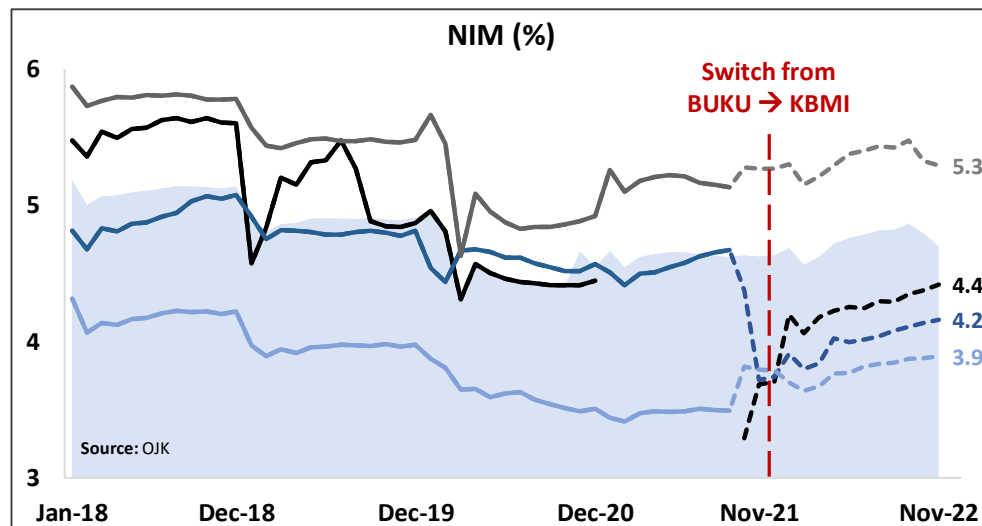
Banks' profitability and capital levels provide a sufficient buffer to handle challenges ahead. However, the performance gap between large and small-mid banks have been increasing due to the pandemic.



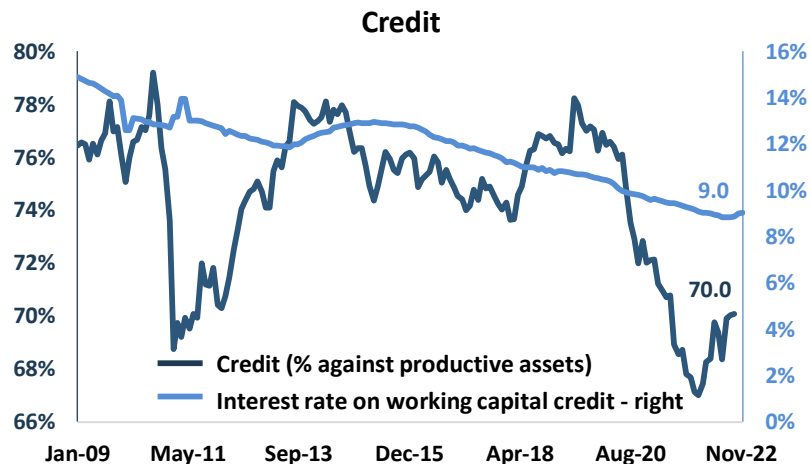
Robust fundamentals help national banks handle the upcoming challenges

— BUKU 1 – KBMI 1 — BUKU 2 – KBMI 2 — BUKU 3 – KBMI 3 — BUKU 4 – KBMI 4 ■ Total

- Data from Q3-2022 shows a recovery in the profitability level across all segments of banks, making them better equipped to handle the challenges ahead. However, it appears that the profitability gap between large and mid-small banks has been growing due to the pandemic.
- This discrepancy may be due to differences in liquidity levels, with funds being diverted to bigger banks which were perceived as "safer" during the pandemic. It is then compounded by the rising yields on government bonds and BI's monetary instruments (vs. stable loan yields), whereby the larger banks with more liquidity are able to allocate more towards these non-loan assets.
- In the medium term, small and medium-sized banks are also under pressure to retain deposits, and would likely have to raise deposit rates earlier. This would further widen the profitability gap across banks.



The increase in interest income (2022) is mostly attributed to BI placement and bonds, not loan pricing ...



Comparison,
2022 vs. 2021 (Q1-Q3)

Volume

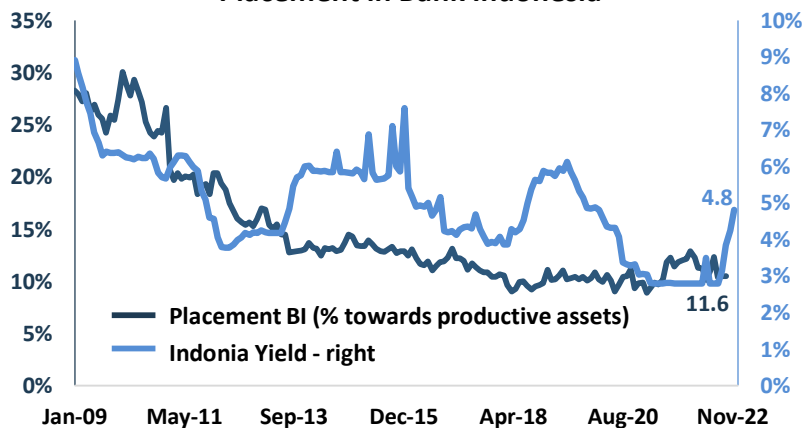
↑ +7.4%

Loan rate
(w. avg.)

↓ -0.5%

Source: OJK, BI, Bloomberg

Placement in Bank Indonesia



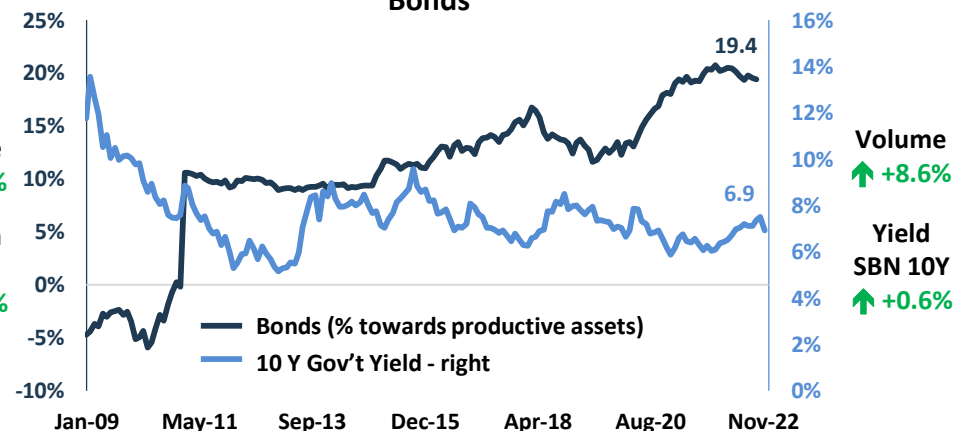
Volume

↑ +7.4%

Indonesia
rate

↑ +0.2%

Bonds



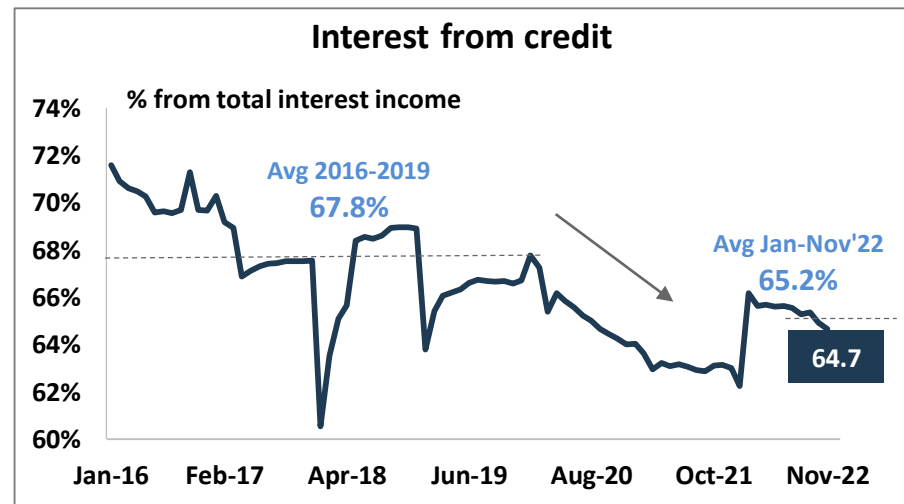
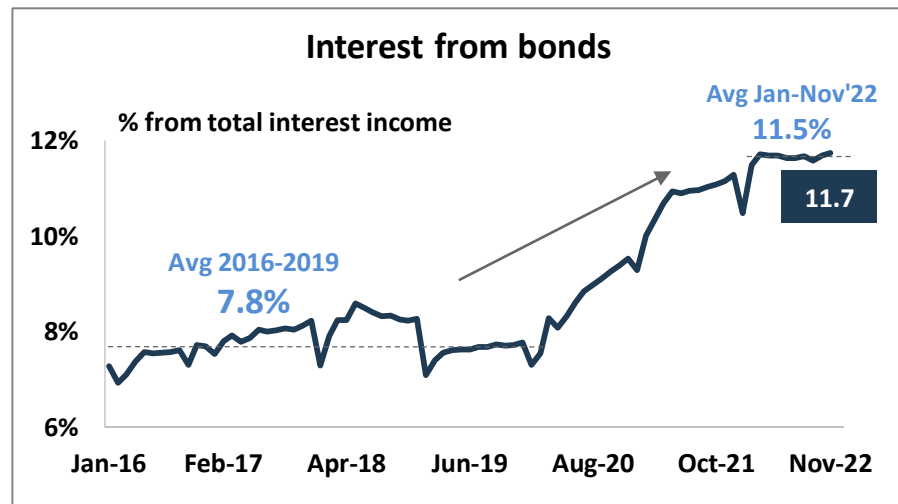
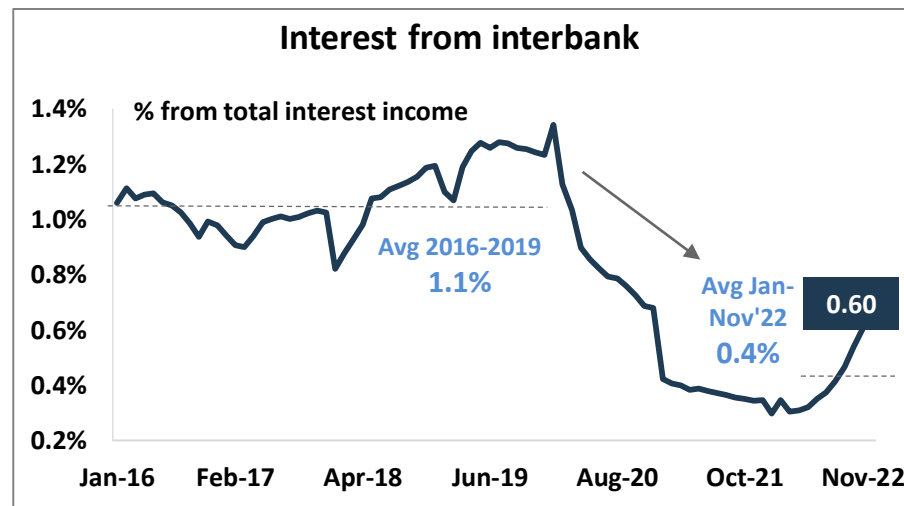
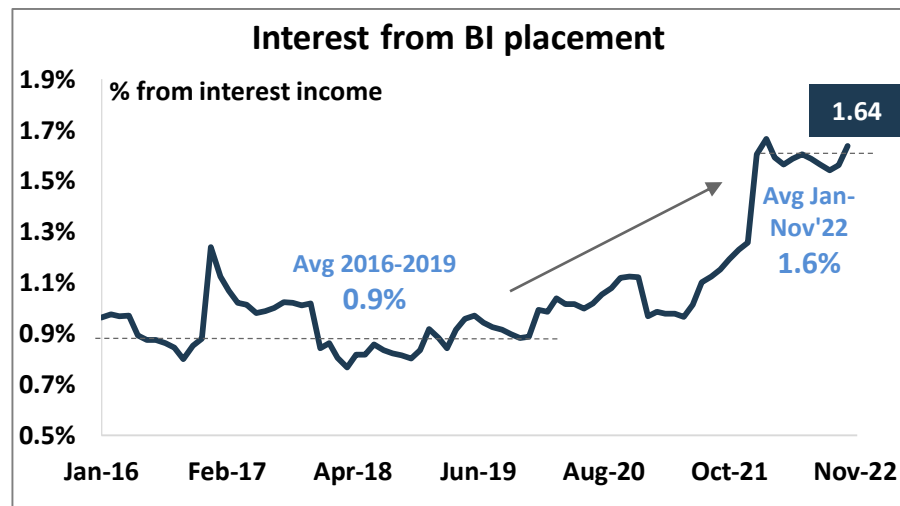
Volume

↑ +8.6%

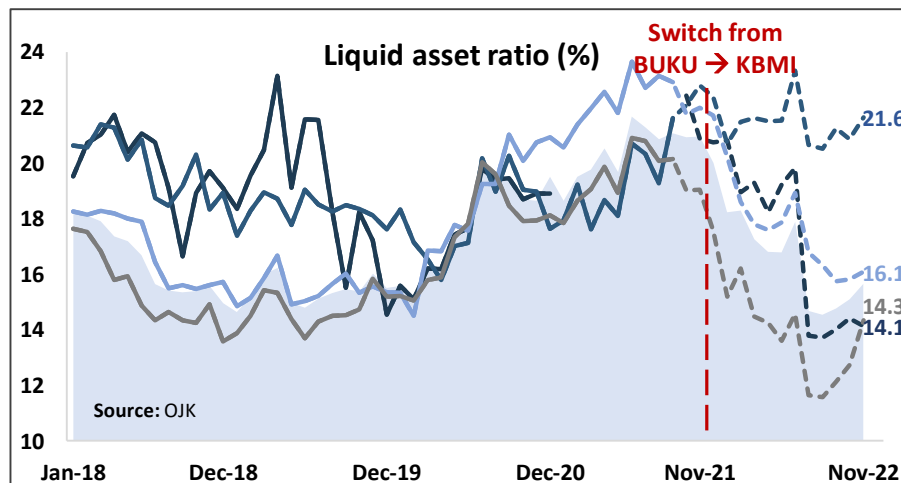
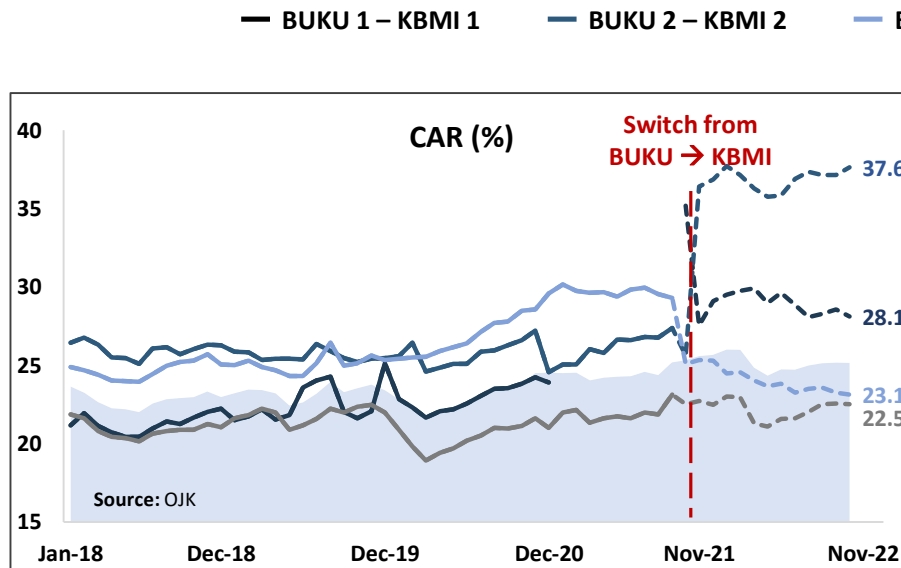
Yield
SBN 10Y

↑ +0.6%

... thus reducing the contribution of interest income from loans

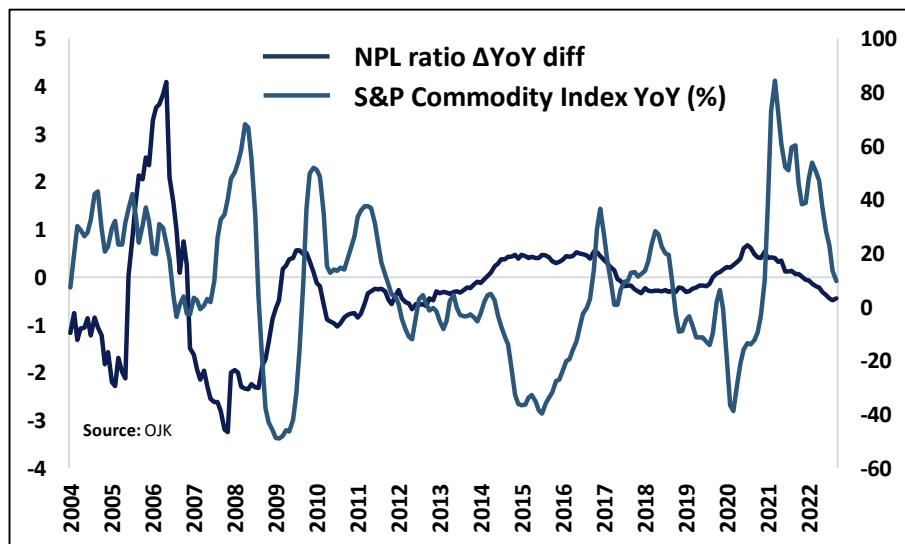
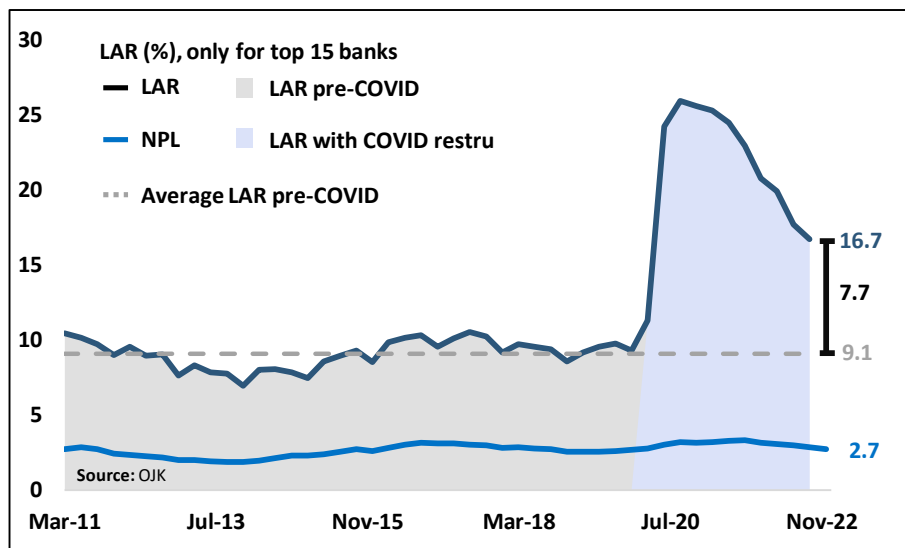


... along with healthy capital and liquidity buffers



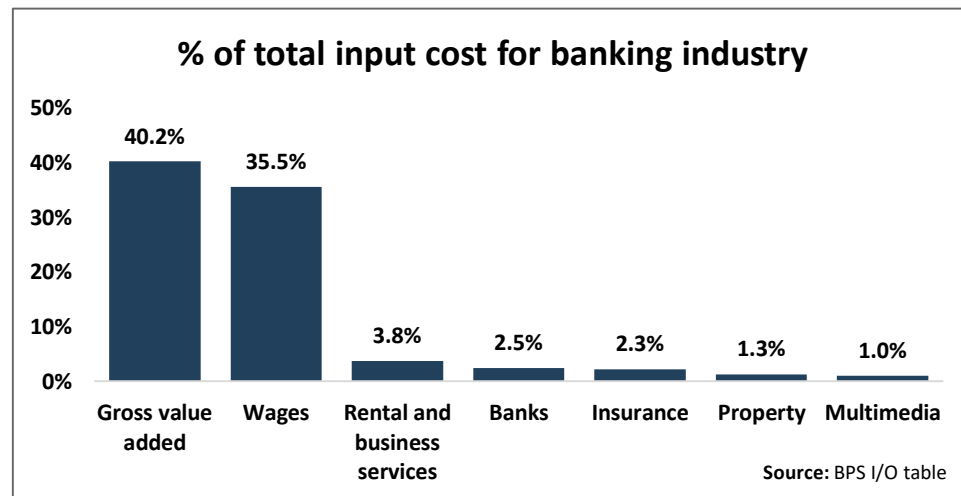
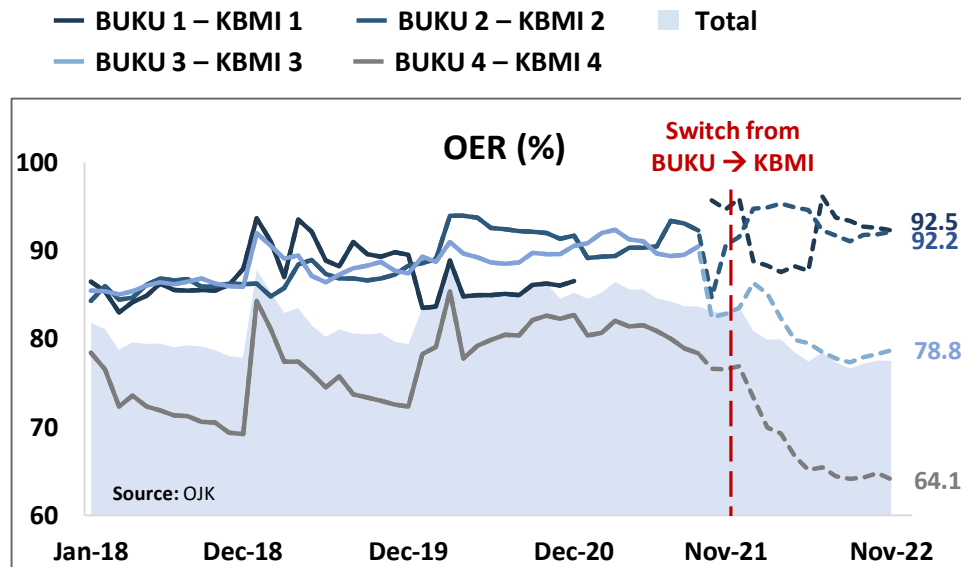
- The banking industry's CAR level has continued to improve since the onset of the pandemic. This level should be sufficient for most banks, even if the global slowdown could translate into higher credit risks above the amount committed for provisions.
- It is unlikely we would see a decline in CAR to a similar extent as to what was seen in the first half of 2020 (a decline of ~220 bps). Smaller banks in particular seem to have strengthened their capital buffers strongly, thanks in part to regulatory efforts requiring them to increase capital by the end of 2022.
- Liquid asset ratios had been deteriorating in 2022, due to the dual shock of accelerating loan growth and higher reserve requirement ratio (from 3.5% to 9%). As the RRR plateaus after Sep-22 and BI 7DRR after Feb-23, we expect the ratio to stabilize or even improve. Indeed, banks' ownership of BI's monetary instruments have improved since the end of Nov-22, with the return of foreign inflows into Indonesia's sovereign bonds.

Lower commodity prices and end of restructuring period could increase credit risk



- Credit risk have been declining after the initial hit of the pandemic, both in terms of NPL and loan-at-risk (LaR) ratios. However, there are some potential for renewed increase in 2023, as companies are exposed to a slower global economy and lower commodity prices. It is worth noting how NPL and commodity prices have inversely correlated for decades – a normal situation given Indonesia's dependence on commodities to generate exports.
- The most immediate concern, however, is the expiration of the government's original restructuring scheme in March 2023. Our estimates indicate that approximately 7 - 8% of loans currently classified under LaR will be distributed into four collectability categories: (1) current, (2) special mention, (3) NPL, and (4) remaining in COVID-19 restructuring (textile, food and beverages, and SMEs).

Rising wages and other input costs put pressure on banks' operational expenses

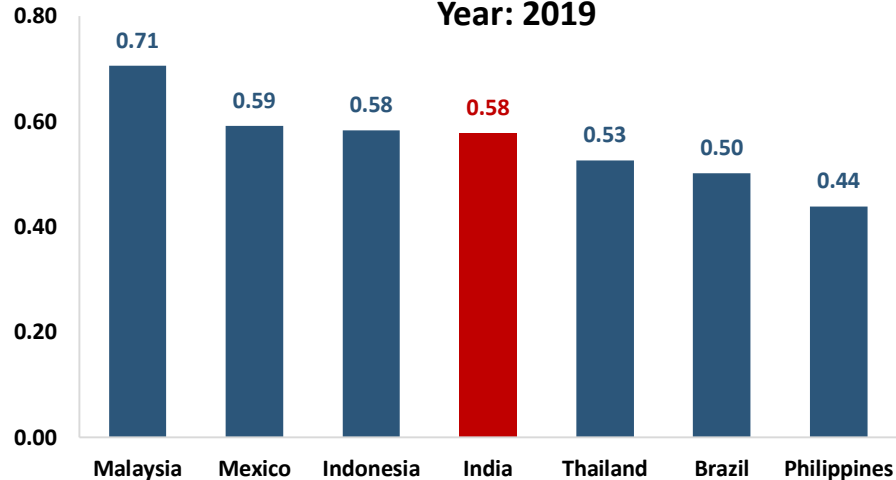


- At the beginning of the Covid-19 pandemic, there was a marked increase in the OER (operational efficiency ratio) due to a sharp decline in operational earnings while costs remained essentially the same.
- But as the economy adapted to the pandemic, COVID-driven efficiencies (closing of physical branches, digitalization, etc.) along with a recovery in earnings led to a steady decline in OER throughout 2021 and 2022.
- As the spectacular earning growth following the post-pandemic reopening normalizes, we expect the OER to rise, particularly as inflation has prompted an increase in operational input cost (large parts of it are made up of wages).
- Based on our simulation using BPS' input/output table, a 5.6% increase in the minimum wage could lead to a 2 - 3% rise in input costs, while a 30.7% increase in the subsidized fuel prices may have led to 0 - 1% increase in input costs.

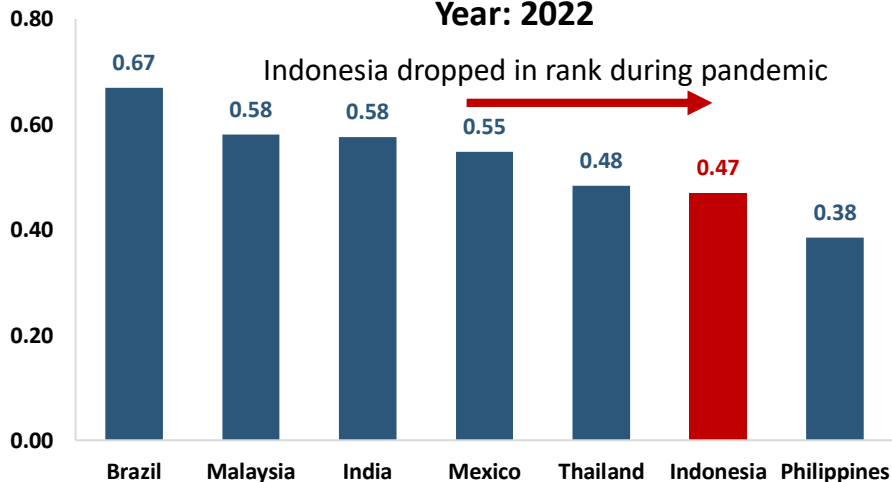
Indonesian banks' inefficiency comes mainly from non-interest expenditures

Relative Efficiency*, higher means more efficient

Year: 2019



Year: 2022



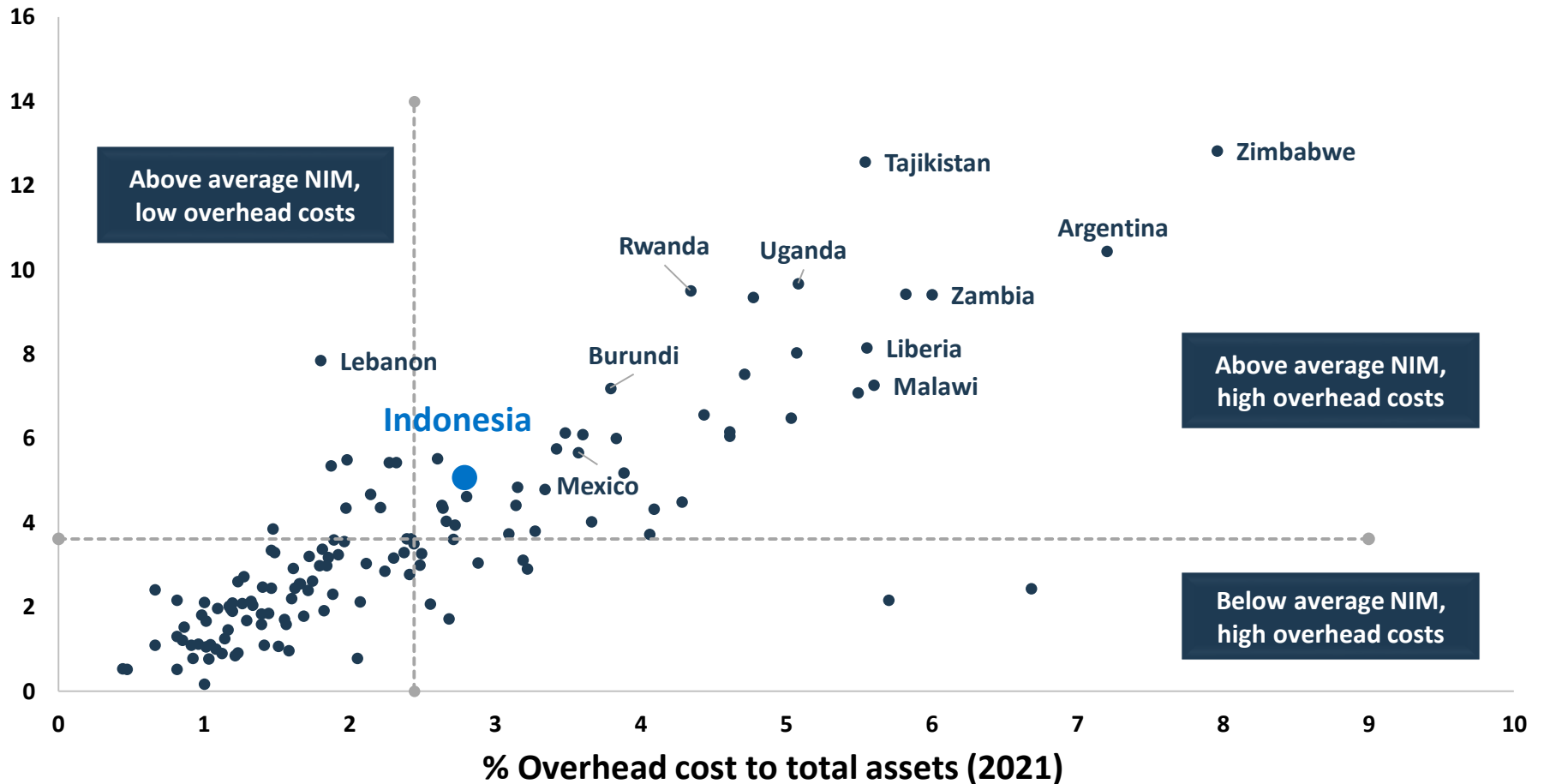
- Using the Data Envelopment Analysis (DEA) method, we analyze the relative efficiency of selected countries' banks by examining their revenue as a function of their operational expenditure, which can be used as a proxy for assessing the efficiency of a bank's operations. As we can see on the left chart, Indonesian banks are relatively more inefficient – on average – compared to their peers.
- Considering that Indonesian banks' NIM is relatively higher than their peers, it appears that the relative inefficiency of Indonesian banks primarily stems from their high non-interest expenditures. One could argue then that our high NIM is partially meant to compensate for higher non-interest operational expenses.

Source: Bloomberg

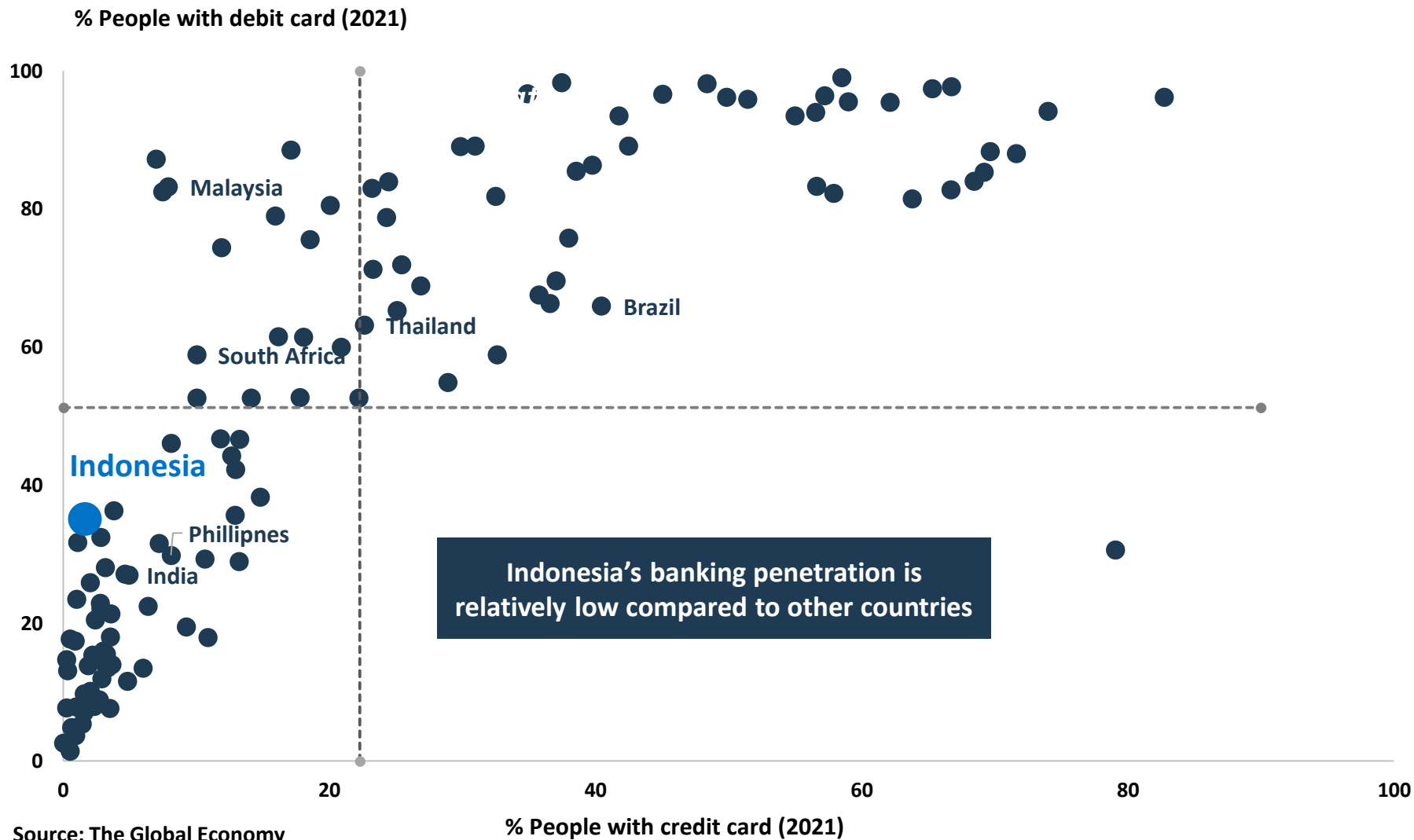
* Relative efficiency calculated using DEA method with revenue and operational expenditures as variables

Indonesia's high NIM is attributed to the need to offset a higher overhead cost compared to other countries ...

% Net interest margin (2021)



... and to support financial inclusion



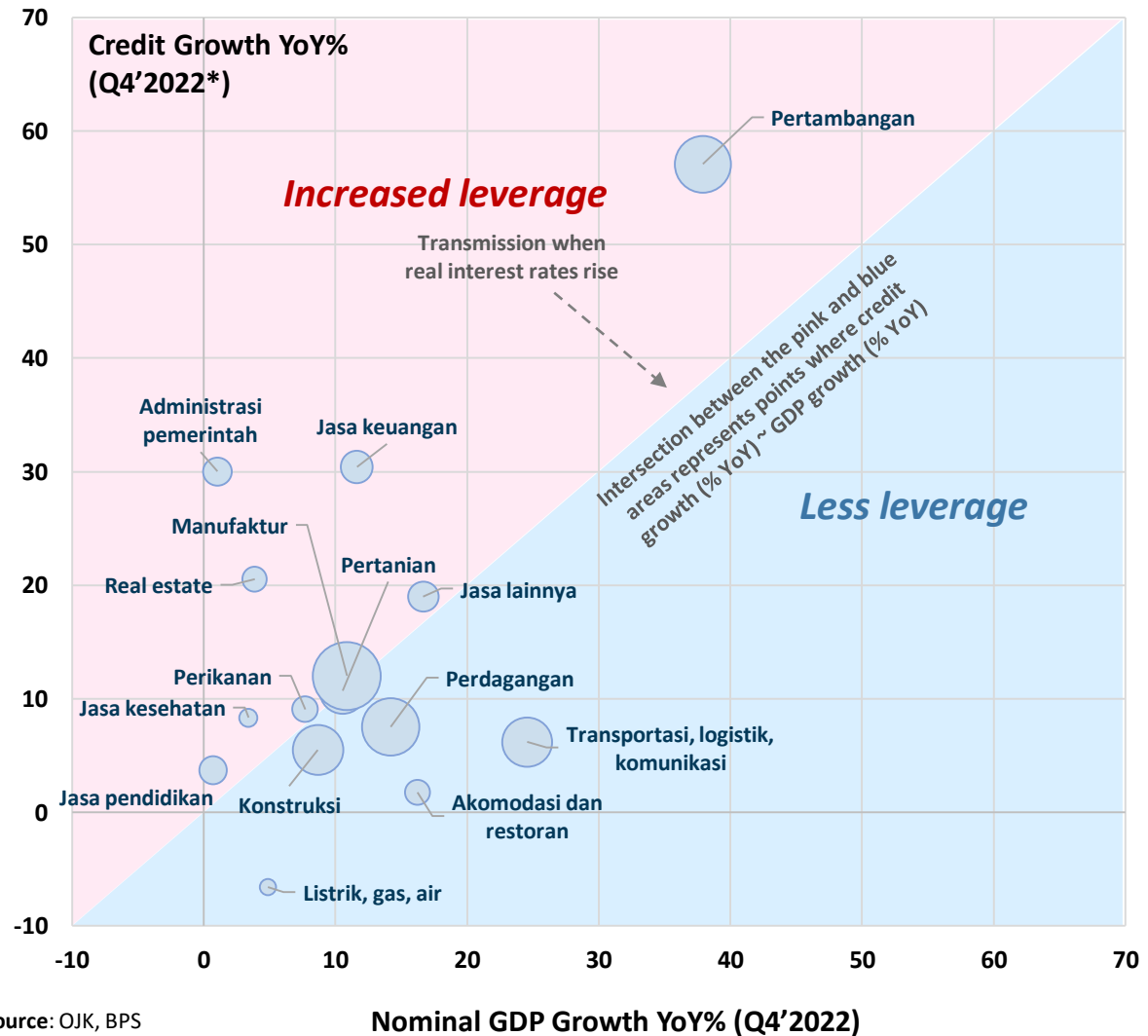
Part 3: Sectoral Review

Despite gloomy economic prospects, credit demand from sectors with relatively less leverage and improving NPL levels still has room to grow in 2023.



Sectors with relatively lower leverage show the most room for credit growth in 2023...

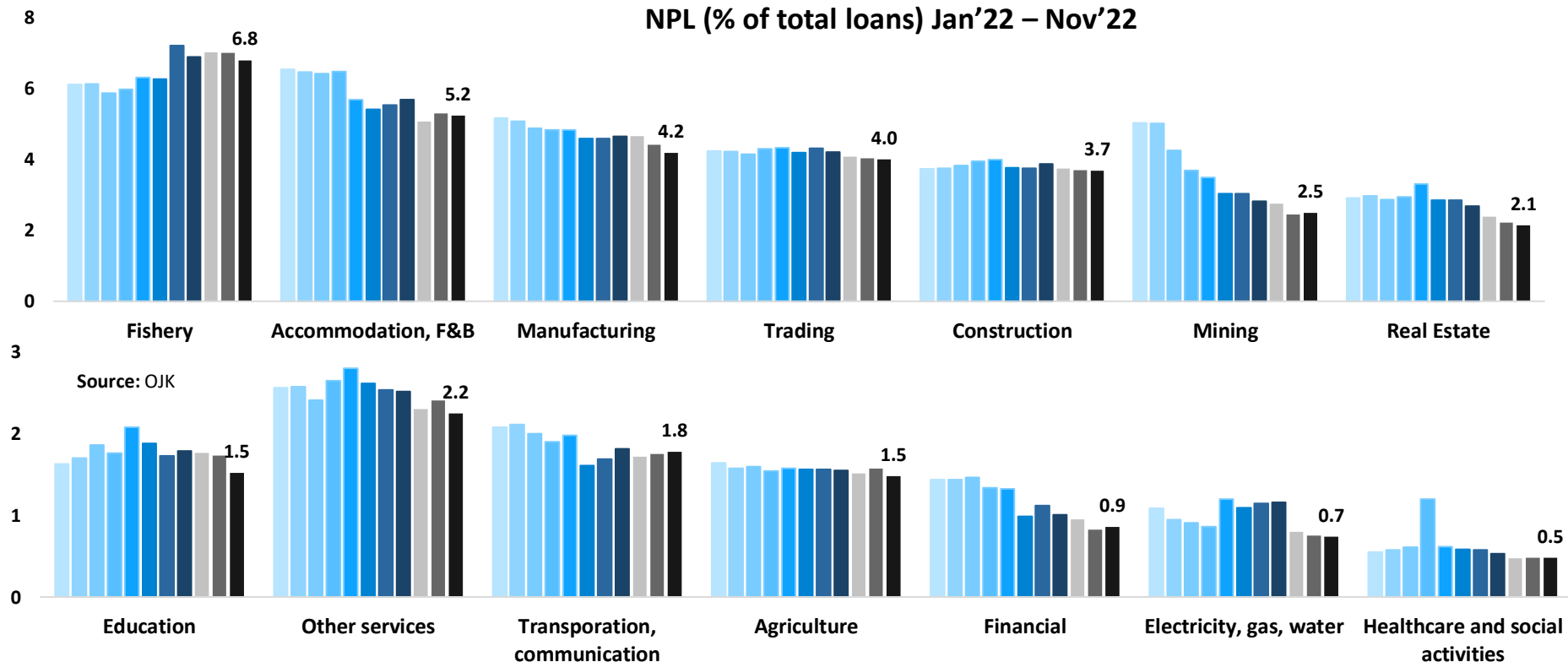
- In our chart on the right, we categorize different sectors' level of leverage based on their credit and output growth.
- Economic slowdown will likely pose more risks to all sectors. But sectors that are highly leveraged right now have even greater risks (sectors in red area).
- Meanwhile, other sectors (such as those in the blue area) are relatively more conservative in using credit.
- Demand for credit from commodity-related sectors is expected to not be as high as 2021 – 2022 due to the predicted normalization of commodity prices.



Source: OJK, BPS

*) Data from November 2022

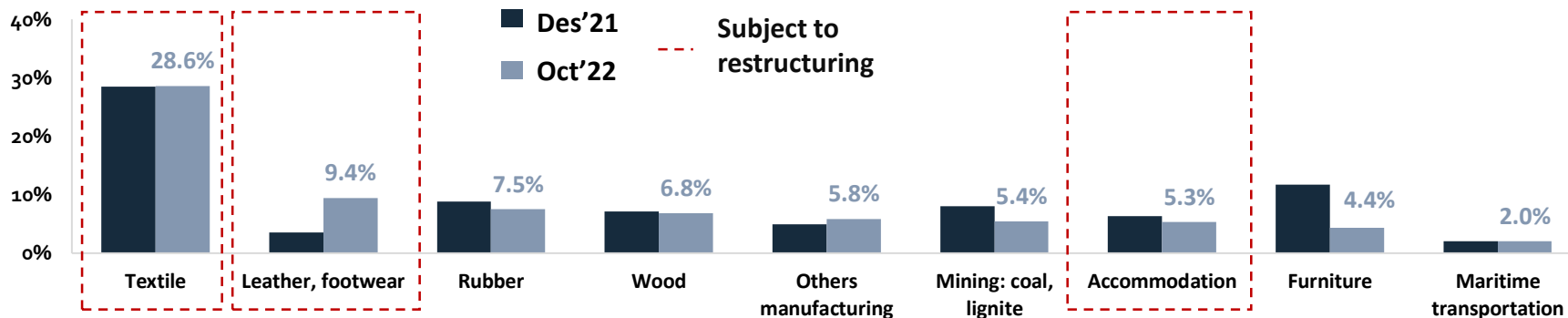
... particularly for sectors with low and improving NPL levels



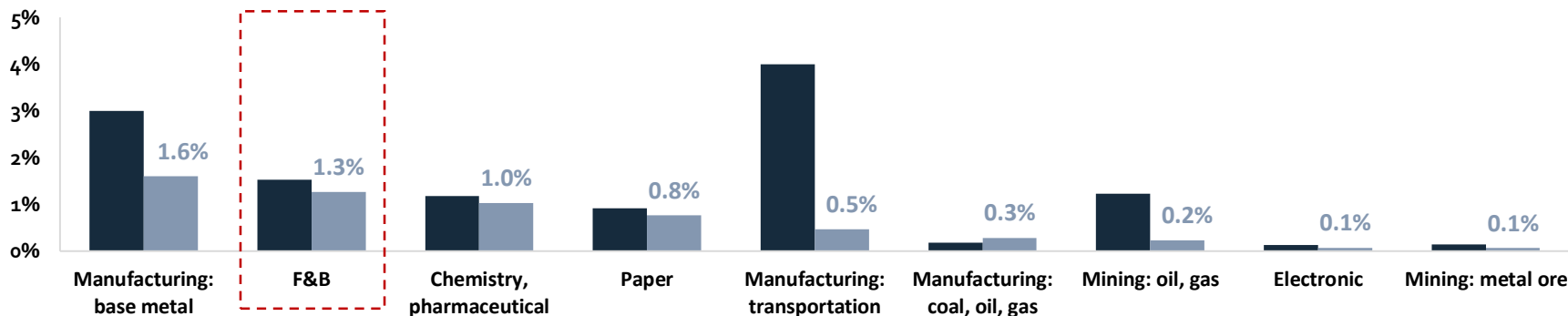
- 2022 has been a year of recovery for many sectors, with notable improvements in NPL in sectors such as mining, accommodation, F&B, manufacturing, transportation, and communication.
- While we expect the NPL in all sectors to slightly rise in 2023, export-oriented manufacturing sectors will be particularly hit hard due to weakening global demand and rising input costs from currency depreciation and elevated commodity prices.

Gov't extended restructuring policy targets sectors with above than average NPL

Subsector NPL (% of total loans)

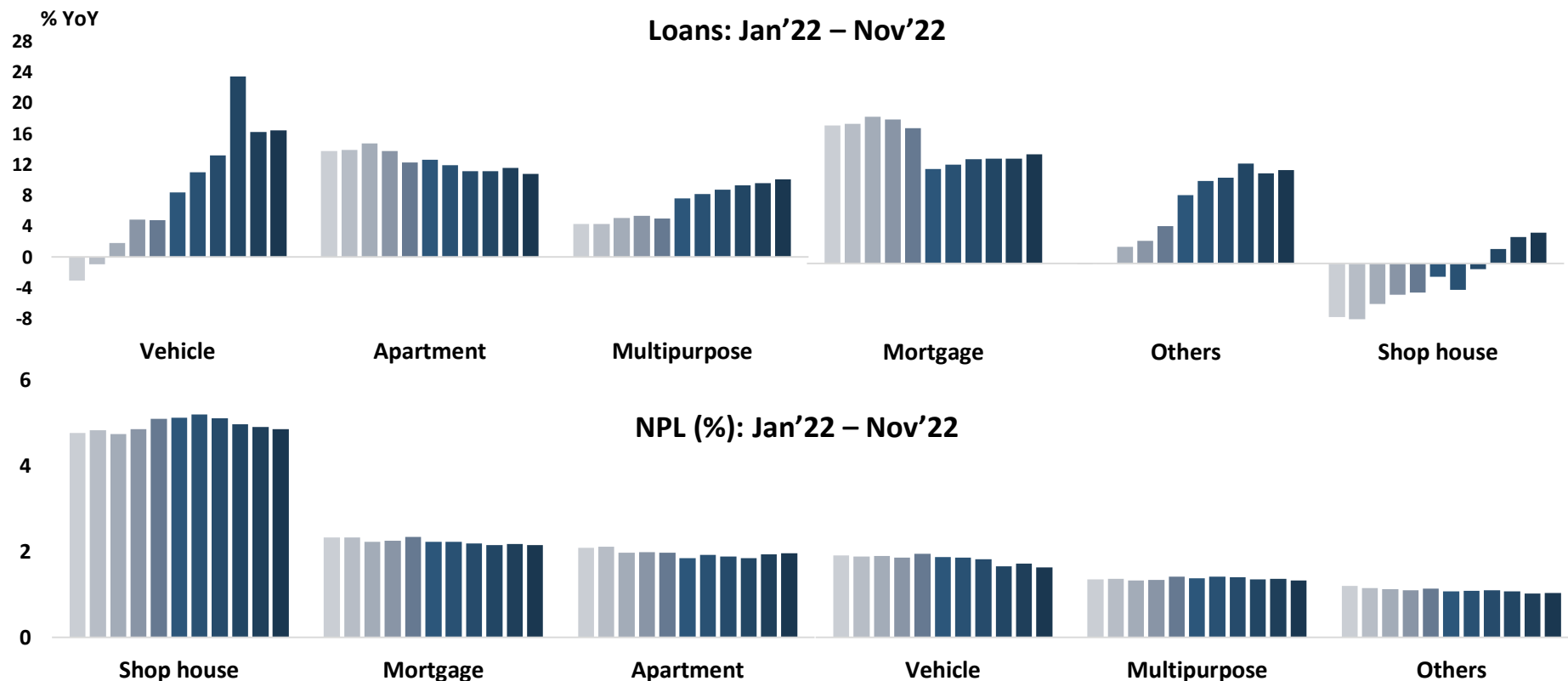


Source: OJK



- Thus, the government's decision to extend the credit restructuring policy for export-oriented manufacturing sectors such as textile and footwear appears to be particularly fitting. Not only do these industries employ a large proportion of the total workforce, but these sectors also have higher NPL compared to the national NPL level of 2.9% (as of August 2022).

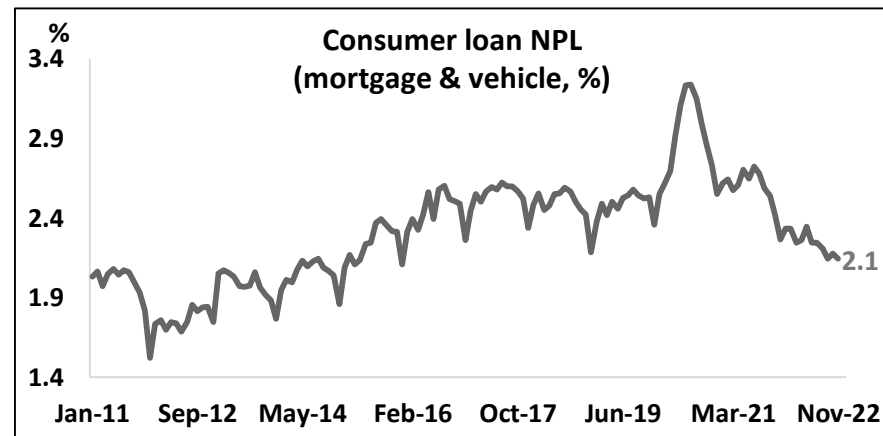
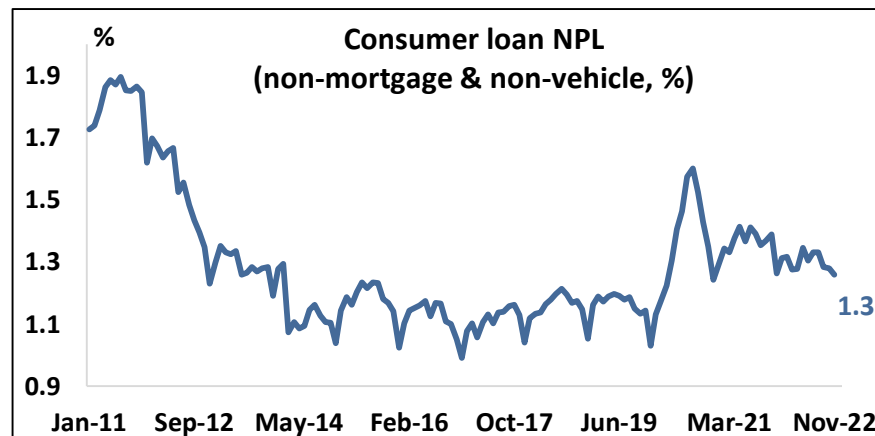
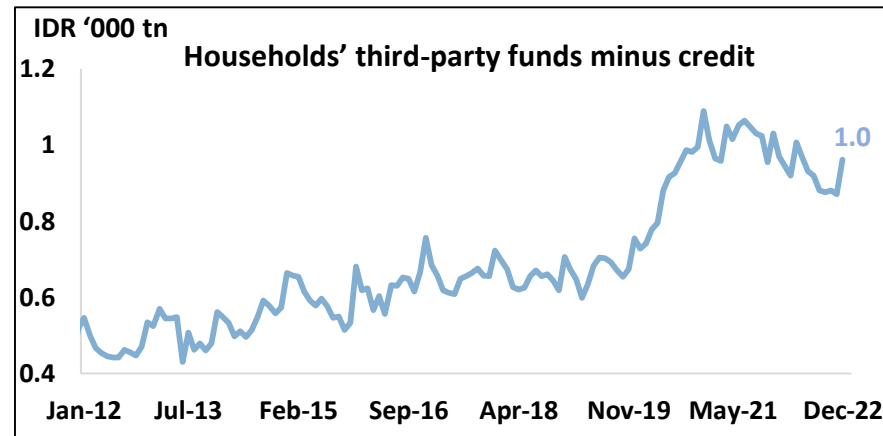
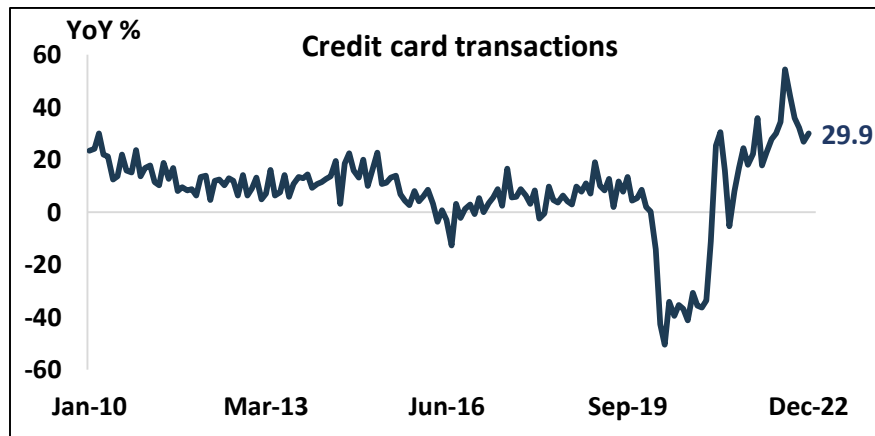
Interest rate sensitive sectors such as mortgages and vehicle loans are expected to weaken



Source: OJK

- We expect growth of consumer loan to be more limited in 2023. However, the central bank's decision to continue its policy of offering 0% down payments for both mortgages and automotive loans help prop up demand for consumer loans.
- In some commodity-producing regions of Indonesia, such Sumatra and Kalimantan, demand for mortgages and automobile loans is highly dependent on commodity prices. The declining commodity prices could therefore have significant impact on consumer loan demand there.

Is there a red flag in household credit?



Source: BI, OJK

- The risk of a debt crunch among households remains under control. Despite the falling savings rate, the level of household savings is still higher compared to pre-pandemic levels, and NPL levels for mortgages and vehicle loans are showing improvement. However, it is uncertain how long this will remain the case as layoffs increase and business activity slows down.

Part 4: Future Challenges

A downturn in the global liquidity cycle would likely pose a challenge to new innovations in financial services. Despite this, conventional banks must continue to adapt and safeguard against risks posed by new innovations, since their progress cannot be avoided.

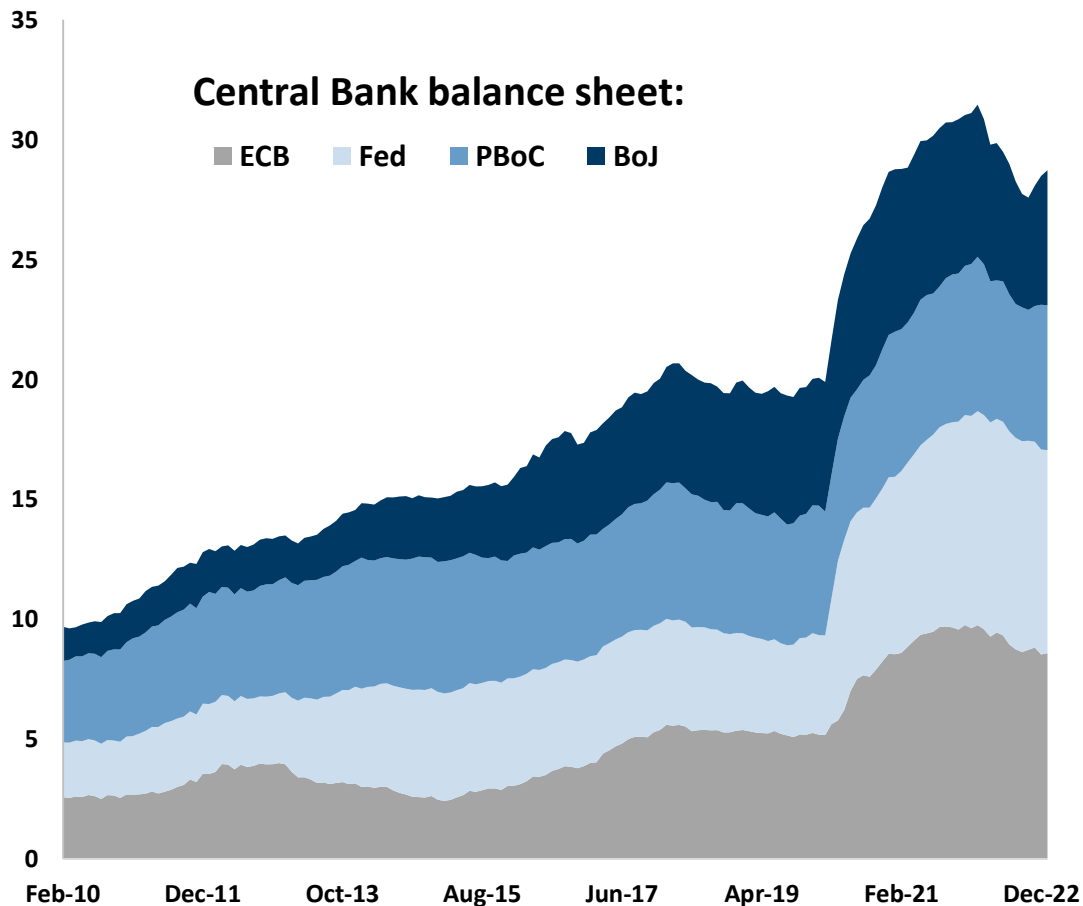


Global liquidity cycle is on a downturn, halting the progress of new financial services models

Trillion USD

Central Bank balance sheet:

■ ECB ■ Fed ■ PBoC ■ BoJ



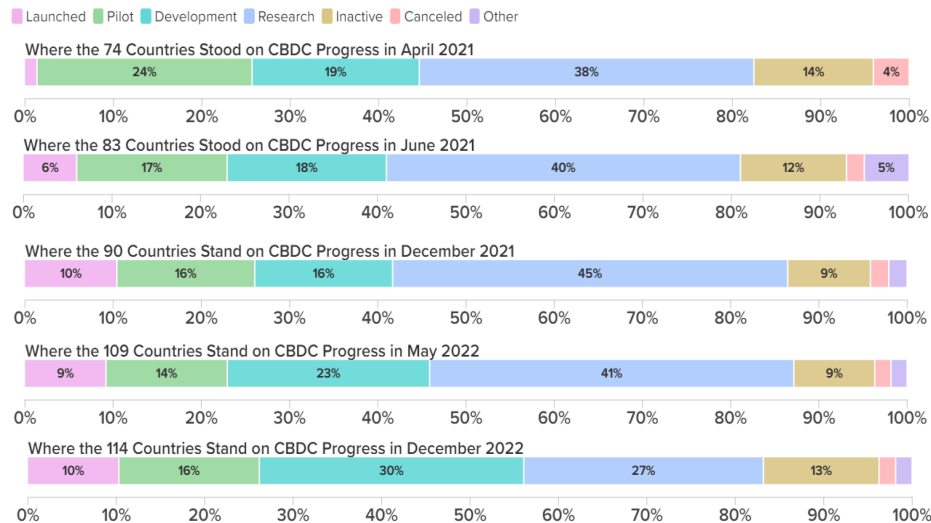
Sumber: Bloomberg

- In the past 5 years, banks have encountered challenges in embracing emerging technologies, such as blockchain and cloud computing. Rapid developments in technology have also been followed by increased competition from technology companies entering the financial services sector. This growth has been increasingly rapid in the middle of the pandemic due to ample global liquidity. But monetary tightening in various countries over the past year could mean that the allocation of funds in the near-medium term towards developing new technologies and experimental ventures could decline.
- Although the advancement of new financial products cannot be avoided, the slowdown in their progress may provide a silver lining for conventional banks, as it provides them with additional time to adjust to evolving trends, with the possibility of even overtaking them.

The adoption rate of CBDCs is still below expectations

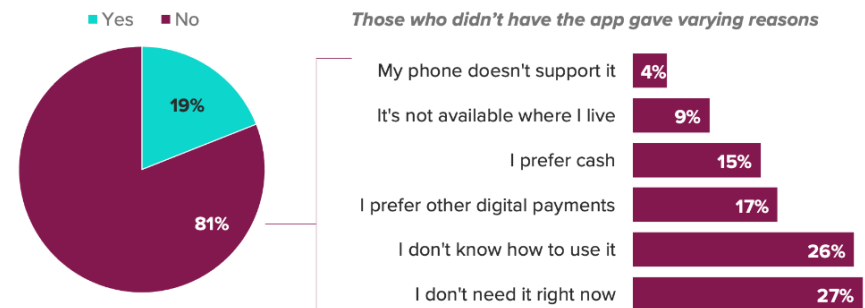
More countries have been considering the use of CBDCs in the past 2 years.

Despite experimenting with CBDCs, countries have encountered challenges in promoting adoption among the population.



Source: Atlantic Council

Chinese adults were asked if they had the official digital yuan app on their phone



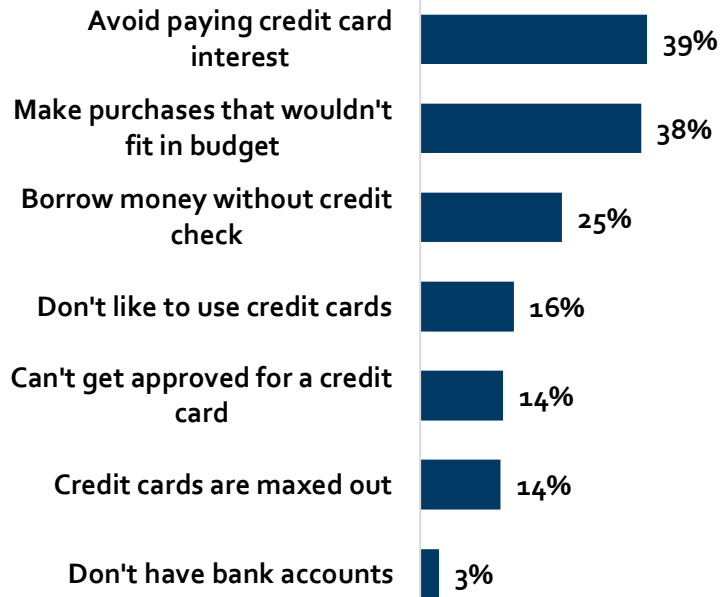
MORNING CONSULT

Survey conducted May 2-7, 2022, among a representative sample of 1,000 Chinese adults, with an unweighted margin of error of +/-3 percentage points. Figures may not add up to 100% due to rounding.

- Unequal infrastructure penetration (particularly in developing countries) poses a challenge for the adoption of CBDCs. While CBDCs aim to become a coin-based alternative, the reality is that they must coexist with traditional account-based and cash-based systems in regions with low technology adoption. As a result, the regulation, technology, and algorithms used in the exchange of these different forms of payment methods must be facilitated to ensure seamless integration. However, implementing this technology can be expensive, and security concerns also arise.

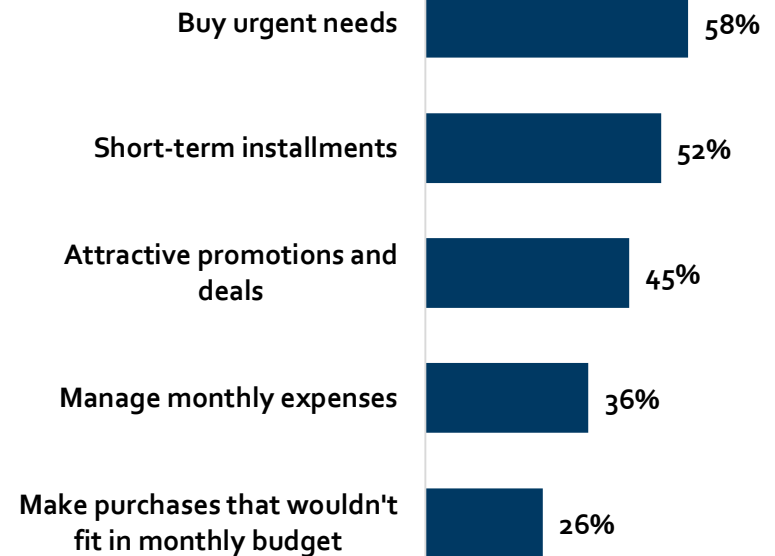
BNPL might face challenges during tightened liquidity cycle

Reasons for using BNPL services in the US



Source: Motley Fool, 2020

Reasons for using BNPL services in Indonesia

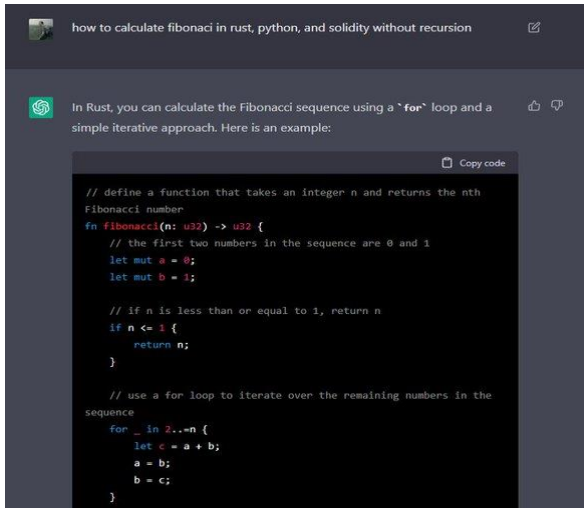


Source: Populix, 2021

- Fast approval and lenient requirements have made “buy now pay later” (BNPL) transactions an attractive payment option, particularly among younger consumers who may be more open to using alternative financial products.
- The biggest concern with BNPL is the trade off between asset quality and ease of access, since its lower level permission could encourage consumers to go through a repeated refinancing cycle to smooth their consumption trend. But the reduction in capital support in the short-medium term could spell trouble to BNPL providers, especially since asset quality is expected to decline even further amid slowing growth. Thus, we expect the growth of BNPL services to likely slow down due to tightening liquidity.

On the brink of AI war: Should banks worry?

Chat GPT



how to calculate fibonacci in rust, python, and solidity without recursion

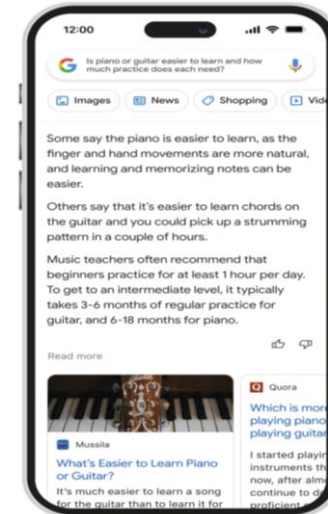
In Rust, you can calculate the Fibonacci sequence using a `for` loop and a simple iterative approach. Here is an example:

```
// define a function that takes an integer n and returns the nth
// fibonacci number
fn fibonacci(n: u32) -> u32 {
    // the first two numbers in the sequence are 0 and 1
    let mut a = 0;
    let mut b = 1;

    // if n is less than or equal to 1, return n
    if n <= 1 {
        return n;
    }

    // use a for loop to iterate over the remaining numbers in the
    // sequence
    for _ in 2..=n {
        let c = a + b;
        a = b;
        b = c;
    }
}
```

Google Bard



- Over the past three months, OpenAI (ChatGPT) and Google have made significant strides in AI development. We think that banks need to assess at least 2 kinds of threats with this development: (1) Direct impact concerning cybersecurity and (2) indirect impact that could affect portfolio quality in medium term.
- The latter comes naturally as a result of these new breakthroughs: Some businesses may be disrupted while others may become redundant overnight. While the first threat is equally as important, it is often still under the radar. As has been shown by many, this new AI technology is equipped with the ability to generate program scripts on the fly from a simple request. While this feature has many potential benefits, there are concerns that it would lead to an uptick in data breach attempts across internet applications, including those used by banks.
- For example, attackers without programming experience could use language models to create convincing phishing emails, chat messages, or phone calls that can trick bank customers into disclosing sensitive information or clicking on malicious links. Additionally, advanced language models could be used to crack passwords or other security credentials by generating highly sophisticated and personalized guessing attempts. As a result, it is crucial for banks and regulators to address these potential risks promptly.

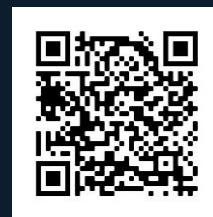
Projections of macroeconomic indicators

	2018	2019	2020	2021	2022	2023E
GDP growth (% YoY)	5.17	5.02	-2.07	3.69	5.30	4.70
GDP per capita (USD)	3927	4175	3912	4350	4784	5011
CPI inflation (% YoY)	3.13	2.59	1.68	1.87	5.50	4.30
BI 7-day Repo Rate (%)	6.00	5.00	3.75	3.50	5.50	5.75
USD/IDR exchange rate	14,390	13,866	14,050	14,262	15,568	15,647
Trade balance (USD Billion)	-8.5	-3.2	+21.7	+35.3	+54.5	+43.2
Current account balance (% of GDP)	-2.94	-2.71	-0.42	+0.28	+0.90	-0.19

Source : BPS, Bloomberg, BCA Economist calculations

Notes:

- BI 7-day Repo Rate, 10Y yield, and USD/IDR exchange rate all refers to end of year position
- 10Y yield and USD/IDR exchange rate projections refer to fundamental values; actual market values may vary depending on sentiment and technical factors



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