

## Fintechs - LatAm

# Nubank stood out among neobanks in 3Q; digital brokers failed to gain traction

**Industry Overview** 

## Further evidence of industry saturation and consolidation

We continued to see saturation and consolidation trends in September. The number of active users of neobanks in Brazil contracted by 1.8mn in the quarter and 7.9mn in the last twelve months, to c.172mn, reiterating our thesis of industry saturation. Despite the weak industry trends, Nubank continued to gain share, adding 3.4mn active users in the quarter and 8.8mn in the last 12 months, to 56.3mn, supporting our thesis of industry consolidation. Meanwhile, monthly active users of digital brokers fell 0.3mn in the quarter and 0.5mn in the last twelve months, despite recent cuts in the Selic rate, likely reflecting weak performance of equities.

## Neobanks: Nu and Pago gaining share of active users

Among neobanks, we also note that Mercado Pago gained 700k active users in the quarter, while C6 lost the most users (1.8mn), followed by AME (down 1.6mn). Among publicly traded companies, Inter's active client base remained flat in the quarter, PagBank lost 800k users, and Pan lost 700k users. The top 5 largest neobanks now account for 72% of active users, up from 64% one year ago. Exhibit 1, 2, 3 and 4.

## Traditional banks: sharp decline of users at Caixa

Traditional banks' active client base fell by 4.5mn in the quarter, mostly due to a 3.7mn decline at Caixa. Santander's active user base remained flat, while Itau and Banco do Brasil lost 0.2mn users each, and Bradesco lost 0.5mn users. Exhibit 5 and 6.

## Digital brokers: lower rates not enough to attract users

The number of active users of digital brokers remained pressured by the still elevated rate environment in Brazil and weak performance of equities (lbovespa is flat YTD). BTG lost 100k users in the quarter while XP's client base remained flat (excluding the acquisition of Modal, which added 200k users). Exhibit 7 and 8.

#### 12 October 2023

Equity Latin America LatAm Financials

Mario Pierry Research Analyst BofAS +1 646 743 0047 mario.pierry@bofa.com

Antonio Ruette >> Research Analyst Merrill Lynch (Brazil) +55 11 2188 4225 antonio.ruette@bofa.com

Flavio Yoshida >> Research Analyst Merrill Lynch (Brazil) +55 11 2188 4588 flavio.yoshida@bofa.com

Ernesto Gabilondo >> Research Analyst Merrill Lynch (Mexico) +52 55 5201 3428 ernesto.gabilondo@bofa.com

MAU - monthly active users

BofA Securities does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 18 to 19.

Timestamp: 12 October 2023 11:20AM EDT

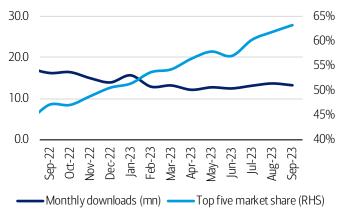
<sup>&</sup>gt;> Employed by a non-US affiliate of BofAS and is not registered/qualified as a research analyst under the FINRA rules.

Refer to "Other Important Disclosures" for information on certain BofA Securities entities that take responsibility for the information herein in particular jurisdictions.

## September update

## Exhibit 1: Neobanks downloads and top five market share

Market share of the top five apps increased to 63% from 44%



Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 2: Neobanks MAU and top five market share

Total number of active users remained relatively stable, with the top five players gaining market share over smaller players

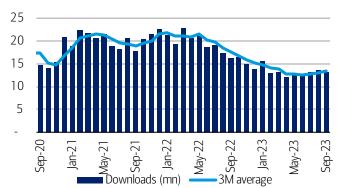


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 3: Neobanks - monthly downloads

Downloads remain well below '22 levels

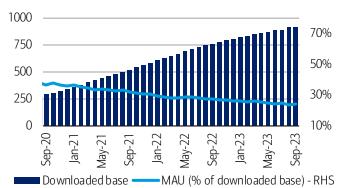


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 4: Neobanks - downloads and MAU

MAU base at 24% of downloaded base

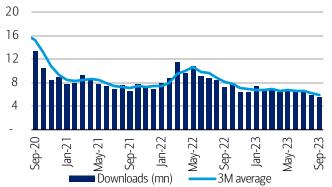


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 5: Incumbent banks - monthly downloads

Downloads on a downward since March

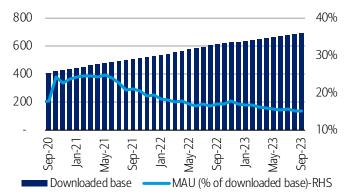


Source: Sensor Tower. BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 6: Incumbent banks - downloads and MAU

MAU base at 15% of downloaded base

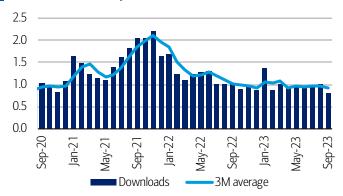


Source: Sensor Tower, BofA Global Research



## Exhibit 7: Digital brokers - monthly downloads

Downloads remained very weak

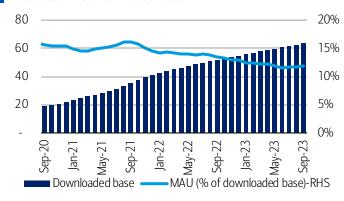


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 8: Digital brokers - downloads and MAU

MAU base at 12% of downloaded base



Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

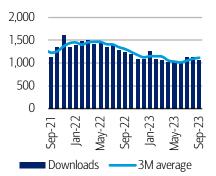
## Monthly trends by company

#### Neobanks

## Mercado Pago

## Exhibit 9: Monthly downloads (th)

Downloads remain flattish



Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## 15,000

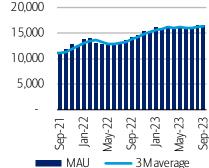


Exhibit 10: Monthly active users (th)

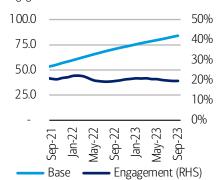
Active user base has improved marginally

Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 11: Engagement and base (%, mn)

Engagement remained stable



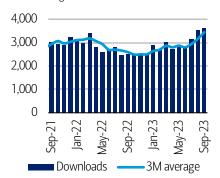
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Nubank

#### Exhibit 12: Monthly downloads (th)

Downloads gained momentum

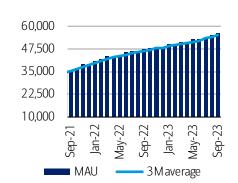


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 13: Monthly active users (th)

Active user base increasing sequentially

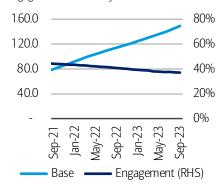


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 14: Engagement and base (%, mn)

Engagement is relatively stable



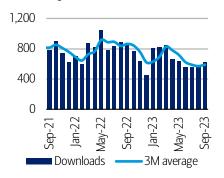
Source: Sensor Tower, BofA Global Research



#### Neon

#### Exhibit 15: Monthly downloads (th)

Downloads gained some momentum



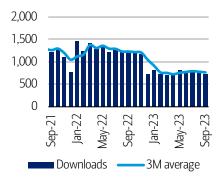
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### **PagBank**

#### Exhibit 18: Monthly downloads (th)

Downloads remain flattish



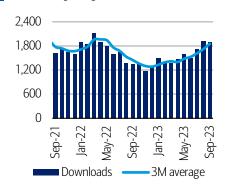
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### **PicPay**

#### Exhibit 21: Monthly downloads (th)

Downloads gaining some momentum

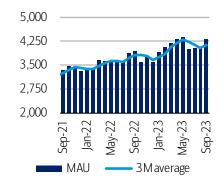


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 16: Monthly active users (th)

Active user base improved MoM

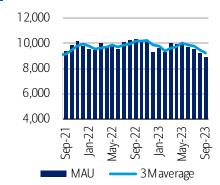


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 19: Monthly active users (th)

Active user base has contracted

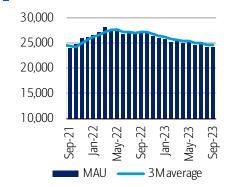


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 22: Monthly active users (th)

Active user base has deteriorated

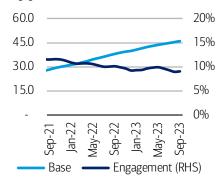


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 17: Engagement and base (%, mn)

Engagement remained stable

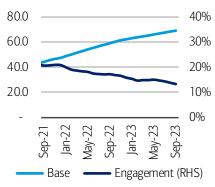


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 20: Engagement and base (%, mn)

Engagement has deteriorated

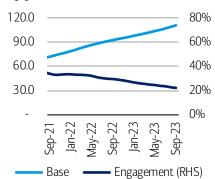


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 23: Engagement and base (%, mn)

Engagement has deteriorated



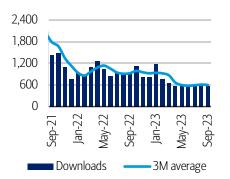
Source: Sensor Tower, BofA Global Research



#### **Banco Pan**

#### Exhibit 24: Monthly downloads (th)

Downloads lost momentum



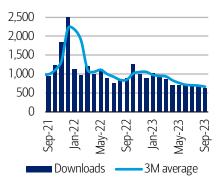
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### iti Itau

## Exhibit 27: Monthly downloads (th)

Downloads decelerated MoM



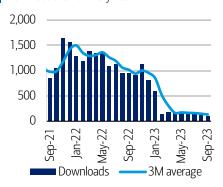
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### **AME Digital**

## Exhibit 30: Monthly downloads (th)

Downloads remain very weak

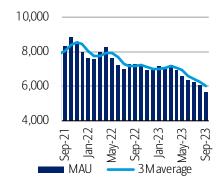


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 25: Monthly active users (th)

Active user base has contracted

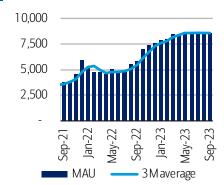


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 28: Monthly active users (th)

Active user base remained flattish

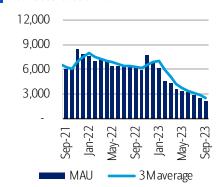


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 31: Monthly active users (th)

Active user base on downward



Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 26: Engagement and base (%, mn)

Engagement has deteriorated

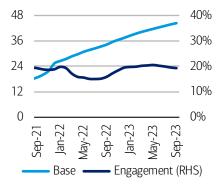


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 29: Engagement and base (%, mn)

Engagement remains stable

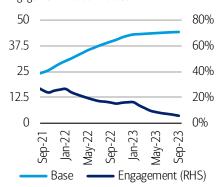


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 32: Engagement and base (%, mn)

Engagement has contracted



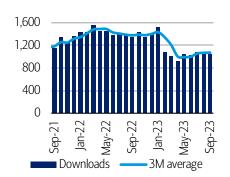
Source: Sensor Tower, BofA Global Research



#### Inter

#### Exhibit 33: Monthly downloads (th)

Downloads remain stable



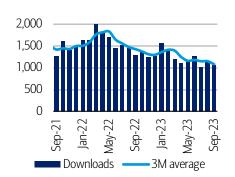
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### C6 Bank

## Exhibit 36: Monthly downloads (th)

Downloads lost momentum



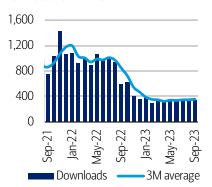
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Next

## Exhibit 39: Monthly downloads (th)

Downloads remain weak

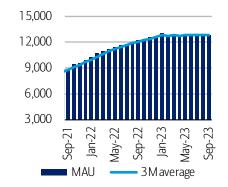


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 34: Monthly active users (th)

Active user base remains stable

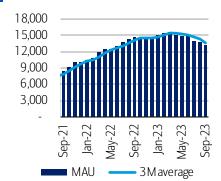


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 37: Monthly active users (th)

Active user base has contracted

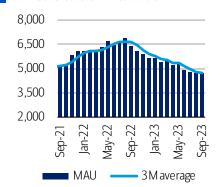


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 40: Monthly active users (th)

Active user base remained stable

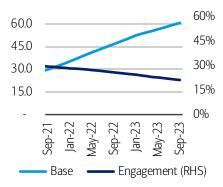


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 35: Engagement and base (%, mn)

Engagement has deteriorated

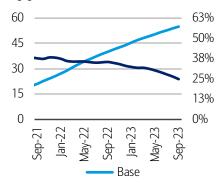


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 38: Engagement and base (%, mn)

Engagement has deteriorated

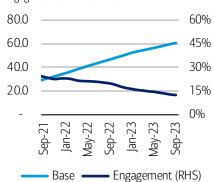


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 41: Engagement and base (%, mn)

Engagement on a downtrend



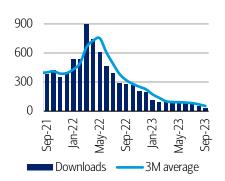
Source: Sensor Tower, BofA Global Research



#### **Banco Original**

#### Exhibit 42: Monthly downloads (th)

Downloads falling sharply



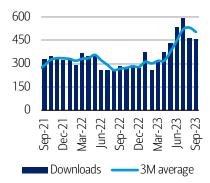
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### **Recarga Pay**

## Exhibit 45: Monthly downloads (th)

Downloads decelerated



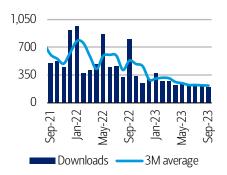
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### **PayPal**

## Exhibit 48: Monthly downloads (th)

Downloads continued to decelerate

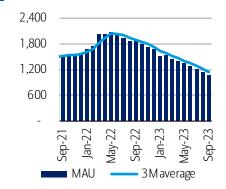


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 43: Monthly active users (th)

Active user base on a downtrend

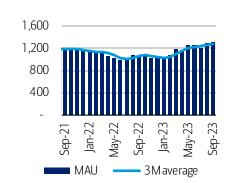


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 46: Monthly active users (th)

Active user base improved marginally

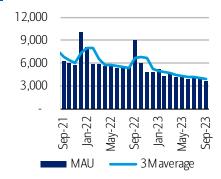


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 49: Monthly active users (th)

Active user base on a downtrend

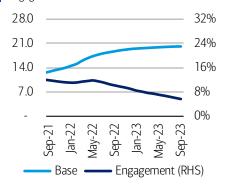


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 44: Engagement and base (%, mn)

Engagement has deteriorated

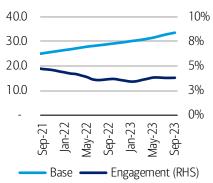


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 47: Engagement and base (%, mn)

Engagement remains weak

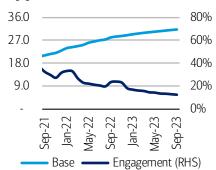


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 50: Engagement and base (%, mn)

Engagement on a downtrend

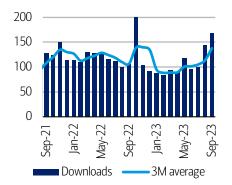


Source: Sensor Tower, BofA Global Research

#### **Agibank**

#### Exhibit 51: Monthly downloads (th)

Downloads gained momentum



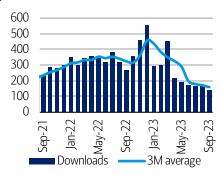
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Superdigital

## Exhibit 54: Monthly downloads (th)

Downloads lost momentum



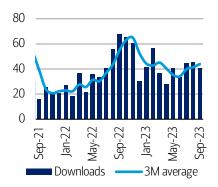
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Sofisa

#### Exhibit 57: Monthly downloads (th)

Downloads remained flattish

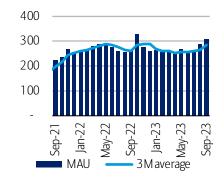


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 52: Monthly active users (th)

Active user base has improved

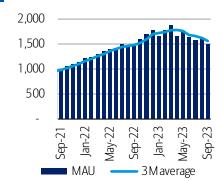


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 55: Monthly active users (th)

Active user base has deteriorated

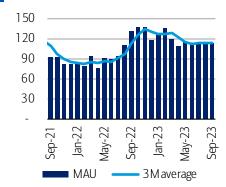


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 58: Monthly active users (th)

Active user base remains flattish

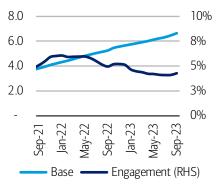


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 53: Engagement and base (%, mn)

Engagement improved MoM

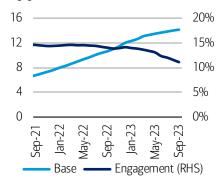


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 56: Engagement and base (%, mn)

Engagement has deteriorated

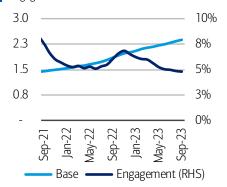


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 59: Engagement and base (%, mn)

Engagement has deteriorated



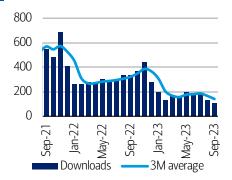
Source: Sensor Tower, BofA Global Research



#### BanQi

#### Exhibit 60: Monthly downloads (th)

Downloads lost momentum



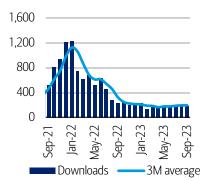
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### **Banco BV**

## Exhibit 63: Monthly downloads (th)

Downloads lost momentum



Source: Sensor Tower, BofA Global Research

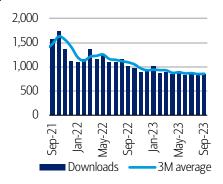
BofA GLOBAL RESEARCH

#### Incumbent banks

#### Banco do Brasil

#### Exhibit 66: Monthly downloads (th)

Downloads remain flattish

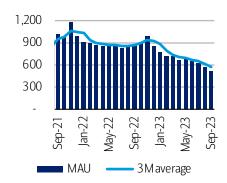


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 61: Monthly active users (th)

Active user base has deteriorated

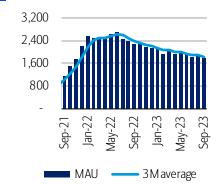


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 64: Monthly active users (th)

Active user base on a downtrend

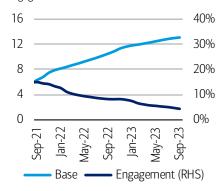


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 62: Engagement and base (%, mn)

Engagement on a downtrend

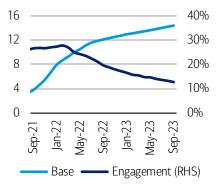


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 65: Engagement and base (%, mn)

Engagement on a downtrend

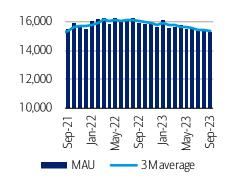


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 67: Monthly active users (th)

Active user base is flattish

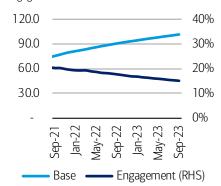


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 68: Engagement and base (%, mn)

Engagement has contracted



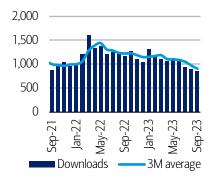
Source: Sensor Tower, BofA Global Research



#### **Bradesco**

#### Exhibit 69: Monthly downloads (th)

Downloads have decelerated



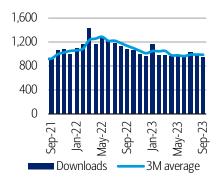
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Itau Unibanco

## Exhibit 72: Monthly downloads (th)

Downloads have been flattish



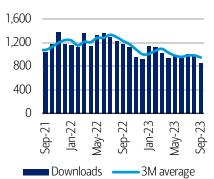
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Santander Brasil

#### Exhibit 75: Monthly downloads (th)

Downloads have decelerated

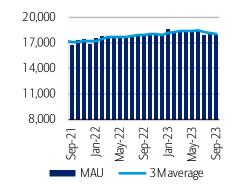


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 70: Monthly active users (th)

Active user base remains flattish

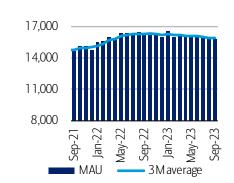


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 73: Monthly active users (th)

Active user base remains flattish

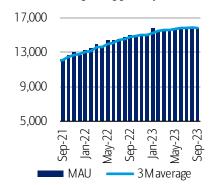


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 76: Monthly active users (th)

Active user base growing gradually

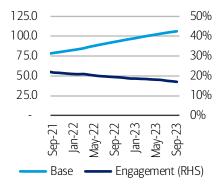


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 71: Engagement and base (%, mn)

Engagement has deteriorated

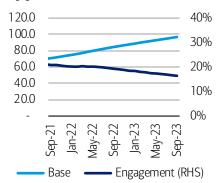


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 74: Engagement and base (%, mn)

Engagement remains weak

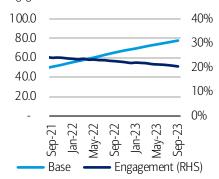


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 77: Engagement and base (%, mn)

Engagement remained stable



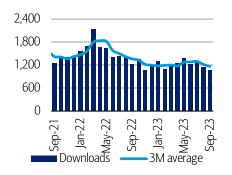
Source: Sensor Tower, BofA Global Research



#### Caixa

#### Exhibit 78: Monthly downloads (th)

Downloads have decelerated



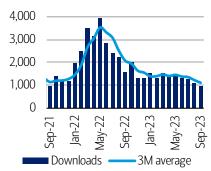
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Caixa Tem

#### Exhibit 81: Monthly downloads (th)

Downloads have decelerated



Source: Sensor Tower, BofA Global Research

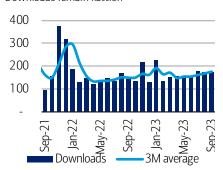
BofA GLOBAL RESEARCH

## **Digital brokers**

ΧP

## Exhibit 84: Monthly Downloads (th)

Downloads remain flattish

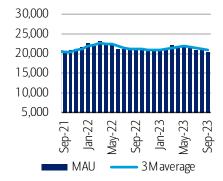


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 79: Monthly active users (th)

Active user base remains flattish

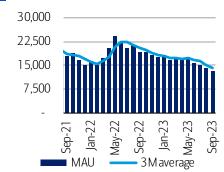


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 82: Monthly active users (th)

Active user base on a downtrend

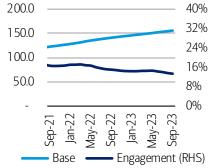


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 80: Engagement and base (%, mn)

Engagement remains weak

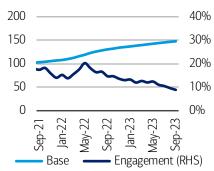


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 83: Engagement and base (%, mn)

Engagement on a downtrend

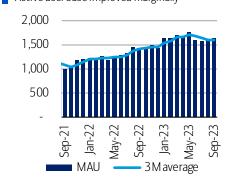


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 85: Monthly active users (th)

Active user base improved marginally

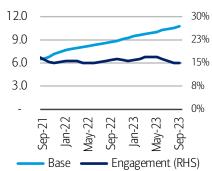


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 86: Engagement and base (%, mn)

Engagement remains flattish



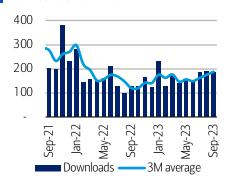
Source: Sensor Tower, BofA Global Research



#### Rico

#### Exhibit 87: Monthly Downloads (th)

Downloads remain flattish



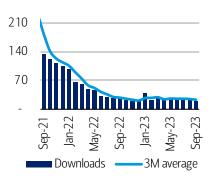
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Clear

## Exhibit 90: Monthly Downloads (th)

Downloads are weak



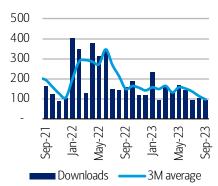
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### **BTG Pactual**

## Exhibit 93: Monthly Downloads (th)

Downloads are weak

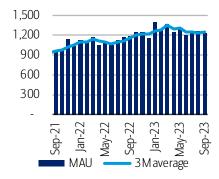


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 88: Monthly active users (th)

Active user base remains sideways

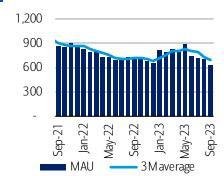


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 91: Monthly active users (th)

Active user base has contracted

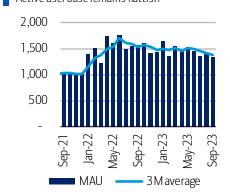


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 94: Monthly active users (th)

Active user base remains flattish

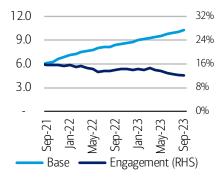


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 89: Engagement and base (%, mn)

Engagement has deteriorated

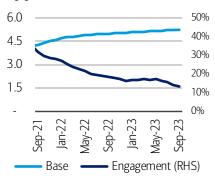


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 92: Engagement and base (%, mn)

Engagement has contracted

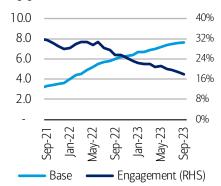


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 95: Engagement and base (%, mn)

Engagement continued to trend down

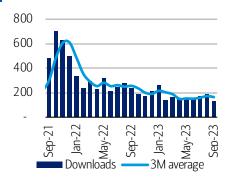


Source: Sensor Tower, BofA Global Research

#### Nulnvest

#### Exhibit 96: Monthly Downloads (th)

Downloads remains weak

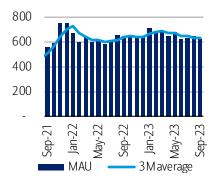


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 97: Monthly active users (th)

Active user base remains flattish

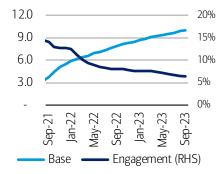


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 98: Engagement and base (%, mn)

Engagement continued to trend down



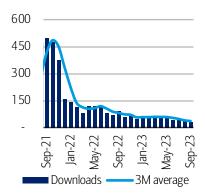
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Modalmais

#### Exhibit 99:

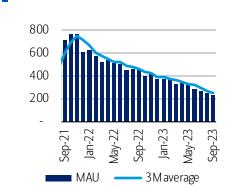
Downloads lost steam



BofA GLOBAL RESEARCH

## Exhibit 100: Monthly active users (th)

Active user base on a downtrend

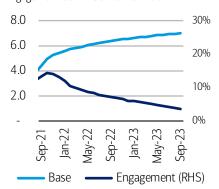


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 101: Engagement and base (%, mn)

Engagement continued to trend down



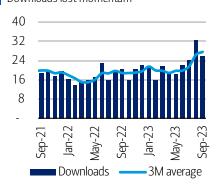
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### **BB** Investimentos

#### Exhibit 102: Monthly Downloads (th)

Downloads lost momentum

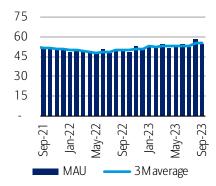


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 103: Monthly active users (th)

Active user base remains flattish

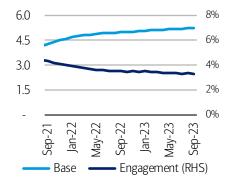


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 104: Engagement and base (%, mn)

Engagement is flattish



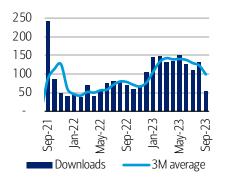
Source: Sensor Tower, BofA Global Research



#### Other digital brokers

## Exhibit 105: Ion - Monthly Downloads (th)

Downloads declined sharply

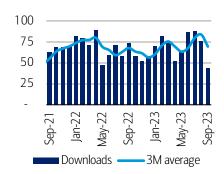


**Source:** Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 106: Genial - Monthly Downloads (th)

Downloads declined sharply

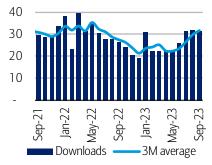


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 107: Toro - Monthly Downloads (th)

Downloads remained flattish

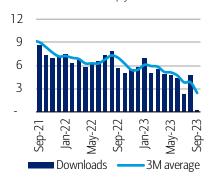


**Source:** Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 108: Itau Corretora - Monthly Downloads (th)

Downloads declined sharply

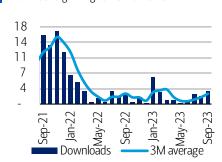


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 109: Órama - Monthly Downloads (th)

Downloads gaining some momentum

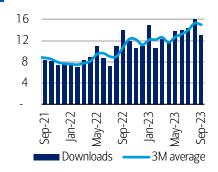


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 110: Agora - Monthly Downloads (th)

Downloads have decelerated

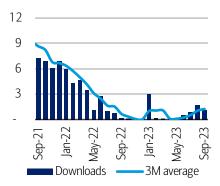


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 111: Santander Corretora - Monthly Downloads (th)

Downloads have decelerated

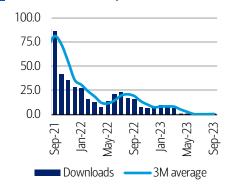


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 112: Guide - Monthly Downloads (th)

Downloads remains very weak



Source: Sensor Tower, BofA Global Research

## **Downloads and MAU by company**

## Active users by company

**Exhibit 113: MAU and engagement for fintechs, investment platforms and traditional banks**Nubank, PicPay and Caixa are leaders in terms of active users

	Active users							
	Mo	Monthly Users			% Chg YoY			
	Jul-23	Aug-23	Sep-23	Jul-23	Aug-23	Sep-23		
vestment platforms				#				
XP Investimentos	1,583	1,594	1,641	18%	10%	15%		
BTG Pactual	1,356	1,411	1,343	-9%	-9%	-14%		
Rico	1,228	1,267	1,241	10%	8%	5%		
Clear	723	704	638	3%	-4%	-11%		
Nu Invest	634	648	625	2%	-1%	-3%		
Genial	272	278	252	39%	42%	19%		
Modalmais	272	254	229	-40%	-45%	-50%		
BB	53	58	54	10%	15%	7%		
XP Trader	29	29	26	-61%	-63%	-65%		
Guide	2	2	2	-92%	-92%	-94%		
gital banks / ewallets								
Nubank	54,362	55,146	56,264	18%	20%	19%		
PicPay	25,180	24,158	24,239	-8%	-11%	-11%		
Mercado Pago	15.867	16.544	16,646	20%	21%	16%		
C6 Bank	13,960	13,794	13,306	2%	-4%	-9%		
Inter	12,822	12,837	12,842	8%	6%	5%		
PagBank	9,565	9,233	8,920	-5%	-10%	-14%		
iti Itau	8,540	8,566	8.604	74%	54%	47%		
Pan	6,270	6,075	5,668	-10%	-17%	-22%		
Next	4,799	4,703	4,708	-28%	-32%	-26%		
Neon	4,046	4,067	4,319	12%	4%	9%		
PayPal	4,202	3,886	3,699	-22%	-29%	-59%		
Digio	3,142	3,264	3,035	-19%	-17%	-19%		
AME Digital	2,851	2,500	2,194	-55%	-61%	-64%		
BV	1,840	1,869	1,792	-25%	-21%	-22%		
Superdigital	1,584	1,617	1,505	5%	9%	2%		
RecargaPay	1,209	1,301	1,316	18%	20%	23%		
Original	1,204	1,138	1,071	-38%	-39%	-43%		
Bitz	958	834	656	-78%	-80%	-77%		
BanQi	620	568	520	-26%	-35%	-41%		
Agibank	256	288	310	-2%	11%	18%		
Sofisa	113	116	114	19%	5%	-14%		
N26	55	48	49	-24%	-37%	-39%		
aditional banks	33	10	15	2170	51 10	33 /0		
Caixa	21,018	20,846	20,487	-1%	-1%	-3%		
Bradesco	17,885	18,224	17,935	0%	1%	-1%		
Santander Brasil	15,907	15,910	15,789	10%	8%	5%		
Itau Unibanco	15,954	15,877	15,852	-1%	-3%	-3%		
Banco do Brasil	15,386	15,416	15,032	-4%	-5%	-4%		
Caixa Tem	15,206	14,055	13,273	-26%	-34%	-32%		
Caixa Tem	15,206	14,055	13,0//	-26%	-34%	-32%		

Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## **Downloads by company**



Exhibit 114: Neobanks - accumulated base since 2012 (mn)

Nubank continues to have the largest downloaded base, followed by PicPay and Mercado Pago

			YoY Chg			
	Aug-23	Sep-23	Jul	Aug	Sep	
Nubank	145.6	149.2	30%	30%	30%	
PicPay	108.8	110.7	19%	19%	20%	
MercadoPago	82.8	83.9	20%	19%	19%	
PagBank	68.5	69.2	19%	18%	17%	
Inter	59.7	60.7	33%	32%	30%	
C6	53.9	55.0	41%	39%	37%	
Pan	50.1	50.7	24%	23%	21%	
Neon	45.3	45.9	24%	22%	21%	
AME	44.1	44.2	17%	14%	12%	
iti Itau	43.8	44.4	33%	31%	30%	
Next	37.6	38.0	17%	14%	13%	
Recarga Pay	33.1	33.6	15%	16%	16%	
PayPal	31.1	31.3	14%	14%	11%	
Original	20.1	20.1	10%	9%	7%	
Digio	15.0	15.2	25%	24%	23%	
Banco BV	14.2	14.4	21%	20%	19%	
Super Digital	14.0	14.1	38%	35%	33%	
BanQi	13.0	13.1	30%	27%	24%	
Agibank	6.5	6.6	25%	26%	26%	
Dotz	3.0	3.0	5%	5%	5%	
Sofisa	2.3	2.4	33%	31%	28%	
Total	893	906	23%	17%	16%	

Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 116: Incumbents - accumulated base since 2012 (mn)

Downloaded base continued to expand at c.13% YoY

	_	_	YoY Chg			
	Aug-23	Sep-23	Jul	Aug	Sep	
Caixa	156	157	11%	10%	10%	
Caixa Tem	148	149	14%	13%	13%	
Bradesco	106	107	15%	14%	14%	
Banco do Brasil	102	102	12%	12%	12%	
Itau Unibanco	97	98	15%	14%	14%	
Santander Brasil	78	79	20%	19%	18%	
Total	686	691	14%	13%	13%	

Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 115: Neobanks - monthly downloads (thousands)

Neobanks had 13.2mn downloads, weaker than 13.7mn in August

			YoY Chg			
	Aug-23	Sep-23	Jul	Aug	Sep	
Nubank	3,524	3,635	13%	43%	45%	
PicPay	1,929	1,906	6%	41%	42%	
MercadoPago	1,139	1,070	-18%	-12%	-13%	
C6	1,163	1,054	-33%	-20%	-19%	
Inter	1,082	1,040	-22%	-22%	-23%	
PagBank	785	720	-37%	-35%	-41%	
lti Itau	690	620	-12%	-21%	-31%	
Neon	587	619	-33%	-34%	-28%	
Pan	617	569	-35%	-34%	-37%	
Recarga Pay	465	455	130%	81%	59%	
Next	362	351	-64%	-61%	-41%	
Digio	232	206	-40%	-26%	-26%	
PayPal	219	202	-51%	-33%	-75%	
Banco BV	193	186	-57%	-29%	-19%	
Agibank	145	169	-11%	43%	58%	
Super Digital	170	141	-56%	-47%	-48%	
BanQi	135	106	-38%	-60%	-69%	
AME	130	105	-87%	-86%	-89%	
Sofisa	46	41	9%	-18%	-40%	
Original	53	32	-81%	-82%	-89%	
Dotz	12	10	57%	8%	70%	
Total	13,677	13,240	-32%	-21%	-18%	

Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 117: Incumbents - monthly downloads (thousands)

Incumbents had 5.5mn downloads, weaker than 6.0mn in August

			YoY Chg		
	Aug-23	Sep-23	Jul	Aug	Sep
Caixa	1,144	1,057	-11%	-18%	-14%
Caixa Tem	1,084	969	-47%	-51%	-39%
Itau Unibanco	992	943	-13%	-13%	-13%
Bradesco	905	862	-25%	-26%	-27%
Santander Brasil	979	851	-21%	-20%	-27%
Banco do Brasil	848	843	-21%	-26%	-17%
Total	5.952	5.525	-26%	-29%	-24%

Source: Sensor Tower, BofA Global Research



## Exhibit 118: Digital brokers - accumulated base since 2012 (thousands)

Digital brokers' accumulated base of downloads expanded 22% YoY...

			YoY Chg		
	Aug-23	Sep-23	Jul	Aug	Sep
XP Consolidated*	26,446	26,826	18%	19%	19%
XP	10,583	10,757	23%	23%	23%
Rico	10,093	10,279	22%	23%	23%
Nulnvest	9,850	9,982	31%	28%	26%
Modal	7,685	7,714	10%	10%	9%
BTG Pactual	7,543	7,634	31%	29%	28%
Clear	5,770	5,790	6%	6%	5%
lon	2,372	2,427	148%	141%	130%
Genial	2,184	2,228	63%	62%	57%
BB Investimentos	1,652	1,678	18%	18%	18%
Guide	1,415	1,416	6%	5%	4%
Toro	1,141	1,173	37%	36%	35%
Agora	1,024	1,037	18%	18%	18%
Itau Corretora	668	668	11%	10%	9%
Satander Corretora	435	436	1%	2%	2%
Orama	337	340	6%	6%	7%
Total	62,752	63,559	24%	23%	22%

Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## Exhibit 119: Digital brokers - monthly downloads (thousands)

...while downloads contracted 21%

			YoY Chg		
	Aug-23	Sep-23	Jul	Aug	Sep
XP Consolidated*	393	380	31%	33%	27%
Rico	192	185	42%	93%	45%
XP	175	175	31%	4%	21%
Nulnvest	189	132	-32%	-32%	-45%
BTG Pactual	102	92	-36%	-29%	-42%
lon	131	55	35%	60%	-23%
Genial	76	44	23%	32%	-41%
Toro	32	32	14%	14%	18%
Modal	37	29	-48%	-49%	-68%
BB Investimentos	33	26	51%	63%	27%
Clear	25	20	-18%	-7%	-29%
Agora	18	13	101%	60%	-7%
Orama	2	3	-26%	18%	18%
Satander Corretora	2	1	-4%	106%	500%
Guide	1	1	-98%	-97%	-95%
Total	1,019	807	-5%	0%	-21%

Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

## About the data

Through Sensor Tower (ST) we are able to track app downloads from App Store and Google Play; ST tracks the number of downloads combining data from actual stores and multiple partners, providing daily download info. As the service tracks the number of downloads through app stores accounts, it does not double count the same user when an app is reinstalled (i.e. user acquires a new phone and reinstalls all applications). However, Sensor Tower does not detect app deletions, and thus we are unable to estimate the number of active clients. Sensor Tower considers as MAU (monthly active users) a user who accessed a given app at least one time in a given period of time.



## **Disclosures**

## **Important Disclosures**

BofA Global Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.

## Other Important Disclosures

From time to time research analysts conduct site visits of covered issuers. BofA Global Research policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits.

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for any recommendation in relation to an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report and in relation to a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including BofA Securities trading desks.

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.

Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments. Refer to BofA Global Research policies relating to conflicts of interest.

"BofA Securities" includes BofA Securities, Inc. ("BofAS") and its affiliates. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. "BofA Securities" is a global brand for BofA Global Research.

#### Information relating to Non-US affiliates of BofA Securities and Distribution of Affiliate Research Reports:

BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudential et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF). BofA Securities Europe SA ("BofASE") with registered address at 51, rue La Boétie, 75008 Paris is registered under no. 842 602 690 RCS Paris. In accordance with the provisions of French Code Monétaire et Financier (Monetary and Financial Code), BofASE is an établissement de crédit et d'investissement (credit and investment institution) that is authorised and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers. BofASE's share capital can be found at www.bofaml.com/BofASEdisclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI), BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI, BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSFC); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch (Canada): Merrill Lynch (Canada): Merrill Lynch (Mexico): Merrill Lynch (Mexico): Merrill Lynch (Mexico) (Mexico): Merrill Lynch (Mexico): M CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Árgentina SA, regulated by Comisión Nacional de Valores; BofAS Japan: BofA Securities Japan Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; BofAS India: BofA Securities India Limited, regulated by the Securities and Exchange Board of India (SEBI); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Brazil): Merrill Lynch S.A. Corretora de Títulos e Valores Mobiliários, regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofASE (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by BofAS Japan, a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSFC; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information in Germany and is regulated by BaFin, the ECB and the CBL BofA Securities entities, including BofA Europe and BofASE (France),

This information has been prepared and issued by BofAS and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. BofAS and/or MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to BofAS and/or MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through BofAS and/or MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information. For clients that are not accredited investors, expert investors or institutional investors Merrill Lynch (Singapore) Pte Ltd accepts full responsibility for the contents of this information distributed to such clients in Singapore.

#### General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Securities. This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Securities clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives,



financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Securities, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. Digital assets are extremely speculative, volatile and are largely unregulated. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

This report may contain a short-term trading idea or recommendation, which highlights a specific near-term catalyst or event impacting the issuer or the market that is anticipated to have a short-term price impact on the equity securities of the issuer. Short-term trading ideas and recommendations are different from and do not affect a stock's fundamental equity rating, which reflects both a longer term total return expectation and attractiveness for investment relative to other stocks within its Coverage Cluster. Short-term trading ideas and recommendations may be more or less positive than a stock's fundamental equity rating.

BofA Securities is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned herein. Investors in such securities and instruments, including ADRs, effectively assume currency risk.

BofAS or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BofAS or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Securities, through business units other than BofA Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Securities is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information. In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS). If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

#### Copyright and General Information:

Copyright 2023 Bank of America Corporation. All rights reserved. iQdatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Securities clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Securities. BofA Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Securities and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Securities. Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel's knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public inform

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofAS any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Securities and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Securities is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Securities. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Securities is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Securities is under no obligation to update this information and BofA Securities ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Securities will not update any fact, circumstance or opinion contained herein.

Certain outstanding reports or investment opinions relating to securities, financial instruments and/or issuers may no longer be current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with BofAS or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BofA Securities nor any officer or employee of BofA Securities accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.

