

## Asia Viewpoint

# Hong Kong: FY24-25 Budget Preview: Between a rock and a hard place

## Fiscal principles increasingly stand in contrast to reality

Since the return to Chinese sovereignty in 1997, the HKSAR has followed several guiding principles on public financing, including “keeping the expenditure within the limits of revenues” and a “low tax policy”. However, such principles have been contrasted with the reality in the post-COVID period. For the past three out of four fiscal years, the HK government has run fiscal deficits. We estimate the **final FY 23-24 deficit to be HK\$ 130bn**, given the current fiscal year-to-date trends of revenue and expenditures. As a result, fiscal reserves are down 44% from their January 2019 peak.

## Persistent headwinds on medium term fiscal outlook

The fiscal outlook will likely remain weak for the next 2-3 fiscal years. The shortfall in land sales is the biggest reason for why we believe Hong Kong’s fiscal position will further deteriorate. Moreover, with the inventory of unsold housing at its highest since 2006, we think the digestion of this inventory will first need to occur before property developers would be incentivized to bid for land again. On the other hand, the government has penciled in for an acceleration of infrastructure expenditure.

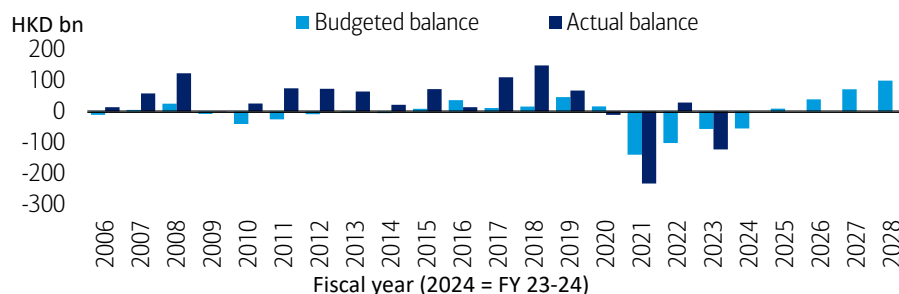
## Choosing between a rock and a hard place

To maintain a balanced budget in the near term, the government must sacrifice at least one of the below: **1)** keeping the current expenditure plan, **2)** maintaining a low tax regime, **3)** avoiding financing for general spending through bond issuances, **4)** avoiding significant drawdowns in the Capital Works Reserve Fund (CWRF), and **5)** refraining from using the Land Fund to cover for the fiscal shortfall.

The Budget, to be announced on 28<sup>th</sup> Feb, will likely reveal which path the government will take. **We believe a combination of transfer from funds and/or bond issuance will be the most plausible options under the current circumstances.** Either way, with revenue structurally weak from the decline of land premium, we expect Hong Kong’s fiscal reserves to remain on a path of decline for the next 2-3 fiscal years.

### Exhibit 1: Budgeted and actual fiscal balance

The government is likely to revise down its fiscal projection in the upcoming FY24-25 Budget



Source: The Treasury, BofA Global Research. Note: Budgeted balance for 2025-2028 are forecasts in FY23/24 Budget

BofA GLOBAL RESEARCH

06 February 2024

GEM Economics  
Asia

**Ting Him Ho, CFA**  
Asia Economist  
Merrill Lynch (Hong Kong)  
+852 3508 8744  
[tinghim.ho@bofa.com](mailto:tinghim.ho@bofa.com)

**Chun Him Cheung, CFA**  
Emerging Asia FI/FX Strategist  
Merrill Lynch (Hong Kong)  
+852 3508 3644  
[chunhim.cheung@bofa.com](mailto:chunhim.cheung@bofa.com)

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 11 to 12.

12655211

Timestamp: 05 February 2024 05:00PM EST

# Introduction

## Fiscal principles increasingly stand in contrast to reality

Since the return of Chinese sovereignty in 1997, the Hong Kong Special Administrative Region (HKSAR) has followed several guiding principles on public financing which are enshrined in the Basic Law, Hong Kong's constitution.

- **Article 107:** "The Hong Kong Special Administrative Region shall follow the principle of **keeping the expenditure within the limits of revenues** in drawing up its budget, and **strive to achieve a fiscal balance**, avoid deficits and keep the budget commensurate with the growth rate of its gross domestic product."
- **Article 108:** "The Hong Kong Special Administrative Region shall, taking the **low tax policy** previously pursued in Hong Kong as reference, enact laws on its own concerning types of taxes..."

However, in the post COVID period, the principles of low taxes and striving to achieve fiscal balance (i.e. no fiscal deficit) is contrasted with the reality of falling land premium, growing recurrent expenditure stemming from an aging population and ambitious infrastructure projects. For the past three out of four fiscal years, the HK government have run fiscal deficits (**Exhibit 1**). **We estimate the final FY 23-24 deficit to be HK\$ 130bn<sup>1</sup>**, given the current fiscal year-to-date trends of revenue and expenditures. This stands in contrast with the HK\$54.4bn fiscal deficit the Finance Secretary presented in the FY 23-24 budget.

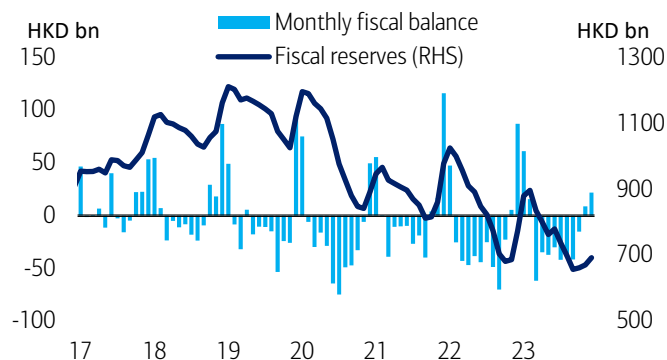
## Low cash level in GRA despite ample fiscal reserves

The net trend of expenditures exceeding revenue for the past four fiscal years has resulted in a gradual reduction in Hong Kong's fiscal reserves. Peaking at HK\$1.2tn in Jan 2019, the fiscal reserves have fallen to HK\$692bn by Dec 2023, a decline of 40% (**Exhibit 2**). Although reduced, Hong Kong's fiscal space remains ample and the HKSAR government has among the strongest fiscal positions in the world. The current issues with Hong Kong's finances have nothing to do with solvency but likely with liquidity.

**That said, cash levels at the GRA are running low.** As we had emphasized in our [Asia FI & FX Strategy Viewpoint: A deep dive into Hong Kong's finances 02 January 2024](#), the quarterly disclosure provided by the HK Treasury for 3Q23 shows cash levels at the General Revenue Account (GRA) are running low and towards HK\$100bn, despite total fiscal reserves remains massive, at close to HK\$690bn (**Exhibit 3**).

### Exhibit 2: Fiscal reserves and monthly fiscal balance

Hong Kong's fiscal reserves are down 40% from their peak in January 2019



Source: CEIC, The Treasury, BofA Global Research

BofA GLOBAL RESEARCH

### Exhibit 3: 3Q23 breakdown of Hong Kong's fiscal reserves

As of 3Q23, only 16% of Hong Kong's fiscal reserves are available to use to fund recurrent expenditures

	Current Assets (as of 3Q23, HK\$ Bn)	As %
Land Fund	307.54	45%
Capital Works Reserve Fund	138.78	20%
General Revenue Account	111.98	16%
Civil Service Pension Reserve Fund	53.86	8%
Innovation and Technology Fund	29.76	4%
Lottery Fund	22.91	3%
Capital Investment Fund	17.23	3%
Loan Fund	7.01	1%
Disaster Relief Fund	0.13	0%
<b>Total</b>	<b>689.20</b>	<b>100%</b>

Source: HK Treasury

BofA GLOBAL RESEARCH

<sup>1</sup> Our projection includes the proceeds from green bond issuance, which has been HK\$67bn in FY23-24

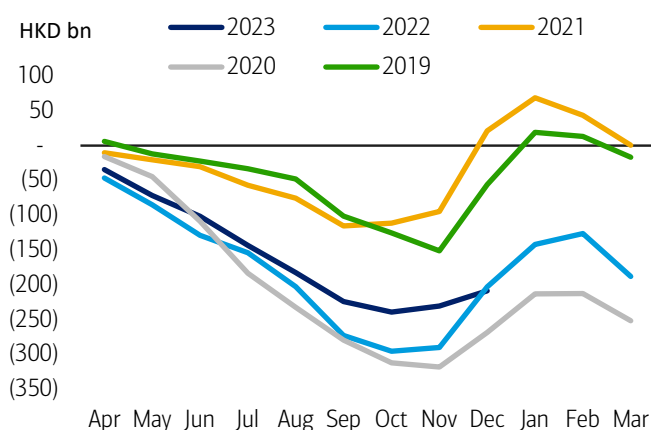
## Dissecting the fiscal shortfall

Currently, the HK government runs a fiscal deficit at a size similar to that seen in 2020 and 2022 (**Exhibit 4**). As of Dec 2023, cumulative consolidated fiscal deficit reached HK\$209bn before repayment/proceeds, the second largest on record in the same month (only behind HK\$269bn in 2020). As a result, fiscal reserves cover around 12 months of fiscal expenditure (**Exhibit 5**).

We believe **the falling revenue from land premium and stamp duties have been the major driver of the fiscal shortfall**, amid relatively the stable paths of expenditure and other tax collections.

### Exhibit 4: Cumulative running fiscal deficit (without proceeds from bond issuance)

HK government is running a fiscal deficit similar to those seen in 2020 and 2022

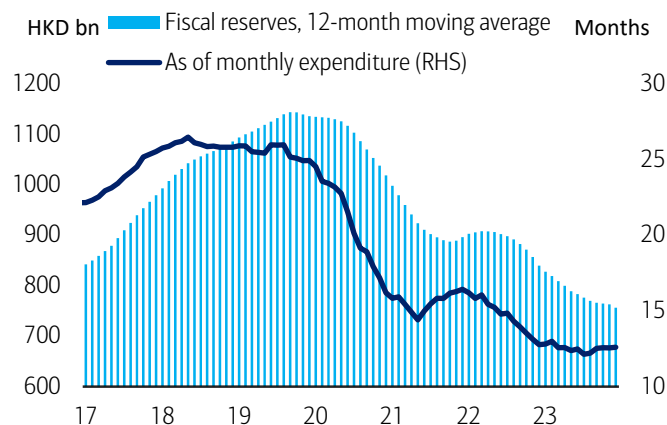


Source: CEIC, The Treasury, BofA Global Research

BofA GLOBAL RESEARCH

### Exhibit 5: Fiscal reserves' coverage of monthly expenditure

Fiscal reserves now cover around 12 months of fiscal expenditure



Source: CEIC, The Treasury, BofA Global Research

BofA GLOBAL RESEARCH

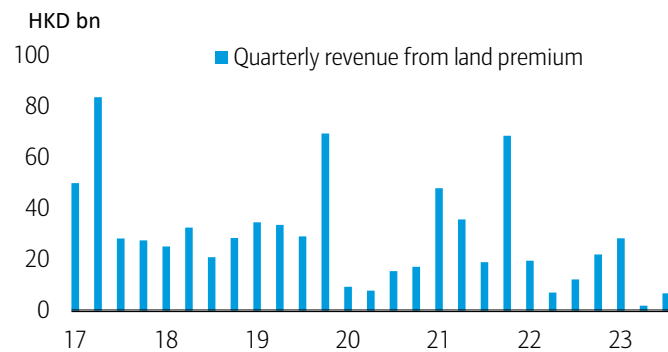
## Record-low land premium collected since FY09/10

Revenue from land premium is on the worst record since FY09/10 (**Exhibit 6**). As of November 2023, the revenue only reached HK\$12.1bn fiscal-year-to-date, around 15% of the initial target set for FY23-24 (HK\$85bn). The muted revenue was not only due to low prices transacted, but also the record-high number of failed land tenders. As of Jan 2024, there were already six failed residential and commercial land auctions, the highest on record.

Following the poor response to land auctions, sluggish market sentiment and high commercial vacancy rate, the government announced in early Jan not to sell any residential or commercial land in the first three months of 2024. This implies the total land premium collected in FY23-24 will be capped at a very depressed level. With the inventory of unsold housing at its highest since 2006, we believe the digestion of this inventory will first need to occur before property developers would be incentivized to bid for land again.

**Exhibit 6: Land premium collected**

The revenue from land premium in FY23/24 is expected to be the lowest number since FY09/10

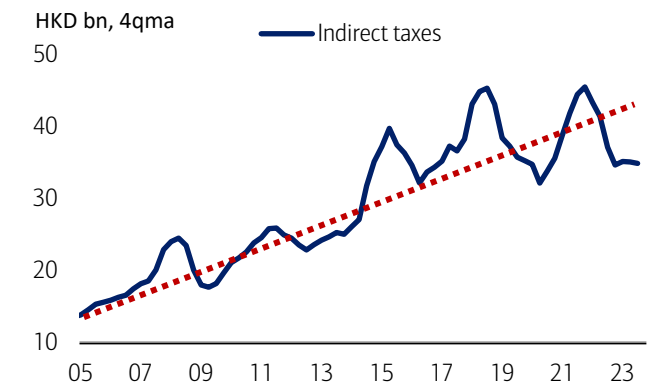


Source: CEIC, The Treasury, BofA Global Research

BofA GLOBAL RESEARCH

**Exhibit 7: Indirect taxes collected**

Indirect taxes collected in FY23/24 have been below trend



Source: CEIC, The Treasury, BofA Global Research

BofA GLOBAL RESEARCH

**Falling stamp duties from property & equity markets**

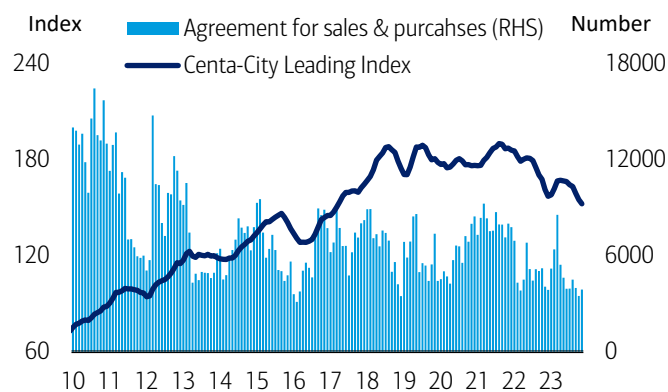
The additional drag to fiscal position has been the falling indirect taxes collected (**Exhibit 7**), mostly driven by fall in stamp duties in property transaction and equity market transaction (which accounted for ~15% of total operating revenue historically). Although there is no monthly data available for detailed tax collection, the sluggish sentiment and transaction are evident in the two markets.

In property market, sentiment only briefly improved in early 2023 before further deteriorating since late 2Q23, in spite of some marginal property tax reductions announced in latest Policy Address (see more in [our Policy Address review](#)). For the whole year 2023, prices and transaction volume dropped by 5% and 2% respectively compared with 2022, or by 20% and 40% compared to 2021 (**Exhibit 8**). We do not expect a material improvement in 2024, as our property analysts expect a further 5% drop in home prices in 1H before stabilization in 2H, meaning limited upside to stamp duties collection from property transactions.

On the other hand, the Hang Seng Index has been the worst performer compared with global equity markets, dropping by 14% in 2023 vs bull markets in most global equity indices (**Exhibit 9**). Despite the government's effort to lower stamp duty on stock transactions from the current 0.13% to 0.10% in the latest Policy Address, there seems to be limited impact on stock turnover so far.

**Exhibit 8: Property price and transaction**

Property transactions have been tepid amid price correction

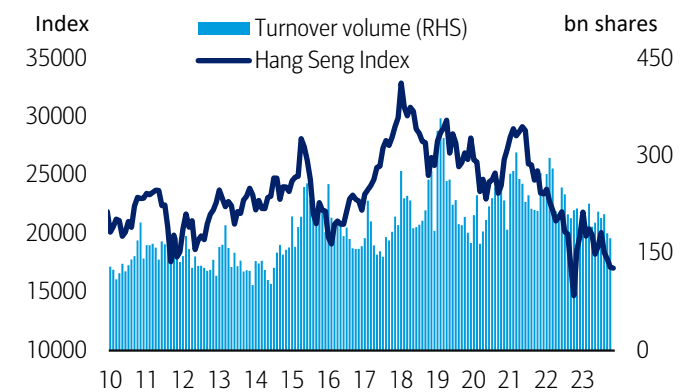


Source: CEIC, BofA Global Research

BofA GLOBAL RESEARCH

**Exhibit 9: Equity index and turnover volume (daily avg)**

Similar trend in the shock market



Source: CEIC, BofA Global Research

BofA GLOBAL RESEARCH

## Between a rock and a hard place

As discussed before, we do not expect immediate solutions to these lingering headwinds on revenue. As such, fiscal balance could record consecutive years of deficit. If land premium and stamp duties (historically account for >30% of total revenue) remain at such depressed levels.

To maintain a balanced budget in the near term, the government must sacrifice at least one of the following options:

- 1) Keeping the current expenditure plan;
- 2) Maintaining a low tax regime;
- 3) Avoiding financing for general spending through bond issuances;
- 4) Avoiding significant drawdowns in the Capital Works Reserve Fund (CWRF);
- 5) Refraining from using the Land Fund to cover for the fiscal shortfall.

In our views, options 1 and 2 are practically difficult to be sacrificed. **We believe a combination of transfer from funds (CWRF/Land Fund) and/or bond issuance will be the most plausible options under the current circumstances.**

### 1) Limited room for massive spending cut

In our view, there is no easy way to dial back both operating and capital expenditure (which are mostly infrastructure spending).

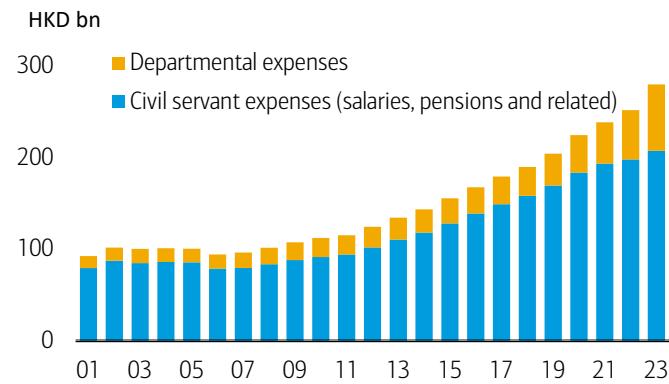
#### Downward rigidities in operating spending

Most operating expenses are rigid in nature and are not subjected to meaningful downward revision. For example, there are very limited rooms to cut the civil servants as well as departmental-related expenditure, which have been growing steadily at around 8% CAGR in most of fiscal years (**Exhibit 10**). Although the government vows to strictly control the growth of the civil service establishment, the expected wage inflation would continue to push up spending in this category.

The same kind of rigidity exists in social spending too (**Exhibit 11**). Looking at the three major components of social expenditure (including education, health and social welfare), they have not fallen in size since FY06/07. On average, they have been growing at 5% annually. While it is possible to keep education spending in check amid lower birth rate, the aging population will put spending on health and social welfare on a perennial upward trend.

### Exhibit 10: Operating expenditure: Civil servant & department expenses

Strong downward rigidity in civil servant/departmental expenses...



Source: CEIC, C&SD, BofA Global Research

BofA GLOBAL RESEARCH

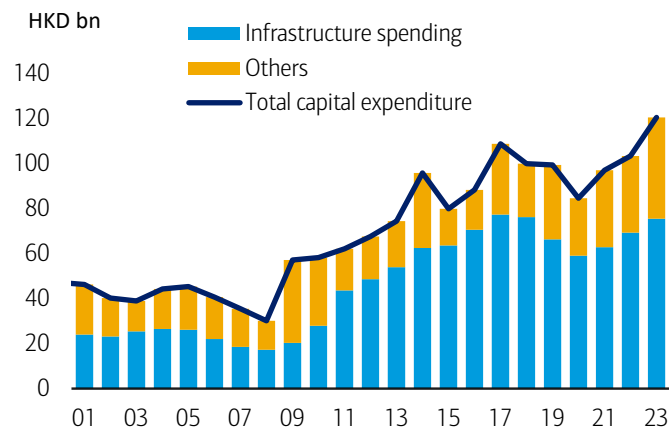
### Future infrastructure spending is already penciled in

We do not think there is much space to cut the upcoming infrastructure spending either<sup>2</sup>. Despite being a more volatile components in fiscal spending, it has trended up over the years since the Global Financial Crisis (**Exhibit 12**). In the medium-term projection, the government estimates a 7.5% CAGR during 2023-2027, higher than the 0.2% in 2013-17 and 2.7% in 2018-22 (**Exhibit 13**), driven by projects on housing supply, transport, recreational facilities, etc.

Specifically, there are already several strategic infrastructure projects that are under way (including Kai Tak Development, The Northern Metropolis project, LoK Ma Chau Loop), as well as projects with funding that approved by the Legislative Council. We expect limited chance of halting these projects for the sake of a more balanced budget. Note that the acceleration in capital works does not include the mega project of Lantau Tomorrow which is supposed to be self-financed through the sale of new land created.

### Exhibit 12: Capital and infrastructure expenditure

Infrastructure spending over the years has trended up

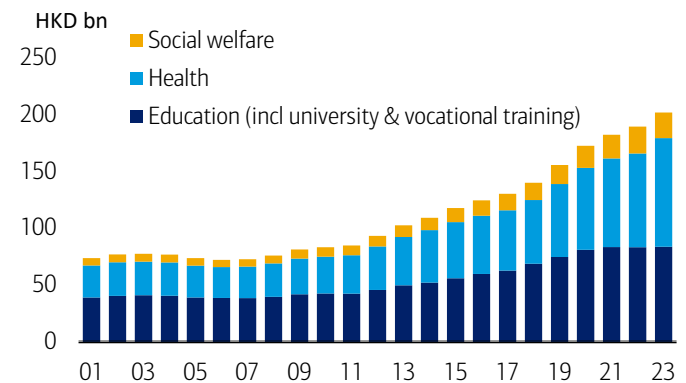


Source: CEIC, C&SD, BofA Global Research

BofA GLOBAL RESEARCH

### Exhibit 11: Operating expenditure: Social related expenses

...as well as in social-related expenses

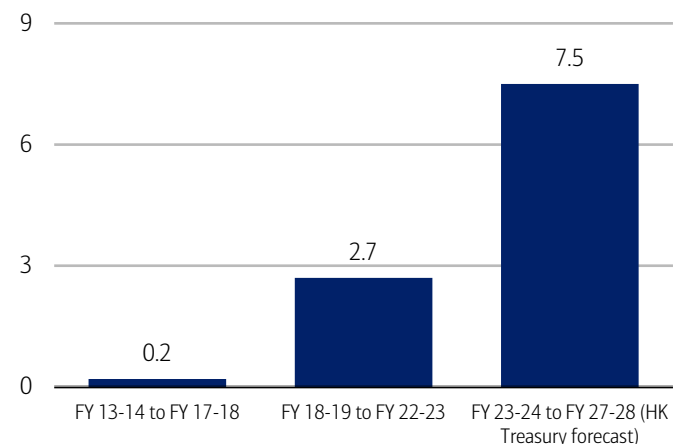


Source: CEIC, C&SD, BofA Global Research

BofA GLOBAL RESEARCH

### Exhibit 13: Trend growth (% annualized) of capital works expenditure

In the next four fiscal year, the HK government plans to significantly accelerate the pace of capital works in Hong Kong



Source: HK Treasury, 24/25 budget consultation document

BofA GLOBAL RESEARCH

<sup>2</sup> We categorize public works program (PWP) expenditure under Capital Works Reserve Fund as infrastructure spending.

## 2) Heightened concerns on new taxes/higher tax rate

At the same time, it seems to be an inappropriate time to consider introducing new taxes and/or raising tax rate (for existing taxes).

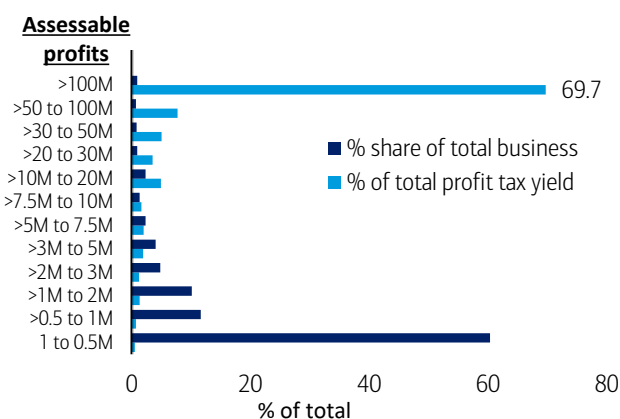
### Low tax regime crucial for retaining talents and corporations

Traditionally, HK has been known for its low and simple tax regime. The government only levies profit tax on business profits, property tax on rental income and salaries tax on employment income. The salaries tax rate is capped at 15.0% whereas profits tax rate for corporations is 16.5%, one of the lowest in developed economies.

In our view, the government could risk the loss of top talent and corporations shall it consider notable tax rate hike, especially with such a skewed tax base. In 2021/2022, the top 5% businesses (in terms of assessable profits) bear about 90% of profits tax revenue (**Exhibit 14**), while top-5% taxpayers bear more than 58% of salaries tax revenue (**Exhibit 15**).

#### Exhibit 14: Distribution of profit tax contribution

Top-5% taxpaying firms bear about 90% of profit tax revenue...

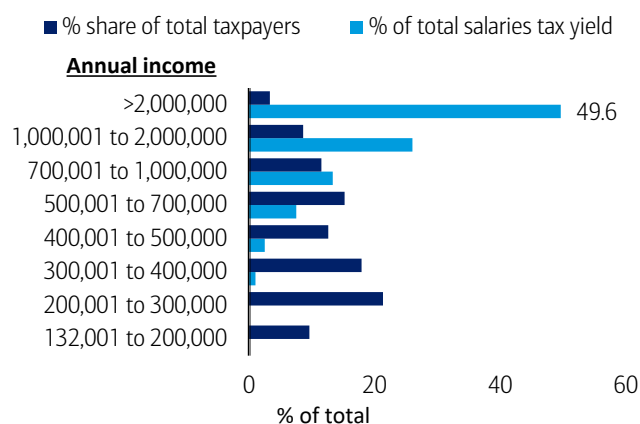


Source: 24/25 budget consultation document, BofA Global Research

BofA GLOBAL RESEARCH

#### Exhibit 15: Distribution of salaries tax contribution

While top-5% taxpayer bear more than 58% of salaries tax revenue



Source: 24/25 budget consultation document, BofA Global Research

BofA GLOBAL RESEARCH

### Inappropriate timing for new taxes amid other concerns

With the relatively narrow tax base, there has been growing discussion on the introduction of new taxes, with the **land/sea departure tax** and the **capital gains tax** receiving the most attention.

The departure tax is proposed to be levied on HK residents who leave the city by land/sea given the rising cross-border consumption (especially to mainland China), as a short-term measure to boost revenue<sup>3</sup>. In fact, the same tax was proposed in 1999 and 2003 when the HK government faced similar pressure on fiscal coffers, although they were all rejected. On the other hand, the capital gains tax is also proposed to be levied on profits via disposal of assets, including stocks and properties.

We believe both proposals are impractical under the current socioeconomic circumstances. For the departure tax, first, the introduction of a land/departure tax would be inconsistent with the ongoing integration of the Greater-Bay-Area. Second, there is a substantial group of HK/mainland residents travelling between borders for daily lives (e.g. education, work), not just for consumption. There are few reasons to impose additional burden on them. For the capital gains tax, such introduction could disrupt stock and property markets without proper consultation and forward guidance, in

<sup>3</sup> [www.scmp.com/news/hong-kong/hong-kong-economy/article/3248332/hong-kong-liberal-party-departure-tax-proposal-those-crossing-border-land-and-sea-slammed](http://www.scmp.com/news/hong-kong/hong-kong-economy/article/3248332/hong-kong-liberal-party-departure-tax-proposal-those-crossing-border-land-and-sea-slammed)

our view. In the long run, this could severely impair the competitiveness of the HK economy and lure capital away.

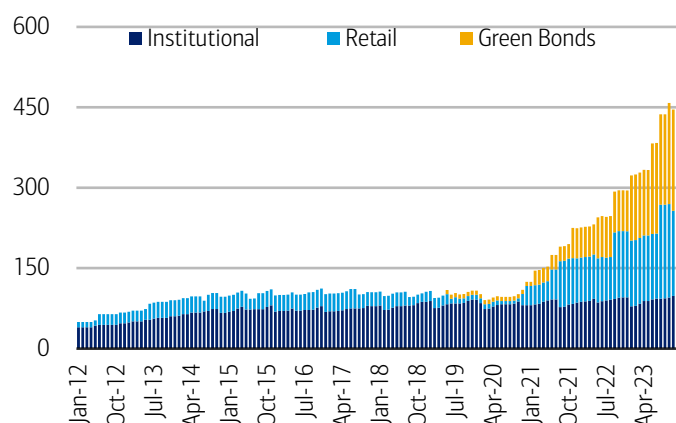
### 3) Financing spending through bond issuance

**Hong Kong's 'true' debt ratio is lower than what it appears on paper.** On the balance sheet of the HK government, total outstanding bonds stand at HK\$ 433bn or about 15% of GDP (**Exhibit 16**). However, the 'true' debt of the Hong Kong government is much lower. The bonds issued under the institutional and retail program amounts to HK\$ 244bn, and the proceeds of which are invested with the HKMA to be held in foreign assets. This is consistent with the principle outlined in the Article 107 of the Basic Law to achieve fiscal balance and avoid deficit financing.

**Green Bonds are the only true debt of the Hong Kong government.** The true debt of the Hong Kong government only includes Green Bonds which are issued to invest in environmental projects and amounts to HK\$ 189bn. Green Bonds are counted as a revenue inflow for the Hong Kong government as the amount raised impacts Hong Kong's fiscal reserves. Still, it has not been used to finance for recurrent spending.

#### Exhibit 16: Outstanding bonds of the Hong Kong government (HK\$ Bn)

Total outstanding bonds of the Hong Kong government stands at HK\$ 433bn, of which HK\$ 189bn is 'true' debt

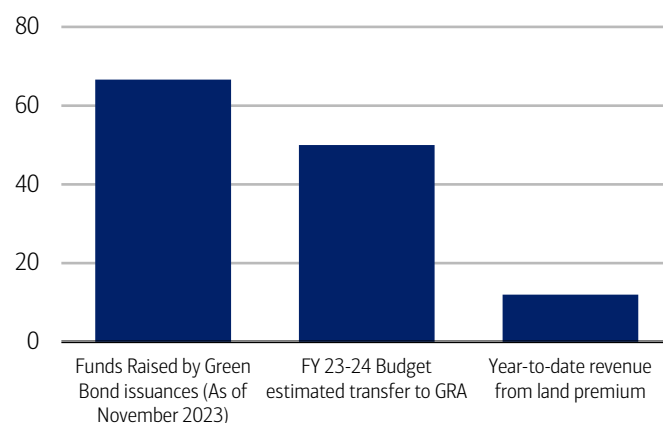


Source: HK Treasury

BofA GLOBAL RESEARCH

#### Exhibit 17: Transfer between CWRP and GRA

The FY 23-24 budget estimated for HK\$ 50bn of transfer from the CWRP to the GRA to support general spending



Source: HK Treasury

BofA GLOBAL RESEARCH

**Land premium paid for Hong Kong's infrastructure development.** Historically, the strong land sales resulted in land premium raised that goes into the Capital Works Reserve Fund. A longstanding philosophy of the HK government is that the infrastructure should be paid for the monies raised from land sales. Extra money raised from land sales that is not used in infrastructure building would be remitted to the General Revenue Account to cover for recurrent and general spending. However, proceeds from Green Bond issuances also enters the CWRP as those proceeds are meant to finance the development of green infrastructure (**Exhibit 17**).

**CWRP has to remit HK\$ 50bn back to the GRA amid weak land premium.** From what we can track in FY 23-24, year-to-date revenue raised from land premium is HK 12bn while the government is on track to remit HK\$ 50bn back to the GRA for general spending. As the original estimates for land premium was HK\$ 85bn, the shortfall in land premium and the necessarily large transfer back to the GRA means, on average, the level of fiscal reserves in the CWRP is on path of general decline. This decline has been somewhat offset by the issuance of HK\$ 67bn issuance in Green Bonds. However, the money raised from Green Bonds should have a transitory impact on Hong Kong's level of fiscal reserves as that money is meant to be spent on earmarked projects.

**Hong Kong has large fiscal buffers to deficit finance.** The Hong Kong government has enormous fiscal space to engage in deficit financing should it choose to as Hong Kong's true debt-to-GDP ratio stands at only 6%. HKGB remains to trade at a heavy



premium to US Treasuries reflecting the lack of duration supply in the market. For a structurally aging society and strong demand for HKD duration from both local and international real money accounts, we believe it is natural for the Hong Kong to increase its local currency debt supply over time.

#### 4) Drawing funding from Capital Works Reserve Fund

**The CWRF may say still provide financial support to the GRA, but not at a level similar to that in previous years.** In itself, this is not a constraint as the CWRF has regularly remits money to the government's general operations under the GRA (**Exhibit 18**). However, the CWRF represents the savings meant to develop Hong Kong's future infrastructure. With the aggressive infrastructure plan outlined, it is likely that the government could only transfer a fraction of surplus in CWRF (to finance current recurrent spending) so that the future infrastructure plan would not be jeopardized. Specifically, the FY 23-24 Budget estimates HK\$633bn outstanding spending commitment for CWRF, 4 times more than the existing funding within CWRF (**Exhibit 19**). Such substantial commitment will prevent the government from draining the fund too much.

**At current level, CWFR can cover its own expenditure for around a year.** In the FY 23/24 budget, it is estimated that the total spending needs of the CWRF was penciled to be HK\$ 157bn, of which HK\$ 50bn represents transfer to the GRA. As of 3Q23, the CWFR was still HK\$ 137bn. Even assuming continued weak income from Land Premium for next 2-3 fiscal, if it not unforeseeable to see levels in the CWFR significantly decline, especially should it need to support the spending of the GRA.

##### Exhibit 18: Net transfer between fiscal funds (HKD bn)

In previous years, the CWRF can provide strong support to the GRA to support general spending

	2019	2020	2021	2022	2023
General Revenue Account	57.40	47.93	58.52	23.64	95.23
Capital Works Reserve Fund	-80	-55	-84	-35	-100
Capital Investment Fund	-	6.00	20.14	-	-
Civil Service Pension Reserve Fund	1.53	0.00	1.84	3.02	-
Disaster Relief Fund	0.07	0.07	0.06	0.07	0.02
Innovation and Technology Fund	20.00	0.00	2.00	5.18	4.75
Land Fund	-	-	-	-	-
Loan Fund	1.00	1.00	1.44	2.00	-
Lotteries Fund	-	-	-	1.10	-

Source: The Treasury, BofA Global Research

BofA GLOBAL RESEARCH

##### Exhibit 19: CWRF: Balance and outstanding commitment

Outstanding commitment on spending for CWRF has grown relative to its own size



Source: Previous Budgets, BofA Global Research

BofA GLOBAL RESEARCH

#### 5) Revenue transfer from the Land Fund

**The Land Fund is the single largest resource of the Hong Kong government.** As shown in **Exhibit 3**, almost half of Hong Kong's fiscal reserves are held by the Land Fund. At HK\$ 307bn, this is an ample resource for Hong Kong to ride out of the current period of economic downturn and weak land premium. (For those that are interested in the historical origin and the purpose of the Land Fund, please see [Asia FI & FX Strategy Viewpoint: A deep dive into Hong Kong's finances 02 January 2024](#)). Currently, around HK\$ 286bn of the Land Fund's monies are invested with the HKMA while HK\$ 21bn is invested in strategic incentives such as Hong Kong Growth Portfolio.

**The current plan for the Land Fund is not to be withdrawn and used until 2030.**

The base case is for Land Fund resources to remain at the HKMA until 2030. Of the portion of the Land Fund invested in the HKMA, in 2022 HKMA Annual Report disclosed

“the repayment date of placements by Future Fund and the interest thereon (note 30) was extended from 31 December 2025 to 31 December 2030 unless otherwise directed by the Financial Secretary according to the terms of the placements”.

**However, emergency measures can allow the Financial Secretary to draw on the Land Fund to fund current expenditures.** The Resolution which established the Land Fund states the Land Fund can be used only for investment and not for the provision of any government services. The Resolution does not allow the government to freely transfer resources from the Land Fund to the General Revenue Account or other government funds. However, in practice, the Financial Secretary, with consent from the Legislative Council, has previously used Land Fund resources to cover for shortfall in revenue, as was the case in FY 03-04 and FY 04-05.

## Conclusion

---

After close examination of the above options, we believe **transfer from funds** (including CWRP and Land Fund), with **additional support from bond issuance**, will be the most plausible options to fund the needs of the GRA under the current circumstances.

The FY24-25 Budget, to be announced on 28th Feb, will likely reveal which path the government will take. Either way, with revenue structurally weak from the decline of land premium, we expect Hong Kong’s fiscal reserves to remain on the path of decline for the next 2-3 fiscal year.

# 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

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.

Individuals identified as economists do not function as research analysts under U.S. law and reports prepared by them are not research reports under applicable U.S. rules and regulations.

Macroeconomic analysis is considered investment research for purposes of distribution in the U.K. under the rules of the Financial Conduct Authority.

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 Prudentiel 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.bofam.com/BofASEdisclaimer](http://www.bofam.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 (HKSF); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Canadian Investment Regulatory Organization; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina 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 HKSF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofAS India; and 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 prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the [Electronic Communications Disclaimers](#) for further information.

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.

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.

Certain investment strategies and financial instruments discussed herein may only be appropriate for consideration in accounts qualified for high risk investment.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned in this report. Investors in such securities and instruments 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 2024 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 information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Securities in connection with the legal proceedings or matters relevant to such proceedings.

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 or 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.