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## 2. Global setting and outlook

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*The global trade environment is facing heightened policy uncertainty as the new US administration imposes higher tariffs on its major trading partners. These developments have also increased the uncertainty surrounding the US interest rate outlook, as the escalation of tit-for-tat tariff hikes has increased both the upside risk to US inflation and the downside risk to US economic growth.*

*Emerging Asian economies are confronting mounting pressures stemming from uncertainty around US trade and monetary policies. Given the increased dependence of these economies on exports, their reduced fiscal buffers due to pandemic-related spending, and their limited scope for monetary policy manoeuvres, the economic outlook for the region is facing strong headwinds.*

*In Mainland China, economic growth picked up in the fourth quarter of 2024, riding on a comprehensive package of policies rolled out from September 2024 onwards. The official economic growth target for 2025 has been set at around 5% for the third consecutive year. However, the economic outlook continues to face multiple challenges and uncertainties, which include rising policy uncertainty and trade protectionism (e.g. tariff hikes from the US). In response, the authorities have vowed to adopt a more proactive fiscal policy and a moderately loose monetary policy, strengthen unconventional countercyclical adjustments, support private enterprises and expand domestic demand (especially consumption).*

### 2.1 External environment

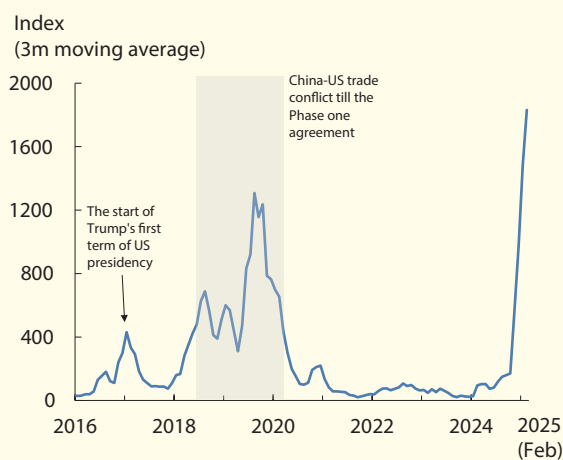
The global economy has maintained steady growth. The US economy has grown at a relatively robust pace relative to the other major advanced economies, while the Asia Pacific region has continued to be a key driver of global economic growth.

However, the global growth outlook has become more uncertain with the new US administration. In particular, uncertainty surrounding US trade policy has risen to levels over to those observed during the 2018–2020 China-US trade conflict (Chart 2.1). The tariff hikes<sup>1</sup> have also increased both the upside risk to the US inflation outlook and the downside risk to the US growth outlook.

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<sup>1</sup> The new US administration imposed a total of 20% additional tariff on imported goods from Mainland China on February and March 2025. Additionally, a 25% tariff on all imports of steel and aluminum, as well as imported goods from Mexico and Canada. The administration has also threatened to impose new reciprocal tariffs on countries that tax US exports, and a 25% tariff on imports from the Euro area.

**Chart 2.1**  
**US trade policy uncertainty index**



Source: Economic Policy Uncertainty.

The US Fed maintained its policy rate unchanged at the Federal Open Markets Committee (FOMC) meeting in January and March 2025, following a cumulative rate cut of 100 basis points in 2024. While the latest FOMC dot plot continued to indicate a total rate cuts of 50 basis points in 2025, the latest Fed funds futures indicate that markets now anticipate around two to three 25-basis-point rate cuts in 2025, up from only one projected in February, reflecting increased concerns about economic growth.

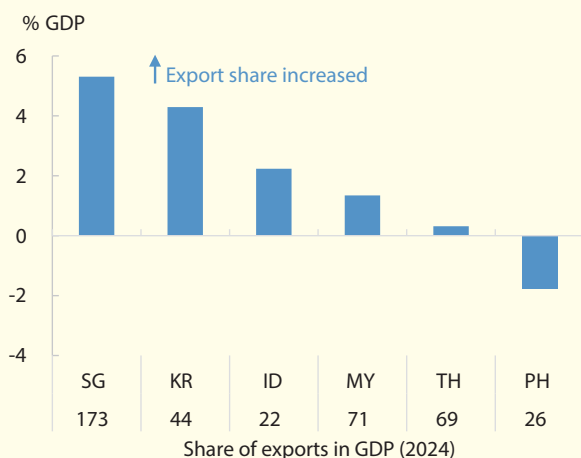
Meanwhile, the A.I. development race has intensified among the major economies, and there are concerns that the increasing adoption of A.I. by investment funds may add to financial market volatilities, as they may be more prone to collective asset sales during times of market stress. Box 1 illustrates our in-house application of GenA.I. to examine this issue.

The increased uncertainty surrounding US trade policy and the pace of the US Fed's interest rate cuts are weighing on the economic outlook for emerging Asia. Regional currencies have generally weakened since the US presidential election in November 2024, although some of the losses have been recouped since the beginning of 2025. The South Korean won has been particularly affected, not only by external pressures but also by domestic political unrest. Other regional currencies, such as the Indonesian rupiah and Malaysian ringgit, have also faced downward pressures in recent months. To prevent excessive depreciation, several central banks in the region have taken actions to support their currencies.

Unlike in 2018, the region now faces potential Trump 2.0 trade conflicts from a position of heightened vulnerability:

- Export dependence has increased, with export-to-GDP ratios surpassing pre-Trump 1.0 levels, therefore increasing the vulnerability of economies to external shocks (Chart 2.2).
- Pandemic-driven spending has reduced the fiscal buffers of many regional economies, restricting their governments' capacity to counter trade-related downturns.
- The uncertainty surrounding the pace of the US Fed's rate cuts continues to constrain the scope for regional central banks to implement rate cuts, as this could precipitate currency depreciation and fund flows volatility.

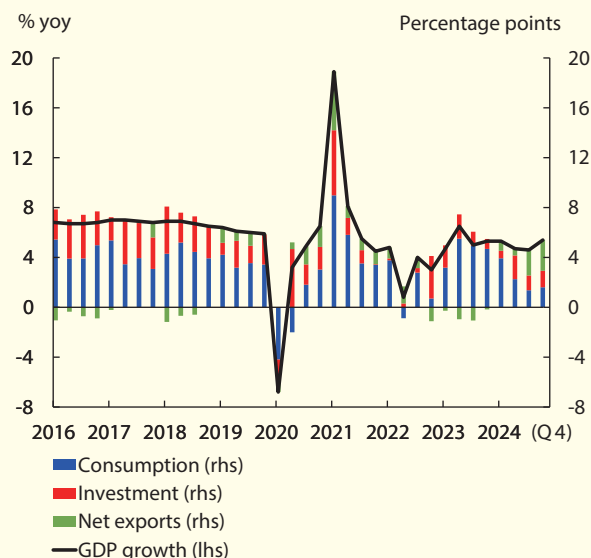
**Chart 2.2**  
**Emerging Asia: Change in the exports-to-GDP ratio**  
**(2016–17 average vs. 2023–24 average)**



Note: The exports-to-GDP ratio is calculated as:  $(\text{Nominal goods and services exports} / \text{Nominal GDP}) \times 100\%$ . Both exports and GDP figures are obtained from the expenditure-based GDP accounts. The 2024 figure represents the sum from Q4 2023 to Q3 2024.

Sources: CEIC and HKMA staff calculation.

**Chart 2.3**  
**Mainland China: Contribution to GDP growth by**  
**demand component**



Sources: NBS, CEIC and HKMA staff estimates.

## 2.2 Mainland China

### *Economic performance and policy responses*

Mainland China's year-on-year real GDP growth rebounded to 5.4% in the fourth quarter of 2024 from 4.6% in the third quarter (Chart 2.3). Specifically, domestic demand was boosted by a comprehensive package of policies introduced since late September 2024, which included monetary easing, fiscal support, housing market stimulus and capital market measures.<sup>2</sup> Front-loaded orders arising from tariff concerns also supported Mainland China's merchandise exports in the fourth quarter. For 2024 as a whole, real economic growth was 5%, in line with the official growth target.

Looking ahead, Mainland China's economic recovery is anticipated to continue in 2025, with the authorities pledging to adopt a more proactive fiscal policy and a moderately loose monetary policy, strengthen unconventional countercyclical adjustments, support private enterprises and expand domestic demand (especially consumption). That said, the economic outlook for 2025 continues to face multiple challenges and uncertainties, partly due to a challenging external environment (e.g. rising policy uncertainty in the US, additional tariffs announced by the Trump administration and rising trade protectionism elsewhere). The Two Sessions held in March 2025<sup>3</sup> set the official growth target for 2025 at around 5% for the third consecutive year, while the latest consensus forecasts expected the Mainland economy to expand by 4.5% in 2025.

<sup>2</sup> These policies include the reduction in required reserve ratio and policy interest rates, a resolution plan to replace existing local government hidden debt, a large scale equipment upgrade and consumer goods trade-in programme, and the introduction of the Securities, Funds and Insurance companies Swap Facility and the Central Bank Lending Facility for Share Buybacks and Shareholding Increases to boost capital market liquidity.

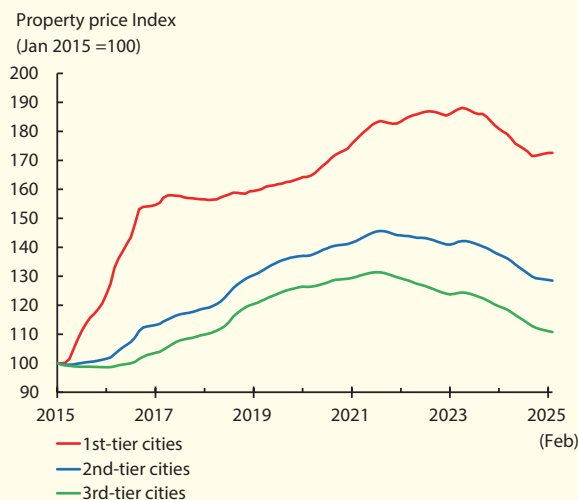
<sup>3</sup> In the Government Work Report, the authorities notably strengthened fiscal policy support by raising the official budget deficit target to a record high of around 4% of GDP in 2025 from 3% of GDP in 2024, while also increasing the fiscal spending and issuance of government bonds.

Headline consumer price index (CPI) inflation edged down in the second half of 2024 and early 2025, as both food and energy prices generally moderated. Core CPI inflation, which excludes food and energy prices, also remained soft during the same period.<sup>4</sup> The headline unemployment rate edged up to 5.4% in February 2025, with the unemployment rates for the 16–24 and 25–29 age groups standing at 16.9% and 7.3% respectively.

### Asset and credit markets

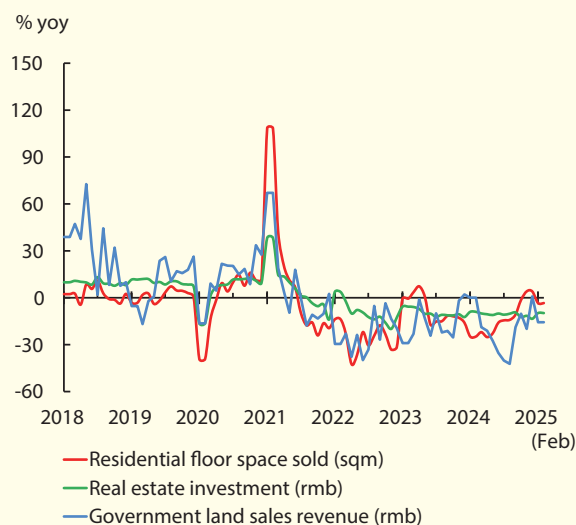
The housing market remained soft in the third quarter of 2024 amid still-weak demand and ample supply, but has shown more signs of stabilisation following the rollout of the comprehensive policy package from September 2024. In particular, the authorities called for “stabilising the housing market and halting its decline”, and implemented more comprehensive measures to lower financing costs, relax buying restrictions and reduce inventory.<sup>5</sup> Consequently, housing prices have shown signs of stabilisation since late 2024, led by higher-tier cities (Chart 2.4). The residential floor space sold also returned to positive year-on-year growth in November and December 2024, before edging down in early 2025. Meanwhile, upstream activities such as property investment remained weak (Chart 2.5). Box 2 presents a novel index developed to track the housing market sentiment, leveraging the HKMA’s in-house GenA.I. application.

**Chart 2.4**  
Mainland China: Residential property prices by tier of cities



Sources: CEIC and HKMA staff estimates.

**Chart 2.5**  
Mainland China: Property market activities



Sources: CEIC and HKMA staff estimates.

<sup>4</sup> In view of market concerns about deflation risks, the People’s Bank of China (PBoC) stated that promoting a reasonable rise in prices will be an important consideration for monetary policy. The Mainland authorities also emphasised their commitment to a reasonable rebound in consumer prices in 2025.

<sup>5</sup> These measures include reducing mortgage rates, down payment ratios and property-related taxes, increasing funding support for the “white list” projects and the PBoC’s relending facility for destocking, allowing special local government bonds to be used for purchasing commercial properties for affordable housing and acquiring idle land, and renovating urban village and dilapidated housing.

The overall risk in the banking sector remained under control in the second half of 2024, with the average non-performing loan (NPL) ratios edging lower across the board (Table 2.A). Meanwhile, a rally in the bond market and an associated decline in the Central Government bond yields have prompted the People's Bank of China (PBoC) to strengthen its communications with the market to contain potential financial risks driven by herd behaviour.<sup>6</sup> The authorities also announced a combined RMB 10 trillion debt relief programme to replace local government hidden debts over the coming years, which will reduce the financial pressures on local governments and mitigate the debt risks of local government financing vehicles.

**Table 2.A**  
**Mainland China: NPL ratio by bank type**

NPL ratio (%)	Dec 2023	Jun 2024	Dec 2024
State-owned commercial banks	1.26	1.24	1.23
Joint-stock commercial banks	1.26	1.25	1.22
City commercial banks	1.75	1.77	1.76
Rural commercial banks	3.34	3.14	2.80

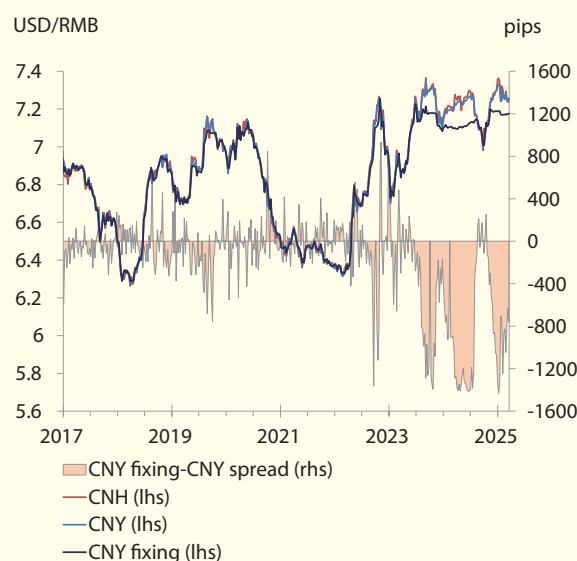
Source: CEIC.

### Exchange rate and fund flow indicators

Both the onshore (CNY) and offshore renminbi (CNH) softened against the US dollar from October to December 2024, leading to a wider gap with the largely stable CNY fixings (Chart 2.6). This in part reflected the strengthening of the US dollar, first driven by expectations of a “high for longer” US interest rate environment, and later as a result of market concerns about the US tariff hikes. Since mid-January 2025, the renminbi (RMB) has generally strengthened against the US dollar. Meanwhile, the PBoC reiterated its goal of keeping the RMB exchange rate basically stable, and pledged to prevent the

risk of exchange rate overshooting and to take firm action against market-disrupting behaviour.<sup>7</sup> As for cross-border fund flows,<sup>8</sup> the onshore Mainland bond market generally registered net inflows in recent months, while the outstanding foreign holdings of Mainland bonds declined during most of the review period, as the amount of matured bonds more than offset the amount of net buying flows (Table 2.B).

**Chart 2.6**  
**Mainland China: Onshore and offshore renminbi exchange rates against the US dollar**



Sources: Bloomberg and HKMA staff estimates.

**Table 2.B**  
**Mainland China: Foreign fund flow indicators**

(RMB bn)	H2 2024	2024	Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025
Northbound Bond Connect	69	492	-40	14	38	24	84
CIBM Direct and QFI	459	1135	50	32	57	69	149
Change in foreign holdings in the interbank market	-148	492	-142	-102	15	-23	70

Notes: Fund flows are measured by net buying flows for the Northbound Bond Connect and the CIBM Direct and QFI. “CIBM Direct and QFI” refers to the China Interbank Bond Market Direct Scheme and the Qualified Foreign Investor Scheme.

Sources: Wind, CFETS and HKMA staff estimates.

<sup>7</sup> On 13 January 2025, the PBoC and the State Administration of Foreign Exchange lifted the cross-border macroprudential adjustment ratio for corporates and financial institutions to 1.75, from 1.5 previously, effectively loosening restrictions on offshore US dollar financing.

<sup>8</sup> Daily data of net investment flows for Northbound Stock Connect has not been available since 19 August 2024. Meanwhile, Mainland stock prices surged in September and October 2024, but consolidated somewhat thereafter. On 23 January 2025, the authorities unveiled plans to steer medium- and long-term funds, such as insurance funds and publicly offered funds to invest in A-shares.

<sup>6</sup> In view of the continued shortage of government bonds, the PBoC announced on 10 January 2025 the temporary suspension of its government bond purchases in the open market.

## Box 1

### Does A.I. lead to analogous investment decisions and collective asset sales among investors under market stress? Evidence from A.I.-driven investment funds

#### Introduction<sup>9</sup>

The widespread adoption of A.I.<sup>10</sup> has been transforming practices in financial markets. For instance, investment funds can now leverage A.I. to predict asset values and gauge market sentiment to guide their investment decisions. While the application of A.I. can improve operational efficiency and facilitate advanced data analytics, it also raises financial stability concerns. A particular concern is that funds employing similar A.I. models could make analogous investment decisions, which could lead to collective sales of similar assets among these funds in times of market stress, potentially exacerbating the pro-cyclical dynamics of asset prices.

To examine this issue, it is first necessary for us to identify whether and how investment funds are applying A.I. into their investment strategies. Such information is usually only disclosed in fund prospectuses. However, the vast number of investment funds globally<sup>11</sup> makes it challenging for us to manually examine all these documents.

This box describes how, to overcome this challenge, we leveraged GenA.I. to analyse prospectuses and identify investment funds that used A.I.. As detailed in the next section, our method is a practical and efficient one for identifying investment funds that leverage A.I. in their decision-making processes, as well as for classifying their A.I.-driven investment strategies.

By comparing the portfolio changes of A.I.-driven investment funds with their non-A.I.-driven counterparts, we could empirically examine whether the use of A.I. by investment funds leads to analogous investment decisions and collective asset liquidations among them during periods of market stress.

#### GenA.I.-powered identification of A.I.-driven investment funds and strategies

##### 1) A.I.-driven investment funds

We retrieved a large sample of actively-managed equity open-ended funds (OEFs) from Morningstar Direct, representing an estimated 70% of the total assets of these funds in 2023. We also downloaded the funds' prospectuses from the Morningstar Document Library and analysed them in four steps:<sup>12</sup>

- i. *Keyword screening:* We established a bank of keywords related to various A.I. subfields.<sup>13</sup> Those OEFs whose prospectuses contained at least one of these keywords (e.g. A.I., machine learning, natural language processing, deep learning, reinforcement learning, decision tree, etc.) were selected for further analysis in the next step, while the rest were presumed to be making no use of A.I..
- ii. *Prospectus truncation:* For each selected OEF, we truncated its prospectus to include only the pages containing the keywords, as well as the immediately preceding and following pages, to ensure that the sentences containing

<sup>9</sup> For details, please refer to Leung et al. (forthcoming): "Implications of A.I. usage for financial stability: Evidence from A.I.-driven investment funds identified by generative A.I.", *HKIMR Working Paper*.

<sup>10</sup> A.I. generally refers to the simulation of human intelligence by machines, encompassing various subfields, including machine learning, natural language processing, and GenA.I..

<sup>11</sup> There are currently 278,660 surviving actively-managed open-ended funds around the world, according to Morningstar Direct.

<sup>12</sup> Morningstar Direct's data providers do not guarantee the accuracy, completeness or timeliness of any information provided by them and shall have no liability for their use.

<sup>13</sup> Each prospectus is written in different languages, with a total of 28 languages in use across all prospectuses. To facilitate effective analysis, we used keywords that matched the language of each respective prospectus.



the keywords were fully extracted.<sup>14</sup>

- iii. *GenA.I.-powered prospectus analysis:* We imported each truncated prospectus into ChatGPT-4o-latest. We then prompted it to classify the respective OEF as one that employs A.I. to guide its investment decisions or not, and to extract relevant sentences from the prospectus that support its classification.
- iv. *GenA.I.-powered and manual validations:* We imported each classification and its corresponding supporting sentences into Claude 3.5 Sonnet and prompted it to evaluate whether the classification was acceptable in relation to the supporting sentences. Any classification deemed not acceptable subsequently underwent manual evaluation.

This approach enabled us to identify a total of 4,827 OEFs that employ A.I. to guide their investment decisions, representing an estimated 1% of the global actively-managed equity mutual fund sector in terms of total assets in 2023.

## 2) A.I.-driven investment strategies

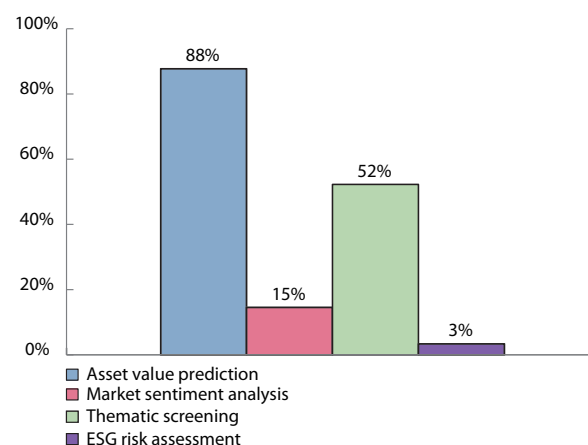
After identifying A.I.-driven OEFs, we prompted ChatGPT-4o-latest to analyse the supporting sentences to determine the A.I.-driven investment strategies for each A.I.-driven OEF. These strategies are summarised below:

- i. *Asset value prediction:* OEFs may employ machine learning techniques to predict asset values, often to identify assets that are undervalued.
- ii. *Market sentiment analysis:* OEFs may leverage natural language processing techniques to gauge market sentiment from news and social media, often to track the momentum of certain assets.

- iii. *Other strategies:* This category includes thematic screening and environmental, social, and governance (ESG) risk assessment. For the former, OEFs may use natural language processing techniques to analyze written documents in order to identify assets aligned with specific investment themes (e.g. sustainable energy, A.I., and semiconductors, etc.). For the latter, OEFs may apply the same techniques to evaluate the ESG risks of assets.

In our sample, some A.I.-driven OEFs employed more than one of these strategies. Among A.I.-driven OEFs, A.I. was applied to asset value prediction by 88% of the sample (Chart B1.1, blue bar), making it the most popular strategy, followed by thematic screening (green bar), market sentiment analysis (pink bar), and ESG risk assessment (purple bar).

**Chart B1.1**  
**Proportions of A.I.-driven investment strategies**



**Notes:**

- i. Each bar represents the share of A.I.-driven OEFs adopting the respective A.I.-driven investment strategy at the end of 2023, in terms of total net assets;
- ii. The sum of the shares can exceed 100% as an OEF may adopt more than one strategy.

Sources: Morningstar Direct and HKMA staff estimates.

## Empirical assessment of the financial stability implications of A.I.

To examine the implications of A.I. for financial stability, we compared the monthly portfolio changes of A.I.-driven and non-A.I.-driven OEFs between January 2022 and June 2024 retrieved from Morningstar Direct. To avoid distortion in

<sup>14</sup> Truncation was essential for the subsequent GenA.I.-powered analysis, as the word count of entire prospectuses often exceeded the capacity, referred to as the context window in jargon, of all the GenA.I. models available at the time of this study.

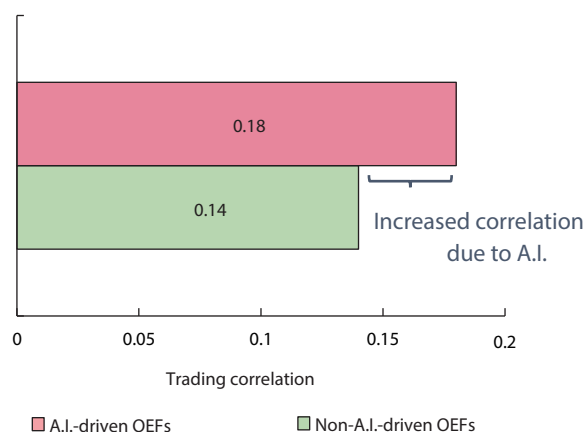
the comparison due to differences other than the use of A.I., we matched 2,698 A.I.-driven OEFs with 2,374 non-A.I.-driven OEFs with similar characteristics.<sup>15</sup>

### 1) Does the use of A.I. by OEFs contribute to similar investment decisions among them?

We measured the degree of similarity in investment decisions among OEFs by analysing their trading correlation. Specifically, a higher trading correlation among OEFs reflects that they adjust their holdings of the same asset more similarly, and vice versa.

We found that the use of A.I. contributes to more similar investment decisions. Specifically, the trading correlation among A.I.-driven OEFs (Chart B1.2, pink bar) was measured at 0.18, almost one-third higher than the 0.14 correlation observed among their non-A.I.-driven counterparts (green bar).

**Chart B1.2**  
Estimated trading correlations of A.I.-driven and non-A.I.-driven OEFs



**Notes:**

- Each bar represents the trading correlation in investment decisions of the OEFs estimated by a fixed-effects regression model, with the colour indicating the given OEF types;
  - Each unit of trading correlation is equal to a 1 percentage change in an OEF's asset holdings in response to a 1 percentage change in the holdings of the same asset by other OEFs in the respective group;
  - The bar is solid if the estimated correlation is statistically significant at the 1% level.
- Sources: Morningstar Direct and HKMA staff estimates.

<sup>15</sup> Each A.I.-driven OEF was matched with a non-A.I.-driven OEF that was inceptioned in the same year, had the same investment focus, and was closest in asset size.

### 2) Does the use of A.I. by OEFs lead to collective asset sales among them under market stress?

While we have observed a higher trading correlation among A.I.-driven OEFs, their collective behaviors may not necessarily lead to simultaneous asset sales among them during times of market stress. This is because different A.I.-driven strategies may respond differently to stock market cycles. For instance, OEFs employing A.I. for asset value prediction may focus on identifying market bottoms to buy the dip. Conversely, OEFs employing A.I. for market sentiment analysis may aim to track downward market trends and adopt a risk-off approach. In line with this conjecture, our analysis showed mixed responses of A.I.-driven OEFs to market stress. Specifically:

- OEFs employing A.I. for asset value prediction: These funds were generally found to buy the dip by using their cash-like assets (Chart B1.3, left blue bar) to acquire risky assets (left orange bar) during times of market stress.
- OEFs employing A.I. for market sentiment analysis: These funds were generally observed to be in a risk-off mode by reallocating into cash-like assets (right blue bar) and away from risky assets (right orange bar) during times of market stress. Their asset sales were also found to be more than five times greater in size than those of non-A.I.-driven OEFs.<sup>16</sup>

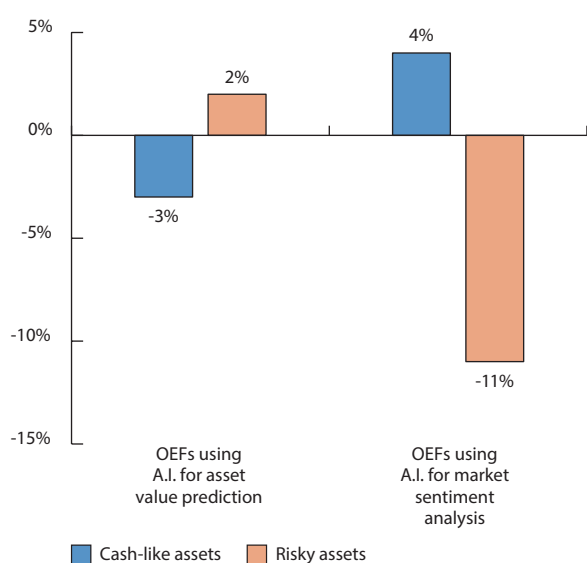
These findings indicate that the use of A.I. does not necessarily lead to collective asset sales among OEFs during times of market stress,

<sup>16</sup> The difference was estimated to be statistically significant at the 1% level. As for OEFs employing A.I. for thematic screening or ESG risk assessment, estimations indicated that their investment decisions were uncorrelated with one another and insensitive to market stress. A possible reason is that these strategies focus on diverse investment themes or ESG risks, which are arguably less responsive to stock market cycles. Consequently, these strategies led to mixed investment decisions across these OEFs.



as the responses of these OEFs to market stress largely depend on the particular use of A.I. in their investment strategies. Specifically, only OEFs that use A.I. for market sentiment analysis were found to be more susceptible to the possibility of amplifying market stress. Importantly, their market reactions were estimated to be stronger than those of OEFs not using A.I..

**Chart B1.3**  
**Percentage changes of OEFs' asset holdings in times of market stress**



**Notes:**

- Each bar represents the percentage change in asset holdings of the respective OEF types during times of market stress estimated by a fixed-effects regression model, with the colour indicating the given asset category;
- A month was classified as under market stress if the VIX index of the month exceeded the upper quartile of the sample period, primarily covering the recent interest rate hikes in major economies;
- Cash-like assets include currencies, time deposits, certificates of deposit, money market funds (MMFs), and US Treasuries, while risky assets encompass equities, corporate bonds, and non-MMF mutual funds.
- The bar is solid if the estimated percentage change is statistically significant at the 1% level.

Sources: Morningstar Direct and HKMA staff estimates.

These findings carry two important financial stability implications. First, while a wider use of A.I. in financial markets could be a potential source of financial stability risks, assessing such risks should take into account the nuances across its diverse applications. Second, pro-cyclical investment strategies powered by A.I., such as market sentiment analysis, warrant closer monitoring due to their potentially greater adverse impacts on market dynamics.

At the same time, this box demonstrates the potential of GenA.I. for improving financial risk surveillance. In particular, GenA.I.'s strong capacities in textual analysis enable it to effectively extract important qualitative information related to financial stability risks. Such information can complement quantitative data, contributing to a more comprehensive assessment of financial stability.

### Conclusion and implications

In conclusion, our analysis confirms the conjecture that A.I. can contribute to analogous investment decisions across OEFs if they incorporate A.I. for the same investment strategies. However, these strategies do not necessarily trigger collective asset liquidations among OEFs during times of market stress, as they exhibit significant variations in their responses to such market conditions.

## Box 2

### Tracking Mainland China's housing market sentiment using social media big data and GenA.I.

#### Introduction

Following a strengthening of policy support, Mainland China's housing market has shown some signs of stabilisation recently. However, the sustainability of the recovery remains uncertain, with much depending on homebuyer sentiment. Leveraging the HKMA's first in-house GenA.I. application, we developed a novel daily index to track housing market sentiment on the Mainland using social media big data.<sup>17</sup> Our in-house GenA.I., called SARA (Secured A.I. Research Assistant), is built on open-source models and hosted entirely on-premises to ensure security, privacy, and control. Tailored for our needs, SARA excels in understanding and analysing Chinese language content.

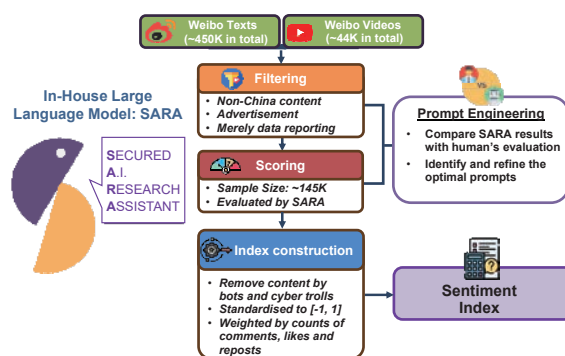
#### Data and methodology

Chart B2.1 illustrates our workflow. We begin by gathering data through web-scraping posts and videos from Weibo, a major social media platform in Mainland China. We then employ SARA to convert video content into text and filter out irrelevant materials, such as advertisements. Third, we leverage SARA's capabilities to perform sentiment analysis, instructing SARA to assume the role of a property market analyst and rate each social media post on a scale from 0 to 10. In this scale, 0 represents a very pessimistic outlook, while 10 signifies a very optimistic one. This granular rating system allows us to capture a wide range of sentiments expressed by users. After scoring, we remove microblogs posted by suspicious social bots and cyber trolls to reduce sentiment bias.<sup>18</sup> Finally,

the sentiment index is standardised into a range between -1 and 1, taking into account the influence of each post based on the number of comments, likes, and reposts. By integrating all these steps, we are able to generate a daily sentiment index.

Throughout the process, a human-in-the-loop approach is adopted to ensure the accuracy and reliability of our findings. In particular, we compare SARA's ratings with evaluations done by human analysts using two random samples of 600 posts. With respect to raw data filtering, SARA shows a good classification performance, with an overall accuracy rate (i.e. the proportion of correctly identified results among the total number of cases examined) of over 80% in our sample. Regarding sentiment evaluation, the scores evaluated by SARA, on average, are positively correlated with those of humans.

**Chart B2.1**  
The development process of the GenA.I.-driven housing market sentiment index



Source: HKMA staff illustration.

#### Tracking property market sentiment in Mainland China

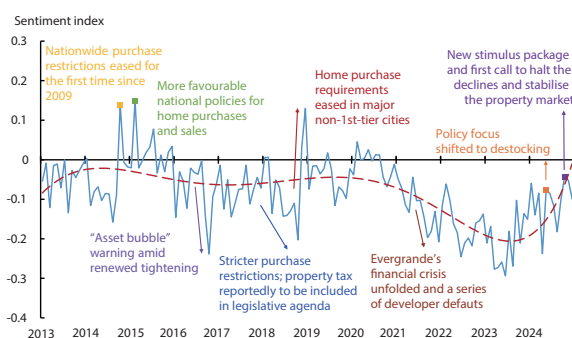
Our GenA.I.-driven sentiment index is shown as the blue line in Chart B2.2. The sentiment index effectively captures shifts in sentiment in response to key landmark events. Specifically, the index improves notably in response to

<sup>17</sup> For more details, see Wu et al. (2025) "A generative artificial intelligence approach to tracking Mainland China's housing market sentiment using social media data", *HKMA Research Memorandum 05/2025*.

<sup>18</sup> In particular, we flag an account as a target poster of social bots and cyber trolls if it publishes (i) more than five posts on the same day it is created, (ii) more than five posts between 2:00 a.m. and 6:00 a.m. on any day, a period when humans are typically inactive, or (iii) identical posts within five-second intervals.

favourable events such as major policy easing. For example, in late 2014 and early 2015 (see yellow and green labels), the index surged following the first nationwide easing of purchase restrictions since 2009 and the introduction of favourable policies to boost housing transactions. On the other hand, the index declines when unfavourable events occur. For instance, it declined in 2021 (see brown arrow), highlighting potential drivers such as the rising default risks from certain developers. In a more recent episode, the index showed some improvement in housing sentiment following the new stimulus packages being rolled out from September 2024, but it saw some consolidation towards the end of 2024.

**Chart B2.2**  
**GenA.I.-driven housing market sentiment index for Mainland China**

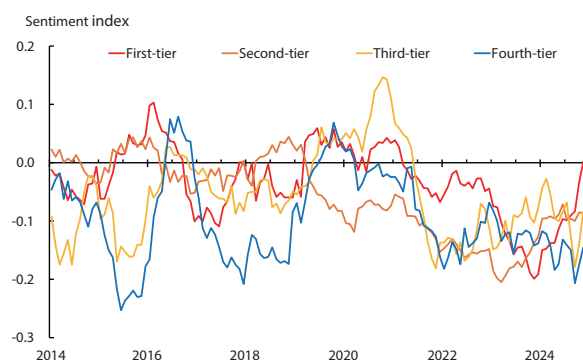


Notes: Data converted into a monthly frequency. The red dashed line indicates the 12-month moving average of the sentiment index.  
Sources: Weibo, SARA and HKMA staff estimates.

Apart from creating a national sentiment index, we also leveraged GenA.I.'s strong comprehension and reasoning capability to develop regional sentiment indices. As far as we know, such granular sentiment indices represent a novel contribution to the literature. Indeed, we find that GenA.I. can not only infer the appropriate cities even when the city names are not explicitly stated, but also recognise the city being focused on even when multiple cities are mentioned.<sup>19</sup>

As illustrated in Chart B2.3, our city-tier level sentiment indices display similar cyclical patterns across various city tiers. However, we also observe disparities during specific periods. For instance, in early 2015, first- and second-tier cities experienced a boost in sentiment, driven by nationwide easing policies such as lower down payment ratios and tax benefits. By contrast, lower-tier cities saw a softening in sentiment during the same period, largely due to their high inventory-to-sales ratios. Subsequently, the sentiment in third- and fourth-tier cities surged sharply. This increase coincided with the large-scale implementation of monetised resettlement for urban renewal, alongside varying city-specific policies that reportedly favoured lower-tier cities the most. In late 2024, the sentiment in first-tier cities surged following the latest round of supportive measures, while the indices remained somewhat sluggish in lower-tier cities.

**Chart B2.3**  
**GenA.I.-driven housing market sentiment index by city tier**



Notes: Data converted into a monthly frequency. All series are smoothed using a 12-month moving average to facilitate visualisation.  
Sources: Weibo, SARA and HKMA staff estimates.

### Concluding remarks

In sum, our GenA.I.-driven sentiment indices, based on social media big data, are able to effectively capture the sentiment in Mainland China's housing market, both at the national and city-tier levels. This research helps us better identify trends, understand complex developments, and detect and respond to emerging risks.

<sup>19</sup> For more details, see Wu et al. (2025).