

Annual Report 2022

Central Bank of the Republic of China (Taiwan)

Taipei, Taiwan

Republic of China

Foreword



Chin-Long Yang, Governor

In 2022, Taiwan's economy operated in a challenging environment. Private consumption was dampened by a surge in COVID-19 cases during the first half of the year, while exports and private investment remained strong, supporting moderate economic growth. In the second half of the year, exports gradually slipped into contraction, thereby slowing the rate of economic growth. For the year as a whole, domestic economic expansion decelerated from a pace of 6.53% in 2021 to 2.45%, the slowest in nearly six years. Domestic prices were pushed up by surging costs of raw material imports such as food and energy following Russia's invasion of Ukraine. Taiwan's consumer price index (CPI) saw the annual growth rate rise from 1.97% in 2021 to 2.95%, and the core CPI (excluding fruit, vegetables, and energy items) also increased from 1.33% to 2.61%.

In response to the pressures of imported inflation, the Bank tightened monetary policy in a gradual manner, raising the policy rates four times by a total of 0.625 percentage points and increasing the reserve requirement ratios

on NTD deposits twice by a total of 0.5 percentage points. These actions were judged to help rein in domestic inflation expectations and maintain price stability. The Bank also continued adopting selective credit control measures including reinforcing efforts such as conducting on-site financial examinations, as well as urging banks to strengthen regulatory compliance and to implement the principles of credit risk-based differential pricing.

The Bank's Special Accommodation Facility to Support Bank Credit to SMEs continued serving the funding needs of SMEs in the first half of 2022 before its expiration at the end of June. Over the course of implementation, it has helped about 307,000 SMEs by providing credit support in the amount of NT\$503.6 billion, effectively helping SMEs stay viable, thereby safeguarding financial stability and fostering economic growth. Meanwhile, the Bank conducted open market operations to manage liquidity in the financial system. In 2022, the average annual growth rate of bank loans and investments was 7.39%, and that of M2 was 7.48%; both indicators were higher than the economic growth rate of 2.45%, indicating there was ample liquidity to support economic activity.

With regard to foreign exchange management, as the Federal Reserve's big rate hikes in 2022 triggered global panic selloffs of risky assets, flight to safety sent USD exchange rate higher. Additional pressures also came from portfolio outflows with foreign institutional investors cutting Taiwanese stock holdings as part of strategic asset allocation and fund management. Together, these factors significantly weakened the NT dollar against the US dollar. The Bank, in line with its mandate, stepped in to maintain the dynamic stability of the NTD exchange rate, with a net forex sales amounting to US\$13 billion. At the end of 2022, the Bank held US\$554.9 billion worth foreign exchange reserves, representing a year-

on-year increase of US\$6.5 billion owing mainly to returns from forex reserves management.

Amid burgeoning innovations for digital payment, the Bank completed the second phase proof-of-concept study on central bank digital currency (CBDC) in June 2022 and will continue conducting related research and projects. In addition, the Bank and the National Treasury Administration of the Ministry of Finance concluded their joint efforts in July 2022 and the disbursement and repayment for treasury account loans henceforth went in electronic mode, increasing the efficiency and lowering the operational risk of the treasury funds transfers.

Furthermore, the Bank recognized that climate change has presented new challenges and risks to central banks in their conduct of monetary policy and fulfillment of the mandate to maintain financial stability. With this in mind, the Bank announced the "CBC Strategic Plan to Address Climate Change Issues" at the end of 2022, in line with the government's "2050 Net-Zero Transition" initiatives. Under the Plan, the Bank will formulate and progressively implement relevant policies, including monetary policy, operational tools of monetary policy, macro-prudential policy, forex reserves management, and international cooperation. The Bank hopes the Plan will help reduce climate-change related impacts on Taiwan's economic and financial sectors, so as to safeguard financial stability and help foster sustainable economic development.

The world today is facing a challenging future with the economy facing multiple downside risks and the global inflation outlook still uncertain despite some signs of disinflation. The Bank will closely monitor the trajectory of monetary policy moves in major economies, changes in international raw material prices,

geopolitical risks, and extreme weather events to assess their implications for domestic price trends, and economic and financial conditions. Accordingly, the Bank may adjust its monetary policy in a timely manner as warranted so as to accomplish its statutory duty of maintaining price stability.

Finally, I would like to thank my colleagues for their hard work in producing the annual accounts of the Bank for the year of 2022. Going forward, we remain devoted to fulfilling our duties and addressing the challenges.

A handwritten signature in black ink, reading "Chin Long Yang". The signature is written in a cursive, flowing style.

Chin-Long Yang
Governor
March 2023

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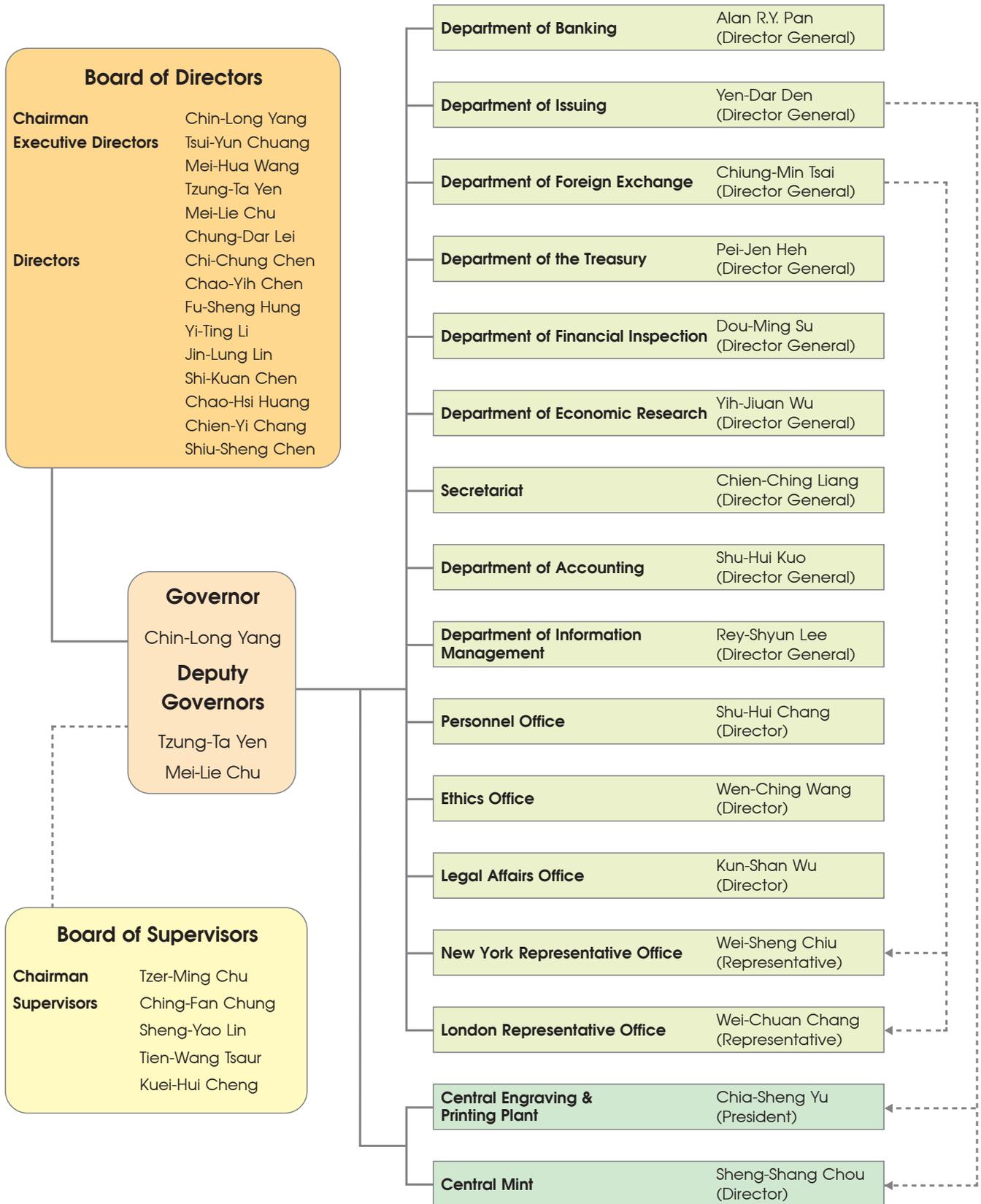
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Organization and Management of the CBC



—— direct reporting - - - - supervision

As of March 2023



Chairman
Board of Directors
Governor
Chin-Long Yang



Executive Director
Tsui-Yun Chuang



Executive Director
Mei-Hua Wang



Executive Director
Deputy Governor
Tzung-Ta Yen



Executive Director
Deputy Governor
Mei-Lie Chu



Executive Director
Chung-Dar Lei



Director
Chi-Chung Chen



Director
Chao-Yih Chen



Director
Fu-Sheng Hung



Director
Yi-Ting Li



Director
Jin-Lung Lin



Director
Shi-Kuan Chen



Director
Chao-Hsi Huang



Director
Chien-Yi Chang



Director
Shiu-Sheng Chen



Chairman
Board of Supervisor
Tzer-Ming Chu



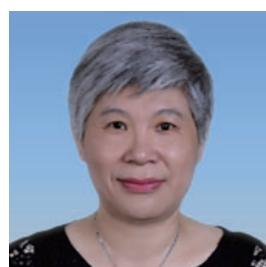
Supervisor
Ching-Fan Chung



Supervisor
Sheng-Yao Lin



Supervisor
Tien-Wang Tsaur



Supervisor
Kuei-Hui Cheng

Developments in the Real Economy



I. Developments in the Real Economy

1. Overview

In 2022, Taiwan's export growth was dampened by the global economic slowdown, but steady private investment and reviving private consumption provided some support. The economy expanded by 2.45% for the year as a whole, down from the 6.53% of the previous year and hitting a record low unseen since 2017. Meanwhile, Taiwan maintained a healthy balance of payments, including a continued current account surplus and a net asset increase in the financial account. Regarding inflation, as supply-side factors pushed up domestic food prices and fuel and lubricant fees, consumer price index (CPI) inflation climbed by 2.95% year on year and core CPI inflation rose by 2.61%, both at historical highs since 2009. The unemployment rate went up owing to pandemic-related disruptions but came down later as the pandemic eased off, averaging 3.67% for the year as a whole, the lowest since 2011. In terms of wage growth, non-farm monthly real earnings per worker continued to rise, setting a new record at NT\$53,741 after increasing by 0.48% year on year.

Robust Economic Growth

A quarter-by-quarter review showed that, in the first quarter of 2022, a continued upturn in private investment and exports drove the economy to grow by 3.87%, the highest growth rate of the year. In the second quarter, though COVID-19 infections rose sharply, private consumption still posted mild growth thanks to a lower base in the previous year under a level-3 pandemic lockdown, and private investment extended its uptrend; however, a softening in final demand for consumer goods weighed on export growth, slowing the GDP growth rate to 2.95%. The economy regained some momentum in the third quarter and expanded by 3.64%, mainly benefiting from a marked rebound in private consumption with pandemic impacts abating and tourism stimulus schemes in motion. In the fourth quarter, though, the economy contracted by 0.14% owing to negative export growth, the first year-on-year contraction since the first quarter of 2016. For the year as a whole, the economic growth rate was 2.45%, down by 4.08 percentage points from the previous year.

Among the GDP expenditure components, domestic demand was the driving force for the 2022 economic growth. Private consumption increased, fixed capital formation rose steadily as major tech firms raised capital outlays and green investments and 5G network infrastructure projects continued; combined with a steady increase in government consumption, the contribution of domestic demand to the GDP growth was 3.17 percentage points, slightly lower than the 4.52 percentage points the previous year. With regard to external demand, import-

derived demand was driven up by exports and investments. With import growth faster than export growth, net foreign demand contributed minus 0.72 percentage points to the GDP growth, down from 2.01 percentage points the previous year.

Bolstered by a further increase in private investment in 2022, the domestic investment rate (gross domestic investment to GDP) rose from 26.96% the previous year to 27.78%, the highest since 1996. As the government continued to relax pandemic containment measures, private consumption rebounded, and the national saving rate (gross national saving to gross national income) dropped from 42.91% to 41.33%. Overall, as the increase in gross national investment exceeded that in gross national saving, the excess saving rate (the difference between saving and investment as a percentage of GDP) declined from 16.85% to 14.49%.

Healthy BOP Surplus

In 2022, Taiwan continued to record a healthy balance of payments. The current account posted a surplus of US\$101,731 million, the financial account had a net asset increase of US\$98,103 million, and the Bank's reserve assets showed an increase of US\$10,883 million.

On the current account, goods imports and exports both registered historical highs in 2022, with imports increasing more than exports. As a result, the goods trade surplus shrank from US\$87,963 million to US\$68,989 million, but was still the largest contributor to the current account surplus.

The services account surplus widened to a historical high of US\$13,111 million from US\$12,428 million owing mainly to an increase in freight proceeds. The primary income surplus widened from US\$19,453 million to US\$22,735 million, reflecting increases in residents' outward direct investment and banks' interest income. The secondary income deficit rose from US\$2,694 million to US\$3,104 million. For the year of 2022, the ratio of current account surplus to nominal GDP declined from the 15.1% of the previous year to 13.3%.

On the financial account, portfolio investment recorded a net asset increase of US\$105,388 million. Among the components, residents' portfolio investment abroad rose by a net amount of US\$59,674 million, mainly because banks increased holdings of foreign securities. Nonresidents' inward portfolio investment recorded a net decrease of US\$45,714 million, mainly because foreign investors cut holdings of Taiwanese stocks. Direct investment posted a net increase of US\$166 million, of which direct investment abroad by residents and nonresidents' inward direct investment increased to US\$16,280 million and US\$10,189 million, respectively, both higher than the previous year. The account of other investment showed a net asset decrease of US\$18,032 million.

Rising Inflation

In 2022, global supply chain bottlenecks lingered on and international raw materials such as crude oil still faced upward price pressures as the Russia-Ukraine war continued, leading to significant rises in domestic import prices. As a result, the wholesale price index (WPI) went up by 12.42% year on year, the fastest rise since 1981. Of the components, imported goods, domestic sales excluding imports, and exported goods showed price rises of 16.07%, 8.37%, and 12.06%, respectively.

The CPI annual growth rate recorded the fastest rise since 2009, climbing by 2.95% mainly because supply-side factors drove up prices of food, fuel & lubricants, and durable consumer goods, as well as hikes in housing rent. The core CPI annual growth rate was 2.61%, the highest since 2009. Compared to the US and Europe, though, Taiwan's inflation in 2022 was milder, attributable to the government's effective supply-side controls such as energy price stabilization mechanisms, the Bank's gradual monetary tightening, and the spillover effects created by major economies as their central banks adopted hawkish monetary policy stances.

Lower Unemployment Rate; Moderate Wage Growth

The unemployment rate rose from 3.61% at the beginning of 2022 to 3.79% in August, trending up during a COVID-19 resurgence from mid-April as well as a seasonal job seeker surge during the graduation period. Thereafter, the domestic pandemic eased and economic activity picked up, helping the unemployment rate fall towards 3.52% in December and bringing the annual average to a 22-year low at 3.67%. The average labor force participation rate rose by 0.16 percentage points from the previous year to 59.18%, the highest since 1993.

The average number of employed persons was 11,418 thousand, a decrease of 29 thousand or 0.26% owing to structural headwinds such as low birth rates and an aging society. Dampened by slower export growth amid a global economic downturn, industrial sector employment declined by 17 thousand or 0.41%. Employment in the services sector decreased by one thousand persons, or 0.01%, while the agricultural sector shed 12 thousand employed persons, or 2.24%.

In terms of wages, the average non-farm (industrial and services sectors) monthly earnings per employee rose by 3.45% from the previous year to NT\$57,718. Adjusted for inflation, real monthly earnings increased by a smaller 0.48% and reached a historical high of NT\$53,741. As a result of higher production output and fewer total hours worked, labor productivity indices of the industrial sector and the manufacturing industry rose by 1.37% and 1.48% year on year, respectively. Meanwhile, unit labor costs increased by 4.20% in the industrial sector and 4.16% in the manufacturing sector, with total earnings growing faster than production.

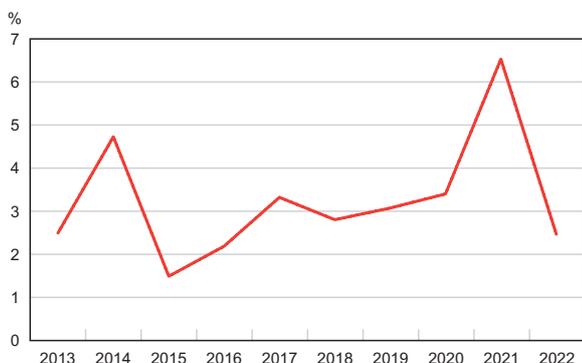
2. National Output and Income

In 2022, Taiwan's economy grew at an annual rate of 2.45%. Domestic demand was the main growth engine, contributing 3.17 percentage points to real GDP growth. In terms of external demand, both export- and investment-derived demand caused import growth to outweigh the growth of exports, and thus net exports contributed -0.72 percentage points to real GDP growth. In the meantime, nominal GNI (gross national income, in US dollars) fell by 1.51%, and GNI per capita declined from US\$33,756 to US\$33,565 over the year 2022.

In the first quarter, real GDP growth reached 3.87%. Private consumption experienced lower growth because of higher inflation and multiple waves of the COVID-19 pandemic. Higher capital expenditures and continuing investment in major projects, such as green energy, provided growth momentum for private investment. Meanwhile, export growth momentum remained strong owing to increasing demand for traditional manufacturing goods and business opportunities arising from emerging technology applications. In the second quarter, real GDP growth declined slightly to 2.95%. As for private consumption, a lower base effect outweighed a decline in dining out and travel spending, resulting in moderate private consumption growth. Private investment growth remained strong, benefiting from production capacity expansion in the technology industry and continued investment in green energy infrastructure, transportation equipment, and energy-efficient production equipment. On the contrary, rising global inflationary pressures discouraged demand for end-consumer products, affecting the exports of related goods in supply chains and restraining export growth momentum.

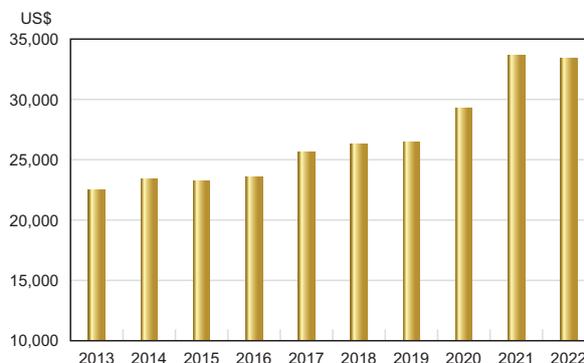
In the third quarter, growth in real GDP rose to 3.64%. Higher COVID-19 vaccine coverage and the diminishing impact of the pandemic, combined with the government's stimulus program for

Real Growth Rate of GDP



Source: *Statistical Abstract of National Income*, DGBAS, Executive Yuan, February 2023.

Per Capita GNI



Source: *Statistical Abstract of National Income*, DGBAS, Executive Yuan, February 2023.

domestic tourism, significantly boosted private consumption. Growth in private investment, on the other hand, slowed because of a higher base effect. Export growth momentum also waned in response to a slowdown in the global economy triggered by the ongoing war between Russia and Ukraine and the continued tightening of monetary policy in major economies. In the fourth quarter, real GDP contracted by 0.41%, the lowest growth since the first quarter of 2016. As the government gradually lifted COVID-19 restrictions, spending on domestic travel and outbound tourism increased remarkably and stimulated private consumption growth. In the meantime, major investment projects related to semiconductors and green energy continued to take place, resulting in another quarter of robust growth for private investment. On the other hand, exports declined owing to manufacturing inventory adjustments, China's zero-COVID policy, and weaker global demand.

Expenditure Components of GDP

All expenditure components of GDP recorded positive growth in 2022. Among all the components, gross fixed capital formation was the primary source of economic growth and contributed 1.63 percentage points to real GDP growth for the year. Private consumption and exports of goods and services both contributed to real GDP growth by 1.60 percentage points. Government consumption, on the other hand, contributed slightly with 0.46 percentage points to real GDP growth. With respect to shares of GDP, exports of goods and services continued to account for the largest share of GDP at 71.99%, followed by private consumption at 45.52%, and gross fixed capital formation at 27.61%.

GDP by Expenditure

Unit: %

	2022			2021		
	Share	Real Growth Rate	Contribution to Real Growth Rate of GDP*	Share	Real Growth Rate	Contribution to Real Growth Rate of GDP*
Private Consumption	45.52	3.59	1.60	44.61	-0.35	-0.17
Government Consumption	13.73	3.44	0.46	13.51	3.69	0.51
Gross Fixed Capital Formation	27.61	6.24	1.63	26.11	14.46	3.50
Change in Inventory	0.17	--	-0.52	0.85	--	0.68
Exports of Goods and Services	71.99	2.41	1.60	66.42	17.27	10.03
(Less: Imports of Goods and Services)	59.02	4.50	2.32	51.50	18.06	8.02
Expenditure on GDP	100.00	2.45	2.45	100.00	6.53	6.53

Note: * Percentage point.

Source: *Statistical Abstract of National Income*, DGBAS, Executive Yuan, February 2023.

(1) Moderate Growth in Private Consumption

Despite a surge in COVID-19 cases in mid-April, the general public had grown to live with

COVID-19 while the impact of the pandemic diminished significantly. Given the change in the general public's attitude towards COVID-19 and a lower base effect, private consumption grew at an annual rate of 3.59% and contributed 1.60 percentage points to real GDP growth.

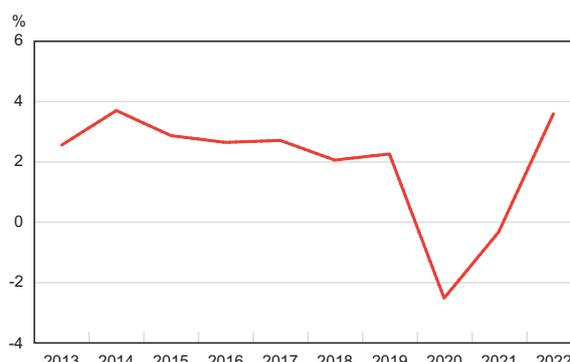
Although the government had loosened epidemic control measures and attempted to revitalize the economy with fiscal stimulus programs, consumer spending on transportation and leisure and entertainment were still affected by the recurring waves of the pandemic, resulting in weaker private consumption growth of 0.67% in the first quarter. In the second quarter, private consumption grew by 3.14%, even though local COVID-19 transmission dampened consumption expenditure for domestically-oriented services. In the third quarter, private consumption regained its growth momentum as the impact of the pandemic subsided. In the meantime, the government lifted pandemic-related restrictions and launched a stimulus program to promote domestic tourism, thereby pushing private consumption growth up to 7.52%. With the easing of border controls, consumer activities gradually returned to normal, and the demand for cross-border travel picked up. As a result, private consumption increased by 3.24% in the fourth quarter. Overall, private consumption growth in the second half of the year outperformed that of the first half of the year.

(2) Robust Expansion in Fixed Capital Formation

Fixed capital formation grew robustly at an annual rate of 6.24% and contributed 1.63 percentage points to real GDP growth. The growth was primarily driven by the procurement of transportation equipment, higher demand for 5G infrastructure investment, continuing investment in green energy-related projects, and increased capital expenditures by leading technology firms.

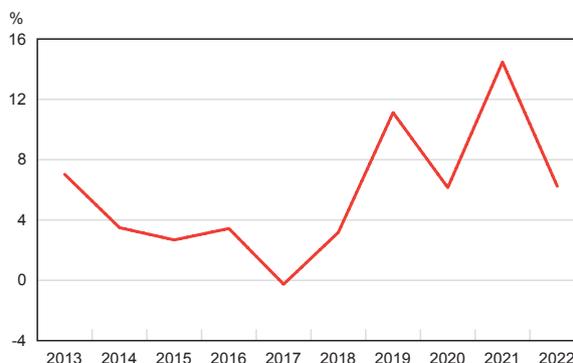
Driven by higher capital expenditures, stronger demand for transportation equipment, and continuing investments in 5G infrastructure and green energy-related projects, both machinery and equipment investment and

Real Growth Rate of Private Consumption Expenditure



Source: *Statistical Abstract of National Income*, DGBAS, Executive Yuan, February 2023.

Real Growth Rate of Fixed Capital Formation



Source: *Statistical Abstract of National Income*, DGBAS, Executive Yuan, February 2023.

transportation investment expanded at a healthy pace in the first half of the year. Gross fixed capital formation increased by 9.22% and 11.27% in the first two quarters, respectively. Nevertheless, growth in transportation investment and construction investment moderated in the second half of the year owing to a higher base effect. The fixed capital formation growth rates for the last two quarters of the year were 1.96% and 3.31%, respectively.

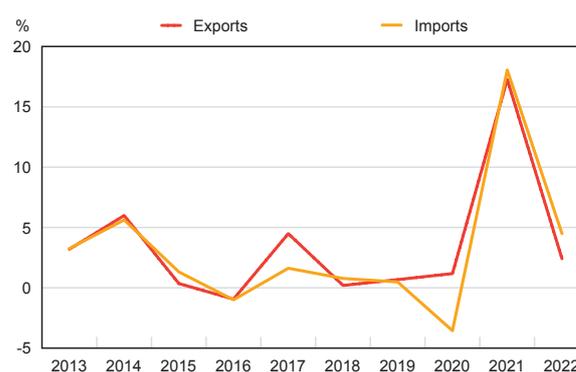
In terms of the type of fixed capital formation, machinery and equipment investment achieved a double-digit growth rate of 11.00% in 2022, while construction investment grew moderately at an annual rate of 2.24%. On the other hand, transportation investment increased by 1.23%. Lastly, investment in intellectual property remained relatively stable and expanded by 6.07% for the entire year.

(3) Mild Growth in Real Exports

Rising global inflation and tighter monetary policy in major economies led to a slowdown in global demand. As a result, exports of goods and services grew mildly at an annual rate of 2.41% for the entire year, significantly lower than the 17.27% of the previous year. On balance, exports of goods and services contributed 1.60 percentage points to real GDP growth in 2022.

Exports performed vigorously in the first half of the year, driven by emerging technology applications, digital transformation, and stronger demand for traditional manufacturing goods, with growth rates of 8.98% and 4.78% in the first two quarters, respectively. In the second half of the year, global inflation remained elevated because of the ongoing war between Russian and Ukraine. In response, major central banks continued to tighten monetary policy, which consequently tempered global economic growth. Of note, growth in exports declined to 2.15% in the third quarter as demand for traditional manufacturing goods and electronic products fell sequentially. In the fourth quarter, widespread COVID-19 infections in China set back global economic growth further. Thus, demand for consumer electronics reduced perceptibly, leading firms to destock. Against this backdrop, exports decreased notably by 5.14%.

Real Growth Rates of Exports and Imports

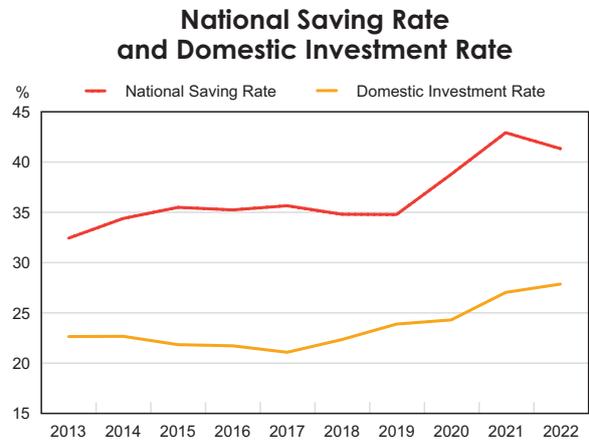


Source: *Statistical Abstract of National Income*, DGBAS, Executive Yuan, February 2023.

Turning to imports of goods and services, the combination of strong demand for capital equipment and an increase in export-derived demand caused imports to rise by 4.50% for the entire year.

Subtle Changes in National Saving Rate and Domestic Investment Rate

The national saving rate (the ratio of national savings to GNI measured at current prices) declined slightly from 42.91% in 2021 to 41.33% in 2022, reflecting a recovery in consumption expenditures as the impact of the pandemic grew weak. Meanwhile, growth momentum in private investment remained strong; therefore, the domestic investment rate (the ratio of domestic investment to GDP measured at current prices) edged up to 27.78% in 2022, slightly higher than the 26.96% of the previous year.



Source: *Statistical Abstract of National Income*, DGBAS, Executive Yuan, February 2023.

3. Balance of Payments

In 2022, Taiwan's current account registered a surplus of US\$101,731 million, which accounted for 13.3% of nominal GDP, down from 15.1% in the previous year. The financial account posted a net asset increase of US\$98,103 million. Reserve assets increased by US\$10,883 million.

Balance of Payments

Unit: US\$million

	(1) 2022	(2) 2021	(1)-(2)
A. Current account	101,731	117,150	-15,419
Goods: credit (exports)	465,987	453,603	12,384
Goods: debit (imports)	396,998	365,640	31,358
Balance on goods	68,989	87,963	-18,974
Services: credit (exports)	58,350	51,995	6,355
Services: debit (imports)	45,239	39,567	5,672
Balance on services	13,111	12,428	683
Primary income: credit	51,180	40,378	10,802
Primary income: debit	28,445	20,925	7,520
Balance on primary income	22,735	19,453	3,282
Secondary income: credit	9,503	8,710	793
Secondary income: debit	12,607	11,404	1,203
Balance on secondary income	-3,104	-2,694	-410
B. Capital account	-46	3	-49
C. Financial account	98,103	105,652	-7,549
Direct investment: assets	16,280	11,341	4,939
Equity and investment fund shares	14,519	10,467	4,052
Debt instruments	1,761	874	887
Direct investment: liabilities	10,189	5,416	4,773
Equity and investment fund shares	6,215	2,625	3,590
Debt instruments	3,974	2,791	1,183
Portfolio investment: assets	59,674	81,503	-21,829
Equity and investment fund shares	7,756	19,864	-12,108
Debt securities	51,918	61,639	-9,721
Portfolio investment: liabilities	-45,714	-21,155	-24,559
Equity and investment fund shares	-44,608	-22,257	-22,351
Debt securities	-1,106	1,102	-2,208
Financial derivatives: assets	-21,700	-21,822	122
Financial derivatives: liabilities	-26,356	-21,536	-4,820
Other investment: assets	-21,474	17,828	-39,302
Other investment: liabilities	-3,442	20,473	-23,915
D. Net errors and omissions	7,301	9,492	-2,191
E. Reserves and related items*	10,883	20,993	-10,110

Note: * Excluding valuation changes in exchange rates.

Source: *Balance of Payments Quarterly, Republic of China (Taiwan)*, CBC, February 2023.

Narrower Current Account Surplus

The current account consists of four major items, namely goods, services, primary income, and secondary income.

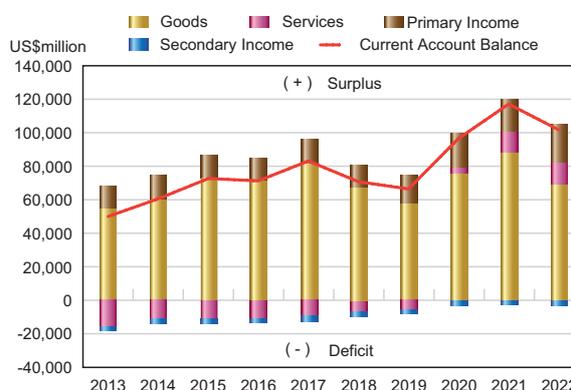
(1) Goods

Despite the global economic slowdown in the second half of the year, significant trade growth in the first half of the year strongly bolstered exports and imports of goods, both of which reached record high amounts. The value of exports, on a BOP basis, increased by 2.7% to US\$465,987 million. Among its components, net exports of goods under merchandising decreased by 27.8% to US\$14,295 million. The value of imports increased by 8.6% to US\$396,998 million. Overall, as the increase in imports exceeded that in exports, the trade surplus narrowed from US\$87,963 million to US\$68,989 million for the year. The top five trading partners of Taiwan in 2022 were Mainland China including Hong Kong (hereafter in this chapter referred to as Mainland China), ASEAN,¹ the US, Europe, and Japan.

In terms of Taiwan's trade with Mainland China, the value of exports amounted to US\$185,914 million in 2022, 1.6% lower than the previous year. Among major export products, electronic parts and components maintained the leading role, which benefited from increasing use of emerging technologies; in contrast, exports of optical instruments, information and communication products, plastic and rubber products, basic metals and their products, and machinery from Taiwan to Mainland China decreased significantly, causing Mainland China's share of total exports to drop to 38.8%, the lowest point in nearly 18 years. As a manufacturing center of the world, Mainland China remained Taiwan's largest trading partner. Imports from Mainland China grew by 1.5% to US\$85,481 million in 2022. This was mainly due to international industrial specialization and cooperation, which resulted in a larger increase in imports of electronic parts and components from Mainland China, but its share of total imports continued to decline to 20.0%. In 2022, exports to Mainland China decreased while imports increased, amounting to a narrower trade surplus of US\$100,434 million, still the largest source of Taiwan's trade surplus.

Exports to the ASEAN economies increased to US\$80,616 million in 2022, up by 14.8% with a strong export performance of electronic parts and components and mineral products. Imports from the ASEAN economies increased by 14.1% to US\$53,900 million, accounting for a rising share of 12.6% of total imports as imports of mineral products and machinery increased. Overall, the trade surplus with

Current Account



Source: *Balance of Payments Quarterly, Republic of China (Taiwan)*, CBC, February 2023.

¹ Association of Southeast Asian Nations, including Brunei Darussalam, Cambodia, Indonesia, Laos, Myanmar, Malaysia, the Philippines, Singapore, Thailand, and Vietnam.

the ASEAN economies rose to US\$26,716 million. Singapore, Vietnam, and the Philippines were the third, fourth, and fifth largest sources of Taiwan's trade surplus, respectively.

In 2022, Taiwan's exports to the US grew 14.3% to US\$75,056 million, and its share of total imports rose to its highest in nearly 18 years, reaching 15.7%. The increase mainly came from information, communication and audio-video products. As for imports from the US, the amount increased by 15.8% to US\$45,456 million, with its share in total imports increasing to 10.6%. The major products contributing to the expansion were mineral products and machinery. The trade surplus with the US expanded to US\$29,600 million for the year, ranking second among Taiwan's surplus sources.

Exports to Europe increased by 6.8% to US\$41,110 million, with its share of total exports remaining at 8.6% for the second year in a row. The major products contributing to this expansion were electronic parts and components and transport equipment. Imports from Europe increased by 7.6% to US\$50,918 million and the share of total imports decreased to 11.9%, with chemical products and transport equipment being the main sources of this increase. In all, Taiwan's trade deficit with Europe expanded to US\$9,808 million in 2022.

Exports to Japan increased by 15.1% to US\$33,618 million and its share in Taiwan's total exports slightly increased to 7.0%. Imports from Japan decreased by 2.7% to US\$54,597 million and its share of total imports decreased to 12.8%. The category that saw both the greatest increase in exports and the greatest decrease in imports to Japan was electronic parts and components. The trade

Trade in Goods by Country

Unit: %

	2022			2021		
	Amount (US\$million)	Share	Annual Change	Amount (US\$million)	Share	Annual Change
Exports						
Mainland China (including Hong Kong)	185,914	38.8	-1.6	188,875	42.3	24.8
ASEAN	80,616	16.8	14.8	70,242	15.7	32.0
US	75,056	15.7	14.3	65,686	14.7	29.9
Europe	41,110	8.6	6.8	38,484	8.6	36.7
Japan	33,618	7.0	15.1	29,206	6.5	24.8
Rest of the World	63,192	13.2	17.3	53,878	12.1	40.2
Total	479,506	100.0	7.4	446,371	100.0	29.3
Imports						
Mainland China (including Hong Kong)	85,481	20.0	1.5	84,194	22.0	29.9
Japan	54,597	12.8	-2.7	56,117	14.7	22.3
ASEAN	53,900	12.6	14.1	47,233	12.4	31.6
Europe	50,918	11.9	7.6	47,331	12.4	28.6
US	45,456	10.6	15.8	39,259	10.3	20.7
Rest of the World	137,043	32.1	27.1	107,825	28.2	53.5
Total	427,394	100.0	11.9	381,958	100.0	33.5

Source: *Monthly Statistics of Exports and Imports*, Ministry of Finance, R.O.C. (Taiwan).

deficit with Japan narrowed to US\$20,979 million. Japan remained Taiwan's second largest source of imports and the largest source of trade deficit in 2022.

(2) Services

In 2022, services registered a record surplus of US\$13,111 million, up from US\$12,428 million in the previous year, mainly because of an increase in freight transport receipts.

Of the various components of the services account, receipts of manufacturing services on physical inputs owned by others² decreased by US\$63 million to US\$4,326 million in 2022. On the debit side, payments for manufacturing services decreased by US\$68 million to US\$1,938 million. In total, net manufacturing receipts increased from US\$2,383 million to US\$2,388 million.

In terms of maintenance and repair services n.i.e. (not included elsewhere), which covers maintenance and repair work by residents on goods that are owned by nonresidents (and vice versa), the receipts increased by US\$187 million to US\$1,165 million owing to increased receipts from aircraft repair. On the other hand, the payments increased by US\$338 million to US\$1,231 million. In all, the repair services account turned from a surplus to a deficit of US\$66 million.

Transport receipts increased by US\$1,847 million to US\$21,601 million, a record high reflecting increases in international freight proceeds. Transport payments increased by US\$382 million to US\$9,957 million as a result of increased freight payments of imports. Overall, the surplus of transport services hit a record high in 2022, increasing from US\$10,179 million to US\$11,644 million.

As many countries were gradually easing border controls, the number of cross-border tourists rose. Travel receipts increased by US\$2,003 million to US\$2,747 million. Meanwhile, travel payments increased by US\$1,861 million to US\$3,108 million. In all, the deficit on the travel account narrowed to US\$361 million.

In terms of other services, the receipts grew by US\$2,381 million to US\$28,511 million, mainly attributable to increases in receipts from professional and management consulting services (which is under other business services), telecom., computer and information services, and financial services. The payments grew by US\$3,159 million to US\$29,005 million, owing to increases in payments for professional and management consulting services, financial services, and construction. Overall, the other services account turned from a surplus to a deficit of US\$494 million.

(3) Primary Income

Primary income consists of compensation of employees, investment income, and other primary

² Manufacturing services on physical inputs owned by others includes the processing, assembly, labeling, and packing undertaken by a service provider that does not own the goods; namely a resident's payments to a nonresident for providing these services for the resident who is also the owner of the goods concerned.

income. In 2022, primary income receipts increased by US\$10,802 million to US\$51,180 million, mainly because of increases in residents' direct investment income and banks' interest receipts. Meanwhile, primary income payments increased to US\$28,445 million, US\$7,520 million more than the previous year. This was mainly attributable to increases in banks' interest payments and portfolio investment income paid to nonresidents. Consequently, the surplus on the primary income account increased to US\$22,735 million.

(4) Secondary Income

For the year of 2022, secondary income receipts amounted to US\$9,503 million, reflecting increases in gifts and samples. Secondary income payments amounted to US\$12,607 million, mainly owing to increases in outward family support allowances. As a whole, the deficit on the secondary income account widened to US\$3,104 million in 2022.

Capital Account Deficit

The capital account includes capital transfers and the acquisition and disposal of non-produced, non-financial assets. In 2022, the balance of the capital account turned from a surplus to a deficit of US\$46 million.

Net Asset Increase in Financial Account

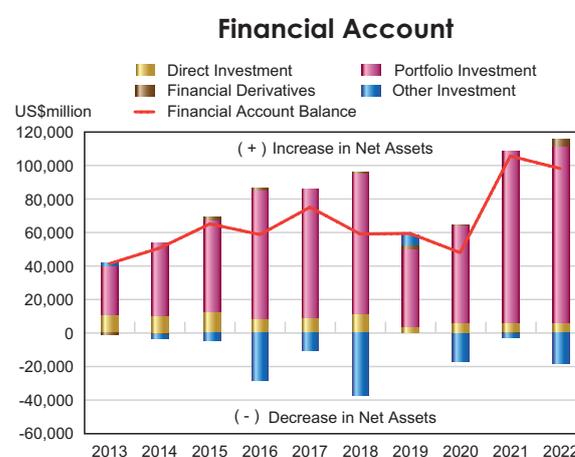
In 2022, the financial account showed an increase of US\$98,103 million in net assets. In terms of sub-categories, direct investment, portfolio investment and financial derivatives exhibited increases of US\$6,091 million, US\$105,388 million and US\$4,656 million in net assets, respectively. The account of other investment exhibited a decrease of US\$18,032 million in net assets.

(1) Direct Investment

Direct investment abroad by residents exhibited an increase of US\$16,280 million. Direct investment in Taiwan by nonresidents showed an increase of US\$10,189 million.

(2) Portfolio Investment

In 2022, portfolio investment abroad by residents increased by US\$59,674 million mainly because banks increased holdings of foreign securities. Equity and investment fund shares



Source: *Balance of Payments Quarterly, Republic of China (Taiwan)*, CBC, February 2023.

increased by US\$7,756 million, and debt securities rose by US\$51,918 million.

On the other hand, local portfolio investment by nonresidents decreased by US\$45,714 million as foreign investors reduced holdings of Taiwanese stocks. Equity and investment fund shares decreased by US\$44,608 million, and debt securities declined by US\$1,106 million.

(3) Financial Derivatives

Assets in financial derivatives decreased by US\$21,700 million, principally because of gains on transactions of financial derivatives received by other financial corporations.

Liabilities in financial derivatives decreased by US\$26,356 million, mainly because of losses on transactions of financial derivatives paid by other financial corporations.

(4) Other Investment

In 2022, other investment abroad by residents decreased by US\$21,474 million. Of the components, currency and deposits decreased by US\$20,575 million as the private sector withdrew overseas deposits; loans decreased by US\$2,215 million because of declines in overseas interbank loans; trade credit decreased by US\$2,678 million, owing to a downturn in trade credit extended by corporations; other accounts receivable increased by US\$3,829 million.

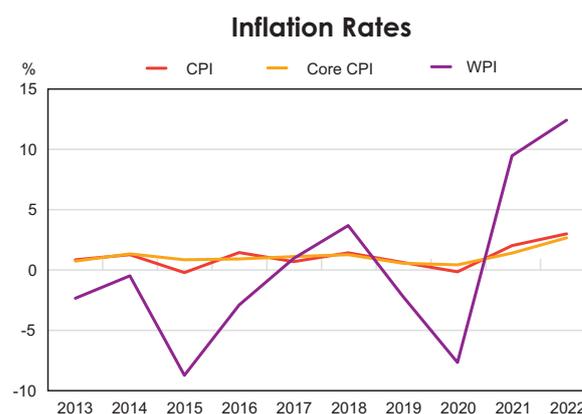
Other inward investment by nonresidents decreased by US\$3,442 million. Of the components, currency and deposits decreased by US\$8,295 million because of declining deposits from overseas branches; loans dropped by US\$1,997 million because of repayments on overseas interbank loans; trade credit grew by US\$2,980 million, owing to an increase in trade credit received by corporations; other accounts payable rose by US\$3,870 million.

Increase in Foreign Exchange Reserves

The foreign exchange reserve assets held by the Bank increased by US\$10,883 million in 2022, mainly owing to returns from foreign exchange reserves management.

4. Prices

In 2022, Taiwan's WPI rose by 12.42%, the highest level since 1981, mainly reflecting soaring import prices owing to persistent supply chain bottlenecks and the ongoing Russia-Ukraine war pushing up international crude oil and other raw material prices. Headline inflation, measured by the CPI, increased by 2.95%, the highest increase since 2009, primarily driven by supply-side shocks such as price rises in food, fuels and lubricants, and durable goods, as well as higher prices of residential rent. The core CPI, which excludes fruit, vegetables, and energy, stood at 2.61%, also the largest increase since 2009.



Source: *Price Statistics Monthly*, DGBAS, Executive Yuan.

Marked Increase in Wholesale Prices

The WPI went up by 12.42% in 2022, the highest level since 1981. The marked increase reflected rising import prices of international raw materials such as crude oil and grains driven by lingering pandemic-related supply chain bottlenecks and the continued Russia-Ukraine war. In terms of monthly movements, the annual WPI inflation rate trended upwards from the beginning of the year because of higher import prices and reached an all-year high of 16.88% in May. Later, with price declines in international raw materials amid a slowing global economic expansion owing to largely synchronized monetary policy tightening by major economies, the increase in the annual WPI inflation rate abated and narrowed to 7.02% in December.

Broken down by the three major components of the WPI, the annual rates of change in prices for imports, domestic sales excluding imports, and exports picked up markedly in 2022 on account of continuously soaring prices of international raw materials.

Import prices, weighted at 34.10% of the WPI, rose by 9.12% in US dollar terms in 2022. As the NT dollar depreciated against the US dollar over 2022, the annual growth rate of import prices widened to a 16.07% increase in NT dollar terms, pushing up imported inflation pressures on domestic prices. Among the components of import prices in terms of the NT dollar, prices of raw materials went up by 20.56% and accounted for 15.27 percentage points in the import price increase, mainly boosted by

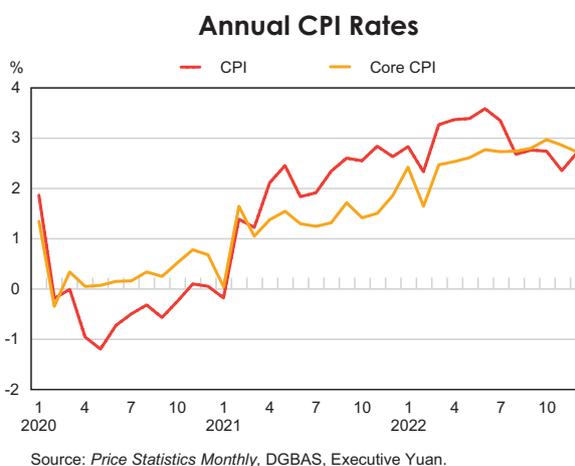
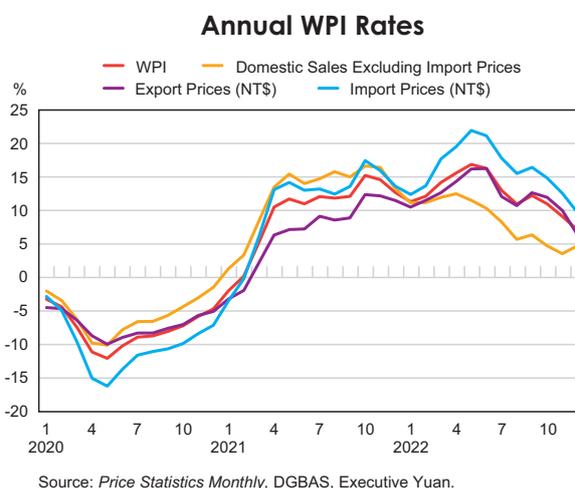
rising prices of mineral products, vegetable products, base metal products and chemical products. Prices of consumer goods and capital goods also rose by 5.46% and 1.01%, respectively.

Export prices, weighted at 40.20% of the WPI, increased by 5.37% in US dollar terms in 2022. Owing to the NT dollar depreciation against the US dollar, the annual change in export prices elevated to a 12.06% increase in terms of the NT dollar. Among the components of export prices in NT dollar terms, prices of raw materials moved up by 12.28%, contributing 10.70 percentage points to the export price increase and primarily reflecting higher prices of mineral products, chemical products, as well as base metal products. In addition, prices of consumer goods and capital goods rose by 14.21% and 7.21%, respectively.

With import costs of primary commodities surging, prices of domestic sales excluding imports, weighted at 25.70% of the WPI, advanced by 8.37% in 2022. In terms of the basic groups, prices of manufacturing products rose by 7.07%, mainly attributable to higher prices of petroleum and coal products, electronic parts and components, chemical materials, and base metal products. Prices of water, electricity, and gas supply, and prices of agriculture, forestry, fishing, and animal husbandry products went up by 20.20% and 6.28%, respectively. Prices of quarrying and mining products registered an increase of 3.16%.

Upside Pressures for Consumer Prices

The CPI rose by 2.95% in 2022, the highest increase since 2009. From the beginning of the year, the CPI inflation rate trended up and reached 3.59% in June. The uptrend in CPI inflation was associated with an increase in domestic prices of food and oil related products boosted by the rise in imported raw material prices. Subsequently, as international prices of raw materials such as crude oil and grains softened and domestic prices of food such as vegetables and fruit posted smaller



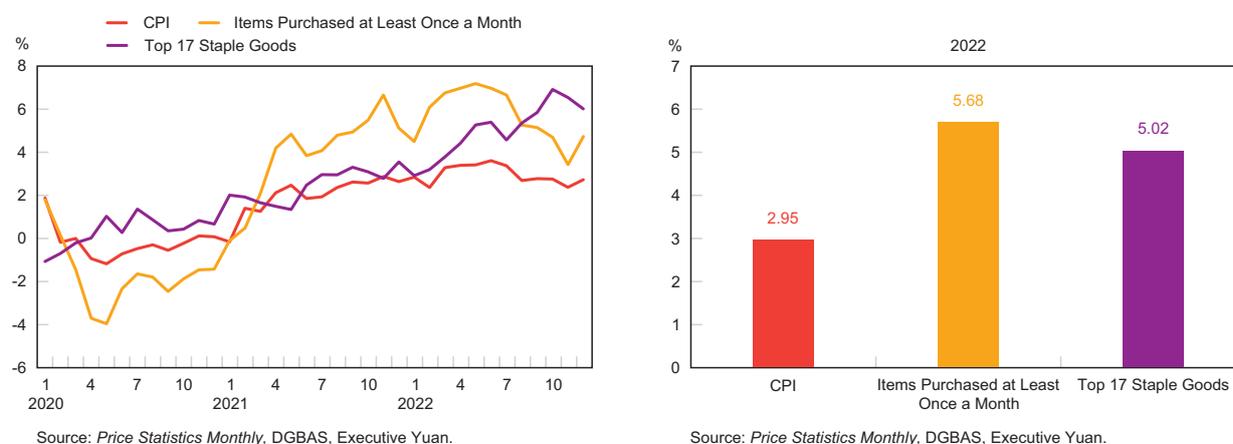
gains, the CPI inflation rate trended downwards and registered 2.35% in November. The CPI inflation rate moved up to 2.71% in December, mainly owing to rising prices of vegetables and fuels.

The core CPI inflation rate grew at an average pace of 2.61% year on year in 2022, the highest level since 2009. In terms of monthly movements, the core CPI annual growth rate displayed an uptrend and reached an all-year high of 2.97% in October. Later, the core inflation rate went down and recorded 2.72% in December, as prices of food away from home and durable goods rose at a softer pace.

Compared to major economies, Taiwan's inflation rate in 2022 was mild, reflecting the government's robust supply-side measures of price stabilization, the Bank's policy rate hikes, and spillover effects from the drastic tightening of monetary policy in major economies.

As prices of the items purchased at least once a month and of the top 17 staple goods rose by 5.68% and 5.02% in 2022, respectively, with both significantly outpacing the overall CPI inflation of 2.95%, consumers tended to be more conscious of the price uptrends.

Annual Growth of CPI, Prices of the Top 17 Staple Goods, and Prices of the Items Purchased at Least Once a Month



In 2022, the uptick in Taiwan's CPI was mainly attributable to rising prices of food, fuels and lubricants, and durable goods, which were induced by supply-side factors such as rises in import prices of raw materials including crude oil and grains, coupled with higher prices of residential rent. These four items accounted for 2.09 percentage points in the CPI inflation rate, contributing 71% to CPI inflation.

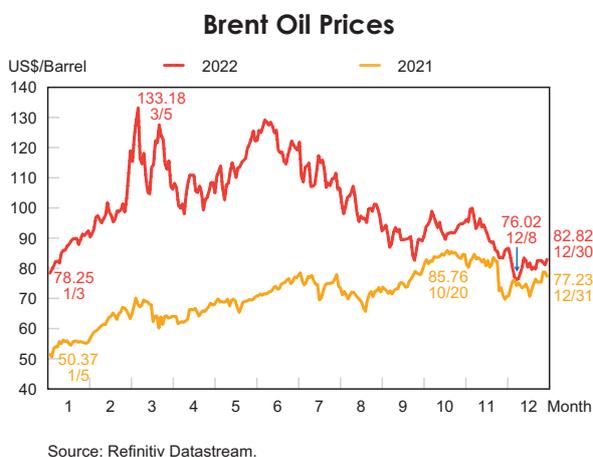
The main factors contributing to the rise of CPI inflation in 2022 were as follows:

- (1) Prices of food went up by 5.66% and accounted for 1.39 percentage points in the CPI inflation rate, mainly because of global supply chain bottlenecks and the Russia-Ukraine war pushing up import

costs of grains and meats. Among the components of the food group, the rise in wages and higher raw food costs brought up prices of food away from home by 5.77%, contributing 0.56 percentage points to CPI inflation. With supply restrained by unfavorable weather conditions, prices of fruit moved up by 10.40%, contributing 0.22 percentage points to CPI inflation. With rising feed and production costs caused by surging imported grain prices, prices of meats, eggs, and cereals and cereal products rose by 5.70%, 26.39%, and 4.29%, and accounted for 0.14, 0.08, and 0.07 percentage points in the CPI inflation rate, respectively.

(2) Reflecting the rise in housing prices, as well as higher prices of maintenance and repair of dwellings, prices of residential rent grew by 1.68%, contributing 0.25 percentage points to CPI inflation.

(3) For 2022, Brent oil prices averaged US\$100.94 per barrel, increasing by 42.67% from the previous year. Despite imported oil prices surging, the government made efforts to lower the commodity tax rates on gasoline and diesel and implement a price stabilization mechanism through state-owned energy suppliers aiming at restraining oil price hikes. Consequently, domestic fuel and lubricant prices went up relatively mildly by 8.40% and accounted for 0.24 percentage points in the CPI inflation rate.



(4) The rises in imported raw material costs, ocean freight rates, and wages, combined with the supply of domestic vehicles and home appliances constrained by global supply chain bottlenecks, pushed up prices of durable consumer goods by 2.00%, contributing 0.21 percentage points to CPI inflation.

(5) Influenced by increasing costs resulting from shortages of raw materials such as base metals and plastics and the rise in wages, prices of vehicle parts and maintenance moved up by 4.97% and accounted for 0.09 percentage points in the CPI inflation rate.

(6) Less discounts in clothing sales drove up prices of garments by 2.23%, accounting for 0.08 percentage points in the CPI inflation rate.

(7) Owing to an upswing in construction costs of materials and services, prices of maintenance and repair of dwellings went up by 5.83%, contributing 0.07 percentage points to CPI inflation.

(8) With soaring prices of toilet paper and napkins because of rising imported wood pulp and paper prices, as well as price hikes in toothpaste and shampoo, prices of cosmetic items rose by 1.99%, contributing 0.06 percentage points to CPI inflation.

(9) As elevated international gold prices brought prices of gold ornaments and jewelry higher, prices of personal effects climbed by 2.56%, contributing 0.06 percentage points to CPI inflation.

(10) An increase in accommodation and tour group fees on account of growing demand for travel amid the easing of the domestic pandemic-related restrictions and border reopening caused prices of entertainment services to grow by 1.91%, accounting for 0.06 percentage points in the CPI inflation rate.

Percentage Changes in the Major Components of the CPI in 2022

Item	Annual Rate of Change (%)	Contribution to CPI Inflation Rate (Percentage Point)
CPI	2.95	2.95
Food	5.66	1.39
Food Away from Home	5.77	0.56
Fruit	10.40	0.22
Meats	5.70	0.14
Eggs	26.39	0.08
Cereals & Cereal Products	4.29	0.07
Fish & Seafood	6.30	0.07
Cooked Food	6.25	0.05
Residential Rent	1.68	0.25
Fuels & Lubricants	8.40	0.24
Durable Consumer Goods	2.00	0.21
Vehicle Parts & Maintenance	4.97	0.09
Garments	2.23	0.08
Maintenance & Repair of Dwellings	5.83	0.07
Cosmetic Items	1.99	0.06
Personal Effects	2.56	0.06
Entertainment Services	1.91	0.06
Total		2.51
Others		0.44

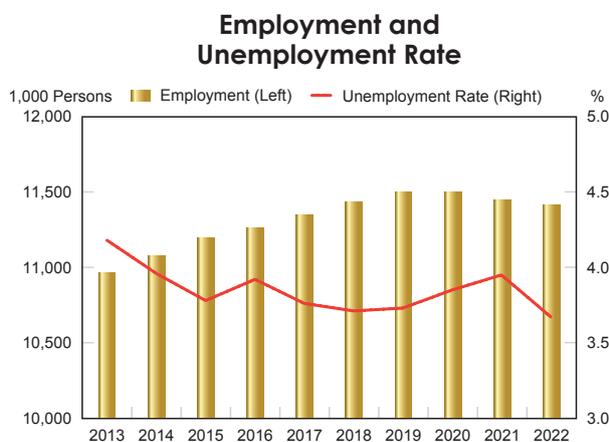
Source: *Price Statistics Monthly*, DGBAS, Executive Yuan.

5. Labor Market

Decrease in Employment for Two Consecutive Years

As the domestic COVID-19 resurgence in mid-April 2022 battered the labor market, employment decreased from 11.47 million persons in the beginning of the year to 11.37 million persons in May. Afterwards, employment gradually picked up and reached 11.45 million persons in December as the pandemic's impact waned and the government eased pandemic-related restrictions. However, the average number of employed persons for the year as a whole decreased by 29 thousand persons or 0.26% from the previous year to 11.42 million persons, recording two consecutive years of decline. This was mainly attributable to a declining fertility rate and an aging population in Taiwan.³

In terms of employment by sector, the industrial sector was affected by the decline in export growth amid a global economic slowdown, as well as a shortage of construction workers, with employment decreasing by 17 thousand persons or 0.41%. Within this sector, employment in the manufacturing and construction sectors both registered the largest job losses with eight thousand persons each. Meanwhile, with the recovery of domestic demand and loosened border controls, employment in the services sector decreased only mildly by one thousand persons or 0.01%. Within this sector, employment in the wholesale and retail trade sector saw the larger decline of 28 thousand persons. Employment in the agricultural sector also went down by 12 thousand persons or 2.24%. Of total employment, the services sector accounted for the major share at 59.96%, up by 0.15 percentage points from the previous year, while the shares of the industrial and the agricultural sectors edged down by 0.05 and 0.09 percentage points to 35.40% and 4.64%, respectively.



Source: DGBAS, Executive Yuan.

In terms of employed persons by occupation, employment of white-collar workers⁴ accounted for 45.76% of total employment and increased by 35 thousand persons or 0.67%. Services and sales employment made up 19.91% of total employment and decreased by five thousand persons or 0.22%,

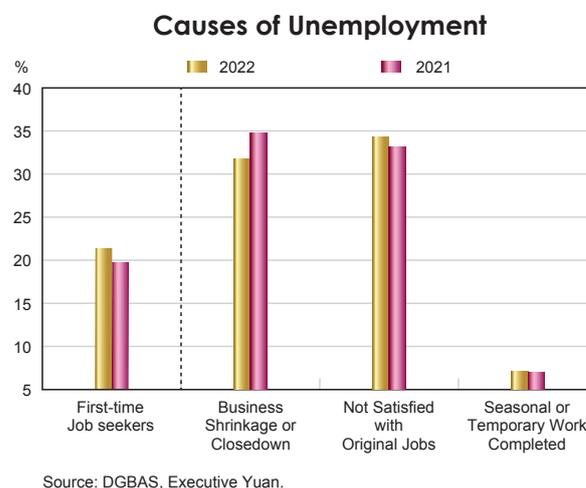
³ In 2022, the civilian population aged 15 and over was 20.03 million persons, a decrease of 165 thousand persons or 0.82% compared with 2021; the working-age population (people aged 15 to 64) was 16.3 million persons, a decrease of 186 thousand persons or 1.12% compared with 2021.

⁴ Including legislators, senior officials, managers, professionals, technicians, associate professionals, and clerical support workers.

while the employment of blue-collar workers,⁵ accounting for 34.33% of total employment, suffered the largest decline of 57 thousand persons or 1.43%.

Lowest Unemployment Rate Since 2001

The unemployment rate rose from 3.61% in the beginning of the year to 3.79% in August owing to the domestic coronavirus flare-up in April and the seasonal factor of new graduates entering the job market. Afterwards, the unemployment rate gradually moved down to 3.52% in December owing to the recovery of domestic economic activity amid an improving pandemic situation. For the year as a whole, the unemployment rate was 3.67%, the lowest since 2001.



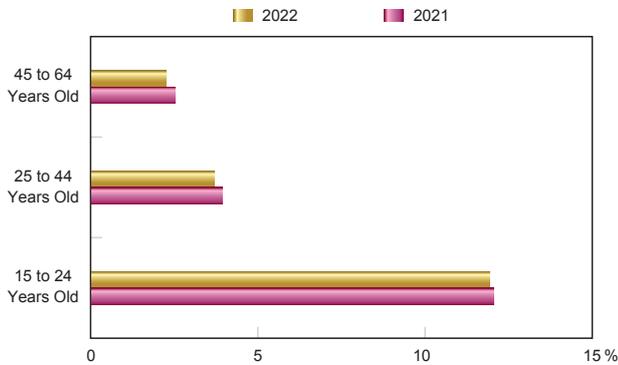
Reflecting the pandemic's impacts on experienced job seekers, unemployment duration increased by 1.01 weeks over the previous year to 21.25 weeks. In terms of age groups, unemployment duration of the age group 45-64 increased the most by 3.60 weeks to 22.90 weeks, followed by the 17.63 weeks for age group 15-24 with an increase of 0.64 weeks. The unemployment duration of the age group 25-44 remained 22.32 weeks. Meanwhile, the average number of the long-term unemployed⁶ was 58 thousand persons, an increase of eight thousand persons compared to that in the previous year.

In terms of causes of unemployment, total unemployment in 2022 was 434 thousand persons, decreasing by 37 thousand or 7.81% from the previous year, mainly because unemployment of experienced job seekers, with a share 78.23% of total unemployment, decreased by 36 thousand persons or 9.71%. Among them, unemployment because of shrinkage or closedown of business recorded the largest decline by 26 thousand persons or 15.76%, and its share of total unemployment also decreased from 35.16% the previous year to 32.13%, mainly because the nationwide level-3 epidemic alert in 2021 had a more severe impact on the labor market compared to the pandemic resurgence in 2022. Meanwhile, unemployment because of dissatisfaction with their original jobs dropped by seven thousand persons or 4.67%, with a 34.52% share of total unemployment. Unemployment because of conclusion of seasonal or temporary work also decreased by two thousand persons or 7.39%, with a share of 7.29%.

⁵ Including skilled workers in agricultural, forestry, fishing, and animal husbandry industries, and craft and machinery related workers.

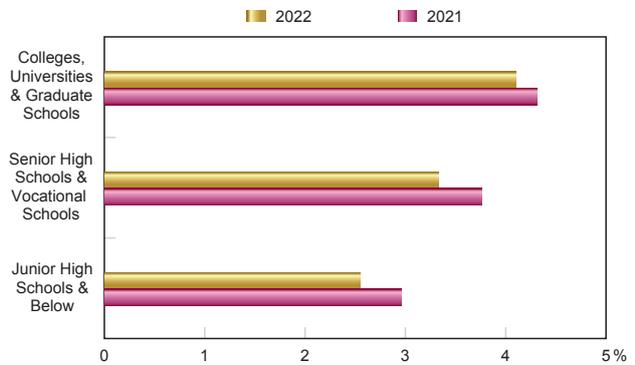
⁶ Referring to those who have been unemployed for 53 weeks or more.

Unemployment Rate by Age



Source: DGBAS, Executive Yuan.

Unemployment Rate by Education Background

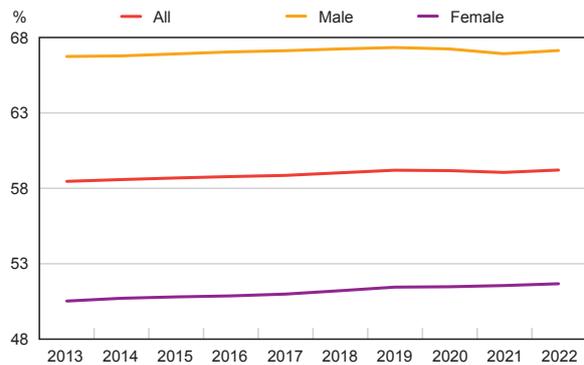


Source: DGBAS, Executive Yuan.

In terms of age groups, in the year 2022 the unemployment rates of people with the age groups 25-44 and 45-64 dropped by 0.24 and 0.26 percentage points from the previous year to 3.72% and 2.26%, respectively. The unemployment rate of the age group 15-24 also slid by 0.14 percentage points to 11.97%, the highest rate among all the age groups.

In terms of educational background, the unemployment rates shrank for all groups in 2022. For people with a junior high school degree or below, a senior high school or vocational school degree, and a college degree or above, the unemployment rate decreased by 0.41, 0.43, and 0.21 percentage points to 2.56%, 3.34%, and 4.11%, respectively. Younger persons and highly educated people suffered higher unemployment rates in 2022, reflecting a mismatch between skills acquired through tertiary education and demand for skills in the labor market.

Labor Force Participation Rate



Source: DGBAS, Executive Yuan.

Labor Force Shrank While Labor Participation Rate Increased

Affected by structural demographic changes driven by a declining fertility rate and an aging population in Taiwan, the labor force (employed and unemployed combined) decreased by 66 thousand persons, or 0.55%, to 11.85 million persons in 2022, declining for two years in a row. In addition, the non-labor force dropped by 99 thousand persons, or 1.2%, to 8.18 million persons. The average labor force participation rate went up by 0.16 percentage points over the previous year to 59.18% in 2022, the highest since 1993.

In terms of gender, the male labor force participation rate was 67.14%, an uptick of 0.21 percentage points from the year before. The female labor force participation rate has continued to grow since 2001 and it increased by 0.12 percentage points to 51.61% in 2022, showing that government policies have been effective in promoting gender equality, improving the work environment, and facilitating female employment in recent years.

In terms of age groups, the labor participation rates of age groups 25-44 and 45-64 increased by 0.63 and 0.84 percentage points to 89.98% and 65.49%, respectively, while that of age group 16-24 decreased by 0.08 percentage points to 36.73%. With the pandemic's impact diminishing, the labor force participation rate returned to the pre-pandemic level (59.17% in 2019), but remained lower than those of the United States (62.2%), Japan (62.5%), South Korea (63.9%), and Singapore (70.0%) owing to several structural factors such as the extension of schooling and early retirement.

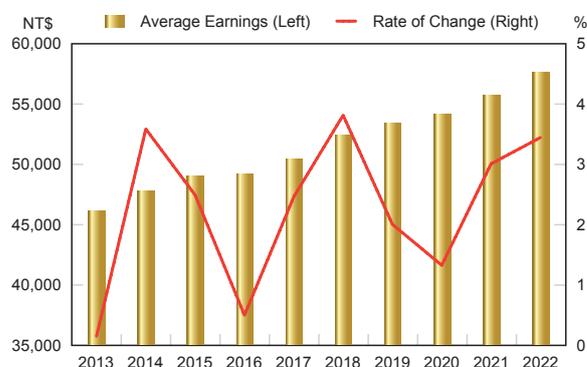
In terms of education background, the labor force participation rate of workers with a college degree or above rose by 0.38 percentage points to 66.60%, while the participation rates of workers with a junior high school degree or below and those with a senior high school or vocational degree dropped by 0.68 and 0.23 percentage points to 37.56% and 62.22%, respectively.

Modest Wage Growth

For the year 2022, the average monthly earnings per worker of the non-farm sector grew by 3.45% to NT\$57,718, the largest increase over the past four years. The increase mainly benefited from the recovery in domestically-oriented industries with the pandemic's impact alleviating, as well as higher pay (including regular earnings and irregular earnings such as overtime pay and bonuses) raises in the manufacturing sector on account of the expansion of exports. Accounted for a higher inflation rate, there was a modest increase of 0.48% in average real monthly earnings, which reached a historical high at NT\$53,741.

In terms of major sectors, industrial sector wages grew at a slower pace amid soft export growth in 2022, whereas the services sector performed better as an abated domestic pandemic and the easing of border controls gave a boost to consumer spending. The average monthly earnings of the industrial and services sectors grew by 4.69% and 2.55% to NT\$58,938 and NT\$56,840, respectively, while

Amount and Rate of Change of Average Earnings of Non-farm Workers



Source: DGBAS, Executive Yuan.

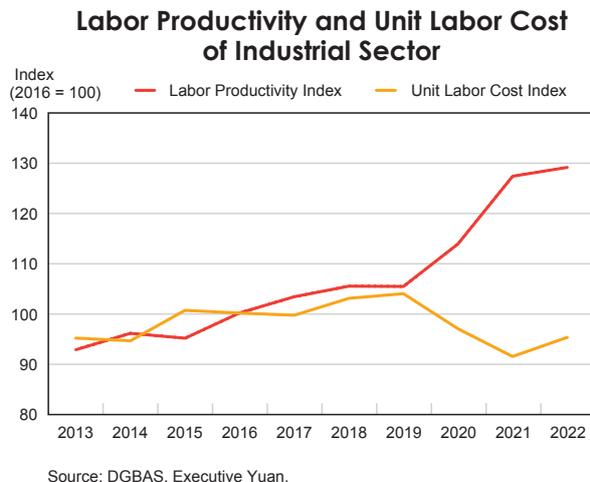
in real terms they increased by 1.69% and decreased by 0.39%, respectively.

In terms of industrial classification, the finance and insurance sector had the highest average monthly earnings with NT\$100,378, and the electricity and gas supply sector came in second with NT\$95,605. On the other hand, the education sector⁷ and the accommodation and food services sector earned average monthly wages of NT\$32,236 and NT\$36,113, respectively, the lowest two among all sectors owing to a large number of part-time employees in these sectors. In terms of growth rates, the transportation and storage sector's average monthly earnings witnessed the highest increase of 8.08%, followed by the manufacturing sector at 5.12%.

Labor Productivity and Unit Labor Cost Both Increased

As total production increased and total working hours decreased, labor productivity of the industrial and the manufacturing sectors rose by 1.37% and 1.48%, respectively, compared with the previous year. In the manufacturing sector, repair and installation of industrial machinery and equipment manufacturing registered the largest growth in labor productivity with 16.85%, followed by computers, electronic and optical products manufacturing, and other transport equipment and parts manufacturing, both increasing by 7.77%.

Since the increase in total earnings was higher than that in production, unit labor costs of the industrial and the manufacturing sectors increased by 4.20% and 4.16% year on year, respectively. Of all the manufacturing sectors, the leather, fur and related products manufacturing sector experienced the largest increase in unit labor cost with 23.29%, followed by basic metals manufacturing with an increase of 22.85%.



⁷ Excluding schools at all levels within the formal education system (except preschools).

Financial Developments



II. Financial Developments

1. Overview

In 2022, major central banks continued with monetary policy tightening, the global economy cooled down, and exports weakened, all restricting domestic economic growth. Against this backdrop, the annual growth rates of the monetary aggregate M2 decreased because of net foreign capital outflows and slower growth in bank loans and investments.

In terms of interest rates, reflecting the Bank's hikes in the policy interest rates and the required reserve ratios in 2022, banks' posted interest rates and the weighted average interest rate on deposits and on loans moved upward. Owing to tighter liquidity, the interbank overnight call loan rate, bills market rates, and the average 10-year government bond yield increased over the previous year.

In regard to the exchange rate, during the course of the year, the NT dollar against the US dollar broadly depreciated. At the end of 2022, the NT dollar depreciated by 9.83% against the US dollar compared with a year earlier; on a daily average basis, the NT dollar also depreciated by 5.89% against the US dollar compared with the previous year. Moreover, following the reversal of the global stock market uptrend, the Taiwan Stock Exchange Capitalization Weighted Stock Index, the TAIEX, fluctuated downwards, and the daily average trading value declined sharply.

Growth in M2 and Bank Loans and Investments Declined

The annual growth rate of bank loans and investments decreased from 8.39% at the end of 2021 to 6.38% at the end of 2022. The decrease was due to a cautious housing market and weaker corporate demand for funds as the annual growth rate of exports declined in the second half of the year. With slower growth in bank loans and investments reducing the demand for money, the annual growth rate of M2 (measured on a daily average basis) declined to 7.48% in 2022 from the 8.72% registered in 2021, but still exceeded the Bank's 2.5% to 6.5% reference range for the year.

Both Deposit and Loan Rates Increased

In response to intense imported inflation pressures and in order to rein in inflation expectations, the Bank raised the policy rates in each of the quarterly meetings of 2022. As a result, the posted interest rates on deposits of banks moved upwards. At the end of 2022, the average posted interest rate on one-year time deposits of the five major domestic banks increased from 0.77% at the end of the previous year to 1.45%, and the weighted average rate on their newly-extended loans was 1.446% in 2022, increasing by 0.246 percentage points over the previous year.

For domestic banks as a whole, the weighted average interest rate on deposits was 0.53%, increasing by 0.17 percentage points over the previous year. Meanwhile, the weighted average interest rate on loans was 1.85%, increasing by 0.25 percentage points.

Money Market Rates Generally Increased

Short-term liquidity conditions tightened mainly owing to net foreign portfolio selling and the resultant net capital outflows in response to intensified financial market turmoil and domestic and foreign rate hikes as well as the war in Ukraine. The weighted average overnight call loan rate generally showed an upward trend in 2022, rising from a low of 0.081% in February to 0.507% in December. The annual average rate was 0.263%, increasing by 0.182 percentage points from the previous year.

With regard to the bills market, money market rates broadly increased in 2022, while their yearly average rates were all higher than those of the previous year amid tight market liquidity. The average 1-30 day commercial paper rate in the secondary market was 0.69% in 2022, increasing by 0.47 percentage points over the previous year.

10-Year Government Bond Yield Became Higher than Last Year

In 2022, higher inflation led the yields on US government bonds to increase. Coupled with the Bank's policy rate hikes, the turnover-weighted average of the yield on the benchmark 10-year government bond increased by 65 basis points over the previous year to 1.09%.

In terms of issuance, as the Central Government Debt Service Fund renewed maturing government bonds and increased issuance to meet budget needs, the total issuance amount of government bonds decreased by NT\$96.9 billion over the previous year.

NT Dollar Against the US Dollar Depreciated

In 2022, the NT dollar exchange rate against the US dollar broadly depreciated. Since the beginning of the year, US inflation pressure has been high, and the Fed raised interest rates in March, initiating a cycle of rate hikes. In early May, the US dollar strengthened as the Fed would start tapering in June, causing the NT dollar to depreciate against the US dollar. However, in late May, Taiwan's stock rallies attracted foreign portfolio inflows and caused the NT dollar to appreciate slightly against the US dollar.

Subsequently, inflation pressure in the US did not ease, and the Fed raised interest rates in June, July, and September. The US dollar continued to strengthen, causing the NT dollar to depreciate against the US dollar. In November, US inflation was lower than expected, which raised investors' expectations of a slower pace of interest rate hikes by the Fed. Additionally,

continual capital inflows to Taiwan caused the NT dollar to appreciate against the US dollar. In early December, Fed Chair Jerome Powell indicated that the pace of interest rate hikes may slow down, and the US dollar depreciated slightly in mid-December. However, because foreign investors withdrew their equity holdings in Taiwan, resulting in a net capital outflow, the NT dollar exchange rate fluctuated moderately. At the end of 2022, the NT dollar depreciated by 9.83% against the US dollar compared with the end of the previous year. On a daily average basis, the NT dollar depreciated against the US dollar by 5.89% in 2022.

Stock Index Fluctuated and Declined; Trading Value Decreased

In 2022, Taiwan's stock indices were on a broad downtrend for most of the year owing to the spread of the Omicron variant, the US Fed's faster rate hikes and balance sheet tapering, and monthly net sales by foreign institutional investors (FINIs). The resulting slump took the TAIEX to a yearly low in October. Afterwards, the TAIEX rebounded slightly as softer-than-expected US inflation somewhat eased the pressure for subsequent Fed rate hikes, global stock markets also stabilized, and FINIs net bought in November, as well as a boost from holiday shopping. At the end of the year, the TAIEX was 22.4% lower than a year ago. The daily average trading value on the Taiwan Stock Exchange (TWSE) decreased by 39.7% from 2021 to NT\$228 billion in 2022.

2. Banking Sector

Number of Monetary Financial Institutions

At the end of 2022, the number of monetary financial institutions (defined hereafter in this chapter as excluding the central bank) increased to 406. The number of domestic banks increased by one with the opening of NEXT Commercial Bank Co., Ltd. The number of foreign and Mainland Chinese banks increased by one as KEB Hana Bank set up its branch in Taiwan. As for money market mutual funds, the number remained zero after the last remaining fund was liquidated in May 2017. The numbers of the other types of monetary financial institutions all stood unchanged.

In addition to monetary financial institutions, the number of financial holding companies decreased to 15. This came about as a result of Jih Sun Financial Holding Co., Ltd. being merged into Fubon Financial Holding Co., Ltd., thereby reducing the number of financial holding companies from 16 at the end of last year to 15.

Number of Monetary Financial Institutions by Type

Types of Institutions	End of 2022	End of 2021	Annual Change
Total Number of Main Offices	406	404	2
Domestic Banks	40	39	1
Foreign and Mainland Chinese Banks	31	30	1
Credit Cooperatives	23	23	0
Credit Departments of Farmers' and Fishermen's Associations	311	311	0
Chunghwa Post	1	1	0
Total Number of Branches	6,074	6,098	-24
Local Branches	5,863	5,887	-24
Overseas Branches	152	152	0
Offshore Banking Units	59	59	0

Sources: 1. *Financial Statistics Monthly* (February 2023), CBC.
2. Department of Financial Inspection, CBC.

Market Shares of Deposits and Loans

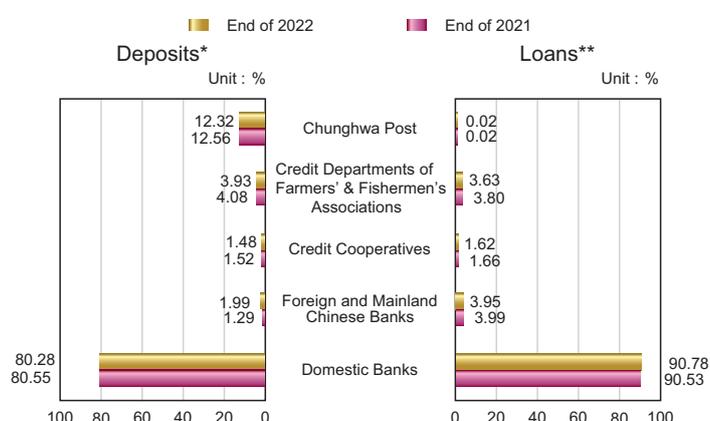
At the end of 2022, while domestic banks maintained a dominant role in the deposit market, their market share declined to 80.28% compared with the previous year end. This was primarily due to a decrease in the annual growth rate of deposits of domestic banks resulting from net foreign capital outflows and slower growth in bank loans and investments. By contrast, the market share of branches of foreign and Mainland Chinese banks rose to 1.99% as their preferential foreign currency

deposit programs attracted more funds. For the other types of monetary institutions, their deposit market shares shrank with the departments of savings and remittances of Chunghwa Post taking up a share of 12.32%, the credit departments of farmers' and fishermen's associations 3.93%, and credit cooperatives 1.48%.

In terms of loans, the market share of domestic banks continued to climb to 90.78%, mainly because of government enterprises' robust demand for funds. In contrast, foreign and Mainland Chinese banks' market share slipped to 3.95%.

Chunghwa Post's market share remained at 0.02%. For credit departments of farmers' and fishermen's associations and credit cooperatives, which tend to have higher lending rates, their market shares continued to drop to 3.63% and 1.62%, respectively.

Market Shares of Deposits and Loans by Category of Monetary Financial Institutions



Notes: * Excluding the values of the host contracts of structured products issued by banks.

** Including data for securities acquired under reverse repurchase agreements.

Source: *Financial Statistics Monthly* (February 2023), CBC.

Main Uses of Funds in Monetary Financial Institutions

At the end of 2022, the total amount of funds in monetary financial institutions was NT\$62,310 billion, increasing by NT\$2,209 billion compared to the end of 2021. The combined share of transaction and non-transaction deposits was around 85%. The balances of transaction deposits and non-transaction deposits posted annual growth rates of 2.42% and 5.94%, respectively.

In the case of fund uses, loans still accounted for over 50% of total uses of funds at the end of 2022. Owing to an increase in loans to government enterprises, the annual growth rates of NT dollar loans rose from 7.96% at the end of the previous year to 8.92%. As for net foreign assets, the annual growth rate rose to 10.40% because of an increase in lending to offshore banking units.

Portfolio investments by monetary financial institutions (measured on a cost basis) changed from a growth rate of 10.66% at the end of the previous year to minus 0.55%, mainly due to a decrease in investment in commercial paper. Purchases of certificates of deposit issued by the central bank recorded a contraction of 9.01% from a growth of 3.59% at the end of the previous year, but its share of funds used remained stable at about 14%.

Main Uses of Funds in Monetary Financial Institutions¹

Unit: NT\$ billion

	End of 2022			End of 2021			Annual Change	
	Balance	Share (%)	Annual Growth Rate (%)	Balance	Share (%)	Annual Growth Rate (%)	Balance	Share (%)
Funds Balance								
Transaction Deposits ²	22,858	36.68	2.42	22,318	37.13	11.92	540	-0.45
Nontransaction Deposits ³	30,850	49.51	5.94	29,121	48.45	10.53	1,730	1.06
NT Dollar Deposits	23,023	36.95	7.11	21,495	35.76	2.29	1,527	1.19
Foreign Currency Deposits ⁴	7,828	12.56	2.65	7,626	12.69	4.76	202	-0.13
Government Deposits	1,426	2.29	10.92	1,285	2.14	13.22	140	0.15
Other Items	7,176	11.52	-2.73	7,377	12.28	7.00	-202	-0.76
Total	62,310	100.00	3.67	60,101	100.00	17.25	2,209	0.00
Uses:								
Net Foreign Assets ⁴	5,645	9.06	10.40	5,113	8.51	-4.50	532	0.55
Loans	36,067	57.88	7.59	33,524	55.77	7.80	2,543	2.11
NT Dollar Loans	35,306	56.66	8.92	32,415	53.93	7.96	2,891	2.73
Foreign Currency Loans ⁴	761	1.22	-31.34	1,109	1.84	3.31	-347	-0.62
Portfolio Investments ⁵	7,467	11.98	-0.55	7,508	12.49	10.66	-41	-0.51
Purchases of CDs Issued by CBC	8,544	13.71	-9.01	9,391	15.62	3.59	-846	-1.91
Deposits with CBC	4,586	7.37	0.45	4,566	7.61	3.87	21	-0.24

Notes: 1. Monetary Financial Institutions include Domestic Banks, Local Branches of Foreign and Mainland Chinese Banks, Credit Cooperatives, Credit Departments of Farmers' and Fishermen's Associations, Chunghwa Post and Money Market Mutual Funds.

2. Including checking accounts, passbook deposits and passbook savings deposits.

3. Including time deposits, time savings deposits, foreign currency deposits, postal savings deposits, non-residents' NT dollar deposits, repurchase agreements and money market mutual funds.

4. Excluding valuation changes in the exchange rate of the NT dollar against foreign currencies.

5. Measured at original costs.

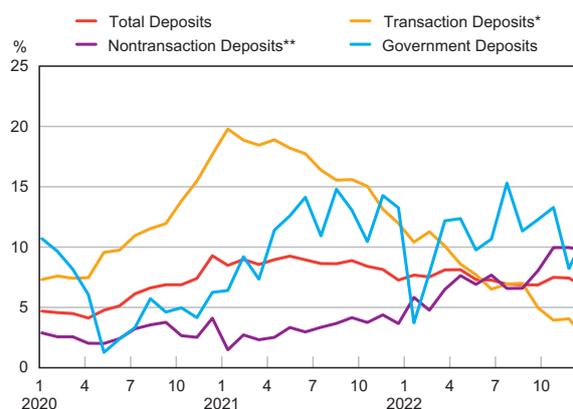
Source: *Financial Statistics Monthly* (February 2023), CBC.

Deposits

Because of net foreign capital outflows and slower growth in loans and investments, the annual growth rate of deposits of monetary financial institutions declined to 6.63% at the end of 2022 from 7.19% a year earlier. Regarding the composition of deposits, the decline in the annual growth rate was mainly due to slower growth in transaction deposits and government deposits.

In terms of transaction deposits, its annual growth rate significantly decreased to 2.42% at the end of 2022 from 11.92% a year ago because the annual growth rate of passbook

Annual Growth Rates of Deposits



Notes: * Including checking accounts, passbook deposits and passbook savings deposits.

** Including time deposits, time savings deposits, foreign currency deposits, postal savings deposits, nonresidents' NT dollar deposits, repurchase agreements, and money market mutual funds.

Source: *Financial Statistics Monthly* (February 2023), CBC.

deposits turned negative and the annual growth rate of passbook savings deposits slowed down. Its share in total deposits also shrank to 40.83% at the end of 2022 from 42.51% a year ago.

The annual growth rate of passbook deposits turned negative in 2022 mainly due to an increase in corporate payments for profit-seeking enterprise income tax and cash dividends, and a shift of funds from property and casualty insurers' passbook deposit accounts to policyholders' passbook savings deposits by way of increased payments for pandemic-related insurance claims.

The annual growth rate of passbook savings deposits slowed down because of a decrease in the balance of securities giro accounts as Taiwan's stock market was dampened by the impacts of the Russia-Ukraine war, the ongoing interest rate hikes by the Fed, and foreign investor net sales of Taiwanese stocks. In addition, the Bank raised the policy interest rates four times in 2022, prompting depositors to move from passbook savings into time savings deposits in search of higher returns.

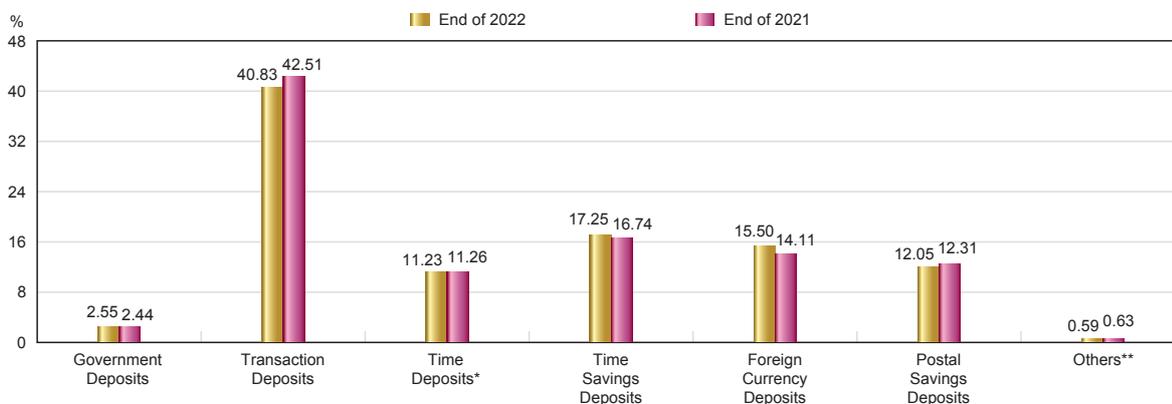
In terms of nontransaction deposits, its annual growth rate rose to 9.69% at the end of 2022 from 3.56% a year earlier because of increases in time savings deposits and foreign currency deposits. Its share in total deposits also went up to 56.62% at the end of 2022 from 55.05% a year earlier.

The annual growth rate of foreign currency deposits accelerated to 17.20% at the end of 2022 from 7.46% a year earlier and its share increased to 15.50% from 14.11%. There were several factors contributing to the uptrend. Enterprises' inward remittances of overseas sales revenues increased and banks implemented preferential interest rate programs of foreign currency deposits to obtain more funds. Meanwhile, owing to the depreciation of the NT dollar against the US dollar, the value of foreign currency deposits increased when converted to NT dollars.

In 2022, the annual growth rate of time deposits (including negotiable certificates of deposit) reached a yearly high of 8.81% at the end of May and then dropped to 1.98% at the end of July. Because many enterprises delayed cash dividend payments in 2021 owing to the impact from the pandemic, the timing of the temporary parking of funds in time deposits and paying cash dividends by enterprises in 2022 was earlier than the previous year, resulting in an initial increase and a subsequent decrease in the annual growth rate due to the base effect. Later, enterprises moved a part of their money from passbook deposits into time deposits and deposited some funds obtained from cash capital increases in time deposits based on fund scheduling strategies and profitability considerations. This resulted in a slight increase in the annual growth rate of time deposits in the second half of the year. The annual growth rate of time deposits reached 6.37% at the end of 2022, lower than the 6.42% at the end of the previous year. Its share in total deposits decreased to 11.23% at the end of 2022 from 11.26% a year earlier.

The annual growth rate of time savings deposits continued to rise in 2022, mainly due to the impact of international financial market turbulence and the effects of policy rate hikes. Some

Shares of Deposits by Type



Notes: * Including NCDs.

** Including repurchase agreements, non-residents' NTD deposits and money market mutual funds.

Source: *Financial Statistics Monthly* (February 2023), CBC.

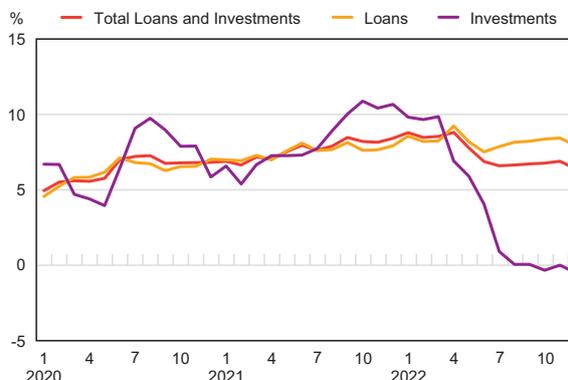
individuals and pension funds adjusted their asset allocation, moving funds to time savings deposits. As a result, the year-end annual growth rate increased to 9.83% from -0.45% at the end of the previous year, and its share in total deposits increased to 17.25% from 16.74%. Regarding postal savings, the annual growth rate increased from 2.85% at year-end 2021 to 4.45% at year-end 2022, showing a general upward trend. However, the proportion of postal savings to total deposits decreased from 12.31% to 12.05%.

With regard to government deposits, the annual growth rate fluctuated month by month in 2022. In view of ample tax revenues from profit-seeking enterprise business income tax and individual income tax, the national treasury administration reduced the net issuance of treasury bills and government bonds, as well as repaying loans in advance. As a result, the annual growth rate of government deposits decreased to 10.93% at the end of the year from 13.22% one year before. However, government deposits as a share of total deposits increased from 2.44% to 2.55%.

Bank Loans and Investments

The annual growth rate of loans and investments of monetary financial institutions was 6.38% at the end of 2022, down from 8.39% at the end of 2021. Growth in loans increased to an annual pace of 7.94% at the end of 2022 from 7.89% at the end of the previous year, whereas growth in portfolio investment fell into negative territory at -0.55% at the end of 2022 from 10.66% a year earlier.

Annual Growth Rates of Loans and Investments



Source: *Financial Statistics Monthly* (February 2023), CBC.

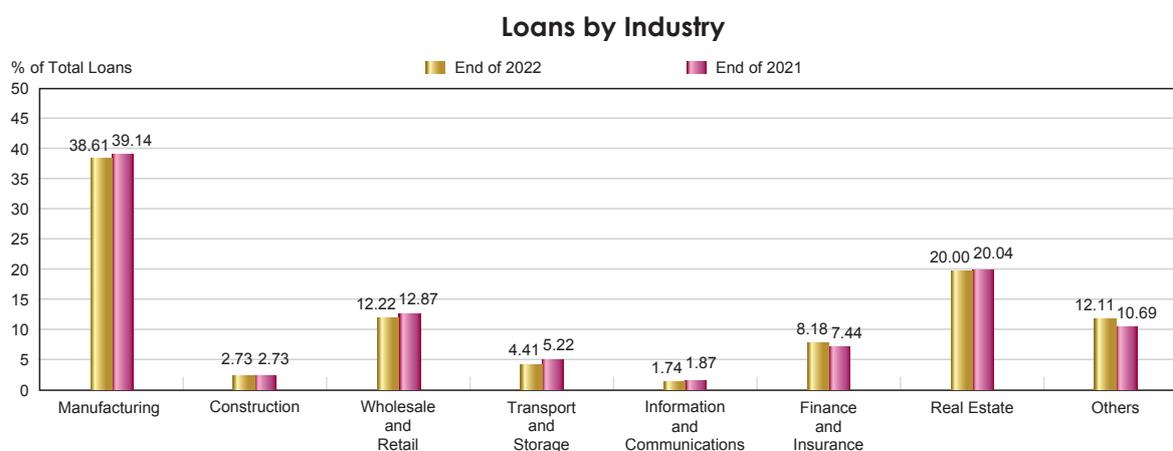
Loans by Sector

The annual growth rate of private sector loans extended by banks (defined in the following paragraphs as including domestic banks and local branches of foreign and Mainland Chinese banks) slipped to 7.46% at the end of 2022 from 8.27% a year earlier. The decline was largely due to slower growth in house-purchasing loans and the repayment of relief loans by workers. The annual growth rate of loans to government enterprises continued to soar by 81.52% as of the end of 2022, from 27.00% a year earlier, mainly driven by an increasingly growing need for funds by Taiwan Power Company and the CPC Corporation. In contrast, the annual growth rate of loans to government agencies slowed from 1.92% to -1.63% at the end of 2022 owing to a larger repayment by the government thanks to increased tax revenues.

In terms of loan composition, loans extended to government enterprises accounted for 2.82% of total loans at the end of 2022, higher than the 1.68% recorded at the end of 2021. Loans extended to the private sector and government agencies accounted for 93.16% and 4.02% at the end of 2022, lower than 93.89% and 4.43% at the end of the previous year.

Loans by Industry

Broken down by industry sector, bank loans to the manufacturing sector continued to account for the largest portion, at 38.61% at the end of 2022 compared to 39.14% at the end of 2021, with its annual growth rate up from 5.52% to 10.01%. This was mainly attributable to an increase in loans extended to electronic parts and components manufacturers. Meanwhile, the share of loans extended to the construction industry remained at 2.73%, with its annual growth rate down from 13.78% to 11.49% at the end of 2022 amid the housing market slowdown.



Note: Figures include the data of domestic banks and local branches of foreign and Mainland Chinese banks but exclude their data on securities acquired under reverse repurchase agreements.

Source: *Financial Statistics Monthly* (February 2023), CBC.

Both the share and the annual growth rate of loans extended to the real estate industry trended down in line with softening demand and a higher base effect. Meanwhile, the share and the annual growth rate of loans extended to the wholesale and retail industry continued to decline on the pandemic's impact in the first half of the year as well as a higher base effect. In contrast, the share and the annual growth rate of loans to the finance and insurance industry continued to increase as rising money market interest rates prompted the industry to repay commercial paper and increase borrowing from banks.

Consumer loans

The annual growth rate of consumer loans extended by banks decreased from 9.00% at the end of 2021 to 6.16% at the end of 2022. Among them, house-purchasing loans increased NT\$574.3 billion, or 6.52%, in 2022, a slower year-on-year increase than 9.46% in 2021 mainly because major economies had started their interest rate hike cycles, the government implemented the cross-ministry Healthy Real Estate Market Plan, and downside risks in the global economy increased in the second half of the year, all of which hampered housing market transactions. As for the shares of various types of consumer loans, house-purchasing loans remained the largest component, with its share increasing from 84.48% at the end of 2021 to 84.77% at the end of 2022. Car loans accounted for 1.75%, increasing from 1.74%, mainly because new car prices rose as a result of higher production costs. Meanwhile, house-repairing loans, revolving credit for credit cards, employee welfare loans, and other consumer loans accounted for 0.43%, 0.94%, 0.42%, and 11.69%, respectively.

Portfolio Investment

Owing to valuation changes, portfolio investment by monetary financial institutions, measured at fair value, recorded a year-on-year decrease of NT\$202.8 billion, while the decrease was smaller, at NT\$40.9 billion, when measured on a cost basis.

Portfolio investment by monetary financial institutions, measured on a cost basis, slipped into negative territory, registering -0.55% in 2022 compared to 10.66% in 2021, as banks significantly reduced investment positions to support market liquidity. Liquidity tightened gradually because of net foreign capital outflows, the Bank's hikes in the policy rates and the reserve requirement ratios, and the loan repayment by banks under the Bank's Special Accommodation Facility to Support Bank Credit to SMEs.

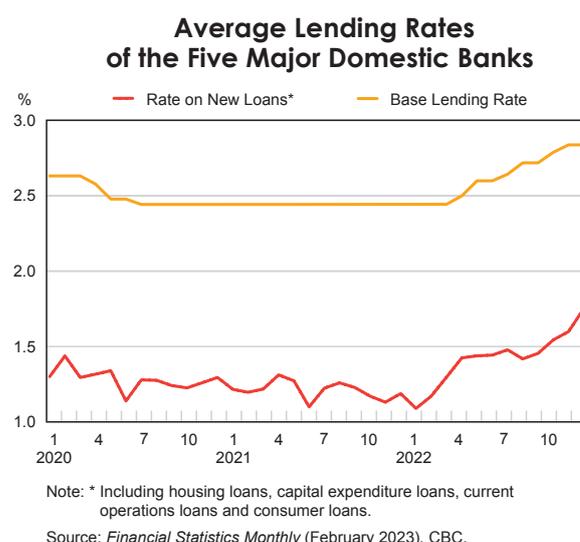
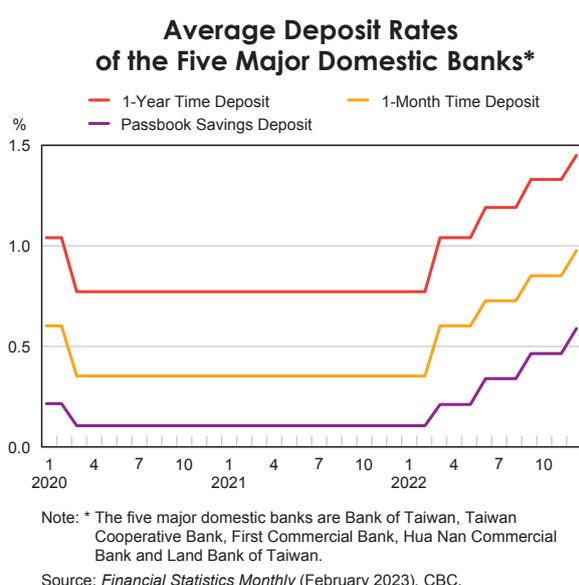
In terms of tool types, government bonds accounted for a share of 56.12%, higher than the 51.63% registered a year ago, as more government bonds were issued than repaid, resulting in an expansion in the total outstanding of bonds issued compared to the previous year. At the end of 2022, commercial paper accounted for a share of 16.54%, lower than a year ago, owing to a slower growth in the commercial paper market given rising money market interest rates. In addition, corporate bonds accounted for a share of 19.42%, edging up from the end of 2021.

Bank Interest Rates

Considering the tightening monetary policies of major economies, the continued rise of international commodity prices, and the high pressure of domestic imported inflation, the Bank raised policy rates in March, June, September and December in 2022, in order to contain domestic inflation expectations and maintain price stability. As a result, banks' posted interest rates on deposits and loans trended upward. In the case of the five major domestic banks, the average fixed rates on one-month and one-year time deposits rose to 0.98% and 1.45% at the end of December 2022 from 0.35% and 0.77% at the end of January, respectively, up by 0.63 and 0.68 percentage points respectively from the end of 2021.

In addition, in view of the obvious rise in the downside risks to the global economy and the slight easing in global inflationary pressures, albeit not without uncertainties, the Bank stressed in the December 2022 Board Meeting that it would continue to pay close attention to the monetary policy trends of major economies, changes in international raw material prices, geopolitical risks, extreme weather events and other developments and adjust monetary policy as necessary to fulfill its statutory mandate.

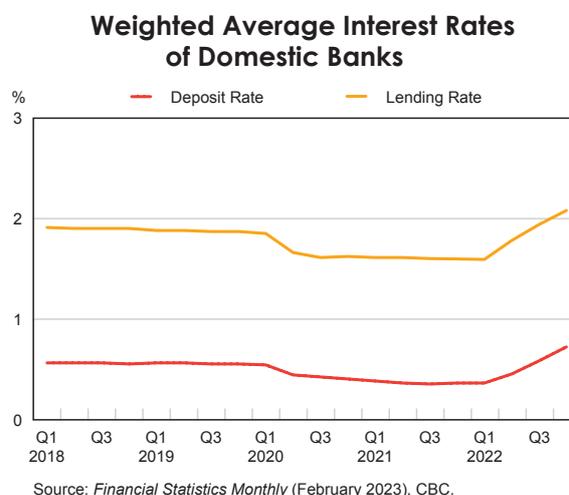
The weighted average rates on deposits and loans of domestic banks generally showed an upward trend in 2022. In terms of deposit interest rates, although the Bank's policy rate hike in March guided banks' posted interest rates on deposits upward, there was a higher base effect from the previous quarter when some banks offered higher rates to attract savers and some raised the rates for retiree-oriented deposit programs. As a result, the average deposit interest rate still decreased slightly, leading the weighted average interest rate to remain at 0.36% in the first quarter of 2022.



Thereafter, the rate rose from 0.45% in the second quarter to 0.72% in the fourth quarter in step with the policy rate hikes. For the year as a whole, the weighted average interest rate on deposits of domestic banks was 0.53%, which was 0.17 percentage points more than that recorded in the previous year.

In terms of loan interest rates, with the four policy rate hikes in the year, banks successively increased their base lending rates and the index rates on adjustable-rate mortgages. As a result, the weighted average interest rate on new loans of the five major domestic banks roughly trended upward from 1.085% in January to 1.749% in December. For the year as a whole, the rate increased from 1.200% in the previous year to 1.446%, up by 0.246 percentage points. Excluding central government loans, the weighted average interest rate on new loans increased from 1.258% in the previous year to 1.483% in 2022, up by 0.225 percentage points. Moreover, the average base lending rate increased to 2.837% at the end of 2022 from 2.442% at the previous year-end.

In the first quarter, though the Bank's March policy rate hike led to an increase in the relevant loan interest rates, the effect was not reflected in the quarterly average loan interest rate as the rate hike was enforced in late March. In addition, the increase in lower-rate borrowings by governments and the introduction of competitive rate loan schemes by some banks also brought forth some strains. Consequently, the weighted average interest rate on loans of domestic banks fell from 1.60% in the previous quarter to 1.59% in the first quarter of 2022. Then, the Bank's policy rate hikes led the weighted average loan rate to increase from 1.78% in the second quarter of the year to 2.08% in the fourth quarter. For the year as a whole, the weighted average interest rate on loans of domestic banks was 1.85%, which was 0.25 percentage points more than that recorded in the previous year.



Because the increase in the average lending rate was more than that in the average deposit rate, the average interest rate spread between deposits and loans widened to 1.32 percentage points in 2022, which was 0.08 percentage points more than that recorded in the previous year.

3. Money Market

For the year 2022, major economies adopted monetary policy tightening successively, and a continuous surge in international commodity prices imposed heavy imported inflation pressures on domestic prices. To rein in domestic inflation expectations so as to maintain price and financial stability, the Bank raised policy rates four times and increased the reserve requirement ratios (RRRs) on NT dollar demand deposits and time (savings) deposits twice in 2022. Consequently, the interbank overnight call loan rate and bills market rates swung up and weakened financial institutions' demand for interbank call loans. The total turnover in the interbank call loan market for the year 2022 shrank by 18.60% over the previous year, while the outstanding amount of interbank call loans at the end of the year registered a marked year-on-year decrease of 40.11%.

As for the short-term bills market, the total turnover increased by 7.86% from a year before. At the end of the year, the total issuance of short-term bills went up by 8.23% in response to corporate funding needs; however, as part of the treasury bills were repaid by the national treasury, the outstanding amount of short-term bills at the end of 2022 fell by 0.69% compared to the previous year end.

Slide in Interbank Call Loans

In 2022, the policy rate hikes by the US Fed and the Bank amid tightened global financial conditions combined with substantial net foreign capital outflows pushed domestic market interest rates up and lowered demand for interbank call loans. Total annual turnover of interbank call loans stood at NT\$25,790.0 billion, decreasing by NT\$5,894.1 billion or 18.60% over the previous year.

With respect to borrowers, domestic banks still made the largest contribution to total transactions with a share of 76.09%, followed by foreign and Mainland Chinese banks, bills finance companies, and Chunghwa Post, with shares of 11.75%, 9.77%, and 2.39%, respectively.

The amount borrowed by domestic banks contracted by NT\$6,205.6 billion or 24.02% from a year earlier. The decrease was primarily because the Bank's policy rate hikes and the two RRR increases combined with net foreign capital outflows which sent market interest rates higher and weakened banks' demand for interbank borrowing.

As for foreign and Mainland Chinese banks, they often carry out the custodian business for foreign investors. Nevertheless, as foreign investors sold stocks on the Taiwan Stock Exchange (TWSE) and caused capital outflows during the year, the source of funds reduced. Therefore, the amount borrowed by foreign and Mainland Chinese banks rose significantly by NT\$863.2 billion or 39.84% over the previous year.

Considering the interbank overnight call loan rate trended up, bills finance companies bridged funding gaps by conducting outright sales of bills or repo transactions, thereby reducing their demand for interbank borrowing. The amount borrowed by bills finance companies posted a year-on-year decrease of NT\$307.3 billion or 10.87%. Meanwhile, the amount borrowed by Chunghwa Post dropped by NT\$244.5 billion or 28.42% compared with a year ago.

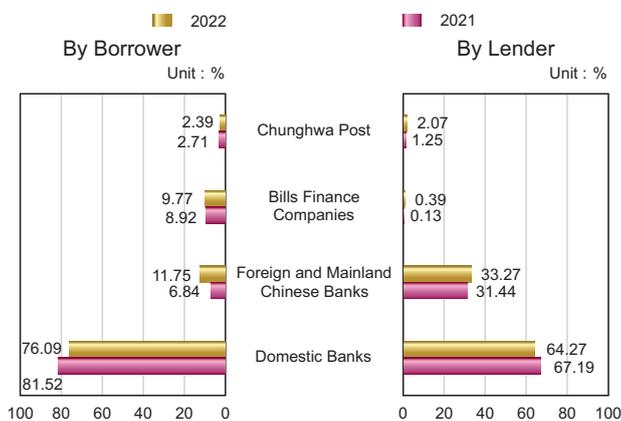
In terms of lenders, domestic banks remained the largest supplier of funds, making up 64.27% of total transactions in 2022. Foreign and Mainland Chinese banks came in second with a share of 33.27%, followed by Chunghwa Post and bills finance companies contributing 2.07% and 0.39% of total transactions, respectively.

The amount of call loans made by domestic banks slid by NT\$4,711.7 billion or 22.13% compared with the previous year, reflecting reduced interbank lending owing to the Bank's RRR increases, net foreign capital outflows, and a need to comply with the *Standards Implementing the Liquidity Coverage Ratio of Banks*.

Foreign and Mainland Chinese banks decreased their interbank lending by NT\$1,381.9 billion or 13.87% over the previous year because of less available funds at hand.

On the other hand, with the interbank overnight call loan rate going up, Chunghwa Post increased interbank lending to enhance profits. As a result, the amount of call loans made by Chunghwa Post expanded by NT\$140.2 billion or 35.51% from a year before. As for bills finance companies, the amount lent by this group grew by NT\$59.2 billion or 146.59% over the previous year owing to a lower base effect.

Composition of Interbank Call Loan Market by Participant



Source: *Financial Statistics Monthly* (February 2023), CBC.

In terms of maturity, interbank overnight call loans remained the most actively traded instrument in the market with a predominant share of 46.21%, down by 5.61 percentage points from that of the previous year. The second were those with a maturity of one week, rising by 2.91 percentage points to 36.89% over the previous year, while the share of loans with a two-week maturity also increased by 1.23 percentage points to 11.46%.

Growth in Short-Term Bill Transactions

For the year 2022, newly issued short-term bills reached NT\$18,674.8 billion. Commercial paper made up a dominant 92.62% of the new issues, followed by negotiable certificates of deposit (NCDs) with a share of 6.06%.

Newly issued short-term bills registered a year-on-year increase of NT\$1,420.7 billion or 8.23% in 2022. The growth was mainly attributable to commercial paper with an increased issuance of NT\$1,189.5 billion to meet enterprises' funding needs despite an uptick in short-term bills market rates. The second largest contributor were NCDs with a rise of NT\$323.2 billion over the previous year as enterprises expanded holdings of NCDs in support of their demand for fund allocation.

On the contrary, issuance of treasury bills shrank by NT\$90.0 billion from the previous year. This was primarily because the government collected more tax revenues during the year, leading to reduced issuance of treasury bills by the Ministry of Finance. Meanwhile, the amount of banker's acceptances contracted by NT\$1.9 billion from a year before.

Overall, the amount of the total issuance of short-term bills was smaller than that of the total repayments for short-term bills. Consequently, the outstanding of short-term bills stood at NT\$2,891.0 billion as of the end of 2022, representing a decrease of NT\$20.2 billion or 0.69% from that of the previous year end.

The total turnover of short-term bills in 2022 went up by NT\$3,527.7 billion or 7.86% to NT\$48,399.9 billion. Of the total transactions, commercial paper still made up the lion's share of

Short-Term Bills Market

Unit: NT\$billion

Year	Total		Treasury Bills		City Treasury Bills		Commercial Paper		Banker's Acceptances		Negotiable Certificates of Deposit	
	Issues	Year-End Outstanding	Issues	Year-End Outstanding	Issues	Year-End Outstanding	Issues	Year-End Outstanding	Issues	Year-End Outstanding	Issues	Year-End Outstanding
2013	9,809.0	1,650.2	324.6	214.6	-	-	8,827.4	1,199.2	23.5	4.2	633.5	232.3
2014	10,840.6	1,641.2	244.9	130.0	10.0	0.0	9,919.5	1,306.8	24.1	4.3	642.2	200.2
2015	11,512.8	1,677.7	233.7	90.0	-	-	10,426.0	1,346.6	20.8	3.5	832.3	237.6
2016	12,778.5	1,873.5	217.3	90.0	-	-	11,371.3	1,480.1	18.3	4.1	1,171.6	299.4
2017	14,878.5	2,154.5	220.0	25.0	-	-	13,077.8	1,709.0	19.4	4.2	1,561.3	416.4
2018	14,971.9	2,223.1	160.0	30.0	-	-	12,965.0	1,760.6	18.5	4.0	1,828.5	428.5
2019	14,927.3	2,353.2	314.0	65.0	-	-	13,613.6	2,034.1	14.0	2.6	985.7	251.5
2020	16,005.2	2,747.2	336.6	125.0	-	-	14,824.7	2,344.3	13.0	2.8	830.9	275.1
2021	17,254.0	2,911.2	320.0	115.0	-	-	16,107.5	2,560.1	17.8	4.5	808.7	231.6
2022	18,674.8	2,891.0	230.0	30.0	-	-	17,296.9	2,584.8	15.9	2.7	1,131.9	273.5

Source: *Financial Statistics Monthly* (February 2023), CBC.

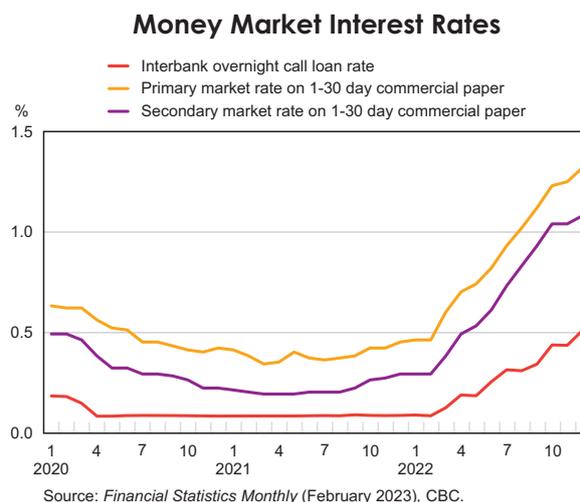
96.81%, 1.0 percentage point higher than the previous year. NCDs came in second with a share of 2.78%, down by 0.73 percentage points from a year earlier.

In respect of market participants, private enterprises were still the largest player in the market with a dominant share of 50.48%, followed by banks and bills finance companies with shares of 24.16% and 13.03%, respectively.

Broad Uptrend in Money Market Rates

During the year, the US Fed and the Bank implemented policy rate hikes successively, and the Russian invasion of Ukraine roiled international financial markets further. Foreign investors net sold TWSE stocks, and thus turned net foreign capital inflows to net outflows, resulting in tighter short-term funding conditions. Therefore, the weighted average interbank overnight call loan rate exhibited a broad uptrend in 2022. The rate swung up from a yearly low of 0.081% in February to an all-year high of 0.507% in December, and averaged 0.263% for the year as a whole, increasing by 0.182 percentage points from a year before.

The primary market rate on commercial paper with a maturity of 1-30 days moved upwards from 0.46% in January to 1.32% in December. Meanwhile, the secondary market rate on commercial paper with a maturity of 1-30 days also rose from 0.29% in January to 1.08% in December.



Reduction in Money Market Funds

For the past two years, the size of money market funds expanded substantially amid ample market liquidity, reaching a record high of over NT\$1.0 trillion in 2020. Later in 2022, although major economies began an aggressive monetary tightening cycle, sending market rates higher, the average yields of domestic money market funds were lower than those of the other similar short-term investment instruments, leading money market funds, where institutional investors used to park short-term capital, to record a smaller size compared with the previous two years.

At the end of 2022, there were a total of 36 money market funds in Taiwan and the total assets stood at NT\$781.4 billion with a decrease of NT\$70.0 billion or 8.22% from the previous year end.

With regard to portfolio composition, the largest use of funds was short-term bills with a share of 60.71% at the end of the year. Following short-term bills were bank deposits and repurchase agreements, accounting for 26.67% and 12.16% of the total money market funds, respectively.

Portfolio Composition of Money Market Funds

Unit: NT\$billion

Year/Month End	Total	Bank Deposits		Short-Term Bills		Repurchase Agreements		Bonds	
		Amount	Share (%)	Amount	Share (%)	Amount	Share (%)	Amount	Share (%)
2020	1,021.0	556.1	54.47	346.4	33.93	117.1	11.47	1.4	0.14
2021	851.4	437.2	51.35	327.8	38.50	86.1	10.11	0.4	0.04
2022	781.4	208.4	26.67	474.4	60.71	95.0	12.16	3.6	0.46
2022/ 1	857.1	424.2	49.50	346.1	40.38	86.4	10.08	0.4	0.05
2	850.6	413.4	48.61	343.6	40.40	93.0	10.94	0.5	0.06
3	811.0	393.8	48.56	341.9	42.16	72.9	8.99	2.3	0.29
4	792.9	371.1	46.80	348.4	43.94	70.9	8.94	2.6	0.33
5	815.9	344.9	42.27	381.0	46.69	87.1	10.67	2.9	0.36
6	794.7	320.6	40.34	401.0	50.46	70.6	8.88	2.5	0.31
7	778.9	289.3	37.14	414.3	53.18	73.4	9.43	2.0	0.25
8	756.5	251.4	33.23	430.8	56.94	72.3	9.55	2.1	0.28
9	766.6	214.5	27.98	466.8	60.89	83.2	10.85	2.2	0.29
10	764.9	196.0	25.62	478.2	62.51	87.1	11.39	3.7	0.48
11	756.4	184.9	24.44	483.0	63.86	84.7	11.19	3.8	0.51
12	781.4	208.4	26.67	474.4	60.71	95.0	12.16	3.6	0.46

Source: Securities Investment Trust & Consulting Association of the R.O.C.

4. Foreign Exchange Market

The NT Dollar Exchange Rate

In 2022, on a daily average basis, the NT dollar depreciated against the US dollar and the renminbi (RMB) but appreciated against the Japanese yen, the Korean won and the euro. The trade-weighted nominal effective exchange rate index of the NT dollar increased by 0.88% on a daily average basis. The exchange rate movements of the NT dollar vis-à-vis each of the above foreign currencies are as follows.

During the course of the year, the NT dollar against the US dollar depreciated broadly. Since the beginning of the year, the pressure of US inflation has been high, and the Fed raised interest rates by 0.25 percentage points in March, initiating a cycle of rate hikes. In early May, the Fed raised interest rates again by 0.5 percentage points and announced the start of tapering on June 1. The US dollar strengthened, causing the NT dollar to depreciate against the US dollar. However, in late May, the Taiwan stock rally attracted foreign investment and caused the NT dollar to appreciate slightly against the US dollar. Subsequently, the pressure of US inflation did not ease, and the Fed raised interest rates by 0.75 percentage points in each of the meetings in June, July, and September. The US dollar continued to strengthen, causing the NT dollar to depreciate against the US dollar. In November, the Fed also raised interest rates by 0.75 percentage points, but US inflation was lower than expected, which raised investors' expectations of a slower pace of interest rate hikes by the Fed. Combined with the factor of a continual capital inflow to Taiwan, the NT dollar thus appreciated against the US dollar. In early December, Fed Chair Jerome Powell indicated that the pace of interest rate hikes may slow down, followed by a 0.5 percentage point hike in mid-December, causing the US dollar to depreciate slightly, whereas foreign investors cut their equity holdings in Taiwan, resulting in a net capital outflow. The NT dollar against the US dollar therefore fluctuated within a small range in December. At the end of 2022, the NT dollar depreciated by 9.83% against the US dollar compared with the end of the previous year. On a daily average basis, the NT dollar depreciated against the US dollar by 5.89% in 2022.

Relative to the euro, the NT dollar fluctuated within a limited range in the first half of 2022 and then appreciated for more than one month before depreciating in the rest of the year. Early in the year, the intensifying conflict between Russia and Ukraine weakened the euro and caused the NT dollar to appreciate against the euro. Between March and June, the NT dollar fluctuated within a small range, owing to euro strength underpinned by the ECB's announcement of an earlier-than-

expected conclusion of asset purchases and a rate hike cycle to begin in July. In the second half of the year, the NT dollar appreciated against the euro before depreciating later, while the euro first weakened owing to market worries of an economic slowdown in the euro area amid higher inflation and then strengthened on the ECB's policy rate hikes in July, September, and October as well as a December forward guidance that drove market expectations for further ECB rate hikes. Compared with the end of the previous year, the NT dollar depreciated against the euro by 4.19% at the end of 2022. On a daily average basis, the NT dollar appreciated against the euro by 5.70%.

During the course of 2022, the NT dollar against the yen appreciated in the first three quarters and depreciated toward the end of the year. At the beginning of the year, the escalating conflict between Russia and Ukraine led to an increase in safe-haven demand, supporting the yen and leading the NT dollar to depreciate against the yen. Then the BoJ's continued accommodative monetary policy, and a stance in support of a weaker yen drove the NT dollar to appreciate against the yen. After October, the BoJ's unfavorable view of a unilateral and rapid yen depreciation and its surprise widening of the yield target band, as well as a recovering Japanese economy, bolstered the yen and caused the NT dollar to depreciate against the yen. In sum, the NT dollar appreciated by 3.50% against the yen at the end of 2022 compared with the previous year end. On a daily average basis, the NT dollar appreciated against the yen by 12.75%.

In 2022, the NT dollar depreciated against the RMB in the first four months and then appreciated until June before fluctuating within a small range in the second half of the year. In the first quarter, better than expected exports and industrial production in China led to a sustained appreciation of the RMB, resulting in a continued depreciation of the NT dollar against the RMB. Subsequently, the NT dollar strengthened as the PBoC's April rate cut on concern of the domestic pandemic worsening weakened the RMB. The second half of the year witnessed a series of fluctuations of the NTD/RMB exchange rate, as the RMB first rose on further PBoC easing and then weakened on China's strict lockdown measures, tepid economic growth, and rising uncertainties

Annual Changes of NTD Exchange Rate Against Major Currencies

	NTD/USD	NTD/EUR	NTD/JPY	NTD/CNY	NTD/KRW
Exchange Rate (2022/12/30)	30.708	32.709	0.2324	4.4175	0.0244
Exchange Rate (2021/12/30)	27.690	31.338	0.2406	4.3406	0.0233
Annual Change	-9.83%	-4.19%	3.50%	-1.74%	-4.36%
Average Exchange Rate (2022)	29.777	31.357	0.2264	4.4198	0.0230
Average Exchange Rate (2021)	28.022	33.143	0.2553	4.3452	0.0245
Annual Change	-5.89%	5.70%	12.75%	-1.69%	6.29%

Source: Department of Economic Research, CBC.

after a u-turn in the pandemic containment policy. Overall, the NT dollar depreciated against the RMB by 1.74% between end-2021 and end-2022. On a daily average basis, the NT dollar depreciated by 1.69% against the RMB when compared with the previous year.

Relative to the Korean won, the NT dollar fluctuated within a narrow range in the first half of 2022, and then appreciated prior to October before depreciating toward the year end. While the won started the year gaining strength from the Bank of Korea's (BoK's)

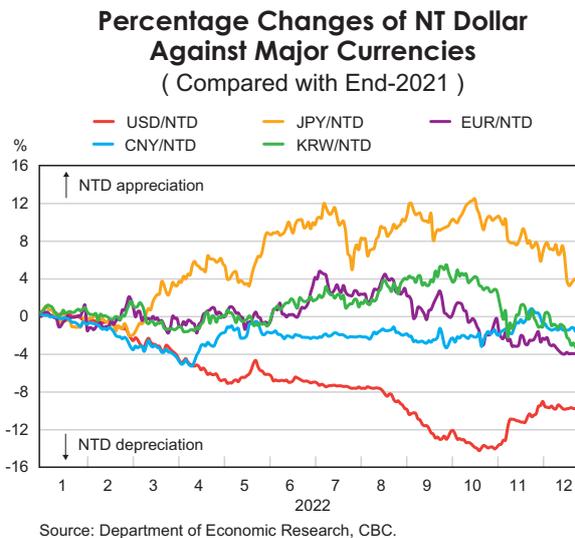
rate hike, it sustained greater downward pressures from the Russia-Ukraine war than other Asian currencies; as a result, the NT dollar appreciated against the won in March. After a few months of fluctuations, the NT dollar strengthened mildly against the won during June to September as the won softened on a domestic trucker strike, a continued trade deficit, and net foreign portfolio selling. Thereafter, the NT dollar depreciated against the won as the Korean currency was boosted by the BoK's rate hikes and the government's measures to stabilize its domestic bond market. Compared with the end of 2021, the NT dollar depreciated by 4.36% against the Korean won at the end of 2022. On a daily average basis, the NT dollar appreciated by 6.29% against the won in 2022.

Foreign Exchange Trading

Trading in the Taipei foreign exchange market increased in 2022. Total net trading volume for the year was US\$8,582.6 billion, representing a 4.8% year-on-year increase. The daily average turnover was US\$34.5 billion in 2022.

In terms of trading partners, transactions between banks and non-bank customers accounted for 31.3% of the total turnover, while interbank transactions made up 68.7%, including 23.0% for transactions among local banks and 45.7% for those between local banks and overseas banks.

As far as traded currencies were concerned, NT dollar trading against foreign currencies accounted for 48.5% of the total trading volume, of which trading against the US dollar made up a dominant 46.8%. Transactions in third currencies contributed to 51.5% of the total trading volume, with trading in currency pairs of USD-RMB, USD-euro, and USD-yen accounting for respective



shares of 16.5%, 11.3%, and 6.5%. Compared with 2021, NT dollar trading against foreign currencies increased by 4.2% while transactions in third currencies increased by 5.4%.

With respect to types of transactions, the major types were foreign exchange swaps and spots, accounting for 48.6% and 42.6% of total turnover, respectively. Compared with 2021, the trading volumes of spots, swaps, forwards, and margin trading increased, whereas those of options and cross currency swaps decreased.

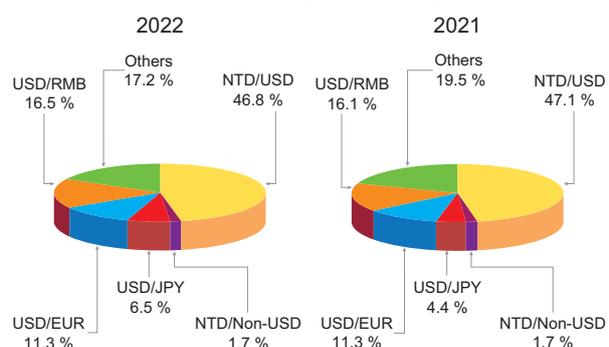
Turnover of Major Products in the Taipei Foreign Exchange Market

Unit: US\$billion

Year	Spots	Forwards	Forex Swaps	Margin Trading	Options	Cross Currency Swaps	Total
2018	3,111.4	567.8	3,992.9	7.9	249.3	58.4	7,987.6
2019	3,079.5	662.0	4,007.1	6.4	213.7	45.3	8,014.0
2020	3,408.8	503.7	4,110.9	7.3	206.0	34.5	8,271.0
2021	3,584.5	507.6	3,839.4	4.7	222.7	29.1	8,188.1
2022	3,658.9	522.1	4,174.0	6.6	206.0	14.9	8,582.6
2021-2022 Annual Growth Rate (%)	2.1	2.9	8.7	38.7	-7.5	-48.7	4.8

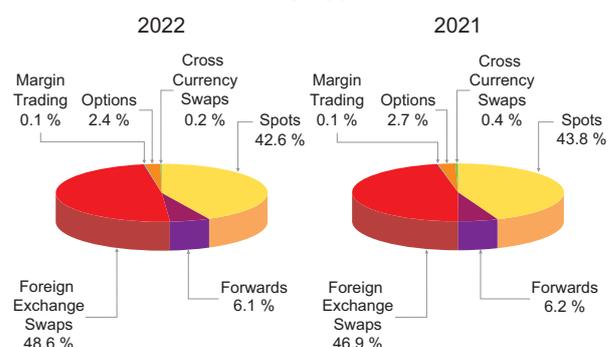
Source: Department of Foreign Exchange, CBC.

Composition of Foreign Exchange Transactions by Currency Pair



Source: Department of Foreign Exchange, CBC.

Composition of Foreign Exchange Transactions by Type of Product



Source: Department of Foreign Exchange, CBC.

For other foreign currency derivatives, including forwards, swaps, and options based on foreign currency interest rates, stock price indices, commodity prices, and credit derivatives, their combined turnover was US\$311.7 billion. Of this amount, interest rate-related derivatives accounted for the lion's share at 98.7% with US\$307.6 billion, increasing by 58.5% from the previous year. Interest rate futures accounted for the majority of this increase..

Turnover of Other Products in the Taipei Foreign Exchange Market

Unit: US\$billion

Year	Interest Rate-Related Products				Commodity-Related Products	Stock Index Options	Credit Derivatives	Total
	Interest Rate Swaps	Interest Rate Options	Foreign Currency Interest Rate Futures	Subtotal	Commodity Options			
2018	78.8	26.0	149.3	254.1	3.5	0.4	2.9	260.9
2019	70.8	12.4	96.8	180.0	3.8	0.4	1.0	185.1
2020	52.1	9.6	34.9	96.6	3.1	0.1	0.4	100.2
2021	79.0	10.7	104.3	194.0	4.1	0.4	0.6	199.2
2022	90.4	14.7	202.6	307.6	2.9	0.3	0.8	311.7
2021-2022 Annual Growth Rate (%)	14.4	37.0	94.2	58.5	-28.9	-20.6	29.5	56.5

Note: "Forward Rate Agreements" is excluded from the table because the turnover has been 0 since 2017.
Source: Department of Foreign Exchange, CBC.

Renminbi Business

Renminbi investment tools became even more diversified during 2022. By the end of 2022, there were 66 domestic banking units (DBUs) and 57 offshore banking units (OBUs) engaging in renminbi business. The balance of renminbi deposits amounted to RMB195.2 billion; renminbi remittances totaled RMB2,217.4 billion in 2022; renminbi settlement through the Taipei Branch of the Bank of China totaled RMB5,561.8 billion.

Renminbi Business Conducted by Financial Institutions

Unit: RMB Billions

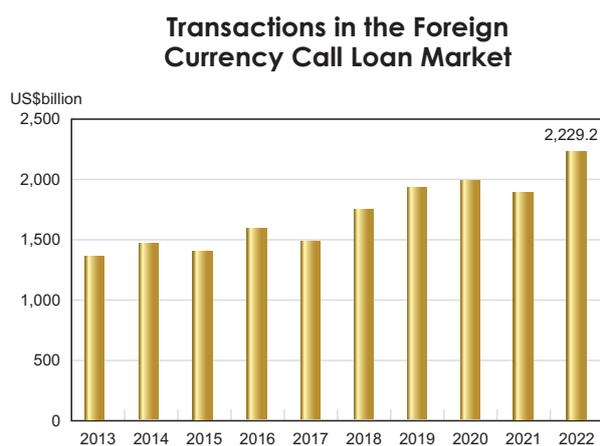
Business Items	Amount
Deposit balance (including NCDs, end of 2022)	195.2
Total remittances (February 2013 to December 2022)	17,041.0
Total settlement through the Taipei Branch of the Bank of China (February 2013 to December 2022)	43,497.9
Total value of 203 RMB-denominated bonds issued (as of the end of 2022)	135.3
Accumulated premium receipts from RMB-denominated investment-linked insurance business (February 2013 to December 2022)	21.6
Accumulated premium receipts from RMB-denominated traditional insurance business (April 2014 to December 2022)	9.2

Source: Department of Foreign Exchange, CBC.

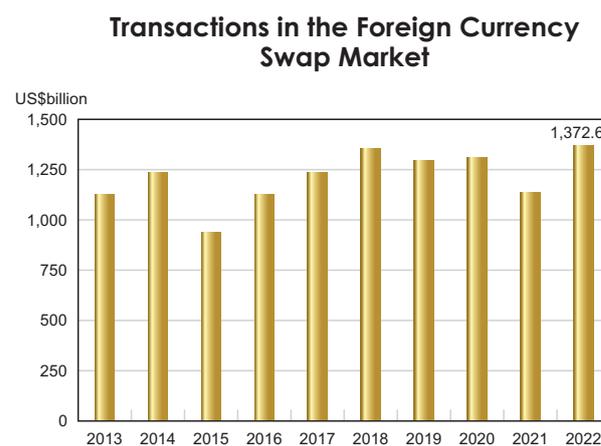
Foreign Currency Call Loan & Swap Markets

The transaction volume in the foreign currency call loan market in 2022 was US\$2,229.2 billion, an increase of 17.8% over the previous year. Of this amount, US dollar transactions accounted for a dominant share with US\$2,069.7 billion, making up 92.8% of the total while increasing by 16.6% from 2021. Renminbi transactions reached RMB816.2 billion in 2022, making up a share of 5.4% of the total and recording a year-on-year rise of 38.5% in volume. Japanese yen transactions reached ¥2,664.0 billion in 2022, representing a small share of 0.9% of the total with a year-on-year increase of 22.2% in volume. The amount of euro transactions amounted to around €2.0 billion, with a modest share of 0.1%. Other currencies accounted for a combined 0.8% of the total transaction volume. The balance of foreign currency call loan transactions stood at US\$54.7 billion at the end of 2022.

The volume of foreign currency-NTD swap transactions reached US\$1,372.6 billion, 20.1% more than 2021, while the balance was US\$299.2 billion at the end of 2022.



Source: Department of Foreign Exchange, CBC.



Source: Department of Foreign Exchange, CBC.

OBU Assets

There were 59 OBUs at the end of 2022, with 36 of them operated by domestic banks and the other 23 by foreign banks. The total assets of all OBUs increased to US\$266.1 billion at the end of the year, representing an increase of US\$16.2 billion, or 6.5%, from the previous year end owing to increasing portfolio investments and growing claims on financial institutions. Domestic banks' OBUs made up 89.7% of these combined assets with an amount of US\$238.7 billion, and the OBUs of foreign banks accounted for 10.3% of the total with US\$27.5 billion.

In terms of the uses of funds, portfolio investments represented the majority share of 40.7% of total OBU assets with an amount of US\$108.2 billion. Loans to non-financial institutions and claims on

financial institutions came in second and third place, accounting for 28.5% and 28.4% of total OBU assets. In terms of the destinations for funds, Asia accounted for the majority with a share of 48.2%, followed by America at 32.7%.

The OBUs' main source of funds came from due to financial institutions, making up 48.1% of total liabilities and equity. Deposits of non-financial institutions accounted for 44.2% of the total. The main funding origin of OBUs was Asia, accounting for 65.2%, followed by America with a share of 24.4%.

Forex trading turnover of all OBUs increased by 16.3% to US\$838.2 billion, of which US\$448.1 billion went for spot transactions, US\$134.1 billion for forward transactions, and US\$216.0 billion for forex swap transactions. Compared with the previous year, the growth rates of trading of spots, forwards, and forex swaps were 10.6%, 2.7%, and 44.8%, respectively.

For OBUs, total turnover of other derivatives products increased by 40.6% to US\$437.1 billion over the previous year. Of this amount, futures transactions registered a turnover of US\$207.0 billion, making up 47.4% of the total.

Balance Sheet of OBUs in Banking System

Unit: US\$billion

Year / Month (End of month)	Loans to Non-financial Institutions	Portfolio Investment	Claims on Financial Institutions	Other Assets	Total Assets= Total Liabilities & Equity	Deposits of Non-financial Institutions	Due to Financial Institutions	Securities Issued	Other Liabilities & Equity
2018/12	82.2	59.2	48.6	11.1	201.0	78.7	96.6	0.0	25.6
2019/12	80.2	72.2	58.4	11.0	221.9	86.7	110.8	0.0	24.3
2020/12	79.0	86.0	61.9	12.5	239.5	91.1	124.9	0.0	23.5
2021/12	78.5	93.7	68.2	9.5	249.9	104.5	125.1	0.0	20.3
2022/12	76.0	108.2	75.7	6.2	266.1	117.7	128.0	0.0	20.5
2021/12-2022/12 Growth Rate (%)	-3.2	15.5	10.9	-34.6	6.5	12.6	2.3	0.0	0.5

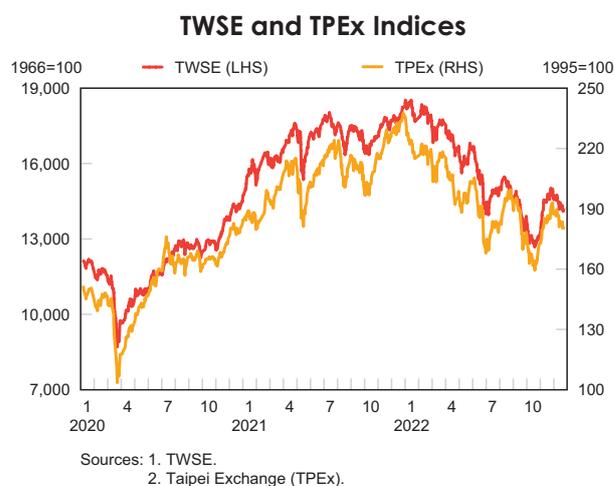
Sources: 1. *Financial Statistics Monthly* (February 2023), CBC.
2. Department of Foreign Exchange, CBC.

5. Stock Markets

In 2022, Taiwan's stock indices were on a broad downtrend for most of the year amid a succession of headwinds, including the spread of the Omicron variant, the US Fed's faster rate hikes and balance sheet tapering, tech stock downswings, continuous Russia-Ukraine conflict, China's partial pandemic lockdowns, a resurging pandemic wave in Taiwan, enhanced US sanctions on China's semiconductor exports, a slowdown in Taiwan's export growth, and a streak of monthly net sales by foreign institutional investors (FINIs). The resulting slump took the TAIEX – the TWSE Capitalization Weighted Stock Index – to a yearly low during October. Afterwards, the index recovered some of the losses as softer-than-expected US inflation somewhat eased the pressure on the Fed to hike rates, global stock markets also stabilized, and FINIs net bought TWSE shares in November, as well as benefiting from a boost during the holiday season. At the end of the year, the TAIEX was 22.4% lower than a year ago.

On the TWSE, most categories saw their share prices fall except for three groups, namely Electrical & Cable, Tourism, and Biotech & Medical Care. Among the weaker groups, Shipping & Transportation posted the worst fall of 39.9% owing to soft international freight rates and a higher base effect that amplified pressure for a correction. Paper & Pulp share prices suffered from rising costs and sluggish demand, posting a drop of 29.2%. Electronics share prices slid by 26.6% because of soft global final demand, a semiconductor down-cycle, US tech stock corrections, and local net selling by foreign institutional investors. Overall, the daily average trading value on the TWSE decreased by 39.7% from NT\$378 billion in 2021 to NT\$228 billion in 2022.

On the Taipei Exchange (TPEX), its capitalization-weighted stock index fell by 24.1% over the previous year end, with declines across all categories except for Tourism, Biotech & Medical Care, and Iron & Steel. Electronics shares had the worst performance with a 34.6% slump, followed by Shipping & Transportation stocks with a 25.2% decline. For the year 2022, the TPEX market recorded a daily average trading value of NT\$60.5 billion, shrinking by 27.2% year on year.



The TWSE Market

Listings Increased While Capitalization Decreased

At the end of 2022, the number of TWSE listings increased by 12 over the previous year to a total of 971. The par value of total shares rose by 1.6% year on year to NT\$7.5 trillion. However, total market capitalization amounted to NT\$44.3 trillion, shedding 21.3% as a result of share price falls. Meanwhile, the total number of Taiwan depository receipts (TDRs) decreased to 10 with one delisting during the year.

Major Statistics of the TWSE Market

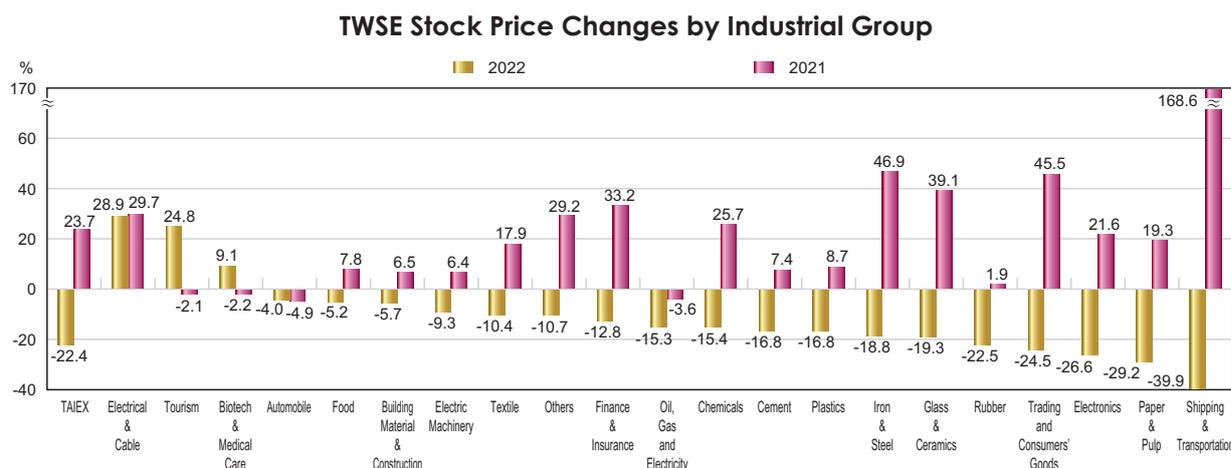
Year/Month	Stock Price Index (end of period)	Daily Average Trading Value (NT\$billion)	Turnover Rate (%)	Market Capitalization (NT\$billion)	Net Buying Positions (NT\$billion)		
					Foreign Investors Net Buy/Sell	Securities Investment Trust Companies Net Buy/Sell	Securities Dealers Net Buy/Sell
2020	14,732.5	186.3	123.3	44,903.8	-539.5	42.7	-169.6
2021	18,218.8	378.2	176.6	56,282.0	-454.1	70.1	-96.4
2022	14,137.7	228.0	115.4	44,266.0	-1,232.7	284.2	-293.8
2022/ 1	17,674.4	277.4	9.1	54,797.5	-37.7	18.0	-62.9
2	17,652.2	293.6	8.1	54,742.7	-157.4	40.2	-31.7
3	17,693.5	309.6	13.0	54,895.5	-264.0	36.6	-24.6
4	16,592.2	255.9	9.4	51,493.1	-259.5	29.3	-51.9
5	16,807.8	225.0	9.1	52,195.9	-3.7	18.0	-15.5
6	14,825.7	228.0	10.4	46,257.8	-219.0	3.3	33.5
7	15,000.1	216.0	9.7	46,821.4	-17.8	26.5	10.1
8	15,095.4	189.7	9.3	47,151.6	-119.0	38.2	-11.7
9	13,424.6	186.4	9.3	41,974.4	-168.6	27.7	-49.0
10	12,949.8	177.7	8.8	40,478.4	-95.0	16.5	8.6
11	14,879.6	210.7	10.0	46,507.6	186.8	15.8	-42.9
12	14,137.7	190.1	9.5	44,266.0	-77.9	14.2	-55.7

Source: Securities and Futures Bureau, FSC.

TAIEX Swung Downwards

In 2022, the TAIEX went through a series of downswings immediately after the start of the year. These were caused by a series of factors, including the Omicron wave, the Fed's rapid rate hikes and asset purchase tapering, the US tech stock downturn, the Russia-Ukraine war (late-Feb. and ongoing), China's partial lockdowns (Apr. to May), Taiwan's pandemic resurgence (Apr. to mid-Jul.), the US stepping up export sanctions on China's semiconductor industry (Oct.), Taiwan reporting export slowdowns, and foreign investor net sales on the TWSE. Faced with these headwinds, the TAIEX swung downwards from the yearly high of 18,526 points on Jan. 4 to the all-year low of 12,666 points on Oct. 25.

Thereafter, US inflation data posted lower than expected results, offering some reprieve from aggressive rate hikes, and global stock markets stabilized; meanwhile, foreign institutional investors turned into net buyers of TWSE shares and many stocks were also boosted by holiday season prospects. As a result, the TAIEX rebounded to 14,138 points at the end of the year, representing a 22.4% decline from the previous year end's 18,219 points.



Source: TWSE.

Broken down by subcategory, most industrial groups witnessed share price declines compared to the previous year, except for Electrical & Cable, Tourism, and Biotech & Medical Care. Among the worst performers, Shipping & Transportation shares took the biggest fall of 39.9%, reflecting a softening in global freight rates and downward pressures induced by high stock price gains the year before. Paper & Pulp stocks gave the second worst performance with a 29.2% fall owing to rising wood pulp costs and sluggish demand amid the economic downturn. Electronics stocks also staggered, as soft global final demand, a semiconductor down-cycle, US tech stock corrections, and local stock selloffs by FINIs combined to pare their share prices by 26.6%. Share prices of the Trading and Consumers' Goods group were down by 24.5% owing to disappointing business amid local pandemic waves, as well as a higher base effect.

Among the gaining groups, Electrical & Cable shares rose by 28.9% as international copper prices were elevated and major stocks in the group posted outstanding earnings. Tourism stocks came in with the second largest gain of 24.8% with the revival of domestic and international tourism amid an easing global pandemic situation and gradual reopening. Biotech & Medical Care shares gained by 9.1%, boosted by still strong demand for medical resources and news of the introduction of new drugs.

Market Turnover Decreased

In 2022, as major economies entered a policy rate hike cycle, market liquidity tightened, and domestic portfolio investors became less zealous purchasers of stocks than the previous year; the daily average trading value on the TWSE dropped by 39.7% from NT\$378.2 billion to NT\$228.0 billion. Consequently, the turnover rate declined from 176.6% to 115.4%.

FINIs Posted Heavy Net Selling

Net selling by FINIs reached an all-time high in 2022 with an amount of NT\$1,232.7 billion, while local securities investment trust companies posted a net purchase of NT\$284.2 billion and local securities dealers registered a net sale of NT\$293.8 billion.

During the first ten months of the year, unrelenting COVID-19 waves, the ongoing Russia-Ukraine conflict, the Fed's hawkish tightening, the chip industry cyclical downturn, and Taiwan's export slowdown led to a succession of net sales by foreign institutional investors. However, FINIs returned as net buyers on the TWSE trading floor in November as softer-than-expected US inflation data bolstered the prospect of a slower rate hike course by the Fed. In December, though, FINIs net sold again taking into consideration US tech stock declines and conservative investor sentiment during the long Christmas weekend.

Local securities investment trust companies were net buyers throughout the year, reflecting their usual strategy of bargain hunting or the need to boost their financial statements.

Local securities dealers, with an inclination for short swing trading, net bought in June, July, and October amid market uptrends, whereas they net sold in the other months of the year for risk-hedging or profit-taking.

The TPEX Market

Listings and Capitalization Both Increased

At the end of 2022, the number of TPEX listings increased by 20 from the previous year to 808. The total par value decreased by 2.5% to NT\$742.0 billion. The TPEX market capitalization shrank by 23.5% to NT\$4.42 trillion as stock valuations fell.

TPEX Index Swung Lower and Turnover Decreased

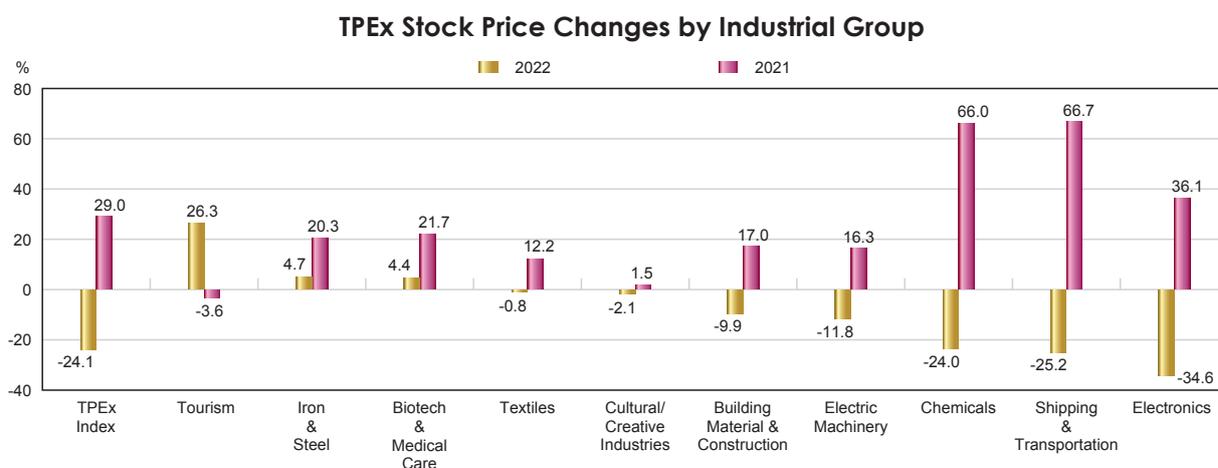
In 2022, the main TPEX index moved on a path similar to the TAIEX, impacted by headwinds including the Fed's aggressive tightening, the Russia-Ukraine military conflict, pandemic resurgence at home, and FINI net sales. As a result, the TPEX index continued to swing lower from the yearly high

of 235.5 points on January 4 to 180.3 points at the end of the year, falling by 24.1% from the previous year-end's 237.6 points.

By category, only three groups recorded year-on-year gains. Among them, Tourism and Biotech & Medical Care shares rose by 26.3% and 4.4%, respectively, benefiting from similar factors driving up share prices of these groups on the TWSE. Iron & Steel shares gained by 4.7% thanks to strong earnings reported by major steel firms. On the other hand, Electronics and Shipping & Transportation posted the largest two declines by 34.6% and 25.2%, respectively, owing to the same reasons as their counterparts on the TWSE (see the section above on the TWSE market).

All three types of institutional investors net sold TPEX shares in 2022, with respective amounts of NT\$56.2 billion for FINIs, NT\$3 billion for local securities investment trust companies, and NT\$36.0 billion for local dealers.

Meanwhile, tighter liquidity conditions and milder domestic investor interest brought the TPEX daily average trading value down by 27.2% from NT\$83.1 billion to NT\$60.5 billion.



Source: TPEX.

Key Measures for the Stock Markets

Key measures for Taiwan's stock markets in 2022 included the following:

- (1) July 13: The National Financial Stabilization Fund stepped in to buttress stock markets, the eighth supportive intervention in history.
- (2) October 1: The Financial Supervisory Commission (FSC) announced the following measures, effective immediately:

- A. Lowering the cap on the volume of intraday SBL (securities-based lending) short sales, from 30% of the daily average volume of the previous 30 sessions to 20%.
 - B. Raising the maintenance margin requirement for short trading of TWSE and TPEX listed securities from 90% to 100%.
- (3) October 12: The FSC announced more adjustments to the aforementioned measures by lowering the cap on intraday SBL short sales from 20% to 10% and raising the maintenance margin for short trading from 100% to 120%.
- (4) October 21: The FSC banned short sales of a stock at prices lower than the previous session's close when that closing price marks a one-day fall of more than 3.5%.
- (5) December 19: To promote the matching efficiency of intraday odd lot trades, the matching interval of intraday odd lot trades would be shortened from three minutes to one minute.

6. Bond Market

The total volume of bond issuance displayed a downtrend for the year 2022. New issues of bonds reached NT\$1,652.7 billion, falling significantly by NT\$1,037.9 billion over the previous year. At the end of 2022, the total outstanding of bonds issued amounted to NT\$16,319.2 billion, an increase of NT\$372.5 billion or 2.34% from the previous year end.

In order to support debt refinancing operations of the Central Government Debt Service Fund and to raise funds for the central government general budget and special budget, central government bond issuance for 2022 stood at NT\$520.1 billion, dropping by NT\$96.9 billion from the previous year.

Issuance of corporate bonds in the year amounted to NT\$473.1 billion, a substantial decrease of NT\$250.6 billion from a year before, mainly because the rise in market rates weighed on corporations' willingness to issue bonds.

Bank debenture issuance totaled NT\$148.9 billion, a rise of NT\$13.7 billion compared to 2021, primarily because banks increased the issuance of subordinated bank debentures in order to strengthen their capital bases so as to improve their capital adequacy ratios.

In 2022, NT dollar-denominated foreign bonds issued in Taiwan by foreign institutions reached NT\$10.9 billion, an increase of NT\$300 million from 2021. Meanwhile, foreign currency-denominated international bonds issued in Taiwan by foreign institutions decreased by NT\$643.7 billion over the previous year to NT\$493.9 billion.

In the secondary market, the policy rate hikes by the US Fed pushed up US Treasury yields, leading to an upswing in Taiwan government bond yields. The yield on 10-year government bonds averaged 1.09% in 2022, 65 basis points higher than the previous year.

Furthermore, annual transactions stood at NT\$35,404.9 billion, declining by NT\$733.9 billion compared to the previous year, mainly because the rise in interest rates on repurchase agreement (repo) transactions of government bonds was larger than that in government bond yields, resulting in a less vibrant bond market as profits from spread trading narrowed.

Decrease in Government Bond Issuance

To support debt refinancing operations of the Central Government Debt Service Fund and to raise funds for the central government general budget and special budget, central government bond issuance totaled NT\$520.1 billion in 2022, sliding by NT\$96.9 billion compared to a year ago. Government bonds were available with various maturity periods from 2 years, 5 years, 10 years, 20 years, to 30 years.

Broken down by institutional investor, bonds held by the banking industry accounted for the largest share at 60.47%, and the securities industry came in second with a share of 28.79%. The banking industry and the insurance industry held smaller shares of bonds than a year earlier as these industries increased their external investment positions.

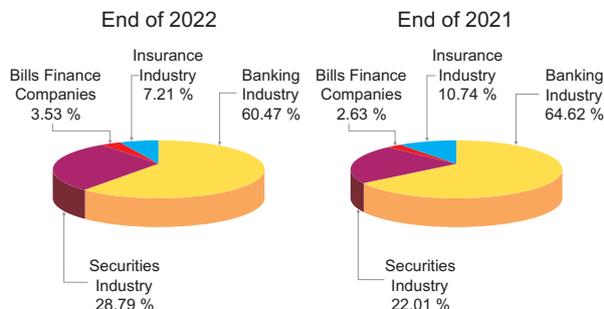
As of the end of 2022, the total outstanding of central government bond issuance stood at NT\$5,799.5 billion, rising by NT\$125.1 billion or 2.20% compared to 2021.

In terms of bonds issued by governments of special municipalities, new issues were nil in 2022. However, as part of their bonds, worth NT\$14.2 billion, were redeemed mid-year, the outstanding amount of bonds issued by governments of special municipalities at the end of the year decreased by 8.64% to NT\$150.7 billion from the previous year end.

Marked Slide in Corporate Bond Issuance

Corporate bonds refer to NT dollar- or foreign currency-denominated bonds issued in Taiwan by domestic corporations. In 2022, the issuing amount of corporate bonds stood at NT\$473.1 billion,

Shares of Government Bond Holdings (by Institutional Investor)



Source: Department of the Treasury, CBC.

Issues and Outstanding Values in Bond Market by Category

Unit: NT\$billion

Year/ Month	Total		Central Government Bonds		Local Government Bonds*		Corporate Bonds		Bank Debentures		Beneficiary Securities**		Foreign Bonds		Int'l Bonds	
	Issues	Outstanding	Issues	Outstanding	Issues	Outstanding	Issues	Outstanding	Issues	Outstanding	Issues	Outstanding	Issues	Outstanding	Issues	Outstanding
2020	3,394.9	14,784.7	535.0	5,524.5	40.5	100.0	842.5	2,592.8	192.0	1,255.7	0.0	5.3	21.5	44.6	1,763.3	5,261.8
2021	2,690.6	15,946.7	617.0	5,674.5	66.6	164.9	723.7	2,983.5	135.2	1,234.0	0.0	5.3	10.6	51.6	1,137.5	5,833.0
2022	1,652.7	16,319.2	520.1	5,799.5	0.0	150.7	473.1	3,124.8	148.9	1,255.4	5.9	11.2	10.9	55.6	493.9	5,921.9
2022/ 1	284.3	16,111.9	53.0	5,702.5	0.0	164.9	41.3	3,006.3	0.0	1,231.0	0.0	5.3	0.0	51.5	190.0	5,950.5
2	151.1	16,154.0	60.0	5,722.5	0.0	164.9	7.0	3,003.5	1.5	1,230.0	0.0	5.3	0.0	51.4	82.6	5,976.4
3	187.0	16,121.2	46.4	5,688.9	0.0	164.9	38.8	3,025.8	27.5	1,249.4	0.0	5.3	0.0	51.3	74.4	5,935.7
4	136.8	16,121.3	55.0	5,693.9	0.0	164.9	45.6	3,037.6	4.4	1,251.5	5.9	11.2	8.0	59.3	18.0	5,903.0
5	79.5	16,111.1	25.0	5,688.9	0.0	164.9	35.4	3,050.7	7.4	1,252.2	0.0	11.2	0.5	56.3	11.3	5,886.9
6	122.9	16,155.3	55.0	5,743.9	0.0	161.6	46.0	3,059.9	13.7	1,240.0	0.0	11.2	0.5	56.2	7.7	5,882.5
7	134.5	16,219.6	30.0	5,773.9	0.0	161.6	39.4	3,061.4	22.8	1,260.3	0.0	11.2	0.0	56.2	42.4	5,895.0
8	144.3	16,252.8	30.0	5,763.9	0.0	161.6	84.4	3,104.3	25.3	1,273.5	0.0	11.2	0.5	56.4	4.1	5,882.0
9	103.3	16,217.7	50.7	5,739.5	0.0	161.6	21.6	3,091.5	12.3	1,268.2	0.0	11.2	0.5	56.6	18.3	5,889.1
10	141.0	16,283.5	30.0	5,744.5	0.0	161.6	65.9	3,127.6	10.1	1,270.6	0.0	11.2	0.4	56.4	34.7	5,911.5
11	92.6	16,313.2	55.0	5,769.5	0.0	161.6	21.3	3,126.0	7.6	1,269.0	0.0	11.2	0.4	56.0	8.4	5,919.9
12	75.2	16,319.2	30.0	5,799.5	0.0	150.7	26.6	3,124.8	16.4	1,255.4	0.0	11.2	0.1	55.6	2.1	5,921.9

Notes: * Referring to bonds issued by governments of special municipalities.

** Including those purchased back by originators for credit enhancement.

Sources: 1. *Financial Statistics Monthly* (February 2023), CBC.

2. Banking Bureau, Financial Supervisory Commission.

3. Department of Foreign Exchange, CBC.

decreasing by NT\$250.6 billion from 2021, mainly because corporations' willingness to issue bonds weakened owing to the rise in market interest rates.

In terms of bond maturities, 5-year corporate bonds accounted for a dominant share of the issuance at 56.07%, while 3-year bonds came in second with a share of 21.22%. At the end of 2022, the outstanding amount of corporate bonds grew by NT\$141.3 billion or 4.74% to NT\$3,124.8 billion over the previous year.

Growth in Bank Debenture Issuance

In 2022, domestic banks issued bank debentures with an issuance amount of NT\$148.9 billion, up by NT\$13.7 billion compared to a year ago, primarily because banks increased the issuance of subordinated bank debentures in order to strengthen their capital bases so as to improve their capital adequacy ratios.

In respect of the maturity of new issues, perpetual debentures made up the largest share of total issuance at 39.74%, followed by 7-year bonds with a share of 20.93%.

At the end of the year, the outstanding amount of bank debentures totaled NT\$1,255.4 billion, an increase of NT\$21.4 billion or 1.74% from a year before.

Increase in Asset Securitization Products

New issues of asset securitization products totaled NT\$5.9 billion in 2022. The outstanding amount of asset securitization climbed by NT\$5.9 billion or 111.01% from the previous year end to NT\$11.2 billion.

Uptick in Foreign Bond Issuance

Foreign bonds are defined as NT dollar-denominated corporate bonds issued in Taiwan by foreign enterprises. The foreign bonds currently in circulation are corporate bonds issued by offshore companies listed on the Taiwan Stock Exchange or the Taipei Exchange (the over-the-counter market). For the year 2022, foreign bond issuance grew by NT\$300 million from a year before to NT\$10.9 billion. At the end of the year, the outstanding amount of foreign bonds reached NT\$55.6 billion, increasing by NT\$4.0 billion or 7.81% over the previous year end.

Drop in International Bond Issuance

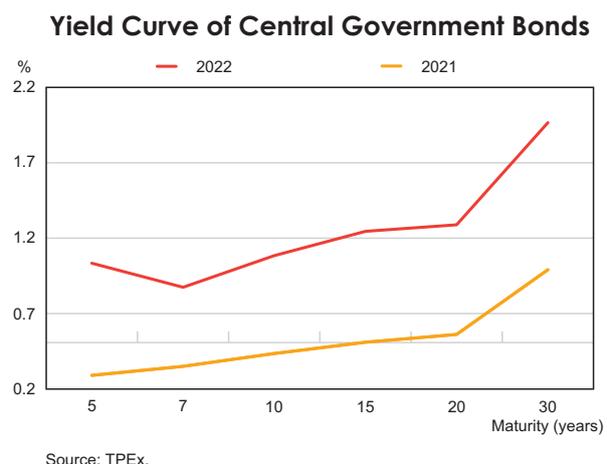
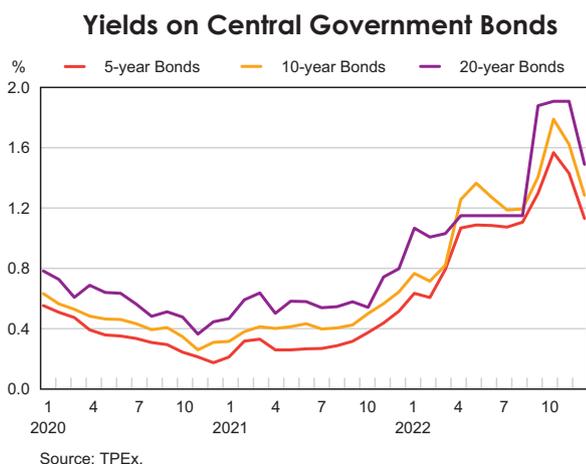
International bonds currently refer to foreign currency-denominated corporate bonds issued in Taiwan by foreign institutions. During 2022, issuance of international bonds fell significantly by NT\$643.7 billion from a year before to NT\$493.9 billion. The contraction was primarily because an uptrend in US dollar-denominated market rates led to a decrease in international bond issuance by foreign institutions.

In respect of currency composition, the majority of total international bond issuance went for US dollar-denominated bonds with a share of 93.25%, followed by Australian dollar-denominated bonds at 3.10%. At the end of the year, the outstanding amount of international bonds stood at NT\$5,921.9 billion, representing a year-on-year increase of NT\$89.0 billion or 1.53%.

Uptrend in Average Government Bond Yields and Decline in Transactions

For the year 2022, substantial policy rate hikes by the US Fed raised US Treasury yields, while the Bank’s several policy rate rises also sent Taiwan government bond yields higher. Nevertheless, Taiwan government bond yields recorded a smaller increase than US bond yields owing to ample domestic liquidity. Looking at the volume-weighted average yields in 2022, the 10-year government bond yield rose to 1.09%, 65 basis points higher than the 0.44% of the previous year.

Among government bonds of the other maturity ranges, average yields on 5-year, 20-year, and 30-year bonds moved up by 75, 73, and 98 basis points, respectively, over the previous year.



With respect to transaction volume, annual transactions contracted by NT\$733.9 billion or 2.03% to NT\$35,404.9 billion, primarily because the rise in interest rates on repo transactions of government bonds was larger than that in government bond yields, resulting in narrowing profits from spread trading and thus a less vibrant bond market.

By type of bonds, the majority of total bond transactions went for corporate bonds with a share of 53.60% and an annual trading volume of NT\$18,975.6 billion. The second most actively traded were government bonds, contributing to 37.11% of total transactions with an annual trading volume of NT\$13,137.8 billion. Bank debentures came in third, accounting for a smaller share of 5.59% with an annual trading volume of NT\$1,980.0 billion.

Turnover in Bond Market by Category

Unit: NT\$billion

Year/ Month	Total	Government Bonds	Corporate Bonds		Bank Debentures	Beneficiary Securities	Foreign Bonds	Int'l Bonds
			Nonconvertible	Convertible				
2020	52,504.7	28,776.6	17,254.7	1,297.6	2,891.9	2.1	434.9	1,846.9
2021	36,138.8	15,557.9	15,807.2	1,348.2	2,024.9	0.5	393.0	1,007.0
2022	35,404.9	13,137.8	17,473.1	1,502.5	1,980.0	26.7	537.3	747.5
2022/ 1	3,227.9	1,401.5	1,410.0	95.7	138.0	1.0	37.3	144.3
2	2,558.7	970.3	1,240.5	90.9	126.4	1.0	36.2	93.5
3	3,434.5	1,385.4	1,571.4	133.9	213.7	1.6	46.8	81.8
4	2,823.6	986.6	1,450.7	128.5	138.6	5.9	47.4	65.9
5	2,799.0	960.3	1,467.4	124.8	142.0	3.0	46.7	54.8
6	2,981.1	1,001.1	1,580.6	153.0	164.3	2.1	41.6	38.6
7	2,730.1	944.5	1,423.6	115.7	156.5	3.5	42.2	44.2
8	3,101.2	1,195.7	1,485.8	136.1	193.0	2.1	47.0	41.5
9	3,110.0	1,187.6	1,474.2	133.1	202.5	2.3	49.1	61.1
10	2,924.7	1,015.0	1,528.4	123.5	175.6	2.3	43.2	36.8
11	2,655.4	962.2	1,325.2	123.4	143.3	0.5	47.9	52.9
12	3,058.6	1,127.6	1,515.3	143.9	186.3	1.5	52.0	32.0

Source: TPEX.

Central Bank Operations



III. Central Bank Operations

1. Overview

In the first half of 2022, the outbreak of the Russia-Ukraine war and further worsening of global supply chain bottlenecks contributed to a surge in global inflation. In the second half of the year, global inflation remained elevated, and major economies such as the US continued to tighten monetary policy, with the world economy experiencing slower growth. Meanwhile, the domestic economic expansion moderated on account of softened global demand. Soaring import costs of energy and food brought the annual CPI growth rate up above 2%. Based on the assessment of economic and financial conditions at home and abroad, the Bank adopted a tight monetary policy stance in 2022 to rein in domestic inflation expectations, maintain price stability, and help foster sound economic and financial development. Therefore, the Bank raised policy rates four times throughout the year by a total of 0.625 percentage points, and increased the reserve requirement ratios on NT dollar demand deposits and time (savings) deposits twice by a total of 0.5 percentage points.

In 2022, the Bank continued to conduct the Special Accommodation Facility to Support Bank Credit to SMEs ("the Facility"). With the pandemic situation broadly stable at home, enterprises' need for such funding assistance waned. The Facility thus expired at the end of June that year as planned. The Facility has been very productive in helping SMEs sustain normal operations, maintaining financial stability, and fostering robust economic growth.

Moreover, the Bank continued implementing the selective credit control measures during the year so as to promote financial stability, rein in financial institutions' credit risk associated with real estate lending, and prevent excessive credit resources from gushing into the real estate sector. To boost the effectiveness of the existing credit controls, the Bank also adopted relevant supporting measures, such as performing on-site financial examinations, holding meetings with banks to understand their current practices, urging financial institutions to comply with relevant laws and regulations as well as credit risk-based interest rate pricing principles, and requesting financial institutions to strengthen the efforts to ensure that land loan borrowers begin construction on the collateralized land lots as per the loan terms. The Bank's tight monetary policy stance in 2022 was also conducive to enhancing the effectiveness of the selective credit controls.

In response to economic and financial conditions, the Bank continued with open market operations by issuing CDs to manage market liquidity and reserve money so as to maintain liquidity in the banking system and market rates at appropriate levels. For the year as a whole, reserve money and the monetary aggregate M2 recorded year-on-year growth of 8.91% and 7.48%,

respectively. Both readings were higher than the GDP growth rate of 2.45% over the same period, indicating sufficient market liquidity to support economic activity.

In terms of the foreign exchange (FX) market, the Fed, in view of soaring global inflation in 2022, adopted substantial rate hikes to curb inflation, triggering fire sales of risky assets worldwide. The resulting flow of capital into US dollar assets for risk aversion purposes led to the strengthening of the USD, and the NTD thus depreciated significantly. In the fourth quarter, abated inflation pressures in the US drove up investors' expectations of slower Fed rate hikes, contributing to a weaker USD, and the NTD against the USD rebounded. When the NTD exchange rate experienced more fluctuations, the Bank, in line with its statutory mandates, stepped into the FX market and conducted two-way smoothing operations as warranted to maintain dynamic stability of the NTD, with a net selling of US\$13 billion for the year. Compared with other major currencies such as the SGD, EUR, KRW, and JPY, the NTD experienced lower volatility in its exchange rate vis-à-vis the USD in 2022. Furthermore, in addition to approving more bank branches as authorized FX banks, the Bank reviewed the laws and regulations governing FX business as seen fit so as to facilitate authorized FX banks' competitiveness and service quality.

In order to ensure security and efficiency of the functioning of Taiwan's payment and settlement systems, the Bank continued urging financial institutions to strengthen information security of the systems and to perform drills on system backup and contingency procedures in case of emergency. With regard to promoting mobile payment, the Bank required the Financial Information Service Co., Ltd. (FISC) to collaborate with financial institutions in reinforcing mobile payment infrastructure, such as constructing the "shared platform for cross-institution electronic payment" and providing the "mobile number funds transfer" service. On the other hand, in response to emerging innovations in digital payment, the Bank has conducted a two-phase research project on central bank digital currencies (CBDCs). The second phase proof-of-concept study on a general purpose CBDC was completed in June 2022. The experiment results from the second phase will serve as a basis for the Bank's further research on the CBDC.

In the meantime, the issue of climate change has posed new challenges and risks to central banks' statutory mandates of implementing monetary policy and maintaining financial stability. Against such a backdrop, the Bank, in line with the government's goal of achieving a transition to net zero carbon emissions by 2050, released the "CBC Strategic Plan to Address Climate Change Issues" on December 30, 2022. The plan will be carried out with 11 action measures in five aspects, namely monetary policy, monetary policy operation instruments, macro-prudential policy, FX reserve management, and participation in international discussions and activities. Through this plan, the Bank aims to mitigate the impact of climate change-related risks on domestic economic and financial conditions so as to ensure financial stability and facilitate Taiwan's sustainable development.

2. Monetary Management

Tightening Monetary Policy in Response to the Impact of Surging Global Inflation on the Domestic Economy

(1) Raising Policy Rates Four Times

In the first half of 2022, the world economy witnessed a steep rise in inflation amid the outbreak of the Russia-Ukraine war and worsening global supply chain bottlenecks. In the second half of the year, global inflation remained at high levels and major economies such as the US continued with monetary policy tightening, with the global economy experiencing a slowdown. Meanwhile, Taiwan's economy registered slower growth owing to softened global demand, and surging import costs of energy and food pushed the CPI annual growth rate above 2%. Based on the above assessment, the Bank adopted a tight monetary policy stance in 2022 to rein in domestic inflation expectations, maintain price stability, and foster sound economic development. The Bank raised policy rates four times throughout the year by a total of 0.625 percentage points. At the end of 2022, the discount rate, the rate on refinancing of secured loans, and the rate on temporary accommodations were 1.75%, 2.125%, and 4%, respectively.

The Bank's Policy Rate Adjustments

Unit: %

Effective Date	Discount Rate	Rate on Refinancing of Secured loans	Rate on Temporary Accommodations
2022/ Mar.18	1.375	1.750	3.625
Jun.17	1.500	1.875	3.750
Sep.23	1.625	2.000	3.875
Dec.16	1.750	2.125	4.000

Source: *Financial Statistics Monthly* (February 2023), CBC.

(2) Increasing the Reserve Requirement Ratios on NT Dollar Deposits Twice

The Bank raised the reserve requirement ratios on NT dollar demand deposits (excluding passbook deposits from non-resident investors) and time (savings) deposits by 0.25 percentage points twice in a row, effective July 1 and October 1, 2022.

Adjustments to Reserve Requirement Ratios on Deposits

Unit: Percentage of deposits

Effective Date	Checking Accounts	Passbook Deposits	Passbook Deposits from Nonresident Investors		Savings Deposits		Time Deposits
			Amount Below the Outstanding Balance Recorded on Dec. 30, 2010.	Increment Exceeding the Outstanding Balance Recorded on Dec. 30, 2010.	Passbook	Time	
2022/ Jul.1	11.000	10.025	25.000	90.000	5.750	4.250	5.250
Oct.1	11.250	10.275	25.000	90.000	6.000	4.500	5.500

Source: *Financial Statistics Monthly* (February 2023), CBC.

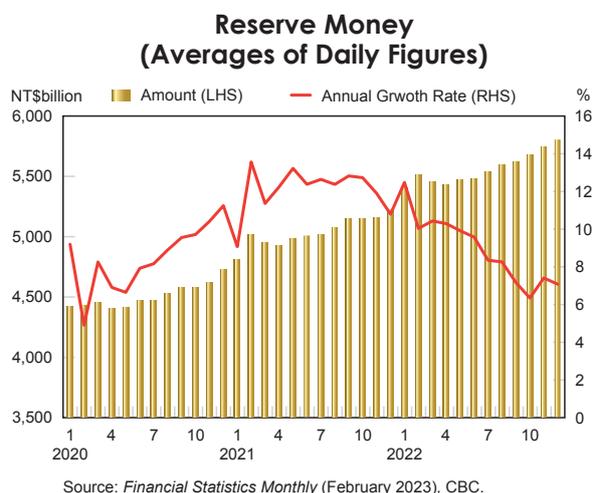
Continuing Open Market Operations to Adjust Market Liquidity

In 2022, the Bank continued to manage market funds through open market operations by issuing CDs in response to domestic economic and financial conditions, which helped to maintain market liquidity and market rates at appropriate levels.

(1) Appropriately Managing Reserve Money

The Bank continued to conduct open market operations by issuing CDs. At the end of 2022, the total outstanding amount of CDs issued by the Bank was NT\$8,601 billion. In response to banks' demand for asset allocation, from June 2022 onwards, the Bank reduced the monthly bidding amounts for 364-day and 2-year CDs from NT\$170 billion and NT\$60 billion to NT\$140 billion and NT\$25 billion, respectively.

In 2022, reserve money grew at a slower pace, with an annual growth rate of 8.91%, which was 3.18 percentage points lower than the previous year's figure. The annual average excess reserves of financial institutions in the year were NT\$71.8 billion, higher than the previous year's NT\$62.7 billion. In terms of the monthly movements of reserve money, the annual growth rates of reserve money for January and February are often more volatile because of the shift in the exact timing of the Lunar New Year holidays (e.g., the holidays occurred in mid-February in 2021, yet in late January in 2022). For the first two months of the year, reserve money posted an annual growth rate of 11.41%. From March onwards, the annual growth rate of reserve money showed a downtrend and dropped to an all-year low of 6.35% in October. In November, the annual growth rate of reserve money rose to 7.41% owing to net foreign capital inflows and an upswing in both trading value and volume in Taiwan's stock markets, and then fell back to 7.08% in December.



On the demand side, reserve money, measured on a daily average basis, increased by NT\$544 billion over the previous year. Of the components, net currency increased by NT\$315 billion and the annual growth rate rose to 12.40% from 11.99% the previous year; reserves held by financial institutions expanded by NT\$229 billion, with the annual growth rate down to 8.94% from 12.37% the previous year. As the low interest rates paid on bank deposits contributed to a low opportunity cost of holding currency for the private sector, net currency recorded continuous growth during the year.

As for reserves held by financial institutions, although the Bank raised the reserve requirement ratios twice, slower growth in demand deposits resulted in reduced demand from banks to deposit reserves, leading to a smaller increase in reserves held by financial institutions compared to the previous year.

From the supply side perspective, reserve money increased by NT\$579 billion at the end of the year. According to the balance sheet of the Bank revealing the sources of changes in reserve money, increases were mostly attributable to the decrease in the outstanding balance of CDs issued by the Bank and the growth in foreign assets held by the Bank, whereas decreases were due to the Bank's reduced claims on financial institutions.

(2) Overnight Call Loan Rate Moving Up with the Bank's Policy Rate Hikes

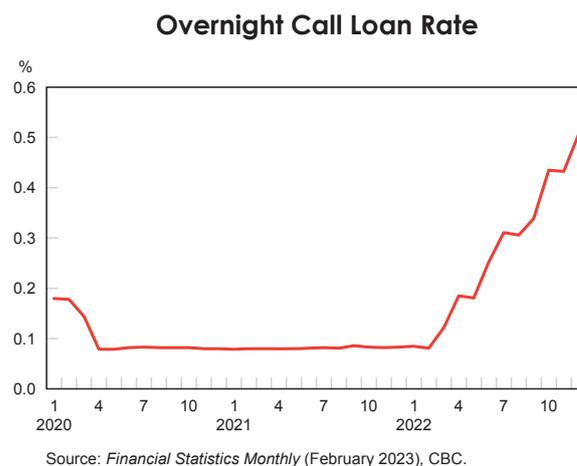
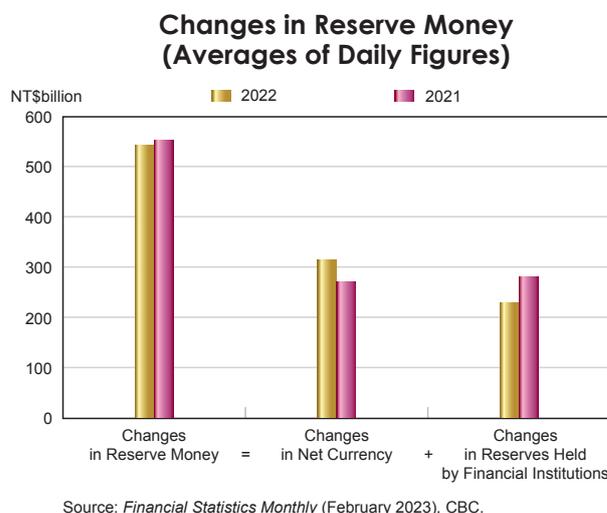
The Bank raised policy rates four times in 2022 by a total of 0.625 percentage points, bringing the overnight call loan rate up by nearly 0.5 percentage points throughout the year. As of the end of December 2022, the annual average overnight call loan rate was at 0.556%.

(3) Conducting Regular Small-Scale Repo Operations

The Bank conducted small-scale test repo operations on CDs and government bonds in April and October 2022 to improve operational readiness and ensure resilience of the open market operations.

(4) Continuous Growth in Monetary Aggregates, Albeit with the M2 Growth Rate Gradually Sliding

For 2022, the annual growth rate of M2, measured on a daily average basis, was 7.48%, down by 1.24 percentage points from the previous year, mainly reflecting a higher base effect, net foreign capital outflows, and slower growth in bank loans and investments, yet the M2 annual growth rate of each month was still higher than the upper boundary of the reference range at 6.5%.



With regard to the monthly movements in 2022, a slowdown in demand deposit growth in January and weaker expansion in bank loans and investments in February combined to bring down the M2 growth rate to 7.67% in February. Later, an uptick in bank loans and investments from March to April drove up the M2 growth rate to a yearly high of 8.12% in April. In subsequent months, with net foreign capital outflows and decelerated growth in bank loans and investments, the M2 growth rate was dragged down to an all-year low of 6.83% in September.

Afterwards, M2 growth trended up to 7.37% in November. This was due to faster growth both in foreign currency deposits and in bank loans and investments during October and November, as well as net foreign capital outflows turning into net inflows in November. The M2 growth rate then slipped again to 7.06% in December on account of net foreign capital outflows and softer expansion in bank loans and investments.

The annual growth rate of the monetary aggregate M1B, measured on a daily average basis, went down by 8.48 percentage points to 7.81% in 2022. The decrease in M1B growth was primarily attributable to a higher base effect, net foreign capital outflows, and weaker growth in demand deposits amid declines in the TAIEX and in trading volume on the TWSE compared to the previous year.

As for the monthly movements, the annual growth rate of M1B recorded a yearly high of 11.49% in January because of greater demand for funds prior to the Lunar New Year holidays and an increase in currency issuance.

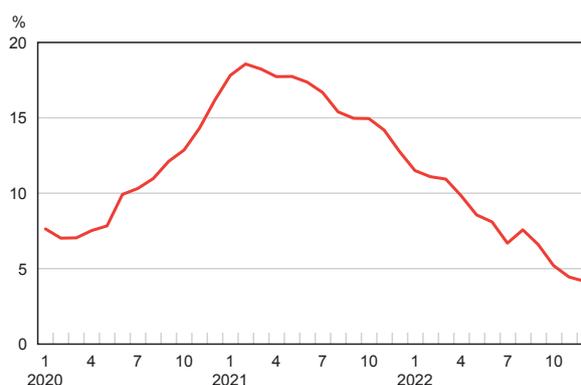
From February onwards, except for August when the M1B growth rate rebounded owing to an increase in passbook savings deposits as a result of cash dividend payments by enterprises, the annual growth rate of M1B for the rest of the months exhibited a broad downtrend and fell to an all-year low of 4.14% in December.

Annual Growth Rate of M2



Note: Green area is the reference range for M2 growth (2.5 % to 6.5 %).
Source: *Financial Statistics Monthly* (February 2023), CBC.

Annual Growth Rate of M1B



Source: *Financial Statistics Monthly* (February 2023), CBC.

Continuing the Special Accommodation Facility to Support Bank Credit to SMEs and Conducting Exit Plans

As the pandemic situation was broadly stable at home, the need for such funding assistance waned. Although the Facility's deadline for banks to accept new SME loan applications was set at the end of 2021, SME loans granted by banks under the Facility would continue to enjoy the preferential interest rates until June 30, 2022 in order to continue easing corporate funding burdens. The Bank also designed and implemented proper exit strategies, including repeatedly reminding SMEs to make appropriate financial planning in advance to avoid the impact of interest rate hikes on capital deployment, and urging banks and the Small and Medium Enterprise Credit Guarantee Fund of Taiwan (Taiwan SMEG) to provide continuous assistance.

Under the Facility, financial institutions had approved 307 thousand applications with the disbursement totaling NT\$503.6 billion. The Facility not only helped sustain business operations of SMEs, maintain financial stability, and foster robust economic growth, but also helped balance regional development, achieve the goal of financial inclusion, and facilitate banks' expansion in other financial business.

Continuing the Selective Credit Control Measures and Adopting Supporting Measures to Strengthen Their Effectiveness

To facilitate effective allocation and reasonable utilization of credit resources as outlined in the government's Healthy Real Estate Market Plan and to prevent bank credit from flowing towards property and land hoarding, the Bank continued to implement the selective credit control measures. In addition, to strengthen the effectiveness of the control measures, the Bank adopted the following supporting measures in 2022 to enhance financial institutions' real estate-related credit risk management so as to promote financial stability and sound banking operations.

- (1) Urging financial institutions to comply with regulations and implement credit risk-based interest rate pricing principles.
 - A. January 2022: The Bank held the meeting on "Reinforcing Management of Risks Associated with Land Loans" with 36 domestic banks and the National Federation of Credit Cooperatives, R.O.C. (NFCC), and urged banks to set up internal rules to ensure that land loan borrowers begin construction within the promised time frame.
 - B. July 2022: The Bank called on the NFCC and the Agricultural Bank of Taiwan to require all credit cooperatives and credit departments of farmers' and fishermen's associations to review and improve deficiencies in real estate mortgage loans, to establish internal control and auditing systems, and to strengthen personnel education and training in this regard.
 - C. November 2022: The Bank held a "Seminar on the Extension of Real Estate Loans," and invited

6 banks with higher outstanding real estate loans to understand current practices of the regulated real estate loans extended by banks as policymaking reference.

(2) Conducting on-site financial examinations: The Bank ran on-site examinations to ensure banks' compliance with relevant regulations and to enhance the effectiveness of the Bank's selective credit control measures. A total of 69 targeted examinations were conducted in 2022.

(3) Strengthening the supervision of construction commencement and accelerating land development and utilization.

A. January 2022: The Bank asked financial institutions to stipulate rules that require land loan borrowers to commit themselves to begin construction within a specific time frame in these institutions' internal rules. This was to strengthen the efforts to urge borrowers to accelerate construction commencement so as to prevent bank credit from flowing towards multiple land hoarding or letting land sitting idle.

B. May 2022: The Bank requested the Joint Credit Information Center to incorporate information on land loans into its information query system. The setup of the function has been completed and become available in January 2023 for financial institutions to search relevant information. This would help prevent borrowers from circumventing the requirement of commencing construction within a specific time frame through transferring loans to another lender.

(4) The Bank suggested the FSC enhance control over financial institutions' real estate guarantee business, and such recommendations were adopted by the FSC in December 2021. In addition, in February 2022, the FSC raised risk weights on the regulated mortgage loans extended by banks and reinforced the implementation of targeted examinations toward the regulated mortgage loans, both of which helped prevent excessive inflows of credit to the real estate market.

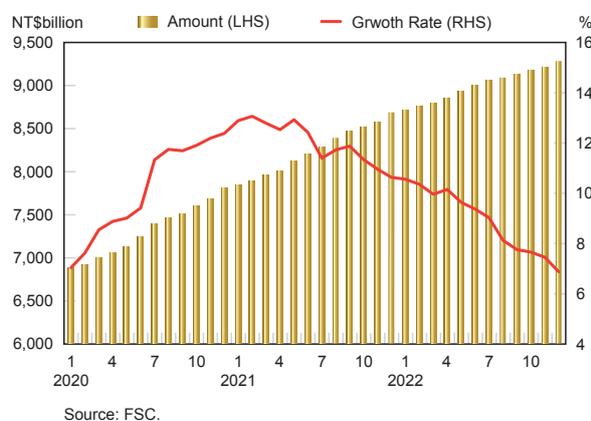
(5) Compiling statistics: Statistics of the regulated real estate loans granted by banks were regularly released on the Bank's website.

Facilitating SME Funding

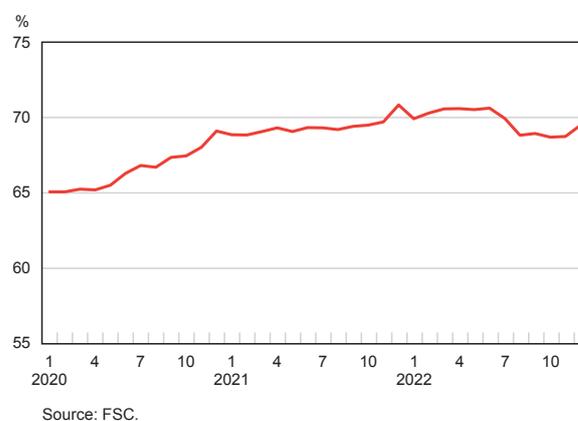
To assist SMEs in obtaining necessary funds for their operations, the Bank regularly tracked banks' lending to SMEs and participated in the formulation of the annual lending growth target under the FSC's "Program to Encourage Lending by Domestic Banks to SMEs" to urge banks to enhance their lending to SMEs.

At the end of 2022, the outstanding loans extended to SMEs by domestic banks amounted to NT\$9,283 billion, a year-on-year increase of NT\$594.5 billion that exceeded the annual lending growth target of NT\$350 billion set by the FSC for 2022 under the "Program to Encourage Lending by Domestic Banks to SMEs." However, owing to a higher base effect, the annual growth rate displayed

Outstanding Loans Extended to SMEs



Ratio of Outstanding Loans Extended to SMEs to Those Extended to Private Enterprises



a downtrend. At the end of 2022, the ratio of SME loans to loans extended to all private enterprises reached 69.48%, slightly lower than the 70.83% recorded at the previous year end.

Raising the Remuneration Rates on Financial Institutions' B Reserve Accounts Four Times

The Bank raised policy rates four times in 2022, and the remuneration rates on financial institutions' B reserve accounts held with the Bank also increased accordingly. Effective December 23, 2022, reserves from demand deposits and time deposits would receive interest at 0.521% and 1.208% per annum, respectively.

Adjustments to the Remuneration Rates on B Reserve Accounts

Effective Date	Unit: %	
	Demand Deposits	Time Deposits
2022/ Mar.25	0.144	0.820
Jun.24	0.271	0.955
Sep.30	0.396	1.083
Dec.23	0.521	1.208

Note: From January 2011, a zero remuneration rate has been applied to reserves originating from demand deposits from nonresident investors in financial institutions' B reserve accounts held with the Bank.

Source: Department of Banking, CBC.

Accepting Redeposits from Financial Institutions

Accepting redeposits from Chunghwa Post, the Agricultural Bank of Taiwan, and commercial banks is another instrument for the Bank to influence banks' reserve positions in order to promote financial stability. At the end of 2022, the outstanding redeposits of Chunghwa Post stayed broadly unchanged at NT\$1,624 billion, while the outstanding redeposits of the Agricultural Bank of Taiwan and of commercial banks were NT\$132 billion and NT\$236 billion, respectively.

Box

The Bank's Special Accommodation Facility to Help SMEs

As the COVID-19 pandemic quickly spread worldwide at the start of 2020, Taiwan, like many other economies, was hit by the resultant economic and financial impacts. In a bid to help the affected SMEs stay on track, the Bank launched the Special Accommodation Facility to Support Bank Credit to SMEs (hereinafter "the Facility"), under which banks could obtain additional funds to offer concessional loans to those SMEs in distress because of the pandemic.

I. Introduction to the Facility

The Bank's Facility provided banks with accommodations at low interest rates so that banks would in turn support SMEs by offering concessional loans guaranteed by the government's Small and Medium Enterprise Credit Guarantee Fund of Taiwan (Taiwan SMEG). In addition, different programs were designed featuring various credit lines and rate ranges for firms of different sizes. To better support SME credit needs during the pandemic, the Bank has made 15 adjustments to

SME Relief Lending Under the Bank's Special Accommodation Facility

Loan type	Secured loans to the SMEs affected by the COVID-19 pandemic as assessed by banks receiving applications			
Loan purpose	To meet funding needs of the affected SMEs in order to continue business operations			
Eligible borrowers and loan terms	Program	A	B	C
	Borrower	SME*	SME*	Small-scale business entity**
	Guarantee/ Collateral	At least 90% of guarantees covered by Taiwan SMEG	Other collateral (including at least 80% of guarantees covered by Taiwan SMEG)	100% of guarantees covered by Taiwan SMEG
	Credit line	Up to NT\$4 million	Up to NT\$16 million	Up to NT\$1 million
	Interest rate	Capped at 1%	Capped at 1.5%	Capped at 1%
	Application schedule	2020.4.1 – 2021.12.31		2020.4.20 – 2021.12.31
	<p>* SME: A domestic business entity with proper company registration, business registration, limited partnership registration, or taxation registration, and whose paid-in capital is no more than NT\$100 million or which hires fewer than 200 regular employees may apply for loans under Program A or B.</p> <p>** Small-scale business entity: A business entity with proper taxation registration and whose monthly sales amount (in any month since January 2020) does not reach the threshold for using uniform invoices may apply for loans under Program A, B or C.</p>			
Applicable time frame	April 1, 2020 to June 30, 2022 (*preferential interest rates would be applicable during this period)			
Others	SMEs which take out loans under this Facility could also apply for other credit support measures implemented by the government.			

Source: Department of Banking, CBC.

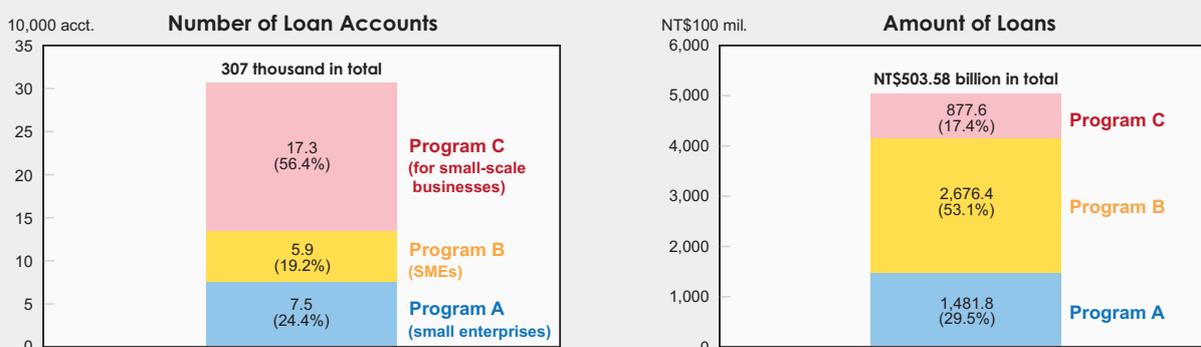
the Facility, including increasing the total amount, lowering the interest rates on accommodations, raising the ceiling for available loans, and extending the Facility's implementation duration.¹

II. Implementation of the Facility

In sum, bank credit extended under the Facility reached 307 thousand loan accounts with a total amount of NT\$503.58 billion.

1. In terms of approved cases, Program C, which had a lower approval threshold, recorded the highest number with 173 thousand loan cases approved (making up 56.4% of the total).
2. In terms of loan amount, Program B had the highest accumulated amount with NT\$267.64 billion (53.1%) given that borrowers under this Program were mostly mid-sized enterprises and thus eligible for larger loans.

Implementation Results of the Facility (2020.4.1 - 2022.6.30)



Source: Department of Banking CBC.

III. Effectiveness of the Facility

1. SME lending expanded markedly, which was seen to have helped the affected SMEs through the pandemic, thereby buttressing employment and economic growth

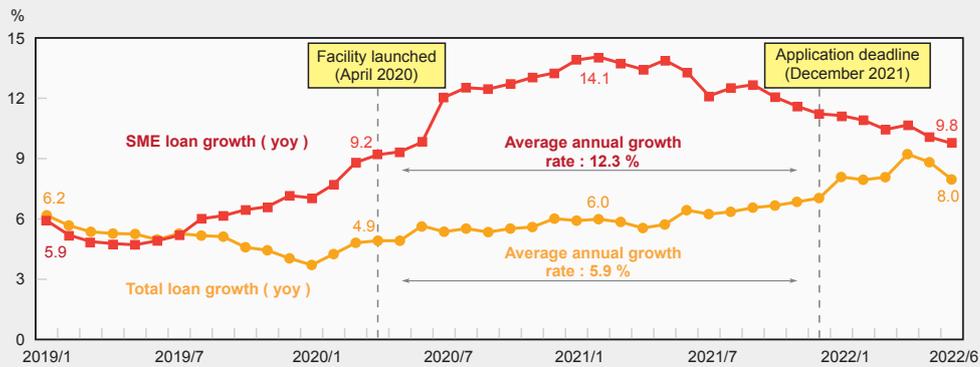
Over the course since the launch of the Facility, SME lending by domestic banks has risen markedly. The combined effect from not only the Bank's Facility but also the government's credit support measures and relief loans initiated by banks themselves helped Taiwan's banking sector to well serve its role of financial intermediation. In addition, by providing the SMEs with funds to stay afloat, the Facility contributed to stabilizing the labor market² and the financial system, as well as keeping the economy on its growth path.³

¹ The total accommodation amount was increased from NT\$200 billion to NT\$400 billion; the Facility's interest rate was cut from 0.25% to 0.1%; and the maximum loan amount allowed per borrower under Programs A, B, and C was raised from NT\$2 million, NT\$6 million, and NT\$0.5 million to NT\$4 million, NT\$16 million, and NT\$1 million, respectively.

² Taiwan's unemployment rate decreased steadily from a peak of 4.8% in June 2021 to 3.61% in January 2022.

³ With an annual GDP growth rate of 3.39% in 2020, Taiwan ranked among the few economies to record positive economic growth that year. Furthermore, the economy expanded remarkably at an 11-year record pace of 6.53% in 2021 and continued to post healthy growth of 3.41% in the first half of 2022.

Total Lending and SME Loans by Domestic Banks (Growth Rates, yoy)

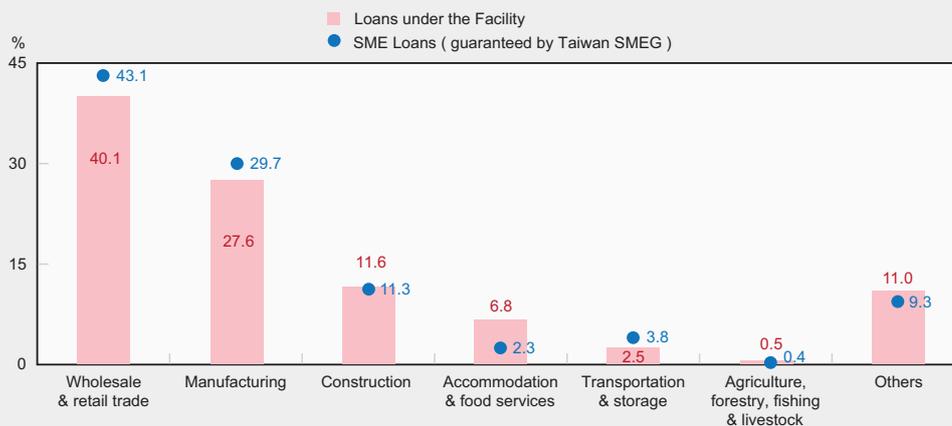


Source: FSC.

2. With credit support tailored to the needs of the affected industries, the Facility was able to help local SMEs obtain crucial financial resources, thereby bridging the rural-urban development divide and promoting financial inclusion

The Facility was aimed at facilitating loans to micro-sized firms or small-scale businesses. As the Facility streamlined underwriting processes such as credit verification and loan approval, banks were more willing to lend, thus fulfilling their role as financial intermediaries while financing the affected industries⁴ for business continuity. In addition, a regional breakdown analysis of domestic banks' SME lending showed that, in central and southern Taiwan and in Hualien, Taitung, and offshore islands, the Facility's SME credit support made up a larger share compared to total SME credit to these areas. This reflected the Facility's effect on such areas, which helped balance credit resource allocation across regions and foster financial inclusion.

SME Loans, by Industry

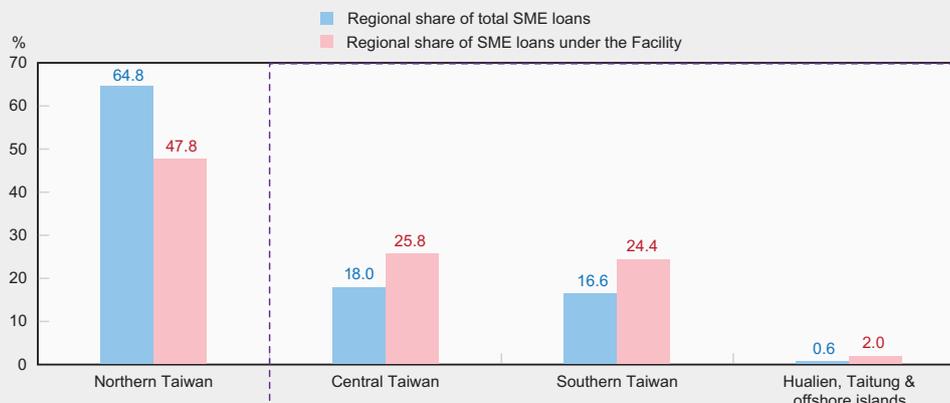


Note: SME loans refer to those underwritten by financial institutions and covered by Taiwan SMEG guarantees.

Source: Taiwan SMEG, respective lenders, and Department of Banking, CBC.

⁴ Industries hit hardest by the pandemic included wholesale and retail trade, accommodation and food services, and transportation and storage.

Facility's SME Loans and All SME Loans, by Region (of Domestic Banks)



Note: Shares of total SME loans by domestic banks are calculated using FSC statistics as of end-June 2022; shares of the Facility's SME loans are calculated using the accumulated amount of the Facility since implementation.

Source: Respective lenders, FSC, and Department of banking, CBC.

IV. Conclusion

After implementation, the Facility effectively boosted banks' willingness to underwrite SME loans as it provided banks with additional funds at very low interest rates, while also bolstering SME credit worthiness via the guarantee mechanism of Taiwan SMEG. Furthermore, the Bank conducted a rolling review to make timely adjustments as warranted and incorporated community financial institutions as part of the lenders, so as to reflect the actual lending practice and answer the needs of the pandemic-hit SMEs. Overall, the Facility brought about satisfactory outcomes, including helping SMEs ride out the storm of the pandemic, and, as a result, sustaining stable employment, fostering steady economic growth, balancing regional development, and promoting financial inclusion.

3. Foreign Exchange Management

Promoting the Sound Development of the Foreign Exchange Market

(1) Flexible foreign exchange rate management to maintain dynamic stability of the NT dollar exchange rate

As Taiwan is a small open economy with high dependence on foreign trade, the Bank suitably adopts a managed float exchange rate regime to contain sharp exchange rate fluctuations. Under this regime, the NT dollar exchange rate is in principle determined by market forces. However, in the event of disorderly movements (such as mass inflows and outflows of short-term capital) and seasonal factors, the Bank would conduct appropriate smoothing operations to stave off adverse effects for economic and financial stability and to maintain an orderly foreign exchange market.

In recent years, massive and frequent movement of international short-term capital has become the main driving force of exchange rate changes. To mitigate excessive exchange rate volatility and to improve market efficiency, the Bank has adopted "leaning against the wind" operations to prevent erratic flows from disrupting the foreign exchange market. The dynamic stability of the NT dollar exchange rate is viewed as conducive to long-term economic stability and sound development.

In 2022, the Russia-Ukraine war and China's strict epidemic prevention measures pushed up commodity and energy prices, causing global inflation to go up sharply. As the Fed's aggressive rate hikes to combat high inflation triggered fire sales of risky assets worldwide, a consequent capital flight to US dollar assets boosted USD strength and the NTD thus depreciated before rebounding in the fourth quarter as softer inflation pressures bolstered expectations of slower Fed rate hikes and weakened the USD.

The NTD exchange rate fluctuated significantly because of selling from foreign institutional investors as well as international economic impacts. To maintain the dynamic stability of the NT dollar exchange rate, the Bank continued to conduct two-way smoothing operations in the forex market. For the year as a whole, net sales by the Bank amounted to US\$13 billion. NTD exchange rate volatility was lower compared to the SGD, EUR, KRW, and JPY in 2022.

(2) Maintaining an orderly forex market and promoting sound market development

In 2022, the Bank carried out appropriate measures to effectively manage the foreign exchange market. These measures included:

- A. Implementing the Real-Time Reporting System for Large-Amount Foreign Exchange Transactions.
- B. Strengthening off-site monitoring management to ensure that forward transactions were based on real transactions to curb foreign exchange speculation.
- C. Urging authorized banks to enhance their exchange rate risk management in order to reduce market exposure of individual banks and to contain systemic risks.
- D. Strengthening targeted examinations on foreign exchange business to help ensure a sound foreign exchange market.

Foreign Currency Call Loan and Swap Market Management

- (1) To provide the financial system with sufficient foreign currency liquidity to meet funding needs, including those for corporations to venture into overseas markets, the Bank appropriated seed capital for the Taipei Foreign Currency Call Loan Market, including US\$20 billion, €1 billion and ¥80 billion.
- (2) Through foreign currency call loans and swaps conducted by authorized foreign exchange banks, the Bank continued to support corporations and insurance companies by meeting the needs for foreign currency liquidity and exchange rate hedging.

Foreign Exchange Reserve Management and Foreign Currency Liquidity of the Bank

The Bank manages its foreign exchange reserves based on the considerations of liquidity, safety, and profitability. The Bank keeps a close watch on the global economic and financial situation and adjusts the portfolio of foreign exchange reserves accordingly. Currently, financial assets denominated in US dollars make up a larger share in Taiwan's foreign exchange reserves than the COFER (Currency Composition of Official Foreign Exchange Reserves) average published by the IMF. As of the end of 2022, Taiwan's total foreign exchange reserves stood at US\$554.9 billion with an increase of US\$6.5 billion or 1.2% compared to the end of 2021, mainly attributable to returns from foreign exchange reserve investments. Combining the reserves held in gold valued at US\$5.0 billion, the Bank's reserves assets totaled US\$560 billion at the end of the year.

Foreign exchange reserves are the Bank's foreign currency claims on nonresidents. On the other hand, foreign currency claims on residents consist of US dollars held under swap agreements and foreign currency deposits with and loans to domestic banks, which amounted to US\$85.0 billion, US\$34.8 billion, and US\$7.7 billion, respectively, at the end of 2022.

In terms of foreign currency liquidity, the total amount (including foreign currency claims and gold) reached US\$690 billion at the end of 2022.

Capital Flow Management

In line with the efforts to promote financial liberalization and internationalization, the Bank's foreign exchange management has mainly been focusing on maintaining the market mechanism, and financial capital can, in principle, flow freely in and out of Taiwan. As of 2022, financial capital flows not involving NT dollar conversion have been able to flow freely. Additionally, there are no restrictions on financial flows involving NT dollar conversion for goods and service trade, nor for direct and securities investments approved by the competent authorities. Regulation only exists for short-term remittances. The amount of accumulated annual remittances for an individual resident within US\$5 million and for a juridical person within US\$50 million can be settled by banks directly, while annual remittances above the aforementioned amounts require the approval of the Bank. For a nonresident, each transaction within US\$0.1 million can be settled by banks directly, whereas any transaction amount above that threshold requires the approval of the Bank. Measures with regard to the management of capital flows in 2022 included:

(1) In line with the amendment to the *Civil Code* to lower the age of majority from 20 to 18, effective January 1, 2023, and to make clear the reporting procedures for companies and limited partnerships, the Bank amended the *Regulations Governing the Declaration of Foreign Exchange Receipts and Disbursements or Transactions*. Meanwhile, to accommodate the aforementioned amendment and to further simplify the procedures, the Bank amended the *Directions for Banking Enterprises While Assisting Customers to Declare Foreign Exchange Receipts and Disbursements or Transactions* and the *Directions for Domestic Security Firm Approved to Conduct Foreign Exchange Business While Assisting Customers to Declare Foreign Exchange Receipts and Disbursements or Transactions*. The above-mentioned amendments were effective January 1, 2023.

(2) Promoting the Internationalization of Taiwan's Capital Market

In 2022, cases of fund-raising by domestic and foreign institutions through securities issuance, approved by or filed for record to the Bank, are shown in the following table.

Institution	Fund-Raising Method	Number	Amount	
Foreign Companies	IPO on TWSE & TPEX and registration on the Emerging Stock Board	10	NTD 6.3 billion	
	NTD convertible bonds	8	NTD 4.17 billion	
	NTD denominated bonds	1	NTD 6.03 billion	
	Foreign currency-denominated bonds		123	USD 16.53 billion
			9	RMB 2.53 billion
			9	AUD 0.59 billion
	Overseas depositary receipts	1	USD 0.39 billion	
Domestic companies (and domestic branches)	Overseas depositary receipts	4	USD 1.42 billion	

Note: TWSE stands for the Taiwan Stock Exchange; TPEX stands for the Taipei Exchange.
Source: Department of Foreign Exchange, CBC.

(3) Approving Residents' Investments in Foreign Securities

Institution	Method/Instrument	Amount
Securities investment trust companies (SITEs)	64 domestic SITE funds (including 44 NTD-foreign multiple currency SITE funds)	NTD 1,150.4 billion (including 822 billion in multiple currency funds)
	2 SITE private funds	NTD 26 billion
Life insurance companies	Non-discretionary money trusts managed by financial institutions	USD 0.43 billion
	Investment in their own accounts	USD 0.17 billion
Five major government pension funds and employment insurance funds	Investment in their own accounts	USD 20.81 billion

Source: Department of Foreign Exchange, CBC.

Management of Foreign Exchange Business of Financial Institutions

(1) Authorized foreign exchange banks

Under *The Central Bank of the Republic of China (Taiwan) Act* and the *Foreign Exchange Regulation Act*, the Bank reviews, authorizes, and supervises banks to conduct foreign exchange business accordingly. In 2022, the Bank continued to approve bank branches as authorized foreign exchange banks and loosened restrictions on foreign exchange derivative product business in order to facilitate authorized foreign exchange banks' competitiveness and service quality. Major developments in 2022 were as follows.

- A. At the end of 2022, there were 3,453 authorized foreign exchange banks in total, which included 37 head offices and 3,376 branches of domestic banks, 37 branches of foreign banks, three branches of Mainland Chinese banks, as well as 4,614 authorized money exchangers, post offices, and financial institutions authorized to engage in basic foreign exchange business.
- B. The Bank amended the *Directions Governing Banking Enterprises for Operating Foreign Exchange Business* on January 19, 2022, to loosen counterparty restrictions for authorized banks engaging in digital foreign currency deposit accounts and to increase acceptable documents for authorized banks engaging in foreign currency loan business.
- C. In order to enhance the efforts in anti-money laundering and countering the financing of terrorism, the Bank amended the *Regulations Governing the Establishment and Administration of Foreign Currency Exchange Counters*, including lowering the cap on each foreign currency exchange transaction for each customer from US\$10,000 or its equivalent to US\$3,000 or its equivalent and conducting enhanced due diligence on customers, effective January 28, 2022.

(2) Insurance Companies

As of the end of 2022, the numbers of insurance companies allowed to engage in traditional and in investment-linked foreign currency insurance business were both 21. The foreign currency premium revenue decreased by US\$10.25 billion, or 27.0%, from the previous year to US\$27.71 billion in 2022.

(3) Securities Firms and Bills Finance Companies

Approved cases for securities firms and bills finance companies to conduct foreign exchange business in 2022 are listed in the following table.

Institutions	Foreign Exchange Business	Number
Securities Firms	Underwriting of international bonds denominated in foreign currency	1
	Proprietary foreign securities trading neither belonging to investment with their funds nor for hedging needs	1
	Accepting orders to trade foreign securities	1
	Foreign bond trading agency business	1
	Issuance of exchange traded notes tracking foreign indices	1

Source: Department of Foreign Exchange, CBC.

(4) Investment Trust/Consulting Firms and Futures Firms

The approved cases granted by the Bank for investment trust and investment consulting firms and futures firms (concurrently operating as a leverage transaction merchant) to conduct foreign exchange business as of 2022 are shown in the following table.

Institutions	Foreign Exchange Business	Number
Investment trust and investment consulting firms	Serving as mandated institutions of private offshore funds	2
	Conducting public offers or private placement of foreign currency-denominated funds	3
Futures firms (concurrently operating as a leverage transaction merchant)	Contracts for differences linked to gold or oil prices	1
	Contracts for differences linked to foreign stock market indices	1

Source: Department of Foreign Exchange, CBC.

Foreign Currency Clearing Platform

(1) Taiwan's foreign currency clearing platform was consigned by the Bank and established by the Financial Information Service Co. The platform offers services for domestic and cross-border (including cross-strait) remittances of the Chinese renminbi and the Japanese yen, and domestic remittances of the US dollar, the euro, and the Australian dollar. The platform adopts a payment-versus-payment

(PVP) mechanism among banks, a liquidity-saving mechanism for foreign currency remittances, and a delivery-versus-payment (DVP) mechanism for foreign currency bonds and bills. It has continued to function smoothly since its inauguration in 2013.

(2) Domestic Development of Foreign Currency Settlement Business in 2022

Currency	Domestic Participating Units	Settlements in 2022	
		Number of Transactions	Amount
US dollar	71	1,319,175	USD 2,104.7 billion
Renminbi	61	271,706	RMB 583.5 billion
Yen	39	35,534	JPY 1,414.3 billion
Euro	40	19,923	EUR 8.2 billion
Australian dollar	30	26,417	AUD 1.3 billion

Source: Department of Foreign Exchange, CBC.

Offshore Banking

(1) In order to illustrate the conditions under which a securities firm will be considered as severely violating the law, the Bank collaborated with the Financial Supervisory Commission to amend Article 2 of *Regulations Governing the Establishment of and Compliance Matters for Offshore Securities Branches*, which were issued on June 22, 2022.

(2) Financial Status

A. Offshore Banking Units (OBUs)

At the end of 2022, the number of OBUs came to 59, and total OBU assets increased by US\$16.21 billion, or 6.5%, over the previous year to US\$266.13 billion. The net income after tax of all OBUs amounted to US\$2.35 billion, decreasing by US\$0.87 billion, or 27.0%, from a year before.

B. Offshore Securities Units (OSUs)

At the end of 2022, the number of OSUs stood at 19, and total OSU assets reached US\$4.54 billion, the same as the previous year. The net income after tax of the business also decreased by US\$80.0 million, or 150.9%, to negative US\$27.0 million for 2022.

C. Offshore Insurance Units (OIUs)

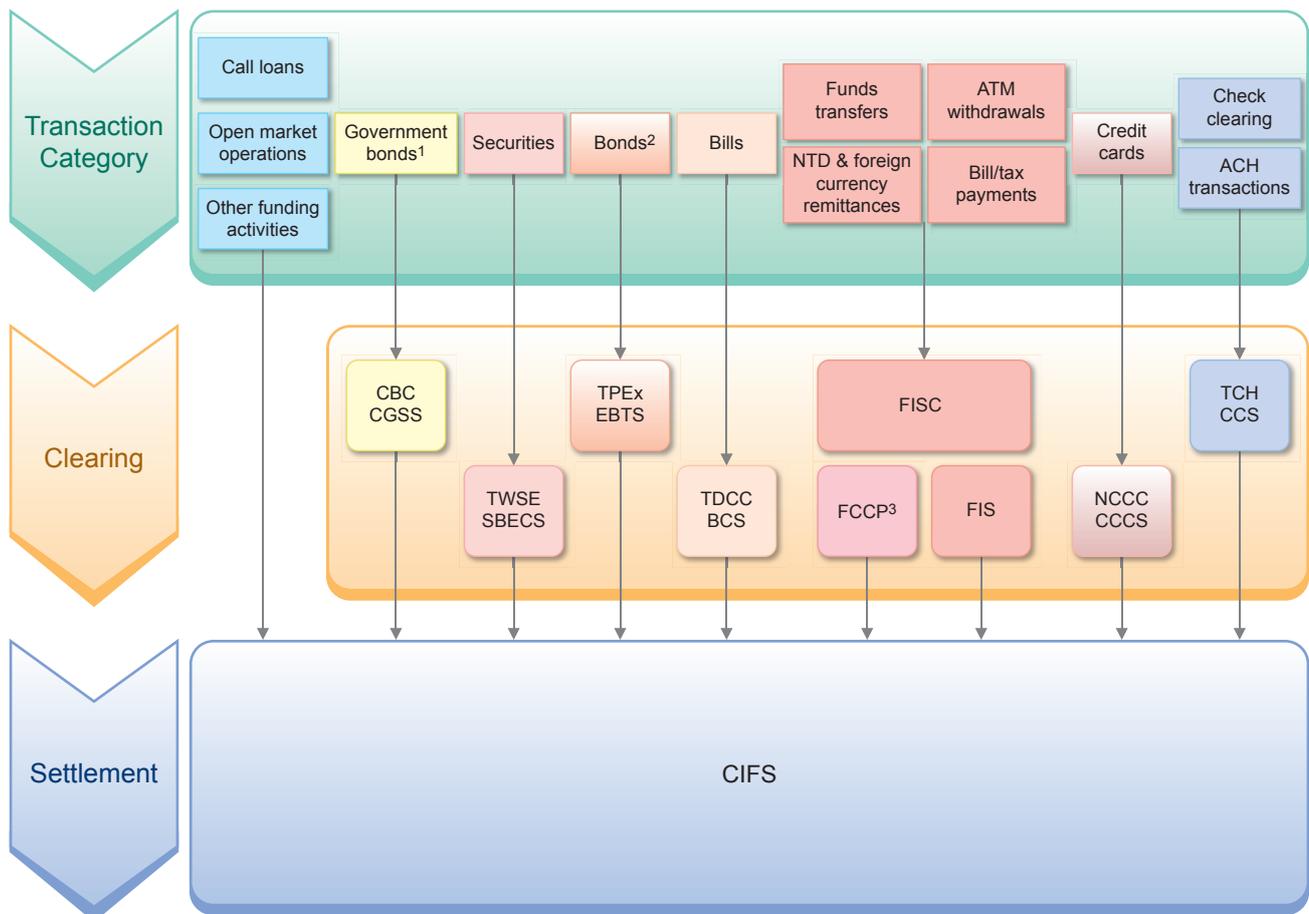
As of the end of 2022, the number of OIUs was 20, with a total amount of assets of US\$0.99 billion, which was US\$0.01 billion or 1.0% less than the previous year end. The net income after tax of all OIUs increased to US\$29.9 million, an increase of US\$48.2 million from the previous year.

4. Payment and Settlement Systems

The Bank plays a crucial role in the functioning of Taiwan's payment and settlement systems and operates the CBC Interbank Funds Transfer System (CIFS) and the Central Government Securities Settlement System (CGSS).

The CIFS serves as the hub of Taiwan's payment and settlement systems, linking the interbank clearing systems operated by the FISC, the Taiwan Clearing House (TCH), the National Credit Card Center of R.O.C. (NCCC), the Taiwan Depository and Clearing Corporation (TDCC), the TPEX, and the TWSE, as well as the CGSS, together to construct a comprehensive system.

CIFS Settlement Services



Notes: 1. Including DVP settlements for interbank transactions of central government bonds and treasury bills.
 2. Including netting settlements for outright trades of government bonds, corporate bonds, and bank debentures.
 3. The CIFS is only responsible for settlements involving NT dollars, while settlements involving foreign currencies are performed by designated commercial banks.
 Source: Department of Banking, CBC.

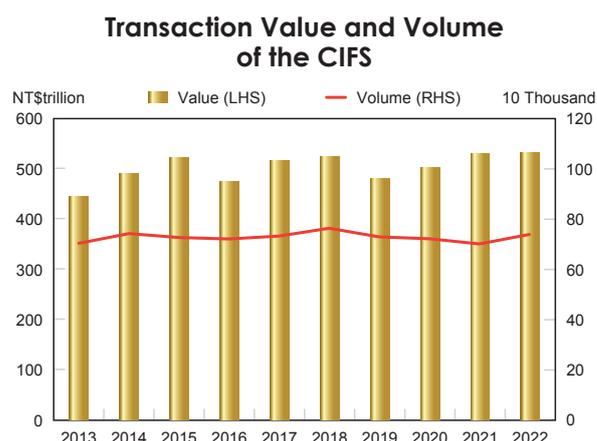
In addition, the Bank monitors major payment systems based on the *Principles for Financial Market Infrastructures* released by the Bank for International Settlements (BIS) to ensure sound operation of these systems and to promote stability of the financial system.

Operation of Payment and Settlement Systems

(1) Funds Transfers via the CIFS

As a large-value electronic funds transfer system, the CIFS not only deals with interbank funding, open market operations, and funds settlements in financial markets, but also provides interbank final settlement services for each clearing institution.

In 2022, two more banks joined the CIFS. At the end of the year, there were 86 participants of the CIFS, including 71 banks, eight bills finance companies, Chunghwa Post, and six clearing institutions, namely the FISC, the TCH, the TWSE, the TPEX, the TDCC, and the NCCC. In 2022, the number of transactions via the CIFS was 741,636, and the amount of funds transferred totaled NT\$535 trillion. Meanwhile, the daily average number of transactions via the CIFS was 2,978, increasing by 5.31% over the previous year, and the daily average amount of funds transferred was NT\$2.1 trillion, rising by 0.35% from a year before.



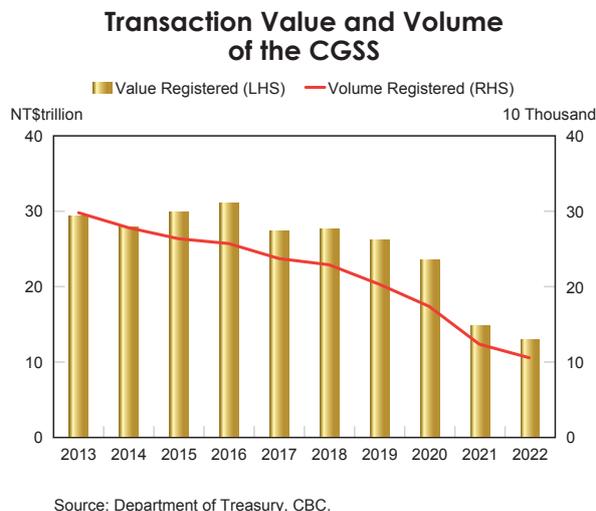
Source: Department of Banking, CBC.

(2) Transactions via the CGSS

Established in September 1997, the CGSS is a system for issuance, transfer, redemption, and interest payment of book-entry central government securities. Since its inception, central government bonds have been issued in book-entry form. Treasury bills were included in this system in October 2001 and have been issued in book-entry form ever since.

Since April 2008, when the CGSS linked up with the CIFS, fund settlements, principal redemptions, and interest payments have been handled through the CIFS using a delivery-versus-payment (DVP) mode. The DVP mode, promoted by the BIS, is an arrangement in a securities settlement system to ensure that securities delivery occurs at the same time as the funds transfer, effectively eliminating potential principal risk during the transaction process.

As of the end of 2022, there were 19 clearing banks with 1,678 branches that handled the registration of central government securities transfers. During the year, as the Fed and the Bank announced policy rate hikes successively, leading to a surge in central government bond yields, dealers became more cautious about bond transactions in consideration of interest rate risk. As a result, transaction value and volume of the CGSS in 2022 continued the downtrend, falling to NT\$13.0 trillion and 106,218 transfers, respectively.



Oversight of Payment and Settlement Systems

To ensure sound operation of domestic payment and settlement systems, the Bank conducted the following oversight activities in 2022:

(1) Monitoring the Operation of the Large-Value Payment Systems

The Bank continued to monitor the operation of the large-value payment systems in 2022, and requested participating institutions which applied for the CIFS operation time extensions because of system malfunctions or other contingencies to improve the time extension issue.

(2) Requiring Payment Institutions to Submit Information on Electronic Payment Business

Payment system operators and electronic payment institutions were required by the Bank to submit reports on their operations and activities with regard to electronic payments on a regular basis. In 2022, the reports required to be submitted to the Bank was revised in accordance with the amendment to *The Act Governing Electronic Payment Institutions*.

(3) Supervising Contingency Drills Performed by Clearing Institutions

To ensure business continuity of payment and settlement systems, the Bank supervised clearing institutions conducting testing of business continuity plans and remote backup operations in case of emergency. Furthermore, the Bank, together with participants of the CIFS, performed system-wide testing of the operating procedures to ensure that the backup systems would operate smoothly when an emergency occurs and that relevant personnel would be familiar with contingency procedures in response to disruptions to the system network.

(4) Performing Backup Drills with Clearing Banks

Since 2019, the Bank has supervised all clearing banks performing backup drills annually in the event of malfunction or line interruption of a CGSS participant's mainframe system. In October 2022, this drill was conducted successfully with 19 clearing banks.

(5) Organizing Conferences to Enhance Payment System Operation

The Bank invites the FSC and clearing institutions to jointly hold two conferences on "Promoting Sound Operation of the Payment Systems" every year. However, in the first half of 2022, owing to the COVID-19 pandemic, the conference held for securities clearing institutions including the TDCC, the TPEX, and the TWSE was suspended and replaced with report submission by the aforesaid institutions. In the second half of the year, the conference was held as scheduled and attended by payment clearing institutions including the FISC, the TCH, and the NCCC. The Bank urged clearing institutions to enhance risk management, ensure resilience of core business operating systems, and strengthen contingency planning.

Continuing to Urge the FISC to Assist in Providing Sound Mobile Payment Infrastructure for Financial Institutions

To enhance information transmission and to facilitate transfer of funds between electronic payment institutions and between electronic payment institutions and financial institutions, the Bank required the FISC to construct a "shared platform for cross-institution electronic payment," which was launched in October 2021, to provide the funds transfer service. The platform started to offer tax and bill payment services in 2022 and is expected to provide a payment service for shopping in 2023. In addition, to improve the convenience of interbank funds transfer, the FISC continued to promote the "mobile number funds transfer" service to allow users to transfer funds by linking mobile phone numbers to bank accounts.

Proceeding with the CBDC Research Project

The Bank has conducted a two-phase CBDC research project since 2019 to explore the applicability of the underlying technologies regarding a wholesale CBDC and a general purpose CBDC. The second phase proof-of-concept study on a general purpose CBDC was completed in June 2022, which simulated CBDC retail payment scenarios in a closed environment. The experiment results were showcased through a physical presence, allowing participants to experience various payment functions of CBDC.

The Bank plans to solicit public comments on the simulation results of the second phase study and to take the following actions in order to proceed with the CBDC research project with thorough and comprehensive preparations: (1) enhancing communication to gain public support, (2) refining platform design and adopting technologies that are more robust and mature, and (3) drafting a solid legal framework and formulating relevant regulations.

5. Currency Issuance

For the year 2022, the Bank, as the sole agency with the authority to issue banknotes and coins, continued to conduct currency issuance with a focus on maintaining an adequate supply of currency to meet public demand, which is dependent on domestic economic conditions, seasonal factors, and the development of noncash payment instruments. The Bank also issued a commemorative coin set featuring the Chinese zodiac of the year.

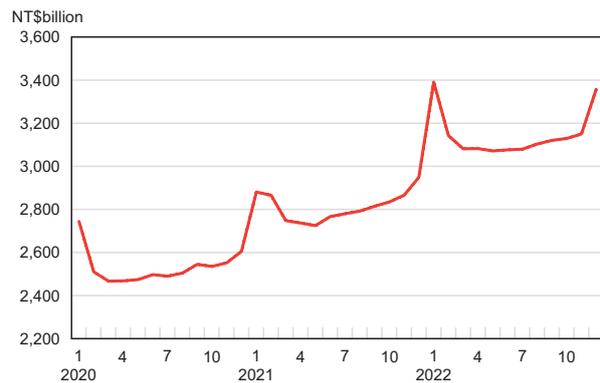
Furthermore, the Bank continued to promote public awareness of counterfeit deterrence and encourage the use of circulating currency through various channels. Meanwhile, the Bank developed an easy-to-use assistive device to aid the visually impaired in identifying NT dollar banknotes.

Currency Issuance Increased to Meet Currency Demand

In 2022, the Bank provided an adequate amount of currency in response to currency demand. The currency issued peaked at NT\$3,390.1 billion on January 28, the last business day before the Lunar New Year holidays, reflecting a temporary seasonal surge in cash demand. At the year end, the outstanding amount of currency issued was NT\$3,356.8 billion, rising by NT\$408.4 billion or 13.85% over the previous year end.

By denomination, the composition of NT dollar banknotes in circulation at the end of 2022 was similar to the end of 2021.

Currency Issued



Source: CBC.

Composition of NT Dollar Banknotes Issued (Year-End Figures)



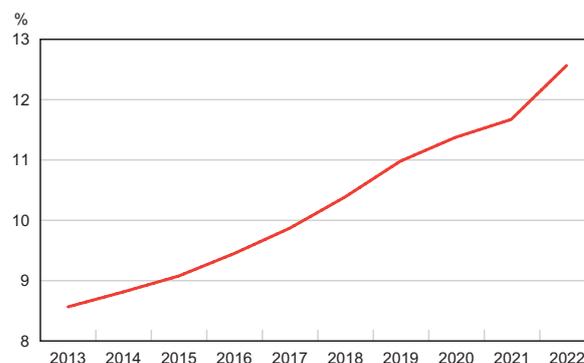
Source: CBC.

The majority of circulating banknotes went for the NT\$1,000 note with a share of 88.44%, followed by the NT\$100 and NT\$500 notes with shares of 4.59% and 3.58%, respectively.

Ratio of Currency in Circulation to GDP Rose Steadily

As domestic interest rates stayed at relatively low levels and cash was still frequently used for small-value transactions, the public's demand for currency remained high. The ratio of currency in circulation to GDP has continued to rise steadily in recent years and reached 12.56% in 2022, 0.89 percentage points higher than the 11.67% of the previous year.

The Ratio of Currency Held by the Public to GDP



Sources: 1. CBC.
2. DGBAS, Executive Yuan.

One Commemorative Coin Set Was Issued

In addition to currency issuance, the Bank may issue gold and silver coins and commemorative coins from time to time, such as for important ceremonies, national holidays, major international events, or other significant national events. During 2022, the Bank issued a casting set of coins for the Chinese Zodiac Year of the Tiger.

Commemorative Coin Set for the Chinese Zodiac Year of the Tiger



Source: CBC.

Efforts to Encourage the Use of Circulating Currency and Raise Public Awareness of Counterfeit Money Continued in 2022

With the aim of deterring and preventing counterfeiting, reducing currency issuing costs, and protecting the environment by maximizing existing resources, the Bank launched several advertising campaigns during 2022 to enhance public understanding on the security features of NT dollar notes and coins and to promote the use of circulating currency.

While striving to improve the cleanliness of currency by inspecting returned banknotes and destroying damaged ones, the Bank also continued to urge the public to help maintain the cleanliness of circulating notes and coins.

Educational materials for these campaigns were provided through multiple channels. For example, relevant videos were broadcasted on media such as the Bank's website, the Virtual Money Museum, YouTube, and the Bank's official mobile app. Information was also posted on the Bank's Facebook fan page and displayed on public transportation. Leaflets were distributed to the public and relevant institutions.

The Bank Continued to Promote the Visually Impaired-Friendly NT Dollar Banknote Identification Service

To help visually impaired people to better identify banknotes, the Bank has made multifaceted efforts from 2020 onwards, such as producing video material to introduce how to identify banknotes and distinguish the different denominations. The video was available on the Bank's website and

Raised-Dot Tactile Feature of NTD Banknotes (Left) and NTD Banknote Gauge Card (Right) for the Visually Impaired



Source: CBC.

local visually impaired support groups were encouraged to download it for educational purposes. Meanwhile, the Bank developed the NT dollar banknote gauge card and instructed the Central Engraving and Printing Plant to conduct mass production. The Bank also sent relevant personnel to local support groups to promote the use of the card and to distribute it for free to the visually impaired.

A Virtual Banknote Exhibition was Held on the Theme of Natural Resource

The Bank's Virtual Money Museum has been running smoothly since it came on line in June 2013. In response to increased use of mobile technologies and the needs of various platforms and devices, the Bank launched the upgraded version of the Virtual Money Museum website in August 2020. For instance, the Virtual Exhibition Hall of the above website allowed viewers to browse banknotes from around the world classified into various themes. During 2022, the Bank held an annual exhibition titled "The Fertile Land."

Annual Exhibition 2022 Titled "The Fertile Land" on the Virtual Money Museum Website



Source: CBC.

6. Fiscal Agency Functions

As banker to the central government, the Bank fulfills its responsibilities by managing the treasury deposit account (TDA), handling central government agency deposit accounts, and undertaking the issuance, transfer and registration, redemption, and interest payment of central government bonds and treasury bills.

Managing the Treasury Deposit Account

The Bank manages the TDA on behalf of the Ministry of Finance, processing receipts and disbursements of the central government. In order to provide convenient services for government agencies and the general public, the Bank delegates the handling of treasury business to 14 financial institutions and their 366 branches, including three overseas branches located in New York, Los Angeles, and Paris. In addition, there are another 4,744 national tax collection agencies set in financial institutions. In 2022, the Bank received a total of NT\$4,636.8 billion in treasury deposits, an increase of NT\$438.9 billion or 10.46% over the previous year. Payments made on behalf of the national treasury were NT\$4,560.4 billion, increasing by NT\$376.9 billion or 9.01% from 2021. At the end of 2022, the TDA balance was NT\$144.1 billion, an increase of NT\$76.4 billion or 112.85% from the end of 2021.

Handling Central Government Agency Deposits

Central government agencies are required to make their deposits with the Bank or other delegated banks. At the end of 2022, the balance of central government agencies' deposits with the Bank amounted to NT\$198.9 billion, an increase of NT\$14.7 billion or 7.98% over 2021. Deposits with other delegated banks were NT\$763.4 billion at the end of 2022, increasing by NT\$105.9 billion or 16.11%.

Introducing Electronic Operations Regarding Treasury Funds

In order to improve efficiency of handling treasury funds and to reduce operational risks, the Bank and the Ministry of Finance jointly designed and introduced electronic operations regarding loan disbursement and repayment collection for the TDA and central government agency deposit accounts. By connecting the National Treasury Services Operational System with the CIFS, this mechanism, effective from July 1, 2022, allows disbursing loans and collecting repayments for the national treasury online to replace the issuing and delivering of physical checks. This mechanism not only reduces manual work and processing time but also helps enhance the efficiency of the deployment of treasury funds.

Managing Central Government Bonds

As a fiscal agent, the Bank provides services related to the issuance, transfer and registration, redemption, and interest payment of central government bonds. The Bank also conducts the auctions of central government bonds. There are 56 domestic dealers qualified to directly participate in the auctions, including 23 banks, 18 securities companies, eight bills finance companies, six insurance companies, and Chunghwa Post.

In 2022, the Bank conducted 19 issues of central government bonds in book-entry form worth NT\$520.1 billion. Of this amount, 10-year bonds accounted for the lion's share of 38.07%, worth NT\$198.0 billion, followed by 5-year bonds, representing a share of 30.76% with an amount of NT\$160.0 billion.

In addition, the Bank paid NT\$395.0 billion in principal and NT\$80.2 billion in interest for central government bonds. At the end of 2022, the outstanding amount of central government bonds was NT\$5,799.5 billion, an increase of NT\$125.0 billion or 2.20% from the previous year end.

Managing Treasury Bills

The Bank also handles the auctions of treasury bills. Currently, direct bidders include banks, insurance companies, securities companies, bills finance companies, and Chunghwa Post.

In 2022, the Bank conducted seven issues of book-entry treasury bills with a total amount of NT\$230.0 billion. The majority of the issuance went for 91-day bills with a value of NT\$135.0 billion, or a share of 58.70%. At the end of 2022, the outstanding amount of treasury bills was NT\$30.0 billion, a decrease of NT\$85.0 billion or 73.91% from the end of 2021.

7. Financial Inspection

Pursuant to the objectives and duties stipulated in *The Central Bank of the Republic of China (Taiwan) Act*, the Bank conducts targeted examinations to ensure that monetary, credit, and foreign exchange policies are implemented effectively. The Bank has also established a report auditing system and a financial stability assessment framework to systematically monitor and assess possible sources of potential risks. The Bank adopts appropriate policies accordingly in a timely manner to achieve the operational goal of financial stability. The following are the main tasks conducted in 2022.

Targeted Examination

Targeted examinations in 2022 were conducted on real estate mortgage loans, related fund flows, and loan pricing policies thereof, inward and outward foreign exchange remittances, derivatives transactions involving the NTD exchange rate, procedures for handling counterfeit notes denominated in NTD and foreign currencies, etc.

Follow-up on Examination Findings

To ensure the effectiveness of the Bank's policy implementation, the Bank continued to track whether the financial institutions under inspection had improved their operations based on the findings from the Bank's targeted examinations as well as the results of the FSC's financial examinations related to the Bank's operations or regulations. The financial institutions violating the *Regulations Governing the Extension of Mortgage Loans by Financial Institutions* were subjected to administrative actions by the Bank.

Strengthening Off-Site Monitoring

In view of changes in financial conditions and amendments to financial regulations, the Bank constantly reviews and revises all relevant reporting forms and contents of statistical data submitted by financial institutions. Developments related to off-site monitoring in 2022 included the following:

- (1) Parts of the analytical indicators and assessment criteria of the related report auditing system for bills finance companies, local branches of foreign and Mainland Chinese banks, and credit departments of farmers' associations were revised.
- (2) In accordance with the modifications to the reporting forms for life insurance companies, the related analytical indicators, weights, and assessment criteria were amended.
- (3) To improve the efficacy of data processing and analysis, visualization tools were used to conduct a multi-dimensional and interactive statistical analysis of the operating conditions of domestic banks' overseas business units.

Improving Information Transparency of Financial Institution Operations

The Bank regularly compiles and publishes statistics on financial institutions, such as *Condition and Performance of Domestic Banks (Quarterly)* and *Business Overview of Financial Institutions (Yearly)*. All related information is disclosed on the Bank's website and available for inquiry and download, with the aim of strengthening information transparency of financial institutions' operations and to reinforce market discipline.

In line with the government's open data policy, the financial and operational performance datasets of financial institutions were also regularly uploaded to the designated open government data platform.

Financial Stability Assessment

The Bank regularly conducts an analysis of financial institutions' business operations and their risk exposure so as to identify potential risks to the stability of the overall financial system. It also compiles financial soundness indicators and publishes the *Financial Stability Report* to keep the public updated on the state of the domestic financial system and sources of potential risks and to aid cross-border communication and information sharing.

To enhance analytical effectiveness regarding financial stability, in 2022 the Bank continued to improve the graphical user interface (GUI) of credit and market risk models and estimated domestic banks' value at risk (VaR) and unexpected losses from related risks. The Bank also compiled the financial vulnerability index to capture the vulnerability of the banking system so as to take preemptive measures as needed.

In addition, climate change-related issues have posed new challenges and risks to central banks' monetary policy and financial stability mandates. In this view, the Bank released strategic plans for addressing climate change issues, comprising 11 policy measures in five strategic aspects, with the aim of mitigating the impacts on domestic economic and financial systems, thereby maintaining financial stability and fostering sustainable economic development.

International Cooperation in Financial Supervision

In 2022, the Bank continued to actively engage in international cooperation related to financial supervision, such as participating in the 13th SEACEN Meeting of Deputy Governors in Charge of Financial Stability and Banking Supervision, the 24th SEACEN-FSI Conference of the Directors of Supervision of Asia-Pacific Economies, and the 35th Meeting of Directors of Supervision of SEACEN Members (all held in virtual format). The Bank also received senior officials from the National Financial Supervisory Commission (NFSC) of Vietnam in 2022.

8. Participation in International Activities

The Bank continued its efforts in engaging in international activities during 2022. As a member, the Bank hosts conferences, provides training courses, and attends numerous forums, including the annual meetings organized by the Asian Development Bank (ADB), the Central American Bank for Economic Integration (CABEI), and the South East Asian Central Banks (SEACEN) group. Moreover, the Bank is committed to promoting ties with related international forums and institutions such as the Asia-Pacific Economic Cooperation (APEC) and the Bank for International Settlements (BIS) and maintaining close relationships with other central banks through sharing opinions and policy experience on current financial and economic issues.

In 2022, the Bank attended the 58th SEACEN Governor's Conference on December 5. At this conference, the Bank and other member banks acknowledged the profound economic and financial impacts of the pandemic, as well as the scarring effects that may linger over the medium term. The Bank also reaffirmed its commitment to continuously support the economic recovery through policy responses on macroeconomic and financial fronts.

In addition, the Bank attended the 13th SEACEN Online High-Level Seminar and Meeting of Deputy Governors of Financial Stability and Supervision during August 17 to 18.

The Bank also participated in the meetings held by other international organizations, such as the APEC Finance and Central Bank Deputies' Meeting held virtually during March 16 to 17, the BIS' 92nd Annual General Meeting in Basel, Switzerland, on June 25 and 26, the CABEI's 62nd Ordinary Meeting of the Board of Governors in Mérida, Mexico, on September 23, and the ADB's 55th Annual Meeting of the Board of Governors in Manila, the Philippines, during September 26 to 30.

Chronology of Events of the CBC in 2022



Chronology of Events of the Central Bank of the Republic of China (Taiwan)¹ in 2022

Date	Event
Jan. 13	The CBC met with 36 domestic banks and the National Federation of Credit Cooperatives, R.O.C., to urge them to formulate internal regulations to ensure that borrowers comply with the initial commencement of construction restrictions within the promised time frame.
19	<p>The CBC issued a commemorative coin set for the Ren Yin Year of the Tiger (2022).</p> <p>The CBC amended the <i>Directions Governing Banking Enterprises for Operating Foreign Exchange Business</i> to loosen counterparty restrictions for authorized banks on digital foreign currency deposit accounts and to increase acceptable documents for authorized banks when underwriting foreign currency loans.</p>
26	In order to enhance anti-money laundering and countering the financing of terrorism, the CBC amended the <i>Regulations Governing the Establishment and Administration of Foreign Currency Exchange Counters</i> , reducing the amount limit of each foreign currency exchange transaction for each customer from US\$10,000 or its equivalent to US\$3,000 or its equivalent and requiring enhanced due diligence on customers, effective from January 28, 2022.
Mar. 17	The CBC's Board decided to raise the discount rate, the rate on refinancing of secured loans, and the rate on temporary accommodations by 0.25 percentage points each to 1.375%, 1.75%, and 3.625%, respectively, effective from March 18, 2022.

¹ Herein referred to as the CBC.

Date	Event
Mar. 25	The CBC increased the remuneration rates on banks' B reserve accounts with the CBC. Reserves from demand deposits would receive interest at 0.144% per annum, while those from time deposits would receive interest at 0.820% per annum.
Jun. 6	The CBC reduced the monthly bidding amount for 364-day certificates of deposit from NT\$170 billion to NT\$140 billion from June 2022 onwards.
16	<p>The CBC's Board decided on the following measures:</p> <ol style="list-style-type: none"> 1. Raising the discount rate, the rate on refinancing of secured loans, and the rate on temporary accommodations by 0.125 percentage points each to 1.5%, 1.875%, and 3.75%, respectively, effective from June 17, 2022. 2. Increasing the reserve requirement ratios on NT dollar demand deposits and time (savings) deposits by 0.25 percentage points each, effective from July 1, 2022.
20	The CBC reduced the monthly bidding amount for 2-year certificates of deposit from NT\$60 billion to NT\$25 billion from June 2022 onwards.
22	The CBC and the FSC jointly amended Article 2 of the <i>Regulations Governing the Establishment of and Compliance Matters for Offshore Securities Branches</i> to stipulate the conditions under which a securities firm would be considered as severely violating the law.
24	The CBC increased the remuneration rates on banks' B reserve accounts with the CBC. Reserves from demand deposits would receive interest at 0.271% per annum, while those from time deposits would receive interest at 0.955% per annum.

Date	Event
Jun. 29	The CBC completed the second phase of the CBDC project, which focused on the technology experimentation for a general purpose CBDC.
Jul. 8	The CBC urged credit cooperatives and credit departments of farmers' and fishermen's associations to improve their regulatory compliance and to formulate internal audit procedures for mortgage loans.
Aug. 24	The CBC amended the <i>Regulations Governing the Audit and Adjustment of Deposit and Other Liability Reserves of Financial Institutions</i> , effective from August 26, 2022. The fixed-term deposits received by community financial institutions and re-deposited at agricultural banks are exempt from the requirement of setting aside reserves. In addition, financial institutions that settle accounts on a daily basis may apply to the CBC to use the end-of-day balances for calculations.
Sep. 22	<p>The CBC's Board decided on the following measures:</p> <ol style="list-style-type: none"> 1. Raising the discount rate, the rate on refinancing of secured loans, and the rate on temporary accommodations by 0.125 percentage points each to 1.625%, 2%, and 3.875%, respectively, effective from September 23, 2022. 2. Increasing the reserve requirement ratios on NT dollar demand deposits and time (savings) deposits by 0.25 percentage points each, effective from October 1, 2022.
30	The CBC increased the remuneration rates on banks' B reserve accounts with the CBC. Reserves from demand deposits would receive interest at 0.396% per annum, while those from time deposits would receive interest at 1.083% per annum.

Date	Event
Dec. 15	The CBC's Board decided to raise the discount rate, the rate on refinancing of secured loans, and the rate on temporary accommodations by 0.125 percentage points each to 1.75%, 2.125%, and 4%, respectively, effective from December 16, 2022.
23	The CBC increased the remuneration rates on banks' B reserve accounts with the CBC. Reserves from demand deposits would receive interest at 0.521% per annum, while those from time deposits would receive interest at 1.208% per annum.
26	The CBC amended the <i>Regulations Governing the Declaration of Foreign Exchange Receipts and Disbursements or Transactions</i> and other related regulations to reflect the amendment of the <i>Civil Code</i> that would lower the age of majority from 20 to 18 and to clearly stipulate the procedures of foreign exchange transaction declarations for companies and limited partnerships, effective on January 1, 2023.
30	The CBC released the "CBC Strategic Plan to Address Climate Change Issues."

Financial Statements of the CBC

1. Balance Sheet

Unit: NTD Millions

	December 31 2022	December 31 2021	Change	
			Amount	%
Assets				
Foreign Assets	17,209,119	15,339,371	1,869,748	12.19
Due from Domestic Banks	1,087,899	1,216,264	-128,365	-10.55
Loans and Accommodations to Financial Institutions	529,912	630,665	-100,753	-15.98
Other Assets	615,954	1,663,148	-1,047,194	-62.96
Total Assets	19,442,884	18,849,448	593,436	3.15
Liabilities				
Currency Issued	3,356,829	2,948,411	408,418	13.85
Deposits of Financial Institutions	2,584,886	2,412,509	172,377	7.15
Certificates of Deposit Issued	8,601,355	9,482,650	-881,295	-9.29
Redeposits of Financial Institutions	2,001,171	2,152,960	-151,789	-7.05
Government Deposits	343,338	252,394	90,944	36.03
Other Liabilities	1,309,438	398,450	910,988	228.63
Total Liabilities	18,197,017	17,647,374	549,643	3.11
Equity	1,245,867	1,202,074	43,793	3.64
Total Liabilities and Equity	19,442,884	18,849,448	593,436	3.15

Note: Figures for 2022 are unaudited. Figures for 2021 are audited by the National Audit Office.

2. Income Statement

Unit: NTD Millions

	2022	2021
Income		
Interest Income	342,556	290,943
Fee Income	95	111
Foreign Exchange Gains	37,827	12,412
Revenue from Trust Investment	7,308	7,005
Subsidiaries' Investment Income	1,969	1,946
Others	3,484	436
Total Income	393,239	312,853
Expenses		
Interest Expenses	85,540	48,355
Fee Expenses	218	221
Expenses for Coin Issuance	1,354	1,385
Expenses for Banknote Issuance	4,223	4,089
Allowances	81,159	48,814
Operating Expenses	1,541	1,458
Administrative Expenses	533	523
Others	528	1,327
Total Expenses	175,096	106,172
Net Income	218,143	206,681

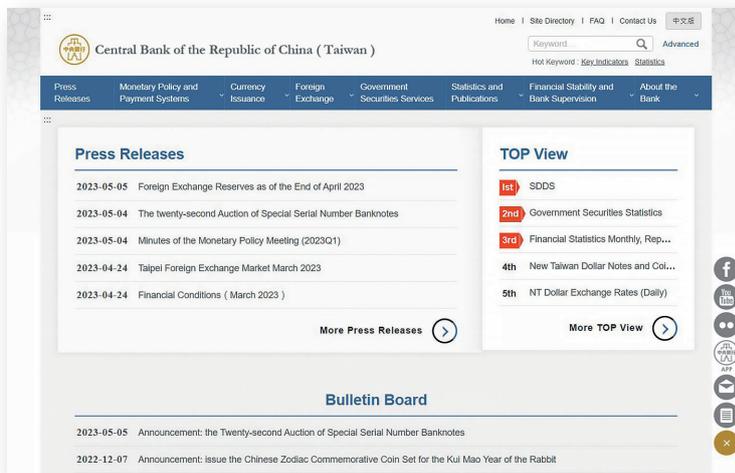
Note: Figures for 2022 are unaudited. Figures for 2021 are audited by the National Audit Office.

APPENDIX: CENTRAL BANK OF THE REPUBLIC OF CHINA (TAIWAN) WEBSITE

I. The Bank's Homepage

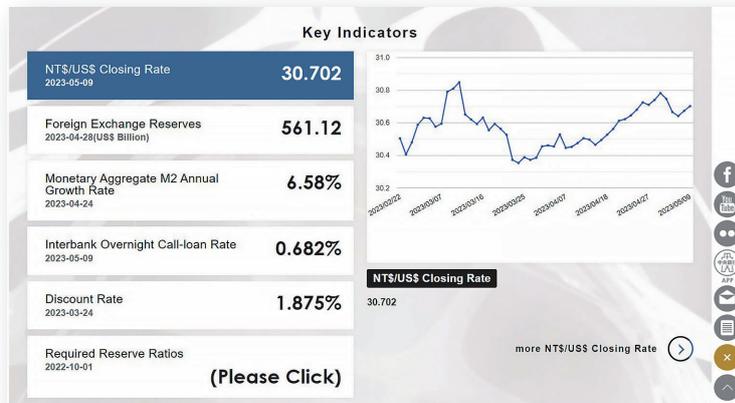
 <https://www.cbc.gov.tw/en/mp-2.html>

Introduces the Bank's operations regarding monetary policy and payment systems, currency issuance, foreign exchange, government securities services, as well as financial stability and bank supervision, and contains other crucial information such as press releases, statistics and publications, and general information about the Bank.



▼ Key Indicators

Displays data charts of the Bank's key indicators that are periodically updated, such as the NT\$/US\$ closing rate, foreign exchange reserves, and interest rates.



▼ FAQ

 <https://www.cbc.gov.tw/en/lp-2168-2.html>

Provides a list of frequently asked questions and answers regarding the Bank's operations and policy-related issues. Information here is updated as needed.

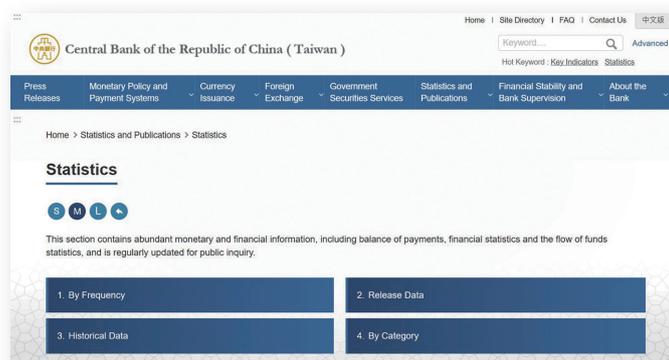


II. Statistics and Publications

▼ Statistics

 <https://www.cbc.gov.tw/en/np-507-2.html>

Presents statistical data released by the Bank for browsing, querying, and downloading.



▼ Publications

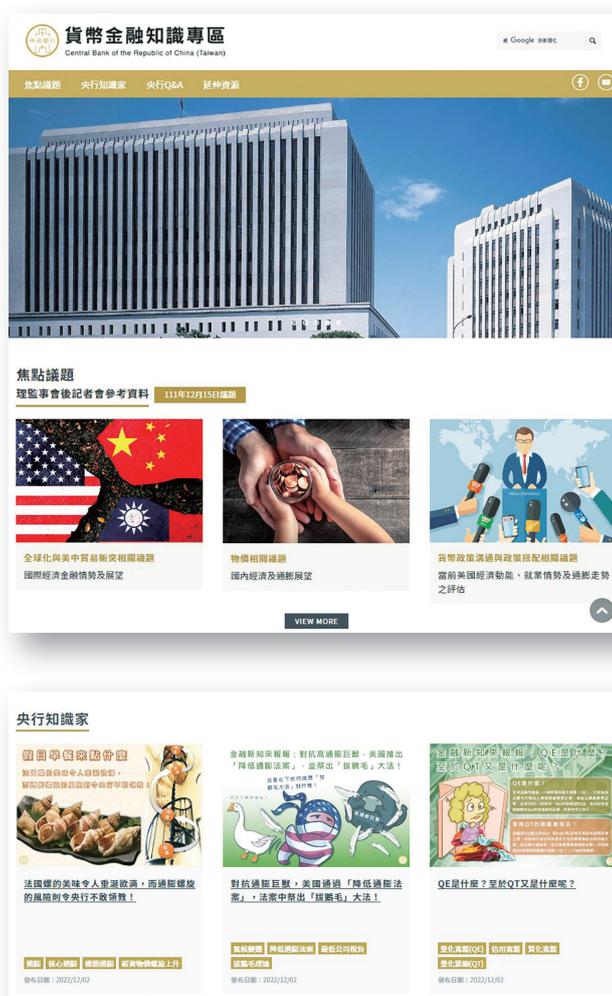
<https://www.cbc.gov.tw/en/lp-535-2.html>

- Provides access to periodical publications, including statistical publications (e.g., financial statistics, balance of payments, and condition and performance of domestic banks), financial stability reports, and annual reports.
- Offers occasional notes or reports on topics related to the Bank's operations or international and domestic economic and financial conditions.

III. Monetary and Financial Knowledge Hub (in Chinese Only)

<https://knowledge.cbc.gov.tw/front/index>

Introduces various kinds of monetary and financial knowledge with interesting, simply-explained, and easy-to-understand contents to facilitate public understanding of the Bank's policies and operations. Information here covers a wide range including short reports on special topics such as fintech and CBDC, the latest news on central banks worldwide, major events in monetary and financial history, and current issues in finance.

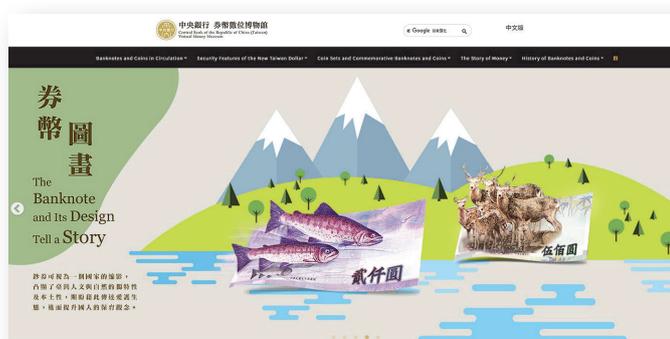


IV. Virtual Money Museum and Virtual Exhibition Hall

▼ Virtual Money Museum

 <https://museum.cbc.gov.tw/web/en-us>

Presents information about currency issuance including the history of banknotes and coins, banknotes and coins in circulation, coin sets and commemorative banknotes and coins, and security features of the New Taiwan Dollar. The webpage has been revamped with the "responsive web design" technique, making it more convenient for users to navigate via computers and mobile devices.



▼ Virtual Exhibition Hall (in Chinese Only)

 <https://museum.cbc.gov.tw/museum>

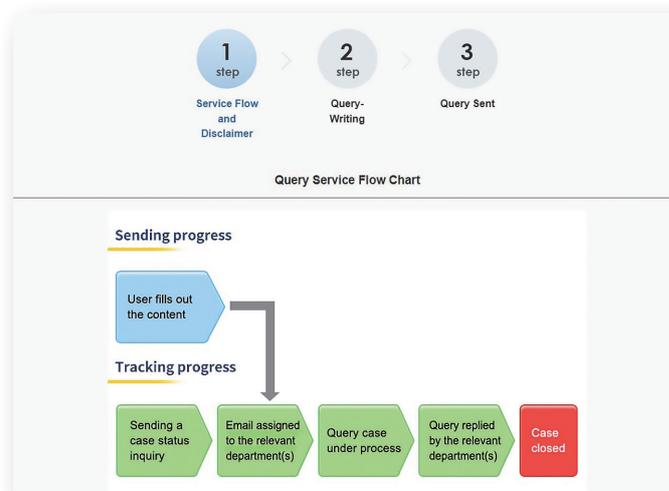
Allows viewers to browse banknotes featured in various themes.



V. Contacting the Bank

 <https://www.cbc.gov.tw/en/sp-opma-form-2.html>

For questions or suggestions, please contact the Bank through the following steps. We will reply to you within 7 working days.



VI. Official Social Media Channels and Mobile Apps (in Chinese Only)

The Bank also provides the latest news and announcements on social networking sites and our official mobile apps. Stay up-to-date and communicate with us by following the Bank's social media accounts as below and/or downloading our mobile apps on iOS or Android devices.

Facebook	https://www.facebook.com/cbc.gov.tw/
YouTube	https://www.youtube.com/user/TheCBCTube
Flickr	http://www.flickr.com/photos/cbcbank
Android App	https://play.google.com/store/apps/details?id=hyweb.mobilegip.gip_cbc
iOS App	https://appsto.re/tw/LyAH6.i

Abbreviations

BIS	Bank for International Settlements
BoJ	Bank of Japan
BoK	Bank of Korea
BOP	Balance of payments
CBC	Central Bank of the Republic of China (Taiwan)
CBDC	Central bank digital currency
CD	Certificate of deposit
CGSS	Central Government Securities Settlement System
CIFS	CBC Interbank Funds Transfer System
COFER	Currency Composition of Official Foreign Exchange Reserves
COVID-19	Coronavirus disease
CPI	Consumer price index
DBU	Domestic banking unit
DGBAS	Directorate-General of Budget, Accounting and Statistics
DVP	Delivery-versus-payment
ECB	European Central Bank
Fed	Federal Reserve (System)
FINIs	Foreign institutional investors
FISC	Financial Information Service Co., Ltd.
FSC	Financial Supervisory Commission
GDP	Gross domestic product
GNI	Gross national income
IMF	International Monetary Fund
NCCC	National Credit Card Center of R.O.C.
NCD	Negotiable certificate of deposit
NFCC	National Federation of Credit Cooperatives, R.O.C.
n.i.e.	not included elsewhere
NTD	New Taiwan dollar
OBU	Offshore banking unit
OIU	Offshore insurance unit
OSU	Offshore securities unit

PBoC	People's Bank of China
PVP	Payment-versus-payment
Repo	Repurchase agreement
ROC	Republic of China
RRR	Reserve requirement ratio
SEACEN	South East Asian Central Banks
SITE	Securities investment trust enterprise
SMEG	Small and Medium Enterprise Credit Guarantee Fund
TAIEX	Taiwan Stock Exchange Capitalization Weighted Stock Index
TCH	Taiwan Clearing House
TDA	Treasury deposit account
TDCC	Taiwan Depository and Clearing Corporation
TDR	Taiwan depository receipt
TPEX	Taipei Exchange
TWSE	Taiwan Stock Exchange Corporation
VaR	Value at risk
WPI	Wholesale price index

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