

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

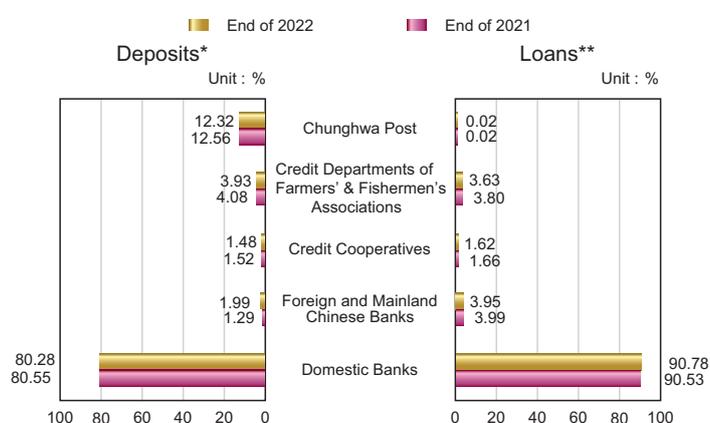
At the end of 2022, while domestic banks maintained a dominant role in the deposit market, their market share declined to 80.28% compared with the previous year end. This was primarily due to a decrease in the annual growth rate of deposits of domestic banks resulting from net foreign capital outflows 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.

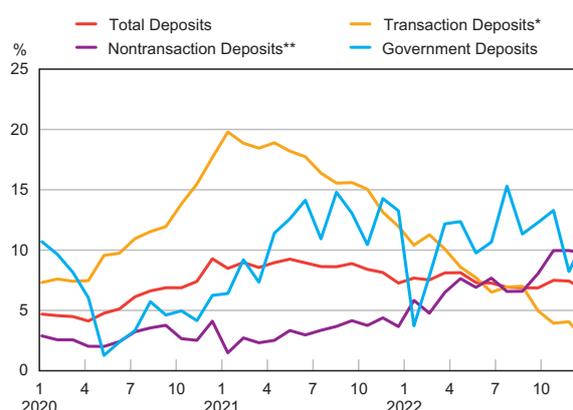
Source: *Financial Statistics Monthly* (February 2023), CBC.

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.

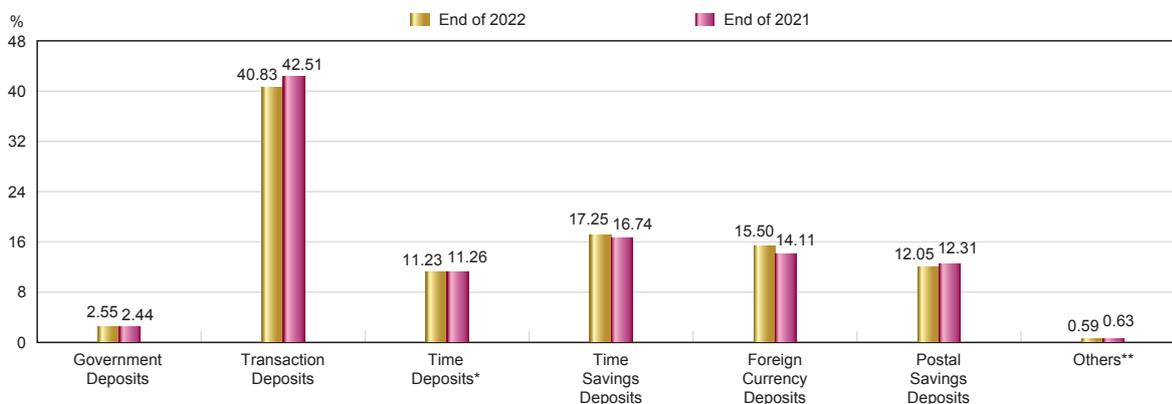
In terms of nontransaction deposits, its annual growth rate rose to 9.69% at the end of 2022 from 3.56% a year earlier because of increases in time savings deposits and foreign currency deposits. Its share in total deposits also went up to 56.62% at the end of 2022 from 55.05% a year earlier.

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.

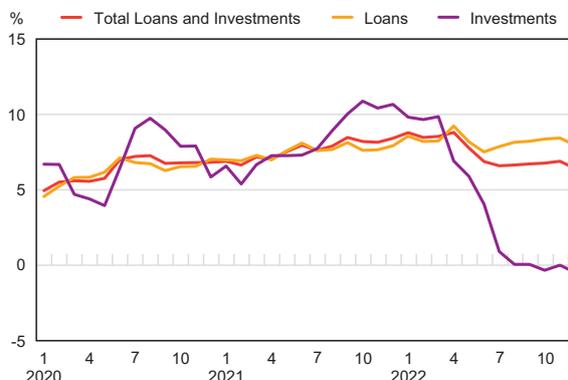
individuals and pension funds adjusted their asset allocation, moving funds to time savings deposits. As a result, the year-end annual growth rate increased to 9.83% from -0.45% at the end of the previous year, and its share in total deposits increased to 17.25% from 16.74%. Regarding postal savings, 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.

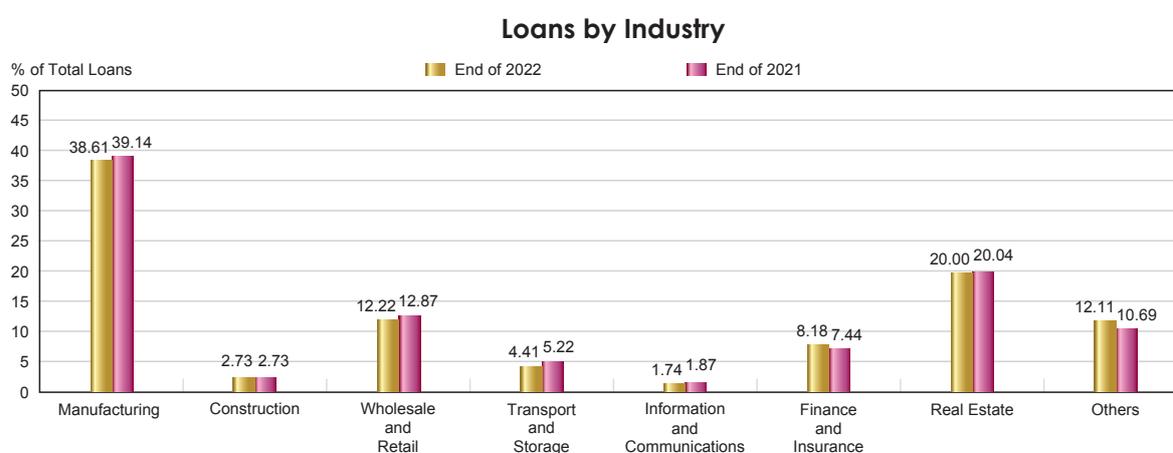
Loans by Sector

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.

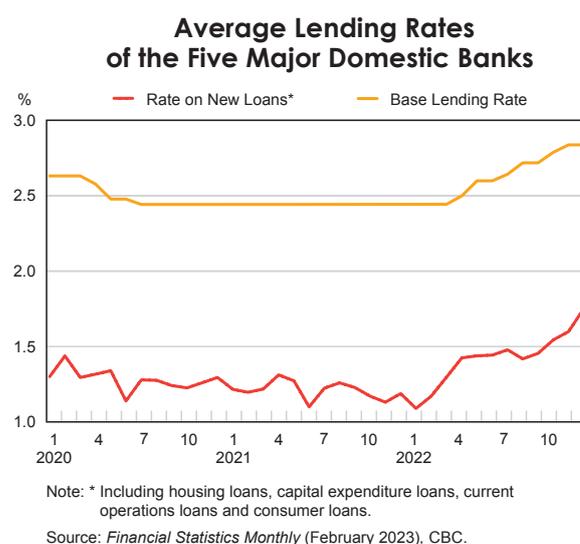
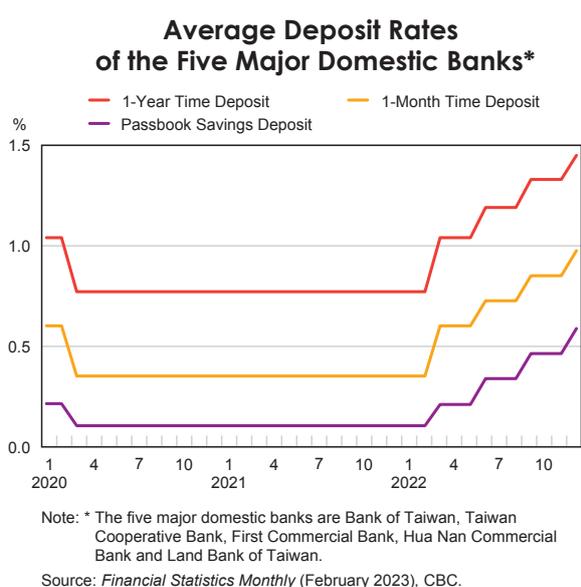
In terms of tool types, government bonds accounted for a share of 56.12%, higher than the 51.63% registered a year ago, as more government bonds were issued than repaid, resulting in an expansion in the total outstanding of bonds issued compared to the previous year. At the end of 2022, commercial paper 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.

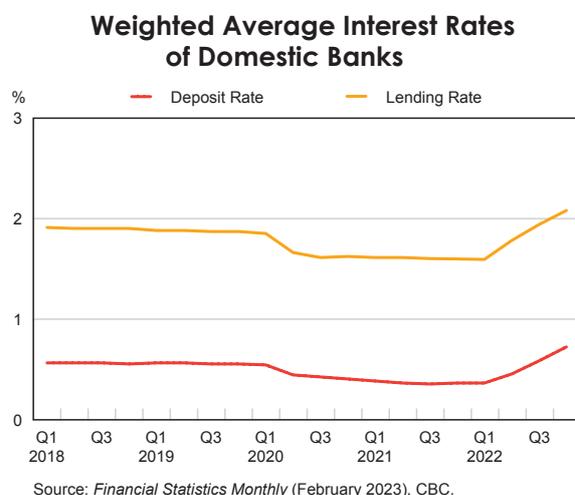
The weighted average rates on deposits and loans of domestic banks generally showed an upward trend in 2022. In terms of deposit interest rates, although the Bank's policy rate hike in March guided banks' posted interest rates on deposits upward, there was a higher base effect from the previous quarter 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.

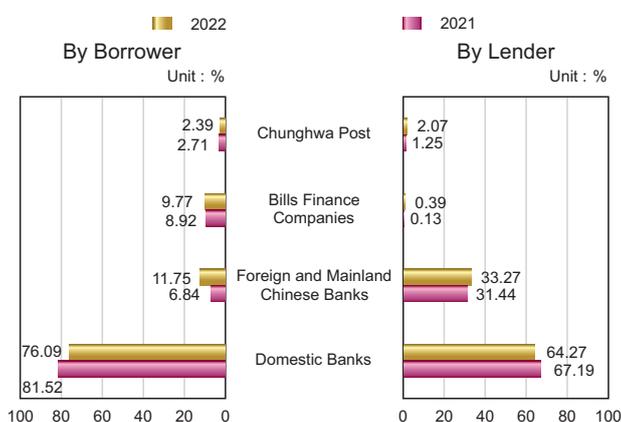
In terms of lenders, domestic banks remained the largest supplier of funds, making up 64.27% of total transactions in 2022. Foreign and Mainland Chinese banks came in second with a share of 33.27%, followed by Chunghwa Post and bills finance companies contributing 2.07% and 0.39% of total transactions,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

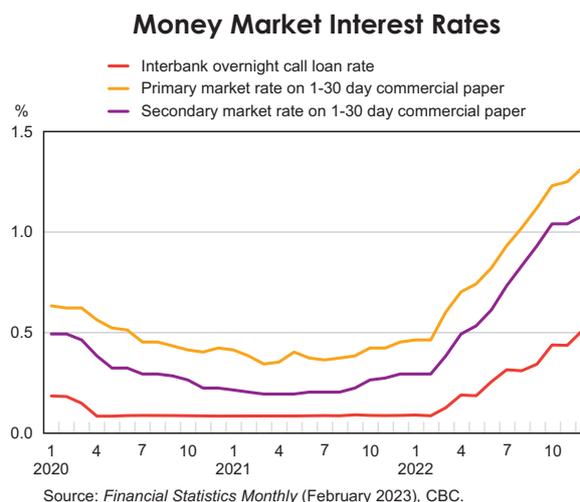
96.81%, 1.0 percentage point higher than the previous year. NCDs came in second with a share of 2.78%, down by 0.73 percentage points from a year earlier.

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)

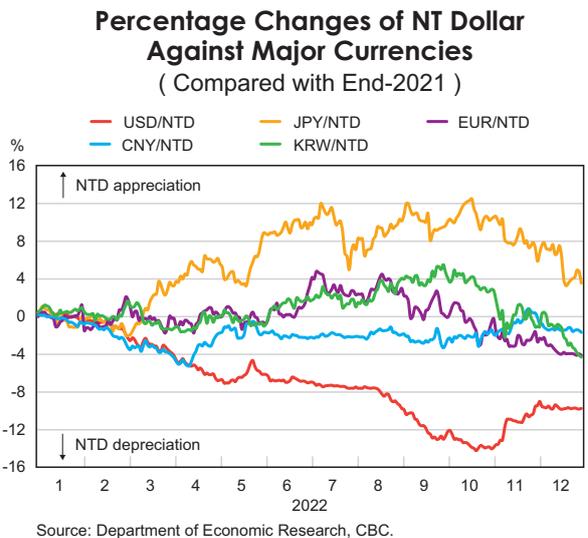
rate hike, it sustained greater downward pressures from the Russia-Ukraine war than other Asian currencies; as a result, the NT dollar appreciated against the won in March. After a few months of fluctuations, the NT dollar strengthened mildly against the won during June to September as the won softened 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.

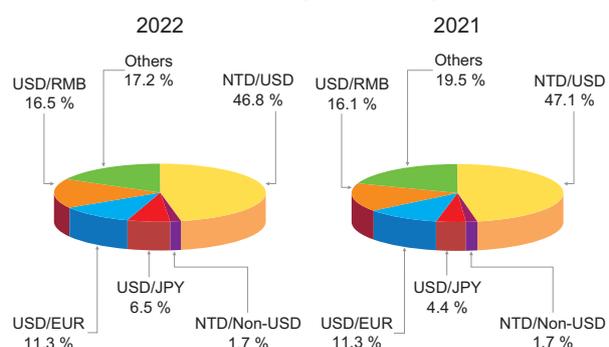
Turnover of Major Products in the Taipei Foreign Exchange Market

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

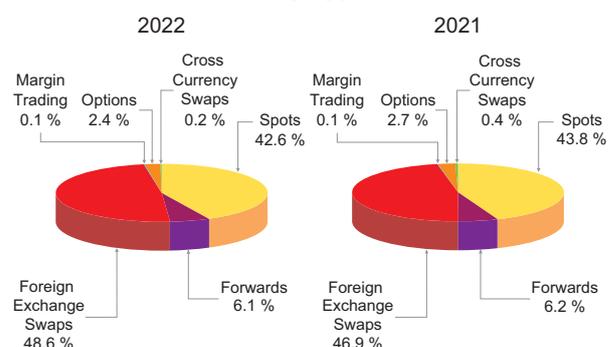
Source: Department of Foreign Exchange, CBC.

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

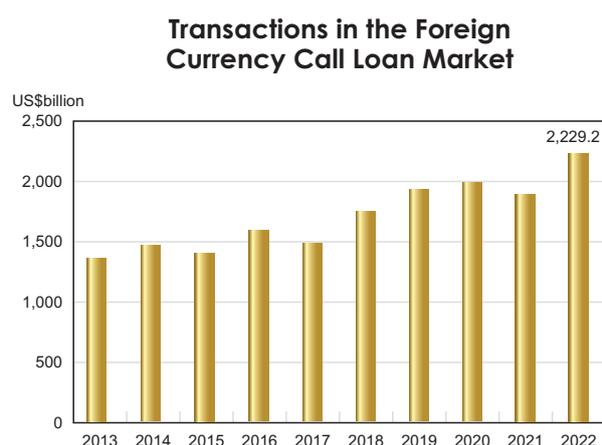
Business Items	Amount
Deposit balance (including NCDs, end of 2022)	195.2
Total remittances (February 2013 to December 2022)	17,041.0
Total settlement through the Taipei Branch of the Bank of China (February 2013 to December 2022)	43,497.9
Total value of 203 RMB-denominated bonds issued (as of the end 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.

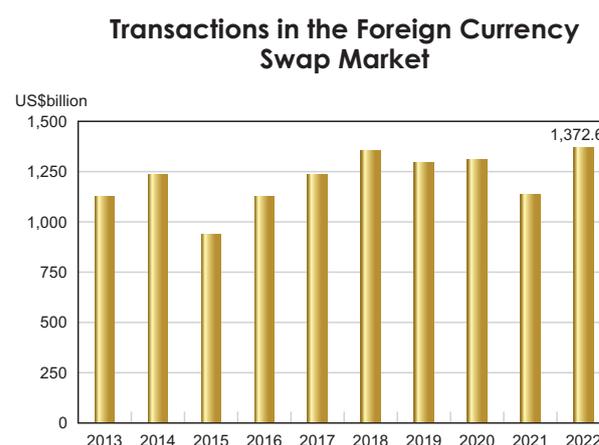
Foreign Currency Call Loan & Swap Markets

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

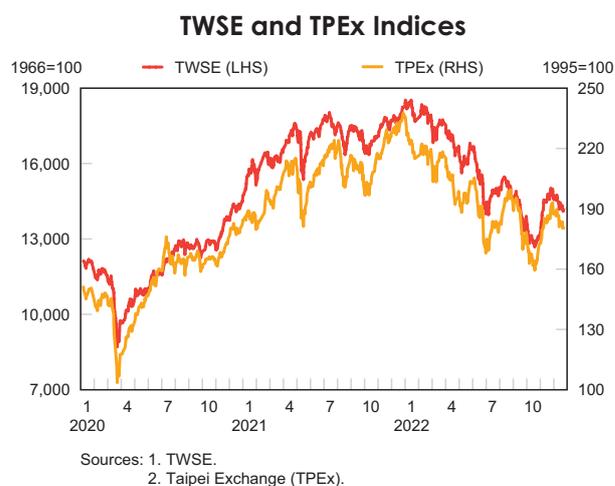
Sources: 1. *Financial Statistics Monthly* (February 2023), CBC.
2. Department of Foreign Exchange, CBC.

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

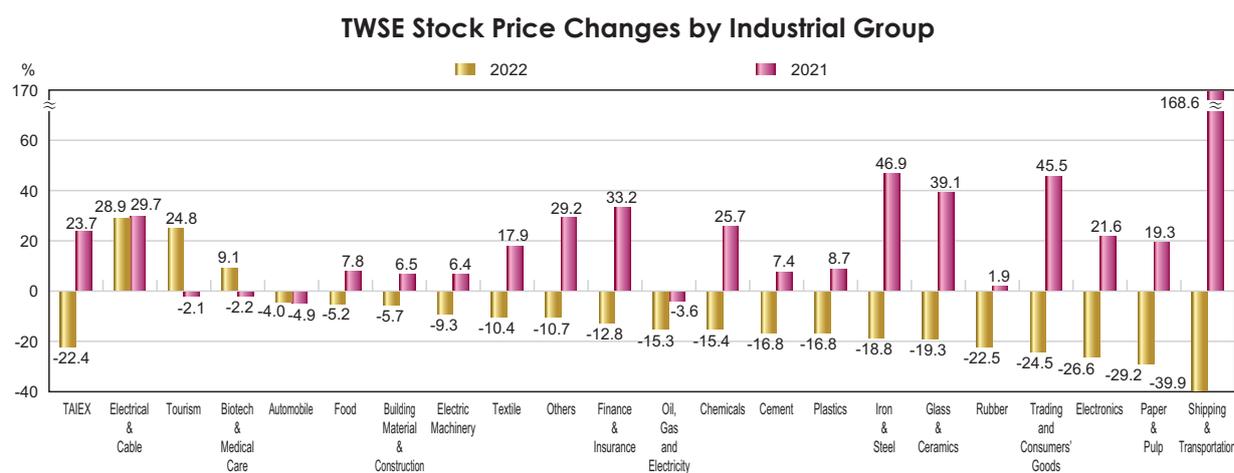
Year/Month	Stock Price Index (end of period)	Daily Average Trading Value (NT\$billion)	Turnover Rate (%)	Market Capitalization (NT\$billion)	Net Buying Positions (NT\$billion)		
					Foreign Investors Net Buy/Sell	Securities Investment Trust Companies Net Buy/Sell	Securities Dealers Net Buy/Sell
2020	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

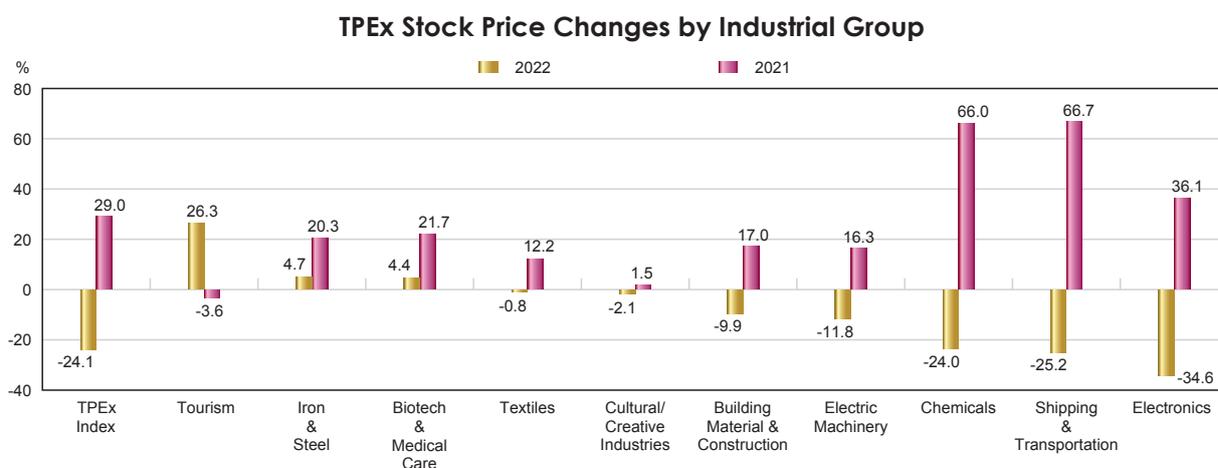
In 2022, the main TPEX index moved on a path similar to the TAIEX, impacted by headwinds including the Fed's aggressive tightening, the Russia-Ukraine military conflict, pandemic resurgence at home, and FINI net sales. As a result, the TPEX index continued to swing lower from the yearly high

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.

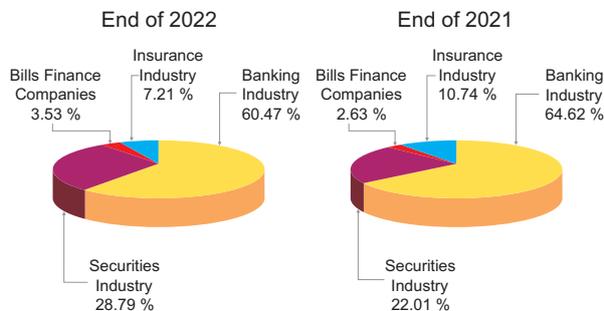
As of the end of 2022, the total outstanding of central government bond issuance stood at NT\$5,799.5 billion, rising by NT\$125.1 billion or 2.20% compared to 2021.

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

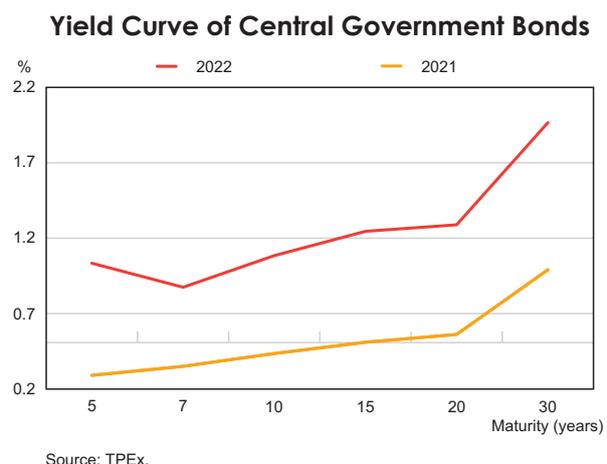
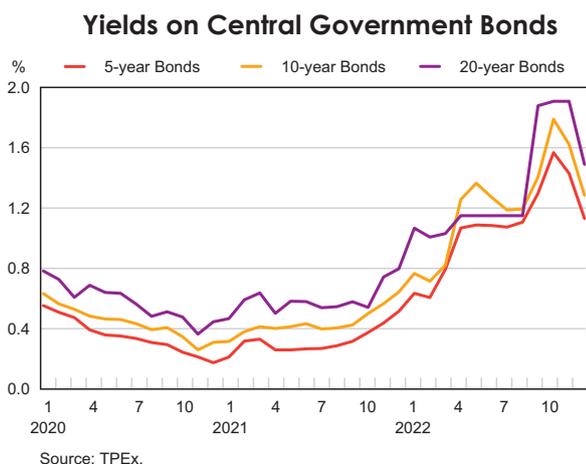
International bonds currently refer to foreign currency-denominated corporate bonds issued in Taiwan by foreign institutions. During 2022, issuance of international bonds fell significantly by NT\$643.7 billion from a year before to NT\$493.9 billion. The contraction was primarily because an uptrend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