

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%

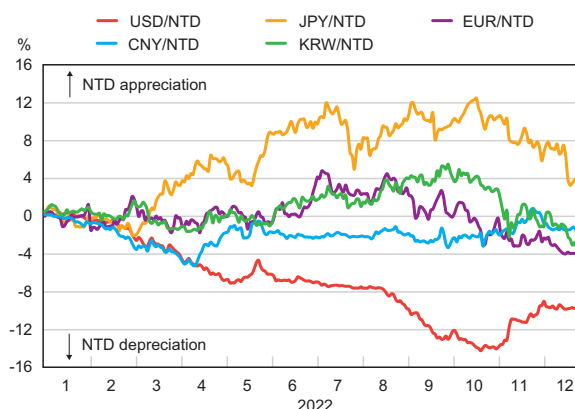
Source: Department of Economic Research, CBC.

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.

**Percentage Changes of NT Dollar
Against Major Currencies**
(Compared with End-2021)



Source: Department of Economic Research, CBC.

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.

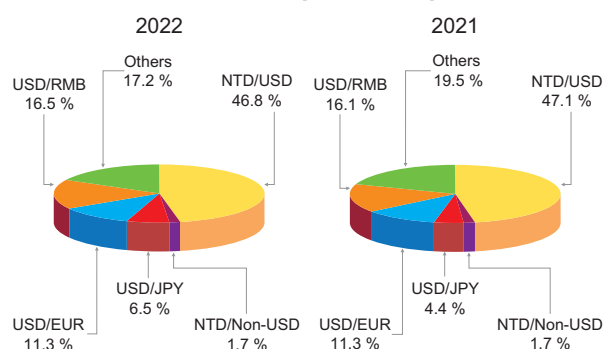
Turnover of Major Products in the Taipei Foreign Exchange Market

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

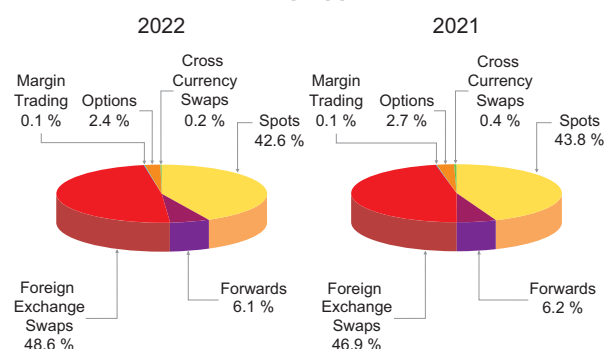
Source: Department of Foreign Exchange, CBC.

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

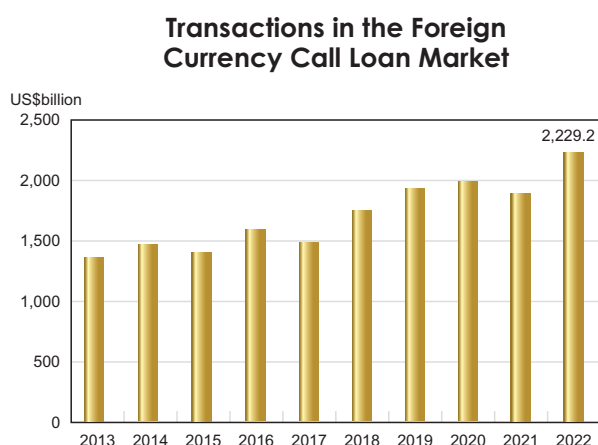
Business Items	Amount
Deposit balance (including NCDs, end of 2022)	195.2
Total remittances (February 2013 to December 2022)	17,041.0
Total settlement through the Taipei Branch of the Bank of China (February 2013 to December 2022)	43,497.9
Total value of 203 RMB-denominated bonds issued (as of the end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

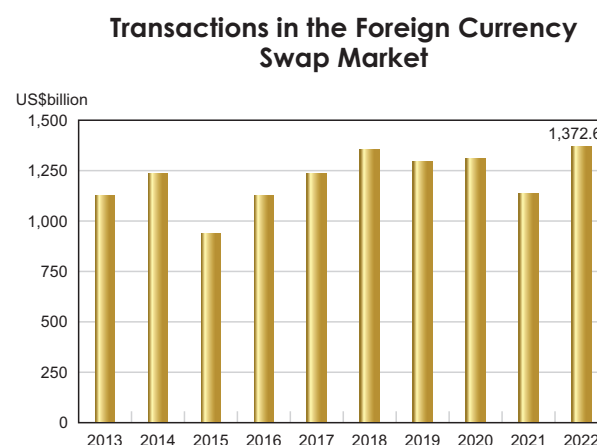
Foreign Currency Call Loan & Swap Markets

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.