III. Financial system assessment

3.1 Financial markets

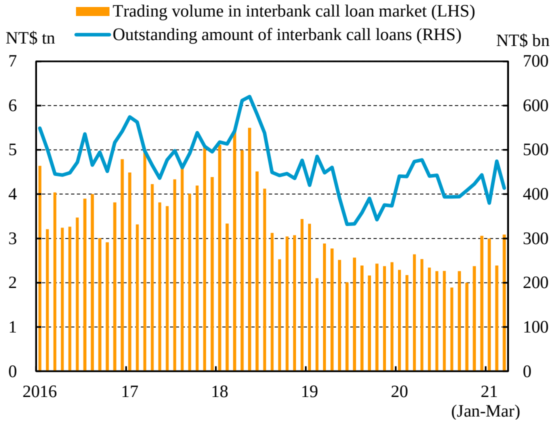
In 2020, the outstanding amount of interbank call loans expanded, while their trading volume shrank. The outstanding amount of bill issuance in the primary market reached a historical high mainly because of a greater increase in CP issuance. Propelled by the expansion in the primary market, the bill trading volume in the secondary market also increased. The outstanding amount of bond issuance increased significantly with corporate bond issuance registering the largest increment. Nevertheless, the turnover rate of outright transactions in the secondary bond market fell back after rising. Short-term market rates decreased marginally after the Bank cut the policy rates, while long-term interest rates dropped before rebounding. As for stock markets, stock prices slumped and fluctuated dramatically in the beginning of 2020 owing to the COVID-19 pandemic. Subsequently, with the strong recovery of the domestic economy and other favorable factors, the stock indices rebounded sharply and recorded new highs repeatedly. However, volatility in the stock market has intensified again since mid-May 2021, owing to expectations of US interest rate hikes and the COVID-19 pandemic resurgence worldwide. In the FX market, the NT dollar oscillated and appreciated against the US dollar in 2020, while the volatility was relatively low.

3.1.1 Money and bond markets

Outstanding amount of interbank call loans elevated, while their trading volume shrank

In 2020, overall domestic funds were abundant, but the fund levels across financial institutions were divergent. The average daily outstanding amount of interbank call loans increased by 9.78% and registered NT$430.9 billion, driven by the fact that some banks increased interbank borrowing to fulfill higher

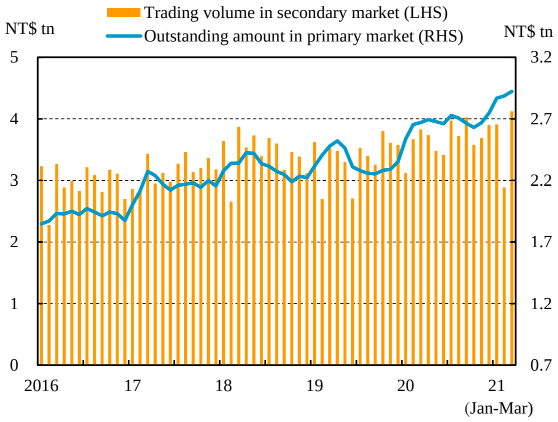
Chart 3.1 Interbank call loan market



Note: Outstanding amount is the monthly average of daily data.
Source: CBC.

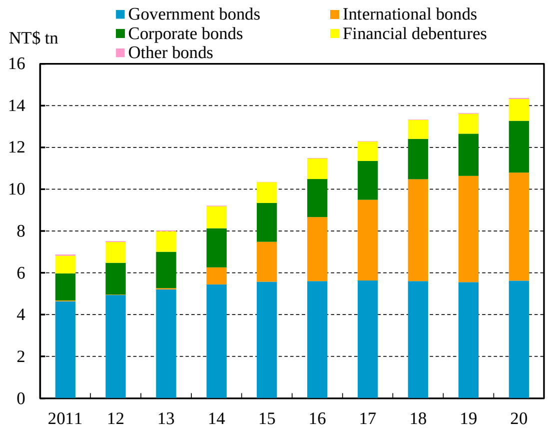
demand by corporates for loans. Although the average outstanding amount of interbank call loans expanded, the trading volume decreased continually by 6.38% year on year in 2020, given that the proportion of interbank overnight call loans in the market decreased and financial institutions reduced the frequency with which they rolled over their interbank borrowing. In 2021 Q1, the outstanding amount of interbank call loans and their trading volume continued to stay at a low level (Chart 3.1).

Chart 3.2 Primary and secondary bill markets



Source: CBC.

Chart 3.3 Total amount of bonds outstanding in the primary market



Note: Other bonds include beneficiary securities and foreign bonds.
Source: FSC.

Outstanding amount of bill issuance hit a new high, propelling the bill trading volume in the secondary market to increase accordingly

The outstanding amount of bill issuance in the primary market reached NT$2.75 trillion at the end of 2020, increasing markedly by 16.75% year on year. The main reason was that interest rates trended downward to new record lows and low issuance costs attracted corporates to significantly increase CP issuance for fund raising. In 2021 Q1, the outstanding amount of bill issuance continued to grow because of the increase in the issuance of treasury bills and CP (Chart 3.2).

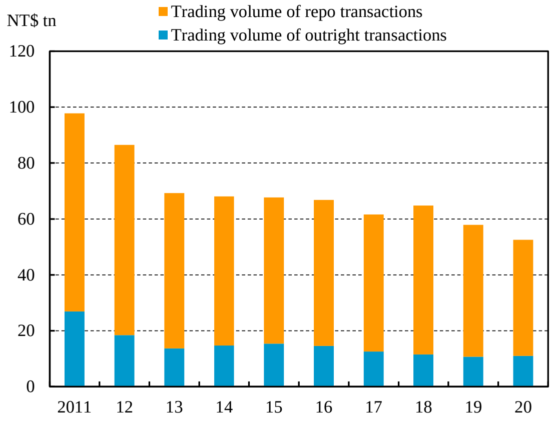
Impelled by the expansion in the primary market, the bill trading volume in the secondary market also increased in 2020. The trading volume increased by 8.97% year on year and amounted to NT$44.14 trillion with CP constituting the largest share of 95.21%. In 2021 Q1, the bill trading volume continued its upward trend (Chart 3.2).

Bond issuance expanded remarkably, while the turnover rates of outright transactions dropped after hitting a recent high

The outstanding amount of bond issuance increased by 5.32% and reached a new high of NT$14.36 trillion at the end of 2020, because record low interest rates attracted corporates to increase bond issuance. Major bonds all saw increasing issuance. Among them, the outstanding amount of corporate bond issuance significantly increased by 23% year on year, followed by financial debentures, which registered an annual growth rate of 9.60%. Meanwhile, the outstanding amount of international bond and government bond issuance increased year on year by 1.58% and 1.32%, respectively (Chart 3.3).

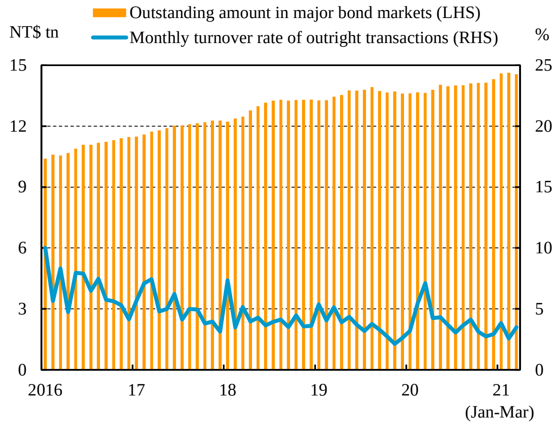
However, the trading volume in the secondary bond market recorded NT$52.50 trillion in 2020, decreasing by 9.30% year on year (Chart 3.4). Analyzed by trading types, repo transaction volume shrank by 12.12% year on year, while outright transactions volume increased marginally by 3.16%. Although the average monthly outright turnover rate of major bonds elevated to a recent high of 7.11% in March 2020, it declined later and continued to stay at a low level in 2021 Q1 (Chart 3.5).

Chart 3.4 Outright and repo transactions in the bond market



Source: CBC.

Chart 3.5 Outstanding amount in major bond markets and monthly outright turnover rate



Notes: 1. Major bonds include government bonds, international bonds, corporate bonds, and financial debentures.
2. Monthly turnover rate = trading value in the month/ average outstanding amount of bonds issued.
Average outstanding amount of bonds issued = (outstanding amount at the end of the month + outstanding amount at the end of last month)/2.

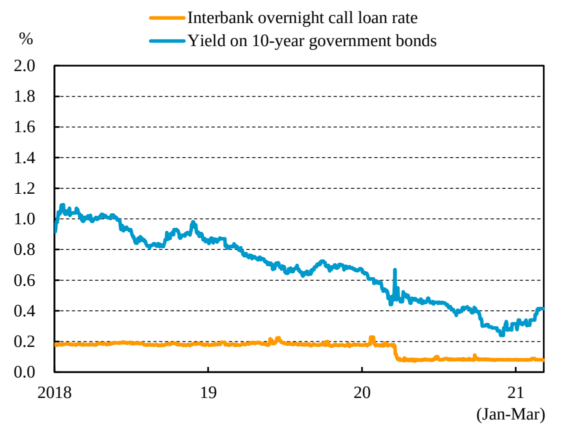
Source: FSC.

Short-term market rates descended marginally, while long-term market rates rose after declining

In terms of short-term market rates, in 2020, the interbank overnight call loan rate descended gradually and hit a recent low of 0.072% on May 4 after the Bank lowered the policy rates and the interest rate of the Bank's certificates of deposit (CDs) in March. Afterwards, the interbank overnight call loan rate stabilized at a low level, reflecting ample liquidity in financial markets (Chart 3.6).

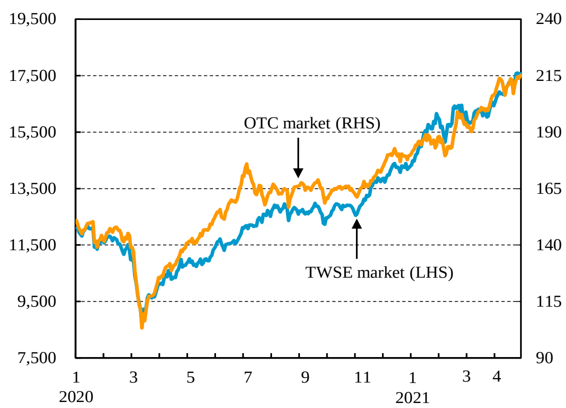
As for long-term market rates, in the beginning of 2020, the COVID-19 pandemic triggered panic selling in the bond market, propelling 10-year government bond yields to rise sharply in March. However, the yields fell back following the Bank's rate cut, and fluctuated downwards as risk-aversion sentiment in the market increased and financial institutions saw increasing pressures to dispose their idle funds. However, the yields have rebounded since December, following the sharp rise of US government bond yields (Chart 3.6). Considering that the recent rise in US inflation expectations could push up US government bond yields and, in turn, propel 10-year government bond yields to increase further, interest rate risks related to bond investments might elevate and warrant close attention.

Chart 3.6 10-year government bond yield and interbank overnight rate



Source: Bloomberg.

Chart 3.7 Taiwan's stock market indices



Sources: TWSE and TPEx.

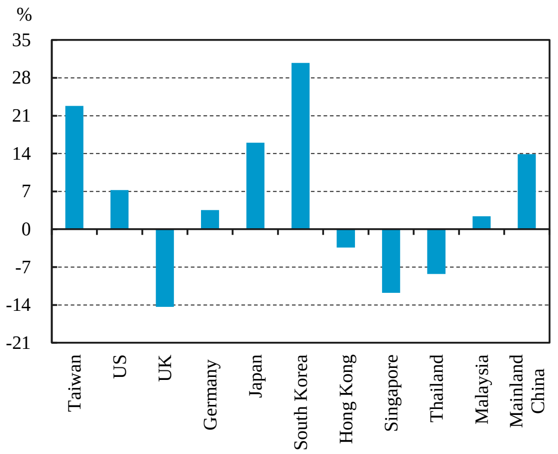
3.1.2 Equity markets

Stock indices successively reached their historical highs

Owing to the impact of the pandemic on global financial markets in the beginning of 2020, international stock markets plunged. The TAIEX of the TWSE market also saw a significant drop from above the 12,000 mark and closed at the year's lowest level of 8,681 on March 19. However, driven by the quantitative monetary easing policies and fiscal relief measures subsequently implemented by major countries along with the strong recovery exhibited by the domestic economy, the TAIEX rebounded significantly (Chart 3.7), posting an increase of 22.80% year on year. Under the support on the economic and capital fronts, the TAIEX surged higher than the major indices in the US, Japan, and other international stock markets, except for South Korea (Chart 3.8).

In the beginning of 2021, induced by the economic relief plans in the US and the better-than-expected economic performance in Taiwan, the TAIEX went up steadily, surging by 19.24% in the first four months of 2021 (Chart 3.7). Nevertheless, with market expectations for interest rate hikes by the Fed and the resurgence of the pandemic globally and domestically, the TAIEX saw a deep decline and then rebounded toward stability. The Taipei Exchange Capitalization Weighted Stock Index (TPEX) of the OTC market closely tracked the movements of the TAIEX (Chart 3.7).

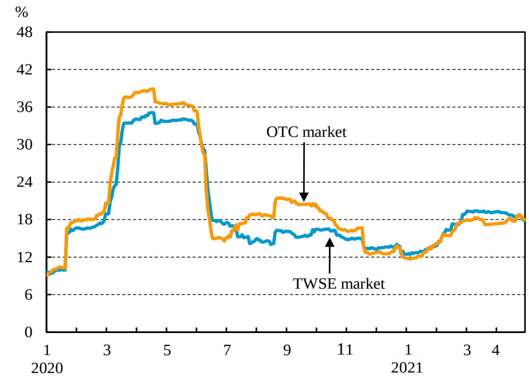
Chart 3.8 Major stock market performance



Notes: 1. Changes are figures at the end of 2020 compared to those at the end of 2019.
2. Market performance is based on TWSE Weighted Index for Taiwan, DJIA Index for the US, FTSE-100 Index for the UK, DAX Index for Germany, NK-225 Index for Japan, KOSPI Index for South Korea, Hang Seng Index for Hong Kong, Straits Times Index for Singapore, SET Index for Thailand, Kuala Lumpur Composite Index for Malaysia, and SSE Composite Index for Mainland China.

Source: TWSE.

Chart 3.9 Stock price volatility in Taiwan's markets



Note: Volatility refers to the annualized standard deviation of 60-day daily index returns.

Sources: TWSE, TPEx, and CBC.

Volatility in the stock markets increased sharply and annual turnover rates rose dramatically

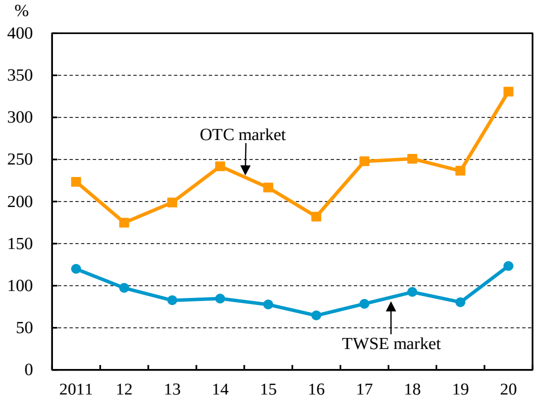
The intensified panic sentiment in financial markets drove volatility in the TWSE and the OTC markets surging sharply in March 2020. As major stock markets stabilized, volatility of the two markets dropped and registered 12.55% and 11.79%, respectively, at the end of December. However, affected by the significant fluctuations in global stock markets at the beginning of 2021, volatility of the TWSE and the OTC markets increased, registering 17.91% and 17.97%, respectively, at the end of April (Chart 3.9).

Owing to the surging indices of the two domestic stock markets and expanding trading volume, the trading value in both the TWSE and the OTC markets increased to NT$45.7 trillion and

NT$12.1 trillion in 2020, respectively, reaching individual historical highs. The annual turnover rates in terms of trading value also rose to 123.34% and 330.63% (Chart 3.10), respectively, higher than those in most of the major international stock markets (Chart 3.11). Domestic stock markets were boosted by sound economic fundamentals; however, owing to their high correlations with international stock markets, coupled with the stock prices staying high and amplifying volatility, the potential impacts of the pandemic and the movements of foreign investments in and out of domestic stock markets warrant close attention.

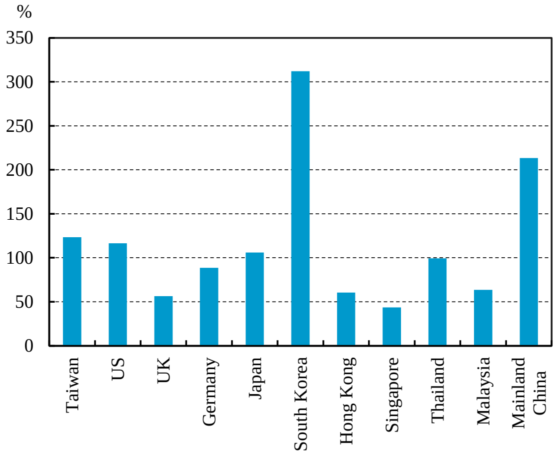
Furthermore, the scale of domestic mutual funds raised and issued by securities investment trust companies increased continually in recent years. Among them, exchange-traded funds (ETFs) grew most swiftly, reaching NT$ 1.74 trillion at the end of 2020. However, with the diversification in the issuance of domestic ETFs, complexity and investment risks of such products mounted, and the systemic risk that might be incurred by ETF investments in particular warrants close attention (Box 2).

Chart 3.10 Annual turnover rates in Taiwan's stock markets



Sources: TWSE and TPEx.

Chart 3.11 Turnover rates in major stock markets



Note: Figures refer to accumulated turnover rates in 2020.
Source: TWSE.

3.1.3 FX market

The NT dollar broadly strengthened against the US dollar, while the trading volume of the FX market increased moderately

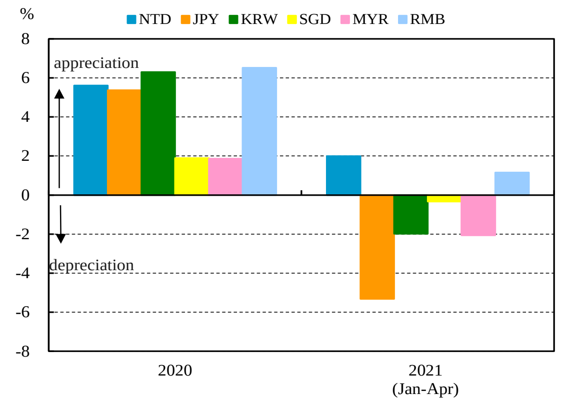
The NT dollar exchange rate against the US dollar depreciated in 2020 Q1, owing to the impacts of the COVID-19 pandemic, interest rate cuts in major countries, and the outward remittances of foreign capital. Later on, as an appropriate domestic pandemic response led to stellar performance of exports and the economy, the NT dollar appreciated steadily and stood at 28.508 at the end of 2020, rising by 5.61% for the year. The exchange rate further strengthened, closing at 27.950 as of the end of April 2021, which was ignited by the inward remittances of foreign capital and the US dollar sell-off by exporters as the US dollar weakened (Chart 3.12); therefore, the NT dollar increased in value by 2.00% compared to the end of 2020. In comparison with major Asian currencies, the extent of NT dollar appreciation against the US dollar was more than the Japanese yen, the Singapore dollar, and the Malaysian ringgit in 2020; however, it was less than the Korean won and the RMB. From January to April in 2021, the value of the NT dollar was relatively stable compared with other currencies (Chart 3.13).

In addition, the scale of trading in Taiwan's FX market slightly expanded in 2020, with average daily trading volume amounting to US$33.1 billion from US$32.5 billion a year earlier, or rising by 1.85%, primarily because of an increase in interbank dealings (Chart 3.14). A breakdown by counterparty in 2020 exhibited that the daily trading volume in the interbank market mainly accounted for 67.07% of the total; as for type of transactions, FX swap deals accounted for the largest share of 49.70% of the total.

Chart 3.12 NTD/USD exchange rate

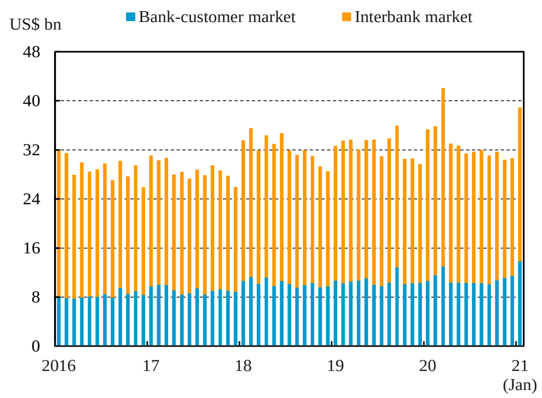
Source: CBC.

Chart 3.13 Exchange rate changes of major Asian currencies against the US dollar



Note: Changes in the year 2020 are figures at the end of 2020 compared to those at the end of 2019; changes in the period of Jan-Apr 2021 are figures at the end of April 2021 compared to those at the end of 2020.
Source: CBC.

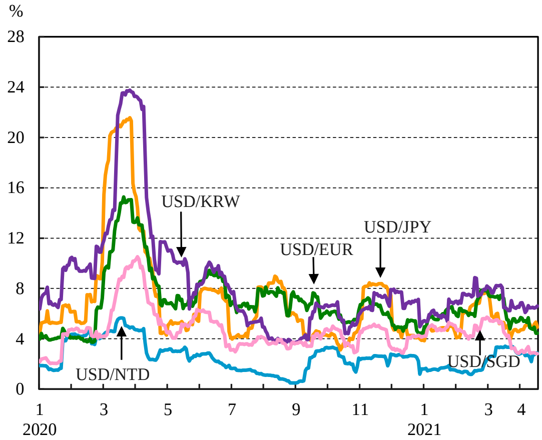
Chart 3.14 FX market trading volume



Notes: 1. Trading volume is the monthly average of daily data.
2. The latest data for trading volume are as of January 2021.
Source: CBC.

NT dollar exchange rate volatility remained relatively stable

Chart 3.15 Exchange rate volatility of various currencies versus the US dollar



Note: Volatility refers to the annualized standard deviation of 20-day daily returns.
Source: CBC.

Even though global FX markets fluctuated dramatically in 2020 owing to the impacts of the pandemic, volatility in the NT dollar exchange rate against the US dollar shifted between 0.49% and 5.66% and registered an annual average of 2.66%, which was relatively lower than those in other major currencies. During January to April 2021, volatility in the NT dollar exchange rate registered between 1.17% and 3.42%. Compared to major currencies such as the Japanese yen, the euro, the Singapore dollar, and the Korean won, the NT dollar exchange rate stayed relatively steady against the US dollar (Chart 3.15).

Box 2
The impacts of substantial growth of Taiwan's exchange-traded funds on financial markets

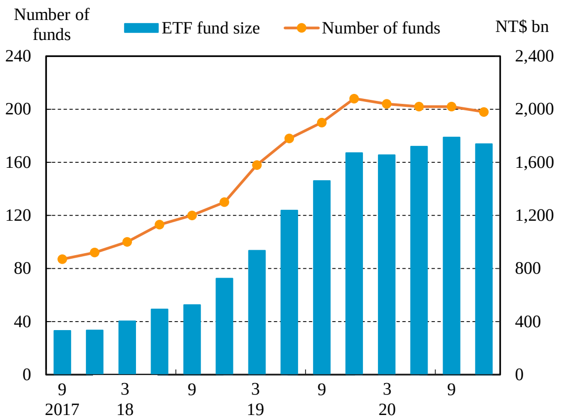
Exchange-traded funds (ETFs) that possess the characteristics of low transaction costs, risk diversification, high transparency of investment portfolios, and passive management have widely won the favor of international and domestic investors in the past ten or more years. Global ETF assets have grown considerably, while the fund sizes, number of investors, and transaction volumes of domestic ETFs have also multiplied. However, potential risks lurking in the ETF market to investors and the financial system still warrant close attention.

1. ETF market development in Taiwan

1.1 ETF fund size and trading volume greatly expanded

The first ETF listed on the Taiwan Stock Exchange Corporation (TWSE) was the Yuanta/P-shares Taiwan Top 50 ETF issued in June 2003. With a relaxation of pertinent regulations by the FSC, the domestic ETF market progressively unfolded. Industrial funds, umbrella funds, and funds with linkages to overseas targets were issued successively. In addition, various types of ETF products, for example leveraged, reversed, and futures ETFs, have been allowed to be issued by investment trust companies since 2014. Coupled with the advantages of low transaction costs and investment diversification, the products have been increasingly appreciated by investors. Therefore, the fund size of ETFs rose hugely, registering NT$1.74 trillion at the end of 2020, which was 12 times compared with that of NT$131.9 billion at the end of 2011. The number of funds increased sharply from 87 at the end of September 2017 to 198 at the end of 2020 (Chart B2.1). ETF beneficiaries also largely rose to 1.52 million, an increase of 3.8 times compared to that at the end of 2017. ETF products have become quite well accepted investments in Taiwan.

Chart B2.1 ETF fund size and number of funds in Taiwan



Source: SITCA.

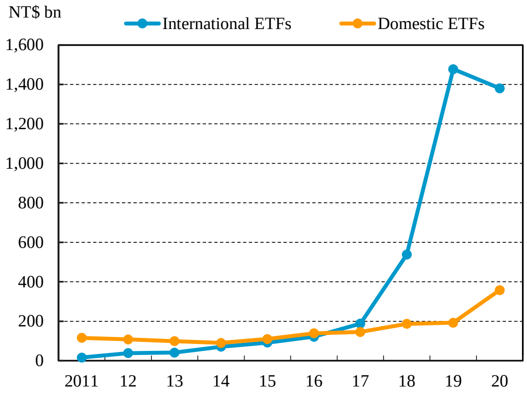
The trading value of domestically listed ETFs was NT$2.84 trillion in 2020, a huge increase of 7.9 times compared to that in 2011. The transaction amount of ETFs to that of the whole stock markets reached 5.8% in 2020, sharply rising from the 1.3% in 2011. The turnover rate of ETFs reached 163.36% in 2020, much higher than that of 123.34% in TWSE stock trading. This showed that transactions in the ETF market have been booming.

1.2 ETF investments linked to overseas targets have been all the rage

In order to pursue better returns, cross-border investments in ETFs linked to overseas targets have become mainstream. The fund size of those ETFs reached NT$1.38 trillion at the end of 2020, largely increasing 85 times compared to that at the end of 2011, much higher than that of NT$357.4 billion for the ETFs investing in domestic targets (Chart B2.2).

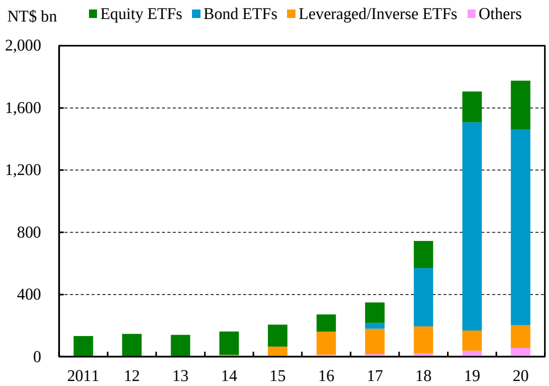
1.3 Bond ETF assets rose quickly because of the huge investments of life insurance companies

Chart B2.2 International ETFs and domestic ETFs in Taiwan



Source: SITCA.

Chart B2.3 Types of ETFs in Taiwan



Source: FSC.

In recent years, the fund size of bond ETFs increased massively, reaching NT$1.34 trillion at the end of 2019, growing by 36 times compared to that at the end of 2017, largely surpassing the size of equity ETFs (Chart B2.3). The major reason was that the amounts life insurance companies invested in TWSE- and OTC-listed securities were excluded from the amounts subject to the overseas investment ceiling.[1] Hence, life insurance companies made huge investments in NTD-dominated offshore bond ETFs. However, as the FSC successively took measures to control the risks of life insurance companies investing in offshore ETF funds starting from October 2019,[2] their investments in bond ETFs shrank gradually in 2020. Nevertheless, equity ETFs have still grown rapidly while the indices of stock markets continually reached historical highs.

2. ETFs may pose potential risks to investors and the financial system

2.1 Potential risks to investors

The Bank for International Settlements (BIS) (2020)[3] points out that the market value of ETFs has been more informative than the NAV (net asset value). When the market volatility rises sharply, the discount or premium to the NAV of ETFs may change rapidly. Investors will take higher price volatility risks if they buy shares in the secondary market at a bigger discount or premium to the NAV. In addition, though ETFs have traced specific stock price indices, changes of indices may not be entirely replicated owing to numerous reasons and caused mis-tracing risks. Also, with the increasing complexity of ETFs, it has drawn wide attention that investors may not fully understand the potential risks of ETF products, especially complex and special ETFs.

Moreover, investing in equity ETFs is similar to investing a basket of equities. When equity ETFs overly increase their share in the whole equity market, it will cause trading behavior such as transaction volumes and prices among the stocks within the basket to be more convergent. As a consequence, the risk diversification effect of holding multiple stocks may be compromised, with the price correlation increasing via co-movements up and down. Furthermore, when ETFs are approved by regulatory authorities to delist from an exchange, investors who buy shares at a premium will bear liquidation risks.

2.2 Potential risks to financial systems

2.2.1 Equity ETFs increased their impacts on stock markets, augmenting the correlation of asset prices

The turnover rates of equity ETFs are higher than those of general common stocks, and the proportion of transaction amount of ETFs to the trading volumes of stock markets is high. Especially during market turmoil, ETFs will have greater trading value and thus increase their influence on financial markets. ESRB (2019)[4] also points out that ETFs lead to greater asset price co-movement, which might result in losses for many investors and further trigger bankruptcy and fire sale of assets. This would undermine the stability of financial markets and heighten systemic risks.

2.2.2 The large investment in ETFs in the short term may induce contagion risks

ESRB (2019) also indicates that investors might take large and same direction short-term ETF positions on account of the high liquidity and trading boom. Once investors unwind the huge positions, it may lead to an upheaval in the ETF market and transmit to the indices themselves owing to arbitrage trading, resulting in remarkable elevation of the volatility of the indices and the correlation of individual securities in the indices. Furthermore, certain types of ETFs have merely a few counterparties. When the counterparties are unable to fulfill their obligations under surging financial stress, ETFs may be subject to counterparty risks which also raise systemic risk concerns.

3. Conclusions

ETFs were classified as passive investment products originally. However, the product complexity and potential risks rose when the types of ETFs issued in Taiwan diversified. While some local investors buy ETFs as short-term investments, there is a need to enhance the financial literacy of investors and pay attention to ETF product types and information transparency so as to reduce consumer financial disputes. Moreover, the size of the global ETF market has expanded substantially in recent years. It is crucial for regulatory authorities to monitor systemic risks potentially raised by ETFs and take responsive measures early to preserve financial stability.

Notes: 1. Investments of life insurance companies in bond ETFs were merely NT$0.37 trillion at the end of 2018. The amount reached NT$1.3 trillion at the end of 2019, increasing by 2.5 times.

2. The FSC required life insurance companies investing in NTD-dominated offshore bond ETFs to control FX risks in October 2019, adding an additional FX risk capital charge on those ETFs with a risk weight of 6.61% when calculating their risked-based capital (RBC) ratios. Credit ratings of underlying bonds held by bond ETFs invested by life insurance companies should not be below BBB- based on the regulations implemented in December 2019.

3. BIS (2020), “The Recent Distress in Corporate Bond Markets: Cues from ETFs,” *BIS Bulletin*, April.

4. ESRB (2019), “Can ETFs Contribute to Systemic Risk?” *Reports of the Advisory Scientific Committee*, June.