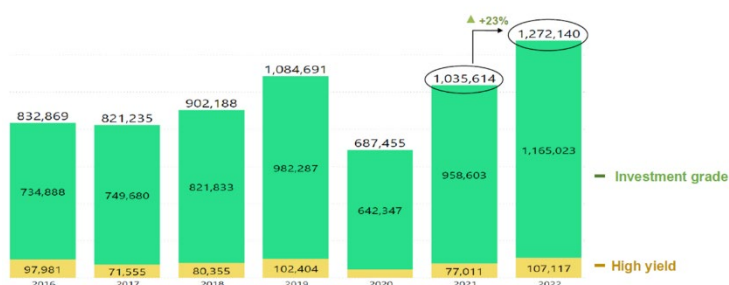
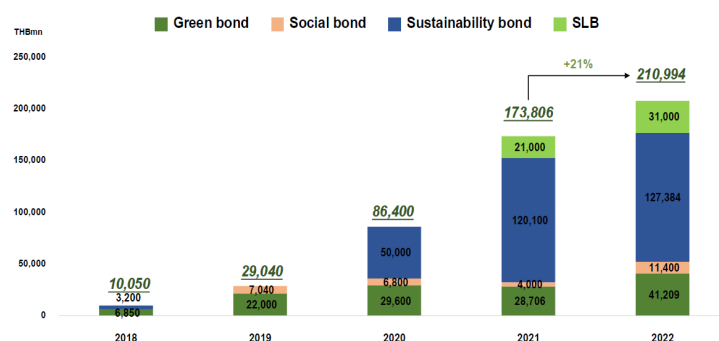


2022 Bond Market Highlights

1. **Long-Term corporate bond** issuance reached an all-time high at THB 1.27 trillion, making the third consecutive year that the issuance amount exceeded THB 1 trillion.



2. **ESG bonds** (Environmental, Social and Governance) outstanding at the end of 2022 rose 66% from the end of last year to THB 501,990 million. A total value of THB 210,994 million ESG bonds was offered in 2022.

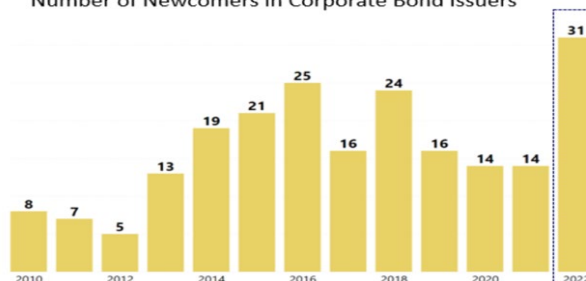


3. **Digital bond** offerings totaled 11 issues worth THB 29 billion in 2022, up from only 1 issue last year. Digital bonds are decentralized token using blockchain technology and offered through the government "Pao Tang" mobile application. It provides greater accessibility for retail investors with a minimum investment of THB 1,000 and can be traded 24 hours in real time.

ThaiBMA Symbol	Offering Size (THB Million)	Issue Term	Issue Date
SIRI247A	2,000	2.50	21/01/2022
MINT267A	2,000	4.34	24/03/2022
IRPC275A	1,000	5.00	20/05/2022
CPALL275B	8,000	5.00	27/05/2022
SIRI267B	2,000	4.00	22/07/2022
SCGP256A	5,000	2.84	01/08/2022
GULF268A	2,200	4.00	18/08/2022
GULF298A	800	7.00	18/08/2022
SIRI269A	2,095	4.00	26/09/2022
BCP260A	3,000	4.00	21/10/2022
STA26NB	979	4.00	04/11/2022
Total	29,074		

4. **Newcomers** of corporate bond issuers recorded a new high at 31 companies from 15 business sectors, the highest number since 2010. The top 3 sectors came from energy, property, finance and information technology.

Number of Newcomers in Corporate Bond Issuers



2022 Thai Bond Market Review

Outstanding Value

Total outstanding value of Thai bond market at the end of 2022 increased by 5.3% to THB 15.78 trillion.

The largest portion came from government bonds, which accounted for 49% of the total outstanding. Corporate bond and Bank of Thailand (BOT) bond accounted for 28% and 15% respectively. The remaining were State Owned Enterprise (SOE) bond and foreign bond, which accounted for 7% and 1% respectively. (See Figure 1)

Classified by types of bonds, government bond outstanding grew 14.07% while Treasury bill and BOT bond declined 0.87% and 17.60% respectively due to lessening auction amount. Long-term corporate bond continued to grow by 9.54% from last year to the outstanding value of 4.25 trillion (See Figure 2)

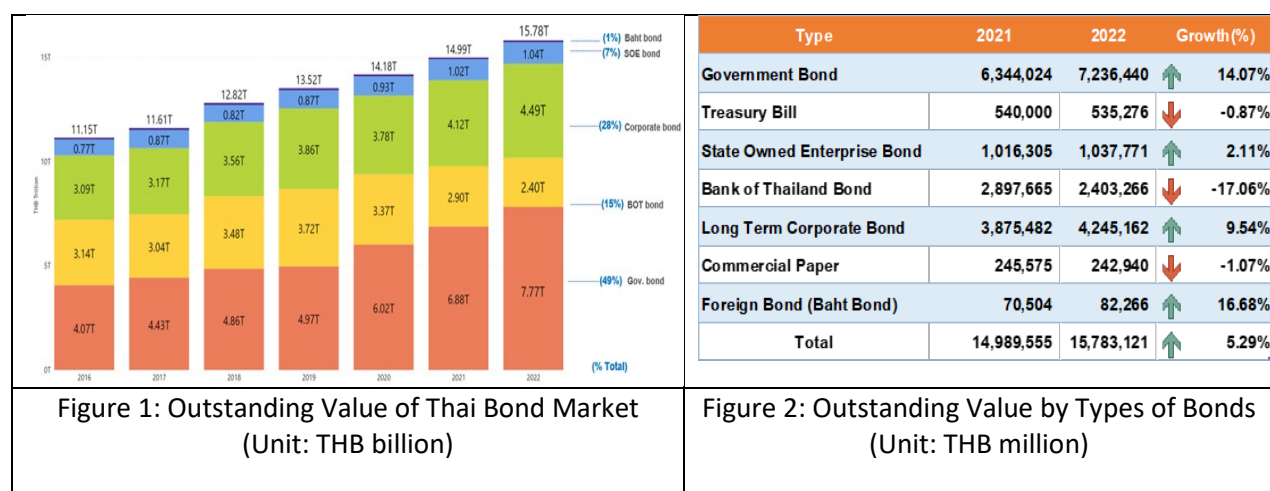


Figure 1: Outstanding Value of Thai Bond Market (Unit: THB billion)

Figure 2: Outstanding Value by Types of Bonds (Unit: THB million)

Classified by sector, outstanding value of the largest 6 business sectors of long-term corporate bond contributed 67.75% of the total. The 6 sectors were energy, property, finance (non-bank), food, commerce, and banking sectors. (See Figure 3)

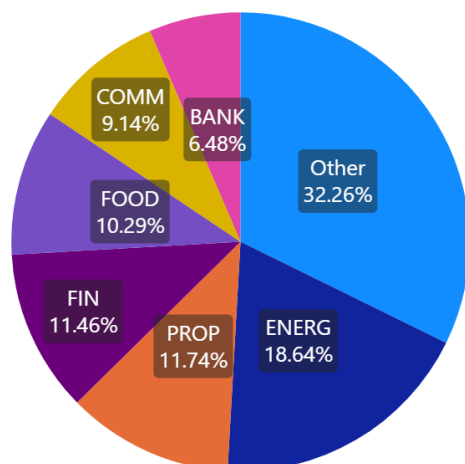


Figure 3: Long-Term Corporate Bond Outstanding Value Classified by Sector

Trading Value

Daily average trading value in 2022 was THB 59 billion, down 10.60% from THB 66 billion in the previous year. This was mainly due to declining trading activity in BOT bonds, of which primary market auctions were reduced this year. However, BOT bond remained the most traded bond with a daily average trading value of THB 31 billion. The second most traded bond was government bond with daily average trading at THB 22 billion. BOT and government bonds accounted for 90% of daily trading activity. (See Figure 4) The average daily trading value of corporate bonds was 4.8 billion, slightly higher than last year due to rising issuance value. (See Figure 5)

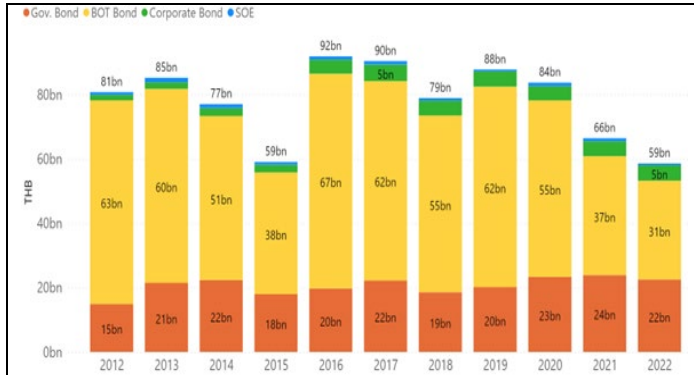


Figure 4: Average Daily Turnover in Thai bond market

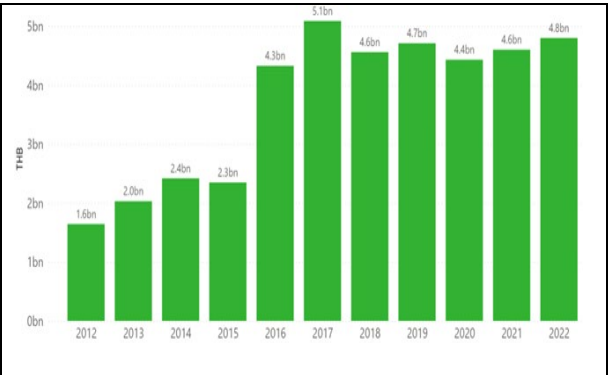


Figure 5: Average Daily Turnover of Corporate Bond

Bond Issuance

Long-term corporate bond issuance rose by 22% in 2022, reaching an all-time high at THB 1.27 trillion. This growth was driven by both investment grade and high yield bonds as the corporate sector prepared funding for the reopening activities and expansion. The top 5 sectors that issued corporate bonds were Energy & Utilities, Property Development, Finance & Securities, Petrochemicals & Chemicals, and Information & Communication Technology.

Government bond issuance slightly increased by 2% while issuance of BOT bond and State-Owned Enterprise bond declined by -7.02% and -19.25% respectively.

Type	2021	2022	Growth (%)
Bank of Thailand Bond	4,464,438	4,151,161	↓ -7.02%
Government Bond	1,260,001	1,287,898	↑ 2.21%
State Owned Enterprise Bond	197,658	159,600	↓ -19.25%
Treasury Bill	1,060,000	1,055,276	↓ -0.45%
Long-Term Corporate Bond	1,029,287	1,256,274	↑ 22.05%
Commercial Paper	699,109	862,747	↑ 23.41%
Foreign Bond (Baht Bond)	5,627	15,867	↑ 181.98%
Total	8,716,120	8,788,823	↑ 0.83%

Figure 6: Bond Issuance
(Unit: THB million)

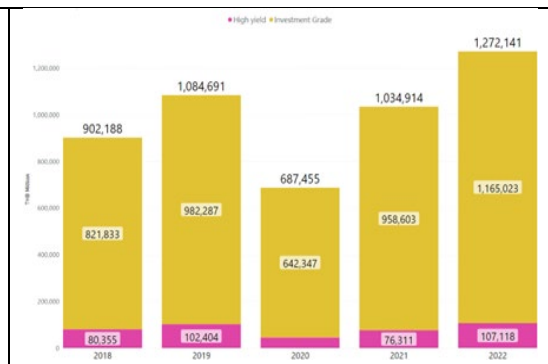
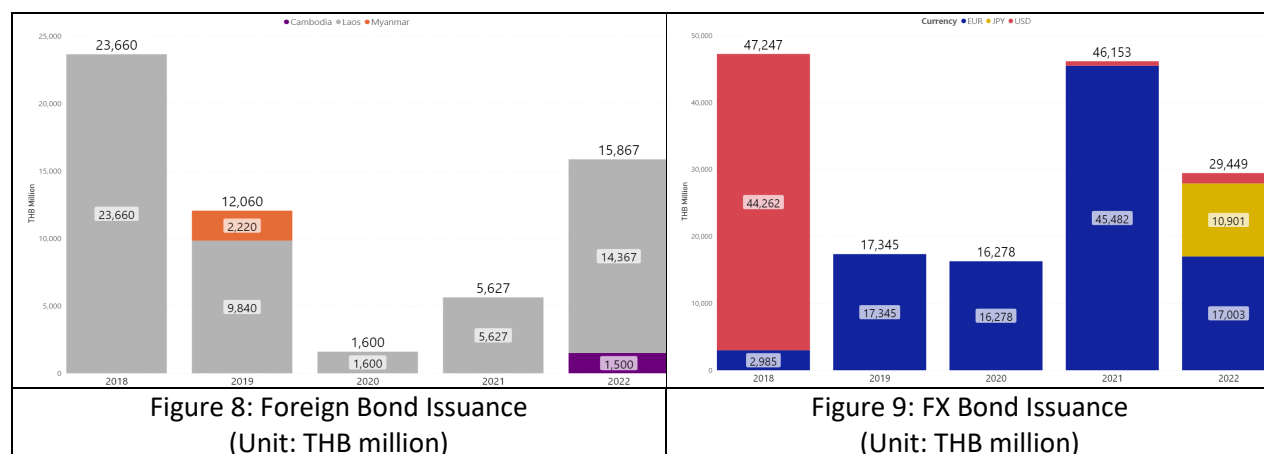


Figure 7: Long-Term Bond Issuance
(Unit: THB million)

In 2022, there was a total issuance of THB 15,867 million of foreign bond (**BAHT bond**), which is BAHT denominated bonds offered in Thailand by foreign entities. Most of foreign bond issuers were from Lao PDR, consisting of 3 issuers from both public and private sectors (Ministry of Finance of Lao PDR, EDL generation and Xayaburi Power) with total issue size of THB 14,367 million. There was one issuer of BAHT bond from Cambodia, Hattha Bank Plc, a leading bank in Cambodia. (See Figure 8)

Total **Foreign currency denominated bonds (FX bond)** issuance in 2022 was THB 29,449 million. The bonds were denominated in EUR, JPY and USD currencies. The issuers were Kiatnakin Phatra Bank (KKP) and Kasikorn Bank (KBANK) which offered the bonds to institutional investors (II) only . (See Figure 9)



ESG bond

2022 was another record year for ESG bond issuance with a total value of THB 210,994 million. The Ministry of Finance (MOF) remains the main issuer of ESG government bonds, contributing over half of the total issuance (THB 120,000 million).

Two new issuers from the government sector were Government Savings Bank (GSB) and Export and Import Bank of Thailand (EXIM), which issued social bond and green bonds respectively. The proceeds from GSB's social bond were used to finance low-interest rate loans made to grassroots economy projects to improve liquidity and living conditions and address informal debt issues. The proceeds from EXIM's green bonds were used to finance eligible green projects.

In the private sector, BTS group was the largest issuer of ESG bond in 2022. BTS issued sustainable-linked bond (SLB) valued THB 31,000 million of which 18,000 million were offered to Institutional and High Net Worth investors (II/HNW) and another 13,000 million were Public Offering (PO). It was the first time for SLB that offered through public offering, adding product variety in ESG bonds for retail investors. The BTSG's SLB bonds set KPIs and Sustainability Performance Targets (SPTs) on a reduction of electricity consumption for green line network and production or procurement of renewable energy.

The historic increase in ESG bond issuance had resulted in a 66% rise in the total outstanding value of ESG bonds to THB 501,990 million, dominated by sustainability bonds. Out of the total ESG outstanding, 61.73% was issued by the government sector and 38.26% was issued by the corporate issuers. Although

the government remains the largest issuer of ESG bonds, corporate issuers have outnumbered that of the government sector. There were 22 corporate issuers in comparison with 5 organizations from the government sector. It is expected that ESG bond issuance would continue to grow driven by strong determination of large corporates that have increasingly integrated ESG issues into their operation and funding strategies.

Figure 10: ESG Bond Issuers in 2022 (Unit: THB million)

	Green	Social	Sustainability	SLB
• Government sector	EXIM 5,000	GSB 10,000	MOF 120,000	-
• Corporate sector	GPSC 12,000	TFG 1,400	BEM 4,500	BTSG 31,000
	XPCL 8,395		KBANK 2,884	
	TTB 5,464			
	BGRIM 3,300			
	TLT 2,000			
	WHAUP 1,800			
	STGT 1,500			
	CPN 1,000			
	IRPC 750			
Total	<u>41,209</u>	<u>11,400</u>	<u>127,384</u>	<u>31,000</u>
Grand total				<u>210,994</u>

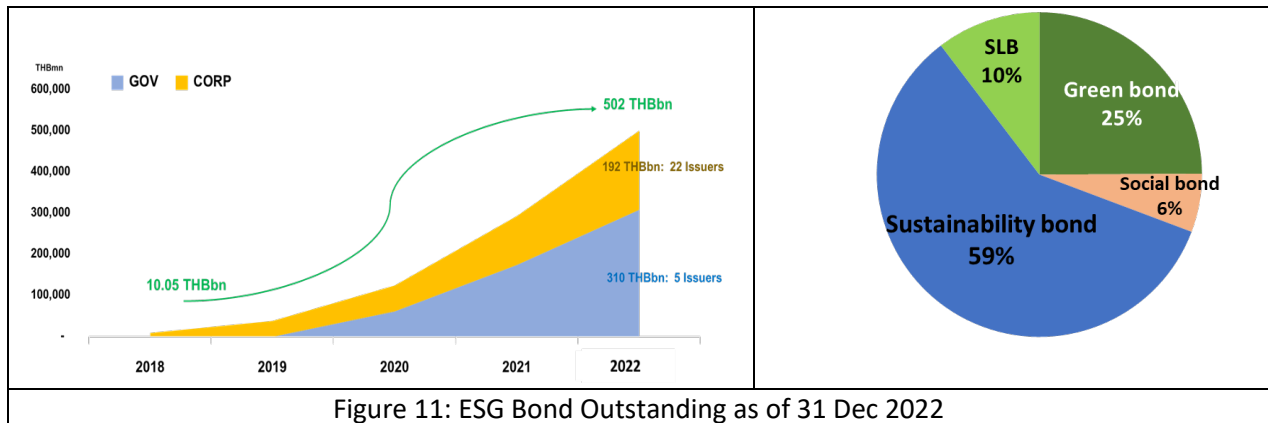


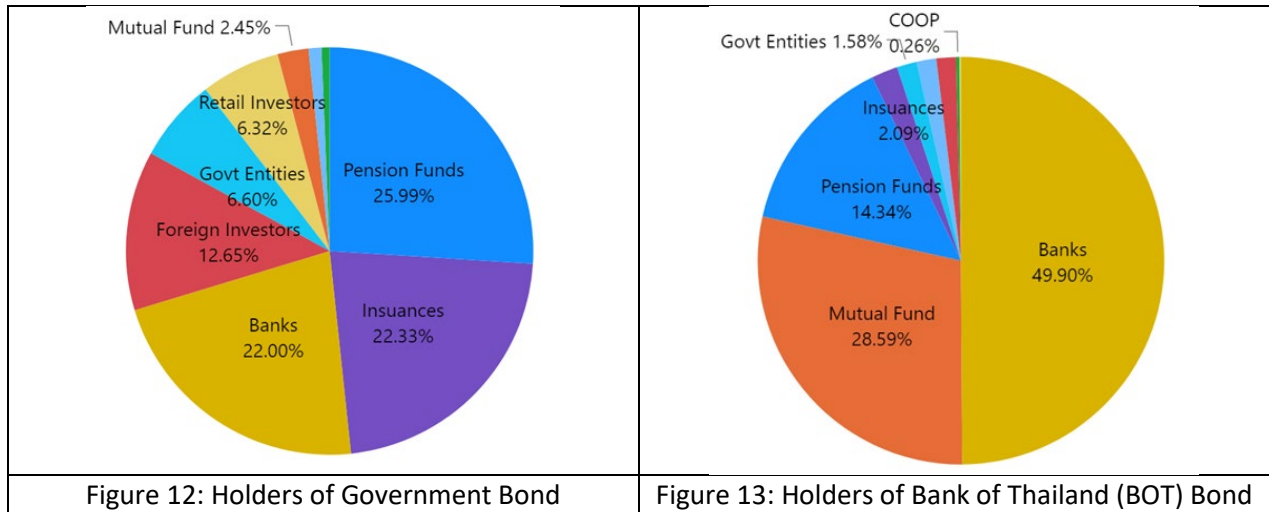
Figure 11: ESG Bond Outstanding as of 31 Dec 2022

Composition of Bond Holders

Holders of government bonds and Bank of Thailand bonds (as of end-2022)

Holders of government bonds were mainly institutional investors. The top three holders were long-term contractual funds (25.99%), insurance companies (22.33%) and banks (22% of total). Although not in the top three, foreign investors held a significant portion at 12.65% of total government bond outstanding whereas retail investors shared only 6.32% of total. (See Figure 12)

The largest holder of BOT bond was banks, accounting for 49.90% of BOT bond outstanding. The second and third largest holders were mutual funds and long-term contractual funds, which accounted for 28.59% and 14.34% respectively. (See Figure 13)



Holders of corporate bonds (as of end-2022)

The main holder of corporate bond was individual Investors, accounting for 37.22%. Insurance companies and long-term contractual funds ranked second and third with 17.22% and 12.47% respectively. (See Figure 14)

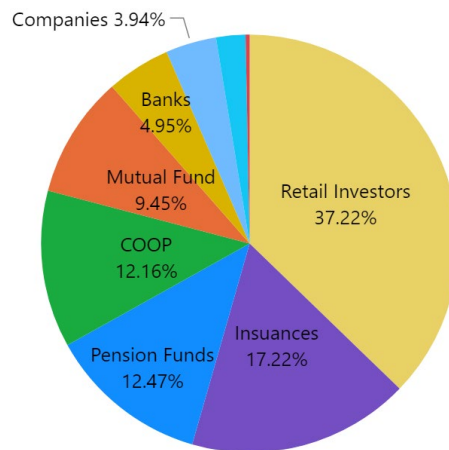


Figure 14: Holders of Corporate Bond

Fund Flows of non-resident investors (NR)

Non-resident investors recorded net purchase of THB 46 billion for the year 2022. Capital flows had shown high volatility during the year due to several global circumstances. In the beginning of the year, there were continuing momentum of foreign investment in Thai bonds with the net purchase of THB 140 billion during January to February 23, 2022. However, a significant outflow was seen after Russia invaded Ukraine on February 24th and net fund flows had turned negative.

During the second and third quarters of 2022, the Federal Reserve raised its policy rate four times while the Bank of Thailand raised it once, resulting in a widening yield gap between Thailand and the US, particularly in the short end. This, along with a dramatic appreciation of the US dollar, led to net outflows from the Thai bond market totaling THB 56 billion in Q2 and Q3.

In the last quarter, market sentiment had turned to a more dovish view due to concerns about potential recession in the US and other developed markets. This had led to a return of capital flows to the Thai bond market with a net inflow of THB 79 billion in Q4.

The year 2022 ended with net inflows of THB 46 billion of which THB 64 billion were inflows from long-term bonds and 17 billion net outflows from short-term bonds.

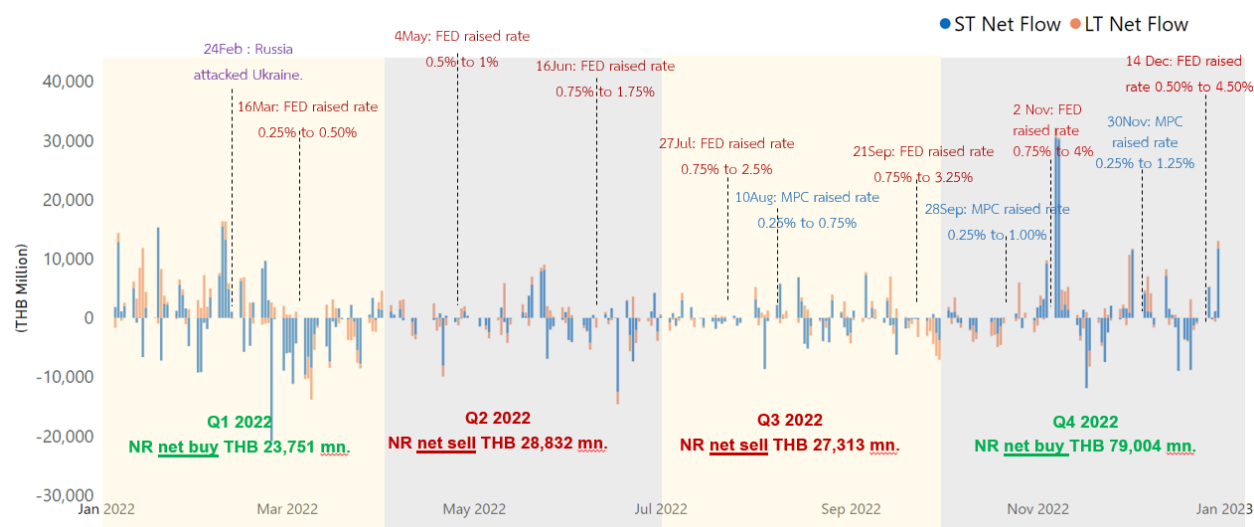


Figure 15: Daily Fund Flow of Thai Bond Market in 2022

NR Holding in Thai bonds

NR holding of Thai bond at the end of 2022 was at THB 1.069 trillion, increased from 1.013 trillion at the end of 2021. The largest portion of holding was in government bonds with a maturity range of 5 to 10 years, accounting for 30% of the total holdings, followed by government bonds with over 10-year maturity. Despite an increase in short-term bond holdings (time to maturity of 0-1 year) to THB 180 billion from 129 billion in last year, a majority (83%) of the nonresident investors' holdings were in long-term bonds, reflecting their long-term investment outlook in the Thai bond market. The average time to maturity of bonds held by nonresident investors was at 7.96 years, slightly lower from 8.80 years at the end of last year.

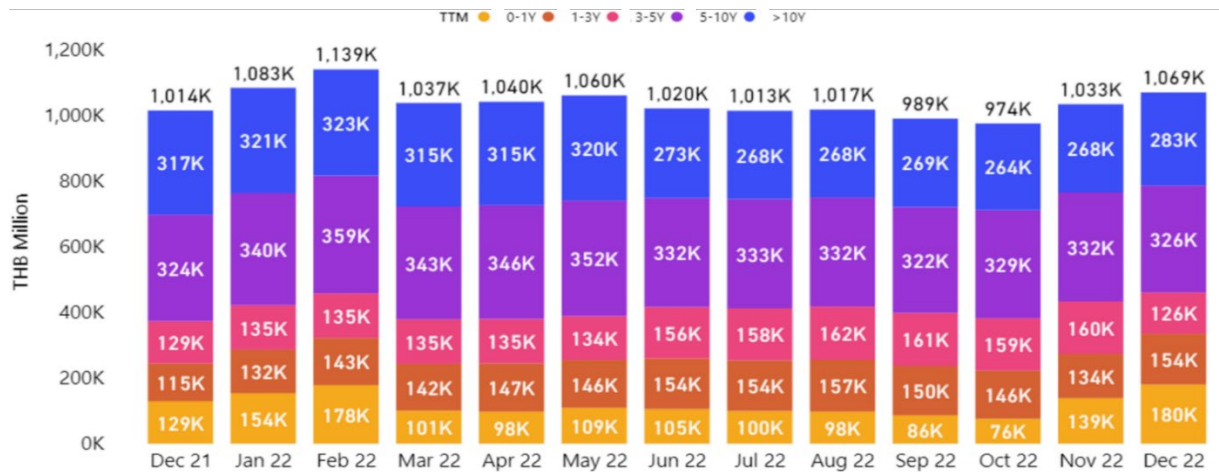


Figure 16: Monthly NR Holding of Thai Bond in 2022

Government Bond Yield Movements

To combat rising inflation, the Fed raised its policy rate aggressively throughout the year 2022 to the highest level in 15 years. US 10-year bond yields rose dramatically from 1.5% at the end of 2021 to peak more than 4% in October 2022. As a result, Thailand’s government bond yields moved up in correlation to rising US government bond yields. However, Thailand’s short-term bond yields (1-month to 1-year) remained stable during Q1 as the Bank of Thailand kept its policy rate unchanged. They began to rise in March following an increase in inflation driven by high energy prices and commodity costs.

Throughout the second and third quarters of 2022, both the Fed and the Bank of Thailand raised their policy rates multiple times, leading to a continued rise in Thai yields. It levelled off in Q4 due to concern over potential economic recession. In addition, there were signs that inflation in the US had peaked, and the FED may raise policy rate less aggressively. 10-year Thailand’s government bond yield finished the year at 2.64%, 74 bps higher than at the start of the year.

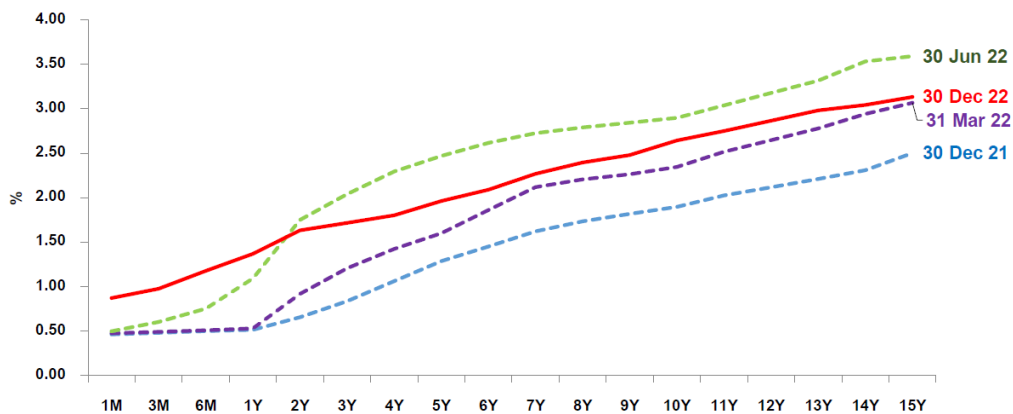


Figure 17: Thai Government Bond Yield Curve Movement in 2022

Corporate Bond Yields

In 2022, Corporate bond yields, which represent the cost of debt funding for corporates, had risen in tandem with surging government bond yields. 5-year corporate bond yields for AAA-AA rated increased 87 – 97 bps to 2.72% and 3.07%. The yield peaked around 3.40% - 3.80% in the last quarter and softened near the year end as inflation expectation was on an easing trend. Nevertheless, yields for AAA-rated five-year bond increased on average by 87 bps YOY from 1.85% to 2.72%. Yields for A-rated five-year bond increased on average by 63 bps YOY from 2.62% to 3.25%. Yields for BBB-rated five-year bond increased on average by 50 bps YOY from 4.53% to 5.03%. Increasing corporate bond yields reflected higher funding cost for corporates, but on the other hand, provided investors opportunities to invest in high quality bonds with more attractive yields.

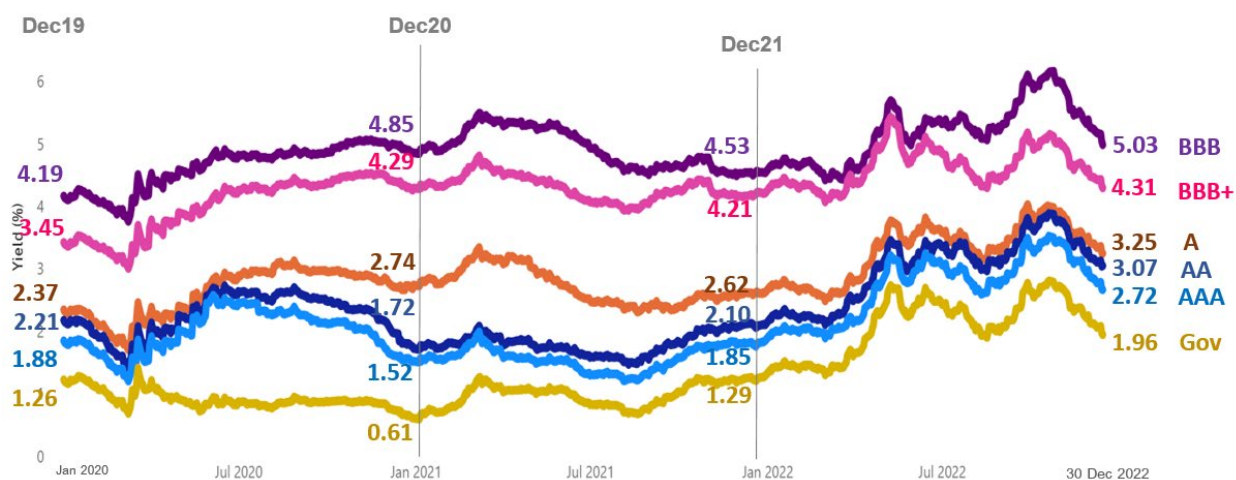


Figure 18: 5-year Corporate Bond Yield Movement in 2022

Summary

In 2022, the Thai bond market went through a volatile year due to increasing interest rates cycle. While Thailand's policy rate was raised gradually (from 0.5% to 1.25%), inflation has accelerated to the highest level since 1980s. Rising bond yields have resulted in negative returns on bond trading in the secondary market. However, in the primary market, the year 2022 was a record-breaking year for corporate bond issuance, reaching an all-time high of THB 1.27 trillion. In addition, ESG bond issuance saw promising growth and expected to continue rising. Overall Thai bond market remains sound and resilient thanks to ample liquidity in the financial market and strong investor appetite. Given its solid fundamental, the Thai bond market will continue to serve as a significant source of funding for both the government and corporations and provide a reliable source of income for bond investors.