



Estimation of Cambodia's Sovereign Yields & Credit Spreads

May 2024

INTRODUCTION

- Sovereign yield data serve various purposes. They not only provide insights into economic conditions, investor sentiment, and government creditworthiness, but also allow investors to price corporate bonds and to evaluate performance of any other investments made within a country.
- While the Cambodian government, represented by the Ministry of Economy and Finance (MEF), has launched the government bond market through the National Bank of Cambodia (NBC)'s platform, allowing banking and financial institutions (FIs) to bid and purchase the government bonds, the Cambodian sovereign yield data obtained so far may not be informative and useful for the purposes mentioned above due to the following reasons:
 - ❑ The government bonds have been denominated only in KHR. Given the high level of dollarization in Cambodia, the sovereign yields in USD are still needed and should be more useful.
 - ❑ There has been very limited investor participation in the primary market since (1) the platform has so far been made directly accessible mainly to FIs under the regulatory supervision of the NBC; (2) the KHR-denominated securities limits investor participation, as only a handful of FIs have surplus KHR liquidity, while many others have been facing shortages of the KHR liquidity.
 - ❑ As the NBC platform has yet to allow the secondary market trading, the only available data is the primary market data with very low frequency.
 - ❑ The issued tenors so far have been limited to short term of 1-3 year (based on disclosed information).
 - ❑ The sovereign yield data from the primary market bidding process may not reflect the market price due to the: 1) small issue amounts, 2) limited investor participation, 3) adoption of multiple pricing methods, and 4) MEF's discretion to terminate planned issuances if the bidding yields are unsatisfactory.
- In response to the above challenges, we attempt to derive theoretical USD-denominated sovereign yields for Cambodia. These yields could serve as a reference for pricing corporate/project bonds issued in Cambodia, and for evaluating the performance of investments made in the country. Our approach uses readily accessible data on a daily basis, allowing for the regular updates and publication of the theoretical sovereign yields on our Website and LinkedIn.
- In this report, we demonstrate the methodology for deriving Cambodia's USD-denominated sovereign yields (both fixed and floating) based on Thai sovereign yields, TRIS' rating of Cambodia, Thai corporate bond spreads, USD-THB cross-currency swaps, and SOFR swap rates. We used the Thai market data instead of the international USD-denominated corporate yields data due to (1) the availability and accessibility of the relevant Thai corporate spreads for different tenors; (2) high sample variance of the single B+ or B USD-denominated corporate yields because the high-yield bonds generally have low marketability, and the international rating scale does not provide sufficient rating granularity compared to the Thai national scale.

HISTORICAL GOVERNMENT BOND DATA

- So far, there has been a very limited number of bidders. The successful yield data are uninformative and not useful.

Session	Announcement Date	Bidding Date	Amount (mil KHR)	Coupon	Term	Bidding Method	Number of Bids	Participated Bidders	Successful Bidders	Bidding Quantity (units)	Successful Bidding Quantity (units)	Successful Yield	Maturity Date
1st	5-Sep-22	7-Sep-22	100,000	2.00%	1	Single Price	8	8	8	41,800	41,800	2.20%	2023/09/09
2nd	19-Sep-22	21-Sep-22	200,000	2.44%	3	Single Price	6	6	0	38,800	0	n/a	2025/09/23
3rd	4-Nov-22	11-Nov-22	Unlimited	2.20%	1	Single Price	8	8	5	49,300	24,300	2.20%	2023/11/14
4th	22-Nov-22	30-Nov-22	Unlimited	3.20%	3	Single Price	1	1	0	1,000	0	n/a	2025/12/02
5th	4-Dec-22	14-Dec-22	Unlimited	2.20%	1	Single Price	6	6	2	29,000	6,000	2.20%	2023/12/16
6th	19-Jan-23	25-Jan-23	Unlimited	3.48%	1	Single Price	2	2	2	24,000	24,000	3.60%	2024/01/27
7th	16-Feb-23	22-Feb-23	Unlimited	4.00%	2	Single Price	3	3	2	76,000	72,000	4.10%	2025/02/24
8th	16-Mar-23	22-Mar-23	Unlimited	4.20%	3	Single Price	1	1	1	4,000	4,000	4.50%	2026/03/24
9th	12-Apr-23	19-Apr-23	Unlimited	3.48%	1	Single Price	1	1	1	4,000	4,000	3.60%	2024/04/21
10th	16-May-23	24-May-23	Unlimited	4.00%	2	Single Price	1	1	1	4,000	4,000	4.00%	2025/05/26
11th	8-Jun-23	14-Jun-23	Unlimited	4.50%	3	Single Price	1	1	1	4,000	4,000	5.00%	2026/06/16
12th	13-Jul-23	19-Jul-23	Unlimited	3.48%	1	Multiple Price*	3	2	2	28,000	28,000	3.60% - 3.80%	2024/07/21
13th	09-Aug-23	16-Aug-23	Unlimited	4.00%	2	Multiple Price*	2	2	2	28,000	28,000	4.25% - 4.30%	2025/08/18
14th	8-Sep-23	20-Sep-23	Unlimited	4.50%	3	Multiple Price*	3	3	1	18,000	8,000	5.20%	2026/09/22
15th	6-Oct-23	18-Oct-23	Unlimited	3.48%	1	Multiple Price*	0	3	1	24,000	20,000	3.8% - 3.9%	2024/10/20
16th	15-Nov-23	22-Nov-23	Unlimited	4.00%	2	Multiple Price*	3	3	2	38,000	28,000	4.3% - 4.6%	2025/11/24
17th	13-Dec-23	20-Dec-23	Unlimited	4.50%	3	Multiple Price*	2	2	2	22,000	6,000	4.5% - 5.0%	2026/12/22
18th	17-Jan-24	24-Jan-24	Unlimited	3.50%	1	Multiple Price*	2	2	2	24,000	22,000	3.75% - 3.95%	2025/01/26
19th	15-Feb-24	21-Feb-24	Unlimited	4.00%	2	Multiple Price*	2	2	1	21,000	20,000	4.70% - 4.75%	2026/02/24
20th	14-Mar-24	20-Mar-24	Unlimited	4.50%	2	Multiple Price*	3	3	3	148,000	140,000	5.00% - 5.25%	2026/03/22
21th	9-Apr-24	24-Apr-24	Unlimited	3.50%	1	Multiple Price*	1	1	1	20,000	10,000	3.75% - 3.95%	2025/04/26

DERIVATION OF CAMBODIA'S SOVEREIGN YIELDS & CREDIT SPREADS

- Cambodia's sovereign yields and credit spreads can be derived using the country's ratings information.

Cambodia's Country Ratings

Credit Rating Agency	Long-Term Rating	Scale
Rating Agency of Cambodia (RAC)	KhAAA	Cambodia
TRIS	BBB+	Thai
Moody's	B2	International

The non-arbitrage theory suggests that given other transaction costs being minimal, the investor should be indifferent between investing in (1) Cambodian government's USD-denominated bonds; (2) a portfolio of THB-denominated corporate bonds with BBB+ rating and USD-THB cross currency swap (CCS); and (3) USD-denominated corporate/sovereign bonds with international rating of B2 from Moody's or B+ from S&P.

	Actual Market Approach	Non-Arbitrage Approach 1	Non-Arbitrage Approach 2
Asset Portfolio	- Cambodian Sovereign Bonds (local rating: KhAAA)	- THB-denominated corporate bonds (TRIS Rating: BBB+) - Enter USD-THB cross currency swap contract to swap THB for USD	- USD-denominated Corporate/Sovereign Bonds (Moody's Rating: B2)
Outcome	- Actual Cambodia's sovereign yields	- Theoretical Cambodia's sovereign yields	- Theoretical Cambodia's sovereign yields
Used Data	- Cambodian government bond prices/yields	- Thai government bond yields - Thai BBB+ corporate bond yields/spreads - USD-THB CCS margin	- US treasury yields - Moody's B2 or equivalently S&P's B+ Corporate/Sovereign spreads
Data availability	- N/A	- Available daily and easily accessible - Available for different tenors → possible to derive the entire yield curve	- Available but not easily accessible - Difficult to find data for different tenors - Moody's B2 or equivalently S&P's B+ corporate yields data can have high sample variance since (1) the high-yield bonds generally have low marketability; (2) the international scale does not provide sufficient rating granularity compared to Thai rating scale

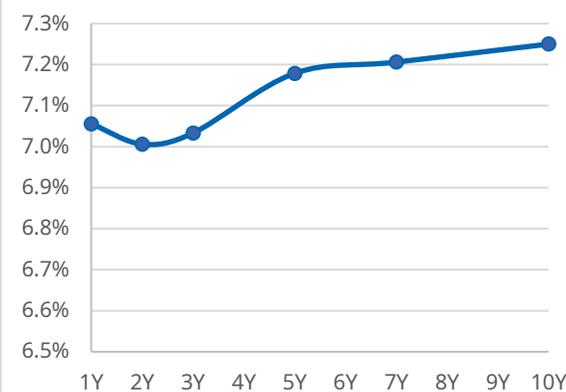
CAMBODIA'S SOVEREIGN YIELDS & SPREADS (FIXED RATES)

Date: 8th May 2024

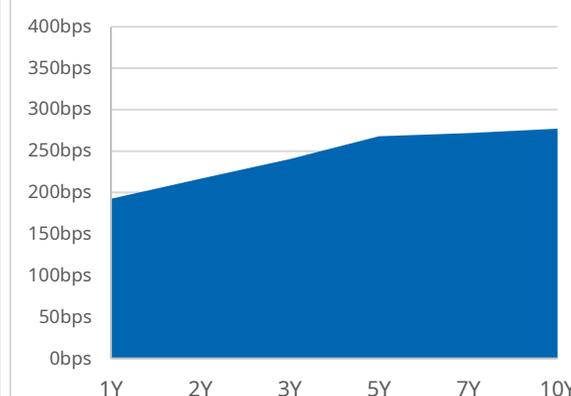
Tenor	TH Sovereign Yield (THB Fixed)	BBB+ (Thai) Credit Spread	Cambodia's Sovereign Yield (THB Fixed)	USD-THB CCS	Cambodia's Sovereign Yield (USD Fixed)	US T-Yield (USD Fixed)	Cambodia's Sovereign Spread vs US
	(1)	(2)	(3) = (1) + (2)	(4)	(5) = (3) + (4)	(6)	(7) = (5) - (6)
1Y	2.29%	177bps	4.05%	3.00%	7.06%	5.13%	193bps
2Y	2.35%	199bps	4.34%	2.66%	7.01%	4.84%	217bps
3Y	2.41%	222bps	4.63%	2.40%	7.03%	4.63%	240bps
5Y	2.54%	242bps	4.96%	2.22%	7.18%	4.50%	268bps
7Y	2.66%	245bps	5.11%	2.10%	7.21%	4.49%	272bps
10Y	2.78%	250bps	5.28%	1.97%	7.25%	4.48%	277bps

- (1) & (2) data can be obtained from Thai Bond Market Association (ThaiBMA), which updates the data daily.
- (2) BBB+ credit spreads for tenor 1Y, 2Y, 3Y, 5Y, 7Y, and 10Y are obtained through interpolation and extrapolation of six data points (3 data points based on average time to maturity and 3 data points based on average duration as provided by ThaiBMA).
- (3) Cambodia's THB-denominated sovereign yield is therefore the sum of (1) Thai sovereign yield and (2) BBB+ credit spread.
- (4) The USD-THB CCS margin can be obtained as actual data; however, YSC estimates the CCS margin using the linear regression of the CCS margin on the difference between US treasury yields and Thai sovereign yields.
- (5) Therefore, Cambodia's USD-denominated sovereign yield can be obtained as the sum of (3) Cambodia's THB-denominated sovereign yield and (4) the USD-THB CCS margin.
- (6) US treasury yield curve data can be obtained daily from the US Department of the Treasury.
- (7) Cambodia's sovereign spread vs US can be obtained as a difference between (5) and (6).

Cambodia's Sovereign Yield (USD)



Cambodia's Sovereign Spread



CAMBODIA'S SOVEREIGN YIELDS (FLOATING RATES)

Date: 8th May 2024

Tenor	US Treasury Yield (Fixed)	SOFR Swap Rate	US T-Yield - SOFR Swap Rate	Benchmark Risk -Free Rate (Floating)	Cambodia's Sovereign Spread vs US	Cambodia's Sovereign Yield (USD Floating)
	(1)	(2)	(3) = (1) - (2)	(4) = (3) + SOFR	(5)	(6) = (4) + (5)
1Y	5.13%	5.15%	-0.02%	-2bps + SOFR	193bps	191bps + SOFR
2Y	4.84%	4.75%	0.09%	9bps + SOFR	217bps	225bps + SOFR
3Y	4.63%	4.51%	0.12%	12bps + SOFR	240bps	252bps + SOFR
5Y	4.50%	4.26%	0.24%	24bps + SOFR	268bps	292bps + SOFR
7Y	4.49%	4.16%	0.33%	33bps + SOFR	272bps	304bps + SOFR
10Y	4.48%	4.11%	0.37%	37bps + SOFR	277bps	314bps + SOFR

- (1) US treasury yield curve data can be obtained daily from the US Department of the Treasury.
- (2) SOFR swap rates are obtained from www.chathamfinancial.com. These are the fixed rates that can be swapped for SOFR.
- (3) is the difference between the US treasury yield and SOFR swap rate.
- (4) Therefore, the benchmark risk-free floating rate is obtained as SOFR + (3).
- (5) The Cambodia's sovereign credit spreads were obtained from the previous slide.
- (6) Therefore, Cambodia's sovereign floating yield is obtained as (4) + (5).

DISCLAIMER

This report has been prepared for information and reference purposes only. The information and data contained in this report have been obtained from sources we consider reliable; however, we make no representation that the information provided in this report is accurate or complete, and it should not be relied on as such. The recipient of this report should use his/her independent judgment regarding the sale or purchase of any securities or financial instruments. We disclaim any liability whatsoever for any direct or consequential loss arising from any use of this report or its contents. The contents of this report are intellectual property of Yuanta Securities (Cambodia) Plc., and shall not be copied, reproduced, transmitted, quoted, or distributed in any manner without the prior written consent of Yuanta Securities (Cambodia) Plc.



We Know Asia

Thank you

CONTACT US



4th Fl, Emerald Building, No 64 (Corner St 178)
Preah Norodom Blvd, Phnom Penh
Cambodia



www.yuantacambodia.com.kh



cf@yantacambodia.com.kh

+855 (0)23 860 800 / 804