GCC Sukuk: A Primer

Investment Characteristics of US Dollar-Denominated Sukuk Originating from the Gulf Cooperation Council

3rd Edition

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Saturna Capital

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We are delighted to release the third edition of our GCC Sukuk Primer. This white paper examines the investment landscape and characteristics of *sukuk*, or Islamic-compliant investment certificates.

We will cover the risk and return attributes of *sukuk* and explore their relationship to changes in the price of oil, as hydrocarbon prices have a large influence on the economies of Middle Eastern countries. There is limited global research on *sukuk*, so we will focus on those issued in Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE). Together, these six countries form the Gulf Cooperation Council (GCC), which has consistently led other countries in the issuance of US dollar-denominated *sukuk*. See the **What is the GCC?** subsection on page 6 for more details.

The emerging market fixed-income communities of the GCC region are notable for their performance, relative stability, and development of their capital markets. The population of the GCC as of year-end 2022 was over 56 million, representing just 0.7% of the global population. The countries of the GCC generate 2.2% of global gross domestic product (GDP). However, 32.8% the world's oil supply comes from the GCC region, which gives these countries significant influence on the world stage.

The GCC Sukuk Primer is an extensive research report detailing the US dollar-denominated *sukuk* market. This report is divided into seven sections and two subsections to provide readers with a comprehensive overview of this emerging asset class.

Primary Sections include:

1. **The Dawn of the Golden Era:** An Introduction
2. **Market Issuance & Trends:** *Sukuk* Issuance Trends from 2011 to 2023
3. **History of GCC's Entry into the Fixed-Income Markets**
4. **What's the Appeal for Investors?:** What makes GCC fixed-income securities appealing to foreign investors. We characteristically coin this section as "plenty in the bank, plenty in the tank" to relay the region's substantively robust financial metrics and high investment-grade credit ratings of most issuers.
5. **The Price of Oil and the Sukuk Market - Understanding the Relationship:** Understanding the relationship of price movements of oil and the *sukuk* market. This section includes details on the unique structuring of Islamic-compliant securities relative to conventional fixed-income bonds.
6. **Correlation characteristics of *sukuk* relative to other asset classes**
7. **Putting a Pin in Relative Risk and Return:** A detailed analysis of the risk and return characteristics of US dollar-denominated *sukuk*.

The two Subsections address:

I. **What is the GCC?:** What is the Gulf Cooperation Council (GCC)

II. **JPMorgan's Inclusion of the GCC in its emerging market benchmarks; adoption and acceptance of an emerging region**

The Dawn of the Golden Era

Since the second edition of this primer was published two years ago, the GCC was largely spared the hardships faced by the rest of the world, (particularly developed economies), such as historically high inflationary pressures, growing fiscal deficits, and ballooning of sovereign debt. Over this period, the GCC has experienced an economic renaissance that could be described as a "golden era."

This view is shared by others such as Viswas Raghaven, chief executive officer for JPMorgan Chase & Co. in Europe, the Middle East, and Africa. "You're seeing a real kind of swagger as countries like Saudi Arabia, UAE, Qatar, all are pretty well positioned, both for attracting money managers, hedge funds, to also their own domestic economies becoming mainstream," said Raghaven. "This is a golden era for Middle Eastern companies and in general, the Middle East. I think that it's here to stay."[1]

Raghaven's statement may have some merit. The GCC region demonstrated enviable financial growth in 2022 and 2023. At year-end 2022, Saudi Arabia posted a GDP growth rate of 8.7%, the highest GDP growth rate of any G20 economy, and broke the $1 trillion mark in economic value for the first time ever.[2, 3] In 2022, real GDP growth for the entire GCC region was 7.9%, oil GDP growth was 12.1%, and non-oil GDP growth was 5.3%. For 2023 and 2024, real GDP growth in the GCC is estimated at 1.5% and 3.7%, respectively.[4] Global growth is projected to slow from 3.5% in 2022 to 3.0% in 2023 and 2.9% in 2024, well below the historical average of 3.8% for 2000 through 2019. The average growth rate of advanced economies is expected to slow down as well, starting at 2.6% in 2022, then lowering to 1.5% in 2023 and 1.4% in 2024.[5]

In October 2021, the International Monetary Fund (IMF) predicted in their Regional Economic Outlook that oil exporters such as the countries of the GCC were likely to see a cumulative windfall of $1 trillion between 2022 and 2026.[6] The price of oil, as measured by West Texas Intermediate (WTI), averaged $85.95 per barrel over the two-year period, from 2022 through 2023. Over that same period, the GCC region's sovereign wealth funds grew an average of 20%, reaching about $4 trillion.[7]

While the GCC region's economic and financial numbers are impressive, several of its member-states have gained global prominence in other ways. Dubai hosted the 2021 World's Fair, Qatar hosted the 2022 FIFA World Cup, and the 28th annual United Nations Climate Change Conference took place in Dubai in November 2023.

The UAE has become a place of refuge for those adversely affected by the COVID-19 pandemic and geopolitical conflicts. Bloomberg's Covid Resilience Ranking, which ranks 53 countries based on 12 indicators including health care quality, virus mortality, and reopening travel, ranked the UAE as number one for its high vaccination rates and low infection rates.[8] About 25,000 Ukrainians have relocated to the UAE to avoid the Russian-Ukrainian war.[9] Russian citizens have sought sanctuary in the UAE as well; an estimated half a million Russians have been granted the right to live in the UAE as of February 2022.[10]

The population influx to the UAE was a boon to the country's real estate market.[11] Property transactions surged along with valuations. By year-end 2022, total residential property transactions in the UAE exceeded 92,000 units, valued over AED 225 billion ($61.3 billion), a marked increase since 2018 when the country recorded less than 30,000 transactions, valued at near AED 75 billion ($20.4 billion). In the first three quarters of 2023, 87,000 homes were sold across the UAE, worth AED 222.7 billion.[12] Luxury residential property sales also flourished, setting new records. The most expensive apartment unit sale in Dubai occurred in February 2023, valued at AED 410 million ($112 million).[13]

With the rapid growth in population, the UAE began establishing comprehensive urban master plans. The Dubai 2040 Urban Master Plan, initiated by Sheikh Mohammed bin Rashid Al Maktoum in March 2021, aims to increase the city's population from its current size of 3.3 million to an impressive 7.8 million by the year 2040.[14] The region is determined to leverage its hydrocarbon riches by developing top-notch sectors and industries capable of drawing global commerce and trade opportunities.

The costs of development projects in the GCC, particularly for infrastructure, are simply staggering with estimates valued over $2 trillion. Saudi Arabia alone will require more than 800 million tons

What is the GCC?

GCC stands for the Gulf Cooperation Council, a political and economic alliance of six countries in the Arabian Peninsula. Its members are Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE). The GCC was established in 1981 to promote security and stability for its members.[15] Based upon the International Monetary Fund's (IMF) projections for year-end 2023, the estimated total GDP of the GCC was about $2.1 trillion, reflecting about 7.9% of the United States' GDP by comparison.

of cement to achieve its project plans by 2030, along with hiring over one million additional laborers and one hundred thousand engineers. As of November 21, 2023, over $178 billion in contracts had been awarded in the GCC in just one year. While a large number of these projects are related to the Energy sector, the largest single non-hydrocarbons deal was the $2.1 billion contract to build the Wynn gaming resort in Ras al-Khaimah.[16]

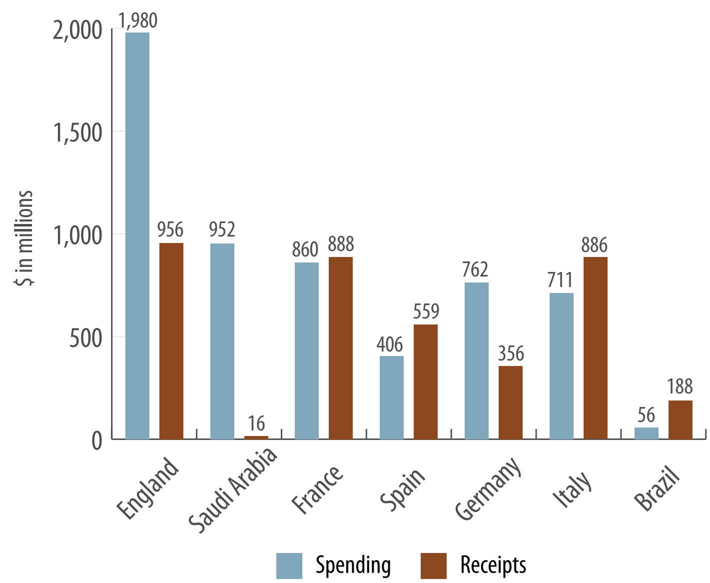
While infrastructure development projects in the GCC might not make the headlines, the GCC's entry into sports (soccer and golf in particular) has attracted considerable attention and controversy. As part of Saudi Arabia's Vison 2030 program, which is a national effort to move the country's economy away from its dependence on hydrocarbons, the government is expanding upon tourism, entertainment, and sports as a means of diversification. Saudi Arabia launched its National Tourism Strategy to foster the sector's development, create one million new jobs, and increase its contribution to GDP from the current 3.8% to 10% by 2030.[17] The government had originally set a goal to attract 100 million visitors to Saudi Arabia by 2030, but in September of 2023, the target was raised to 150 million visitors. The original target was "no longer sufficient," said Mahmoud Abdulhadi, the Deputy Minister of Destination Enablement at the Ministry of Tourism.[18]

During the 2023 summer transfer window for soccer, the government of Saudi Arabia spent an equivalent of USD$952 million to attract top athletes to build the Saudi Pro League. The Premier League in England was the only other "big five" league to spend more than Saudi Arabia, at USD$1.39 billion.

Saudi Arabia has also entered the professional golf world. In June of 2022, LIV Golf had its first tournament, financed with $2 billion courtesy of the Public Investment Fund, sparking a rivalry with the Professional Golfers' Association (PGA). Soon the PGA and LIV embarked upon an ugly feud in the Western media and American courts. The battle ended in June 2023 with a surprising announcement; the two parties agreed to merge forces.[19, 20]

Critics have labeled Saudi Arabia's deployment of exorbitant financial resources as "sports washing." This term implies that Saudi Arabia's spending on sports and entertainment is an attempt to divert attention away from alleged controversies or perceived issues associated with governance structures.[21]

Transfer Market Ending & Receipts - (Mid-year 2023)



Market Issuance & Trends

The global *sukuk* market is made of diverse regionalized markets that each have their own unique attributes and characteristics. From year-end 2000 through year-end 2022, 61.4% of global *sukuk* issuance originated in Asian countries. The GCC and the Middle East issued 24.5% of the market share for the same period. The countries of Malaysia, Saudi Arabia, and Indonesia were the largest issuers, with market shares of 48.4%, 12.6% and 9.5%, respectively.[22] International *sukuk* issuance denominated in the US dollar represented 23.3% of overall global market share.[23]

As of writing, *sukuk* have been issued in 27 different currencies from around the world. By year-end 2023, the total volume of outstanding global sukuk was over $850 billion, exceeding the size of the eurodollar's high yield market by nearly $100 billion.[24] Malaysian ringgit has the largest share of the market, representing 47% of global issuance from year-end 2000 through year-end 2022. US dollar-denominated *sukuk* is the next largest group, representing 22% of global issuance, and Saudi Arabian riyal-denominated *sukuk* represents 10%. In recent years, local currency markets have developed in size and issuance. For 2022, Malaysian ringgit represented 36.8%, Saudi Arabian riyal represented 20.9%, the US dollar represented 19.6%, the Indonesian rupee represented 9.9%, and the Qatari riyal represented 4.5% of global *sukuk* issuance.[25]

Year	Total Sukuk Outstanding ($bn)	% Chg in Market	USD Outstanding ($bn)	USD as % of Outstanding
YE 2017	444.25	16.8%	122.28	27.5%
YE 2018	481.63	8.4%	128.74	26.7%
YE 2019	544.47	13.0%	142.09	26.1%
YE 2020	630.13	15.7%	165.84	26.3%
YE 2021	711.17	12.9%	183.36	25.8%
YE 2022	765.42	7.6%	183.96	24.0%
YE 2023	848.46	10.8%	211.96	25.0%

There are typically four classifications of *sukuk* issuance: sovereign, quasi-sovereign, corporate, and financial issues. As of year-end 2022, total international *sukuk* outstanding by issuer category was led by sovereigns at 45% of the market, followed by quasi-sovereigns at 21%, financial issues at 19%, and corporates at 15%.[26] Quasi-sovereigns represented 39.9% of international *sukuk* issued in calendar 2022, followed by sovereign issuers at 29.7%, corporates at 15.8%, and financial issues at 14.6%.[27]

		$ Amt (bn) 848.46	% of total $	Count 4,195	Year-End 2023 848,460,000,000
Malaysian ringgit	MYR	312.83	36.9%	2,845	312,830,000,000
US dollar	USD	211.98	25.0%	355	211,980,000,000
Saudi riyal	SAR	173.57	20.5%	214	173,570,000,000
Indonesian rupee	IDR	87.16	10.3%	335	87,160,000,000
Pakistani rupee	PAK	19.38	2.3%	47	19,380,000,000
Turkish lira	TRY	13.90	1.6%	219	13,900,000,000
Qatari riyal	QAR	8.94	1.1%	18	8,940,000,000
UAE dirham	AED	4.49	0.5%	8	4,490,000,000
		832.25	98.1%	4,041	832,250,000,000

At the end of 2023, there was a rapid increase in the size of the overall *sukuk* market across all currencies. Global issuance was $848.45 billion, a 10.8% year-over-year increase, slightly above its three-year compound annual growth rate (CAGR) of 10.4%. Malaysian ringgit had the largest representation of the market share at 36.9%, followed by the US dollar at 25.0%, and the Saudi Arabian riyal at 20.5%.

US Dollar Issuance Trends – Introducing GCC's Dominance

For the five-year period ended 2023, the GCC's market share of issuance in US dollar-denominated *sukuk* averaged 45.4%. For the five-year period ended 2022, that average was 48%. While Malaysia retained its title as the largest *sukuk* issuer though its local currency, the country's share of US dollar-denominated issues was just 2.9%.

At year-end 2023, total issuance of US dollar-denominated *sukuk* was $58.1 billion, reflecting a 55.9% year-over-year increase and significantly above its three-year CAGR of 8.6%. The substantial uptick in *sukuk* issuance in 2023 offset the large decline in issuance in 2022. This decline was due to higher oil prices, which averaged $94.26 per barrel in 2022 and reached a high of $130.50 on March 7, 2022. Total issuance of US dollar-denominated *sukuk* in 2022 was $37.2 billion, down -24.5% since year-end 2021 when issuance was $49.4 billion.

The GCC region represented 54.5% of global *sukuk* issuance in 2023, above its three-year average of 41.9% which was skewed because GCC issuance had low representation in 2022 of 28.1%. Supranational entities were the second largest issuer in 2023 at 27.1% of total issuance, down from its three-year average of 36.8%. The third largest issuer was Turkey at 5.9% and the fourth largest issuer was Indonesia at 3.7%.

US Dollar Sukuk Issuance Trends (2010 - 2023)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Islamic Issuance ($ bn)	9,415	18,536	18,450	28,560	21,093	32,435	38,783	33,846	38,724	45,291	49,364	37,249	58,084
Change in %		96.9%	-0.5%	54.8%	-26.1%	53.8%	19.6%	-12.7%	14.4%	17.0%	9.0%	-24.5%	55.9%

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Region of Issuance													
GCC Issues	56.5%	75.8%	61.0%	36.7%	28.5%	35.1%	49.5%	51.4%	52.8%	48.8%	43.0%	28.1%	54.5%
Supranationals	8.0%	8.6%	14.5%	36.4%	38.9%	35.3%	33.7%	33.2%	32.4%	36.9%	38.3%	44.9%	27.1%
Malaysia	21.2%	1.9%	4.3%	2.8%	17.2%	11.5%	0.3%	3.2%	1.3%	1.1%	4.9%	0.0%	2.9%
Indonesia	10.6%	5.4%	8.1%	5.3%	9.5%	7.7%	7.7%	9.2%	5.4%	5.5%	6.1%	9.4%	3.7%
Turkey	3.7%	8.1%	11.9%	8.2%	1.2%	5.7%	3.5%	1.5%	5.8%	5.5%	6.2%	14.8%	5.9%
Pakistan	0.0%	0.0%	0.0%	3.5%	0.0%	3.1%	2.6%	0.0%	0.0%	0.0%	0.0%	2.7%	0.0%
Hong Kong	0.0%	0.0%	0.0%	3.5%	4.7%	1.2%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Europe	0.0%	0.2%	0.1%	0.1%	0.0%	0.3%	0.0%	1.6%	2.4%	2.2%	0.5%	0.1%	0.6%
Maldives	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%
Egypt	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%
India	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
Philippines	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%
United States	0.0%	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%
South Africa	0.0%	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Regionalized Summary													
	2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
GCC	56.5%	75.8%	61.0%	36.7%	28.5%	35.1%	49.5%	51.4%	52.8%	48.8%	43.0%	28.1%	54.5%
Supranational	8.0%	8.6%	14.5%	36.4%	38.9%	35.3%	33.7%	33.2%	32.4%	36.9%	38.3%	44.9%	27.1%
Asia (Includes Pakistan, India, & Maldives)	31.9%	7.3%	12.5%	15.1%	31.4%	23.5%	13.2%	12.3%	6.7%	6.6%	12.0%	12.2%	8.3%
MENA excluding GCC members	3.7%	8.1%	11.9%	8.2%	1.2%	5.7%	3.5%	1.5%	5.8%	5.5%	6.2%	14.8%	8.5%
Europe	0.0%	0.2%	0.1%	0.1%	0.0%	0.3%	0.0%	1.6%	2.4%	2.2%	0.5%	0.1%	0.6%
Other	0.0%	0.0%	0.0%	3.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
GCC & Supranational (only)	**64.4%**	**84.4%**	**75.5%**	**73.1%**	**67.4%**	**70.4%**	**83.3%**	**84.6%**	**85.1%**	**85.7%**	**81.2%**	**73.0%**	**81.6%**

There were several instances in 2023 that deserve special attention. Egypt and the Philippines issued their first inaugural sovereign US dollar-denominated *sukuk* in 2023. Both issues were *sukuk al Ijara*, which have a sale leaseback structure. On February 21, 2023, Egypt issued $1.5 billion three-year *sukuk* with a staggering profit rate of 10.875%.[28] On November 28, 2023, the Philippines issued $1.0 billion five-year *sukuk* at a profit rate of 5.045%.[29] The Philippines *sukuk* was 36 basis points (bps) outside of the government's debt curve of existing international bonds.[30]

On the corporate side, US airplane leasing firm Air Lease issued its inaugural *sukuk* on March 6, 2023, at $600 million with a five-year tenor and a profit rate of 5.85%.[31] The issue received strong demand, with orders exceeding $2.2 billion, an oversubscription rate in excess of 3.5x. The *sukuk* was also a *sukuk al Ijara*.[32] While Air Lease isn't the first US-domiciled corporation to issue *sukuk*, it does create a unique opportunity for US-based issuers to diversify their investor funding base.

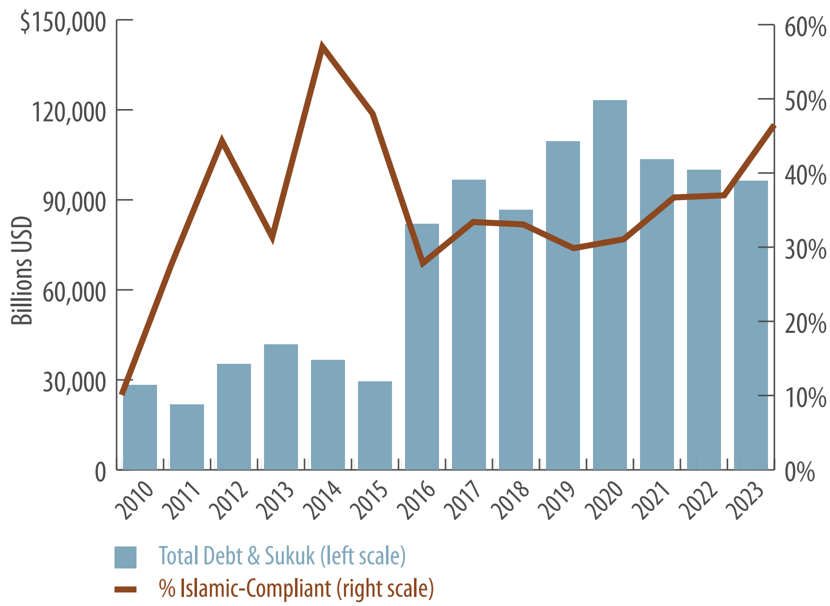
History of GCC's Entry into the Fixed-Income Markets

Broadly speaking, the six member-states of the GCC were not active issuers of debt or *sukuk* before 2016. When oil prices collapsed from 2014 through 2016, the GCC turned to the capital markets to supplement their gaps in government funding. The price of oil dropped from a high of $107.26 per barrel on June 20, 2014, to a low of $26.21 on February 11, 2015 — a 75.6% decrease! It would be another 15 months before the price of oil rose above $50.00 per barrel, on October 6, 2016.

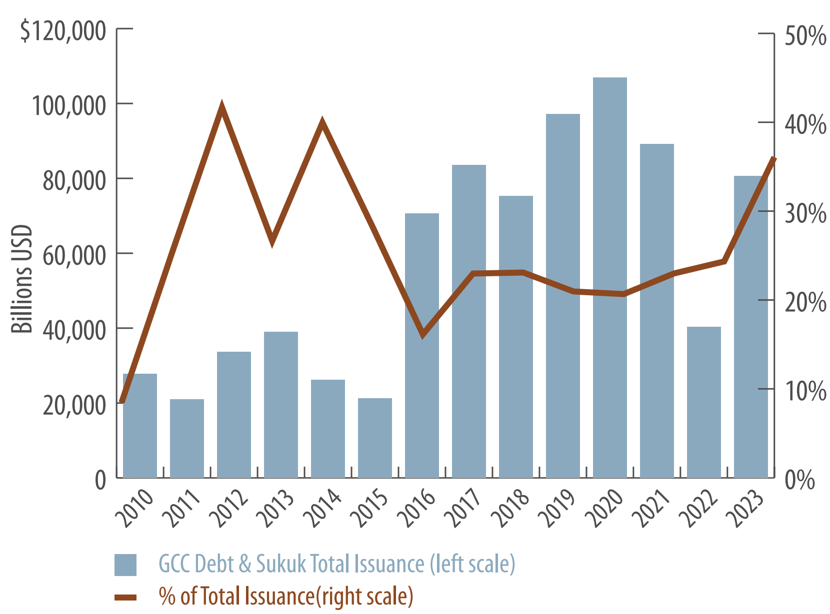
The rapid decline of hydrocarbon revenues placed each of the GCC members in a difficult fiscal position. They began dipping into their regional pools of savings (including sovereign wealth funds) to offset fiscal shortfalls. In 2015, Saudi Arabia consumed an estimated $115 billion of its sovereign wealth fund's reserves, left with a projected balance of $600 billion in early 2016. If oil remained below $40 per barrel in 2017, Saudi Arabia would have had to draw down another $150 to $200 billion.[33] It was entirely plausible that Saudi Arabia could burn through its entire sovereign wealth fund in a matter of a few years.

In April of 2016, Abu Dhabi issued a $5 billion bond to help offset a projected $10 billion deficit. It was the UAE's first bond sale in seven years since issuing a $1.5 billion note in April 2009.[34, 35] The high investment-grade bond was in such strong demand that investors placed over 600 orders for it, exceeding $17 billion.[36] Other GCC members took notice of Abu Dhabi's success, realizing that external investors could indeed help offset budgetary shortfalls. The GCC began to consider these investors as a primary source to fund other capital development and infrastructure projects; later, regional banks and non-financial corporate issuers came to the market for funding.

All GCC & Supranational Debt & Sukuk Issuance (2010 - 2023)



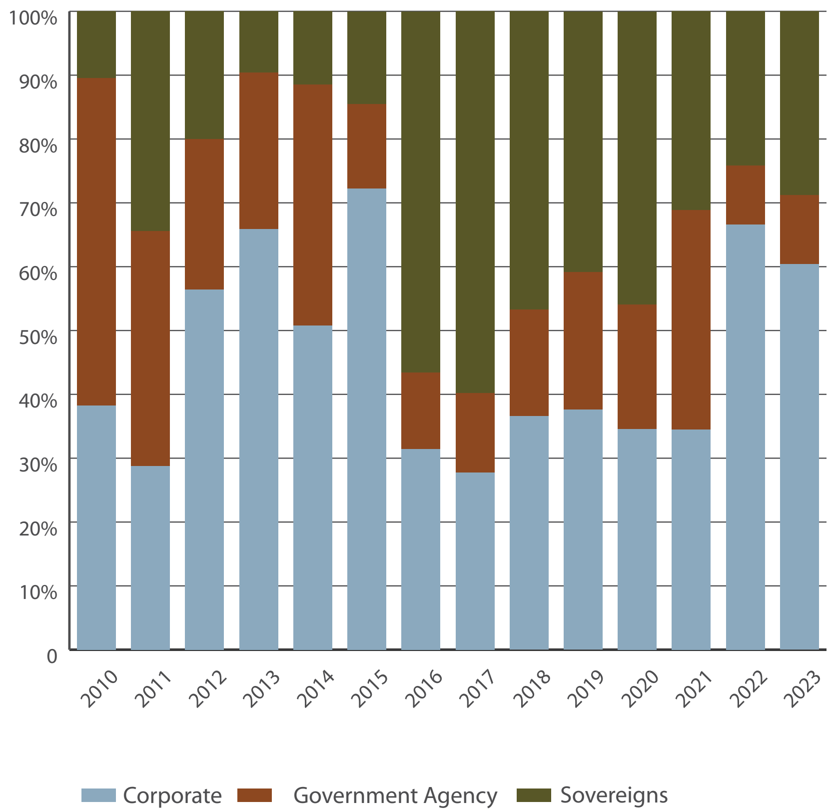
GCC Debt & Sukuk Issuance (2010 - 2023)



When GCC members entered the market, their timing was fortuitous for market participants, particularly those seeking Islamic-compliant securities. Malaysia's central bank, Bank Negara Malaysia, stopped issuing US dollar-denominated *sukuk* in summer 2015, and *sukuk* issuance declined by -42.5% in the second half of the year.[37]

The GCC region, including supranationals, is an active issuer of both conventional debt and *sukuk*. For the full 2023 calendar year, the GCC issued $96.3 billion in conventional debt and *sukuk*, a decrease of -3.7% in 2022, and a three-year CAGR of -7.8%. For just *sukuk* in 2023, the GCC issued $44.8 billion, a year-over-year increase of 21.1%, above its three-year CAGR of 5.4%. Islamic-compliant securities represented 46.5% of fixed-income issuance from the GCC region, above its three-year average of 40.1%. Excluding Islamic-compliant supranationals such as the Islamic Development Bank (headquartered in Jeddah, Saudi Arabia), *sukuk* represented 36.1% of security issuance in 2023, also above its three-year average of 27.8%. From year-end 2009 through year-end 2023, the GCC's total issuance of both conventional bonds and *sukuk* was $990.8 billion.

GCC Issuer Type (2010 - 2023)



If we exclude supranationals when examining GCC issuance trends of *sukuk*, the issuer types include sovereign, government agencies, and corporates. Sovereign *sukuk* represented 60.4% of securities issued in 2023, down from 66.6% issued in 2022. Corporate *sukuk* issuance was 28.8%, up from 24.2% the year before. *Sukuk* issued by government agencies comprised 10.9%, up from 9.2% the year before. The three-year averages of sovereign, corporate, and government agency issues was 53.8%, 28.0%, and 18.1%, respectively.

Qualified proceeds use *sukuk*, or ESG *sukuk*, is gaining traction among investors. Indonesia issued its first sovereign green *sukuk* in March of 2018 at $1.5 billion. In 2019, Majid al Futtaim issued the first corporate US dollar-denominated *sukuk* with a $600 million offering. Since then, ESG *sukuk* extended beyond green issues to include sustainable *sukuk* and sustainability linked *sukuk*. In 2023, $7.2 billion in ESG *sukuk* were issued, a year-over-year increase of 54.8%. The GCC issued $6.2 billion in ESG *sukuk* in 2023, representing 86.1% of the market.

US Dollar-Denominated Qualified Proceeds Use Sukuk

	All Qualified Proceeds Use Sukuk ($bn)	All Qualified Proceeds Use Sukuk from GCC ($bn)	GCC as %	Green Sukuk ($bn)	Sustainable Sukuk ($bn)	Sustainability-Linked Sukuk ($bn)
2023	7,200	6,200	86.1%	5,200	2,000	-
2022	4,650	3,150	67.7%	2,400	2,250	-
2021	4,900	2,500	51.0%	750	3,350	800
2020	4,150	3,400	81.9%	2,050	1,500	600
2019	1,950	1,200	61.5%	1,950	-	-
2018	1,250	-	0.0%	1,250	-	-
Total	24,100	16,450				

Source: Bloomberg

What's the Appeal for Investors?

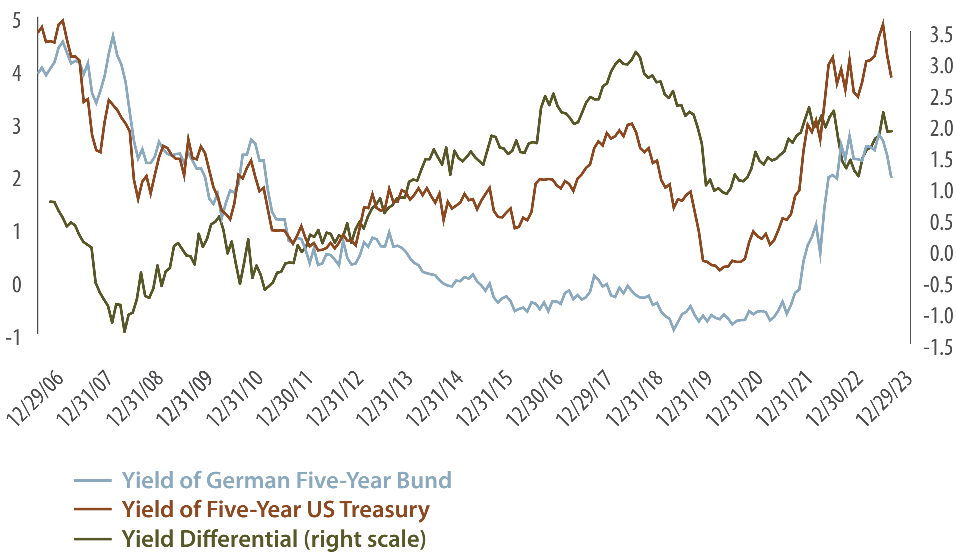
The GCC region offers investors unique investment attributes and characteristics that are typically uncommon among most emerging and developing world fixed-income markets – namely, favorable risk-adjusted returns and stability. In fact, the GCC region offers investors among the highest risk-adjusted returns when compared to developed and emerging/developing fixed-income markets.

In general terms, there are six primary factors that can help explain the regions' favorable risk-adjusted returns and overall stability. These include: (1) favorable yield enhancement to developed economies, (2) strong credit ratings, (3) low debt metrics, (4) fixed currency peg to the US dollar, (5) robust capital buffers, and (6) enormous hydrocarbon reserves. To simplify, we often characterized the regions' investment attributes with the following short tag line, "**plenty in the bank and plenty in the tank.**" We'll explain this in greater detail later in the report.

Issues from the GCC region offer favorable yield enhancement relative to developed world government bonds. The Global Financial Crisis (GFC) led to an extended period of low interest rates and low to negative yields. The low interest rate regime was detrimental to many institutions that needed to meet future funding obligations, such as pension funds. This period was referred to as a "yield famine."

In the graph "Five-Year US Treasurys & German Bund Yield (Dec 2006-Dec 2023)," note the movement of the yields after September 15, 2008 – the pivotal date that marks the beginning of the GFC, when the US government allowed the investment bank Lehman Brothers to go bankrupt.[38] In January 2015, the yield of the five-year German Bund entered into negative territory at -0.048%, later falling to -0.923% by month-end of August 2019. The five-year US Treasury yield hit a low of 0.205% in July 2020.

Five-Year US Treasurys & German Bund Yield (Dec 2006 - Dec 2023)



For institutional investors seeking issues with high investment-grade credit ratings, the GCC offered a solution, in part, to the low-yield environment. As shown in "Selected Five-Year Yields Compared to the US Treasury," Abu Dhabi, Qatar, and the Kingdom of Saudi Arabia provided favorable yields above the five-year US Treasury. Yield spreads materially compressed in recent years. For Qatar and Abu Dhabi, yield spreads compressed by over 60% between 2018 and 2023. For the two-year period ended 2019, Saudi Arabia, Qatar, and Abu Dhabi offered average yield enhancements of 102-bps, 90-bps, and 66-bps above the five-year US Treasury, respectively. The marked tightening in yield spreads can be seen for the two-year period ended 2023. Saudi Arabia, Qatar, and Abu Dhabi each had an average yield enhancement of 66-bps, 47-bps, and 31-bps above the five-year Treasury, respectively.

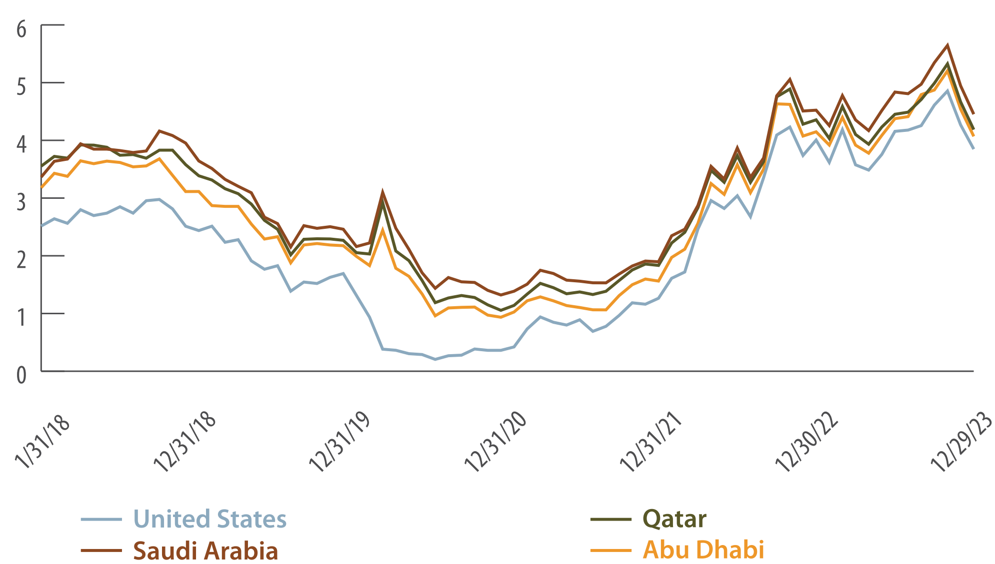
The tighter spreads can be attributed to strong sovereign fiscal metrics, stable high grade credit ratings, and high hydrocarbon prices. These countries also worked hard to develop favorable rapport with institutional investors, which helped provide stability over time.

Average Yield Enhancement Above Five-Year US Treasury (expressed in yield, bps)			
Year	**KSA**	**Qatar**	**Abu Dhabi**
2023	0.691	0.409	0.298
2022	0.636	0.535	0.325
2021	0.764	0.601	0.368
2020	1.433	1.198	0.980
2019	0.948	0.777	0.564
2018	1.095	1.026	0.748
Year	**KSA**	**Qatar**	**Abu Dhabi**
2022 - 2023	0.66	0.47	0.31
2020 - 2021	1.10	0.90	0.67
2018 - 2019	1.02	0.90	0.66

Yield Compression from 2018-2019 to 2022-2023			
	KSA	**Qatar**	**Abu Dhabi**
	36.9%	60.1%	60.2%

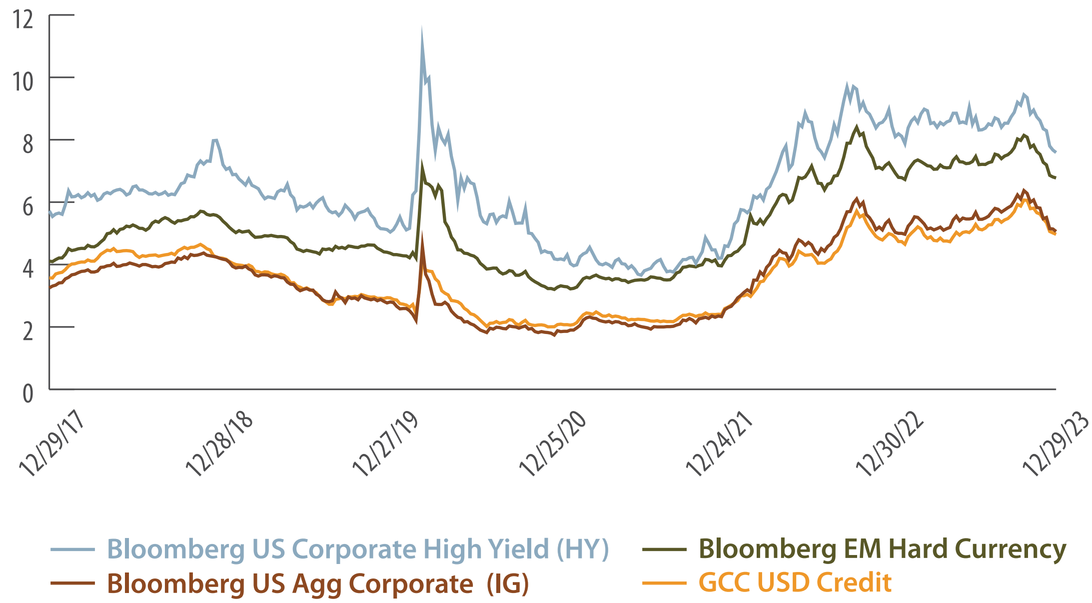
The yields of the benchmarks Bloomberg US Corporate High Yield Index, Bloomberg Emerging Market Hard Currency Index, Bloomberg US Aggregate Corporate Investment Grade Index, and Bloomberg GCC USD Credit Statistics Index incorporate both sovereign and corporate issuers. The indices demonstrate competitively low yield-to-worst (YTW) metrics relative to commonly known fixed-income indices that US investors use. The low yields of these benchmarks signal investor confidence in the region and heightened investor demand, which lowers their reported YTW.

Selected Five-Year Yields Compared to the US Treasury



Investors are also attracted to the GCC region because of the high investment-grade ratings of sovereign debt. Many of the member-states of the GCC retained credit ratings that are typically awarded only to developed countries. Fitch rated Abu Dhabi sovereign debt and *sukuk* credit "AA" followed by Qatar at "AA-," and Saudi Arabia at "A+." In comparison, Fitch rated the United States "AA+: stable" following their decision to downgrade the sovereign status from "AAA" back on August 1, 2023. The reason for Fitch's downgrade was the deteriorating sustainability of the US fiscal and debt profile in conjunction with its contentious political landscape when compared to other "AAA" issuers.[39] Meanwhile, the United Kingdom was rated "AA-", Negative, and China was rated "A+, Stable."[40,41]

Historical Yield-to-Worst of Selected US, Global, & GCC Corporate Issuers (Weekly, 2018-2023)



While selected members of the GCC have achieved investment-grade credit ratings, the overall stability of their credit ratings over time are also worth examining.

	Saudi Arabia			Qatar			Abu Dhabi		
	Fitch	Moody's	S&P	Fitch	Moody's	S&P	Fitch	Moody's	S&P
2023	A+, Stable	A1, Positive	A, Stable	AA-, Positive	Aa2 Stable	AA, Stable	AA, Stable	Aa2, Stable	AA, Stable
2022			A-, Positive		Aa3 Stable		AA-, Stable		
2021	A, Stable	A1, Stable		AA-, Stable			AA-, Stable	Aa2, Stable	
2020	A, Negative	A1, Negative		AA-, Stable	Aa3 Stable	NR	AA-, Stable		
2019	A, Stable	A1, Stable		AA, Negative	Aa3 Stable	AA-, NR	AA, Stable	Aa2, Stable	AA, Developing
2018	A+, Stable	A1, Stable		AA, Stable	Aa3 Stable		A, Stable		

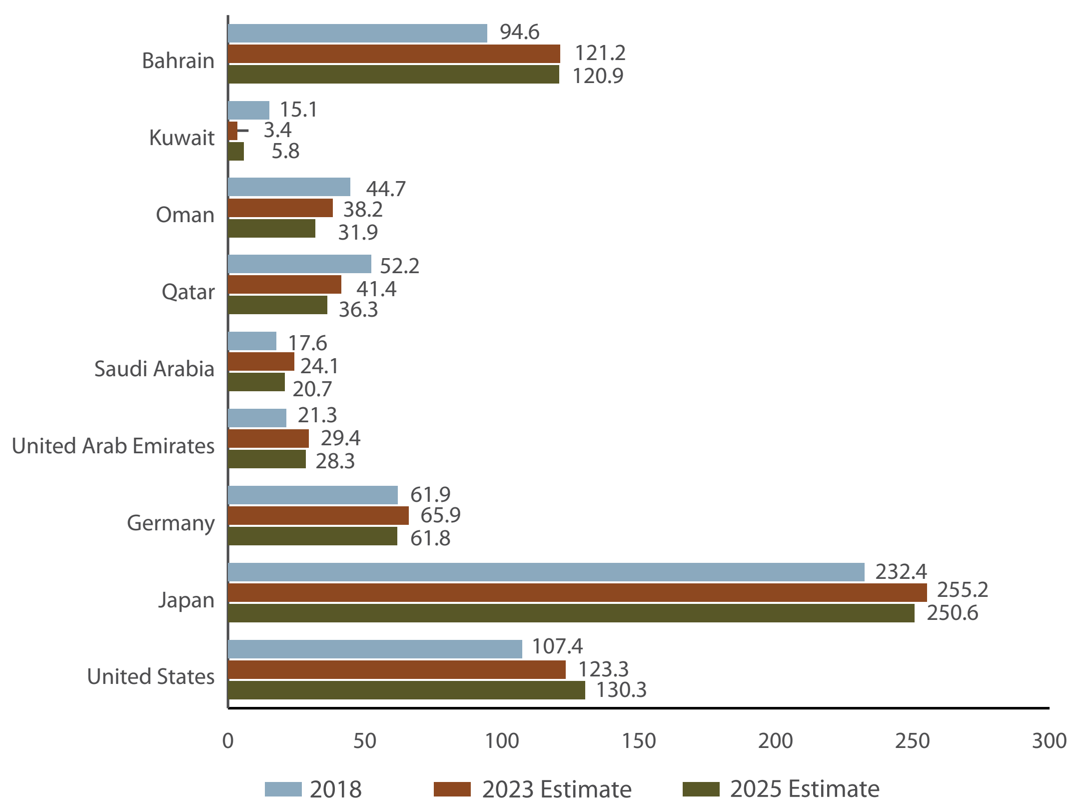
The GCC region has largely demonstrated resilient and stable credit ratings despite the price of oil experiencing material volatility over the last five years.

GCC's Indebtedness vs. the Developed World

When Abu Dhabi issued debt in April 2016, it wasn't just the attractive yields and favorable "AA" credit rating status that tantalized investors; it was also the UAE's low outstanding debt. The debt-to-GDP ratio for the GCC countries (except for Bahrain and Oman, which retain below investment-grade credit profiles) is extremely low. Low debt affords a country greater financial flexibility to meet its ongoing financial debt and *sukuk* obligations compared to a highly leveraged country. Some of the GCC members retained high credit ratings in addition to extremely low levels of debt when compared to substantially leveraged developed countries. The selected periods (2018, 2023, and 2025) are meant to reflect each country's debt burden prior to the pandemic, post-pandemic, and anticipated projections several years after the pandemic.

	Gross Government Debt-to-GDP			Fiscal Budget Measured as a % of GDP		
	2018	2023 Estimate	2025 Estimate	2018	2023 Estimate	2025 Estimate
Bahrain	94.6	121.2	120.9	-11.8	-5.0	-6.6
Kuwait	15.1	3.4	5.8	6.5	14.0	8.2
Oman	44.7	38.2	31.9	-6.7	6.2	4.1
Qatar	52.2	41.4	36.3	-2.6	13.5	10.1
Saudi Arabia	17.6	24.1	20.7	-8.9	2.5	0.3
United Arab Emirates	21.3	29.4	28.3	-0.2	9.9	4.4
Germany	61.9	65.9	61.8	2.0	-2.9	0.9
Japan	232.4	255.2	250.6	-2.5	-5.6	-2.6
United States	107.4	123.3	130.3	-5.3	-8.2	-7.4

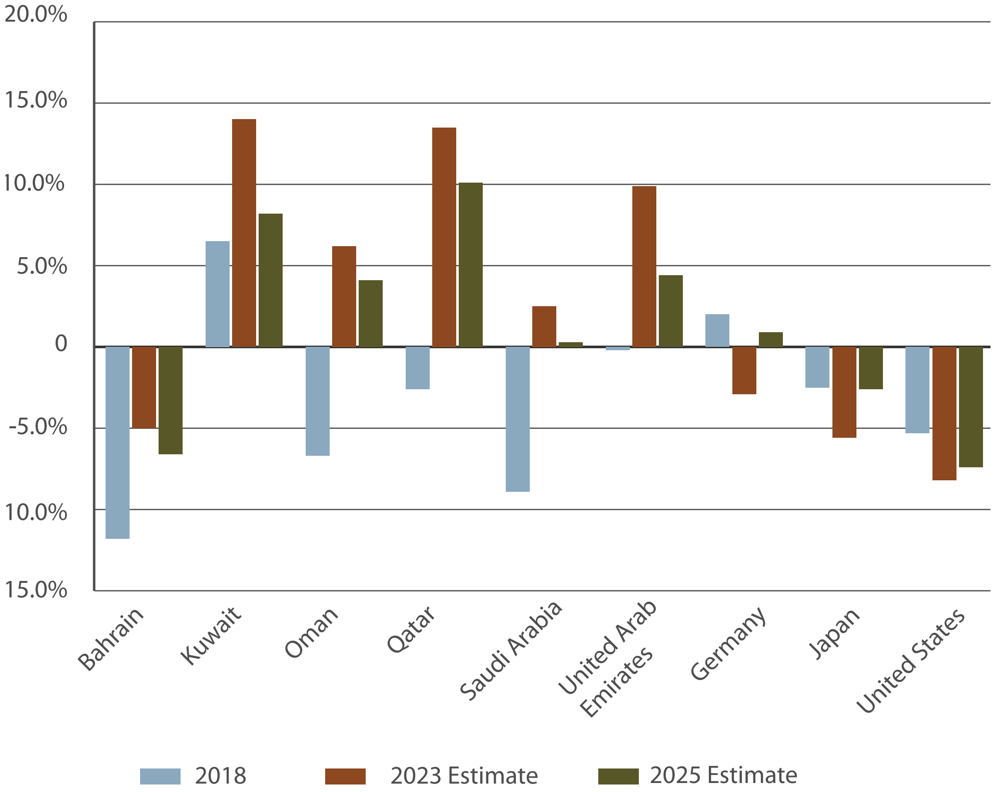
Gross Government Debt-to-GDP



Looking at Saudi Arabia and the UAE, we see a story of fiscal budgets reversing from deficits into surpluses. However, we note that the Kingdom of Saudi Arabia revised their own budget forecast for year-end 2023 to 0.4% of GDP on October 1, 2023, due to lower oil revenues.[42]

Another credit rating agency, Moody's, downgraded the US in November 2023 from "Stable" to "Negative" but retained its "AAA" rating. Moody's downgrading rationale echoed that of Fitch: rising debt sustainability risks, large fiscal spending, and a contentious political landscape inhibiting the parties from effectively addressing these issues.[43]

Government Fiscal Budget-to-GDP (2018, and IMF Estimates for 2023 & 2025)



Plenty in the Bank and Plenty in the Tank

Even though each member-state in the GCC retains its own local currency, the region can be characterized as a US dollar-based economy. The origins of the US dollar's dominance and integration in the region can be credited, in part, to a signed agreement that took place on June 8, 1974, between Secretary of State Henry Kissinger and Saudi Prince Fahd. The agreement concerned economic and military cooperation between the two countries, but also formalized two important points for the US. First, oil would be priced and invoiced in US dollars. Second, the proceeds from the sale of oil would be invested in US Treasurys or other dollar-denominated securities.[44] In June 1986, the Kingdom of Saudi Arabia pegged its local riyal to the US dollar at a fixed rate of 3.7500.[45] This currency peg has remained in effect ever since.[46]

Later, other countries within the GCC began to peg their currency to the US dollar. In 1997, the UAE established a dollar-dirham peg of one US dollar to 3.6725 dirham.[47] Kuwait is the one outlier, which employs a basket of currencies rather than peg their currency to the dollar. Even with this approach, Kuwait is largely a US dollar-centric economy.[48]

When a country has a US dollar-pegged currency, its government usually adjusts its monetary policies (such as the benchmark interest rate) in tandem with the US Federal Reserve's interest rate policies. If that country doesn't coordinate its monetary policy actions, its fixed-rate currency peg may be adversely affected, depreciating relative to the US dollar. GCC assets, government receipts, liabilities, and fiscal budgets become US dollar-denominated proxies, which helps them avoid currency mismatches — a situation where a country's assets are denominated in their local currency while having their liabilities and obligations payable in another currency. Foreign investors can find this attractive, as it helps them to potentially sidestep adverse currency devaluations on their investments.

Plenty in the Bank

In 1938, Saudi Arabia began commercial production from its first oil well, Damman No. 7, aptly nicknamed the "Prosperity Well."[49] Over the following eight decades, Saudi Arabia and its fellow GCC members became major suppliers of the world's insatiable energy needs. In 2022, the GCC member-states satisfied 32.8% of the world's oil demand, with Saudi Arabia representing 12.9%, the UAE at 4.3% and Kuwait at 3.2%. The GCC region has amassed enormous wealth since that first oil well.

Eight of the GCC's sovereign wealth funds control 35.3%, or $3.7 trillion, of the total $10.6 trillion of assets held among the top 20 sovereign wealth funds.[50] At year-end 2021, the population of the GCC region was estimated at 56.1 million.[51] However, about half of the region's population are expats, which reduces the "natural population" to around 27.6 million.[52, 53] In no other region of the world is there such a large concentration of wealth among such a small population.

Ranking of Sovereign Wealth Funds (As of FY 2022)				
Rank	**Sovereign Wealth Fund**	**($ trillions)**	**Country**	**Region**
1	Norway Government Pension Fund Global	$1,478	Norway	Europe
2	China Investment Corporation	$1,351	China	Asia
3	SAFE Investment Company	$1,020	China	Asia
4	Abu Dhabi Investment Authority	$853	UAE	Middle East
5	Kuwait Investment Authority	$803	Kuwait	Middle East
6	Public Investment Fund	$777	Saudi Arabia	Middle East
7	GIC Private Limited	$770	Singapore	Asia
8	Hong Kong Monetary Authority Investment Portfolio	$514	Hong Kong	Asia
9	Temasek Holdings	$492	Singapore	Asia
10	Qatar Investment Authority	$475	Qatar	Middle East
11	National Council for Social Security Fund	$416	China	Asia
12	Investment Corporation of Dubai	$320	UAE	Middle East
13	Mubadala Investment Company	$287	UAE	Middle East
14	Türkiye Varlık Fonu Yönetimi A.Ş. (Turkey Wealth Fund)	$279	Turkey	Middle East
15	Korea Investment Corporation (KIC)	$169	South Korea	Asia
16	Abu Dhabi Developmental Holding Company PJSC	$159	UAE	Middle East
17	National Welfare Fund of the Russian Federation	$148	Russia	Europe
18	Future Fund Management Agency	$132	Australia	Asia
19	Alberta Investment Management Corporation (AIMCo)	$124	Canada	North America
20	Emirates Investment Authority	$87	UAE	Middle East
	Total for TOP 20 SWF	$10,655		

Not all the sovereign wealth of the GCC region is allocated for immediate use; some is dedicated for the future. Kuwait's Future Generations Fund, an intergenerational savings fund, permits no asset withdrawals unless sanctioned by law.[54] The only time that proceeds were withdrawn from the Fund was in conjunction with the 1990-91 Iraqi invasion and occupation. From 1990 through 1994, nearly $85 billion in assets were withdrawn to pay for the cost of liberation and subsequent reconstruction, and were later fully repaid.[55] As Kuwait's deficit rose and the government and parliament refused to agree on a funding strategy, credit rating agency S&P downgraded the country's rating from "AA-" to "A+" with a negative outlook, which "primarily reflects risks relating to the government's ability to overcome the institutional roadblocks preventing it from implementing a financing strategy for future deficits."[56] As the stalemate continued, Kuwait's lawmakers proposed legislation to tap assets from the Fund.[57]

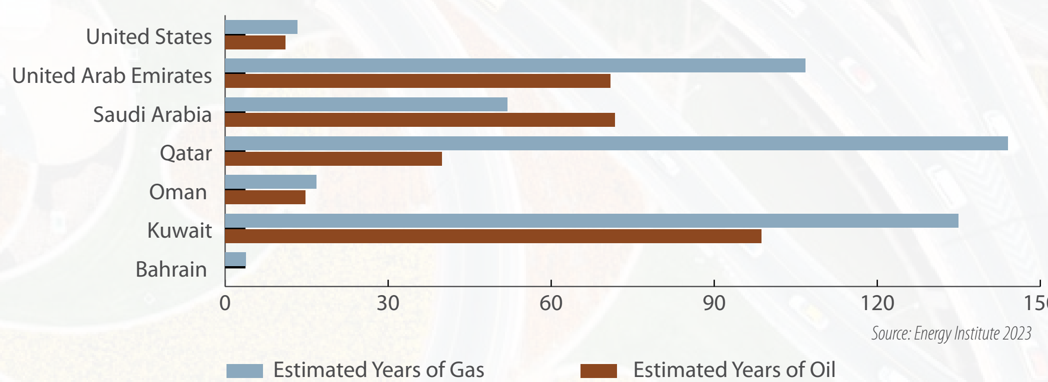
Following the onset of the pandemic, oil prices steadily rose, reaching a high on March 7, 2022, at $130.50 a barrel. This rise helped the GCC region further improve its fiscal standing.

According to the IMF, high oil prices and low headline inflation are likely to make the Gulf economies an additional $1.4 trillion in revenue over the next four to five years.[58] Bahrain and Oman, which are rated below-investment grade, were able to materially improve their fiscal budgets due to the added revenues. Between year-end 2021 and year-end 2022, Bahrain's fiscal deficit decreased by 85%, or 178 million dinars ($472 million), according to a preliminary financial estimate from the country's Finance Ministry.[59] In Oman, the country's deficit was 1.55 billion rials ($4.03 billion) at year-end 2021. At year-end 2022, Oman projected a fiscal surplus of 1.15 billion rials ($2.98 billion).[60] S&P Global Ratings upgraded Oman's credit rating first in December 2022, from "BB-" to "BB", and again in September 2023, from "BB" to "BB+" due to improved fiscal performance and lower public debt.[61, 62] The fiscal health of corporate issuers in the region has improved. This oil-wealth effect also helped Kuwait to improve its outlook from "Negative" to "Stable" while retaining its "A+" rating.[63]

Plenty in the Tank

While the transition toward a low-hydrocarbon global economy is a high priority, it will take considerable time, particularly with the resurgence of geopolitical risks and movements by governments to prioritize national energy security. In October 2023, Italy, France, and the Netherlands each signed a liquefied natural gas (LNG) contract with Qatar through 2050.[64, 65, 66] These agreements took place just before the United Nations Climate Change Conference in Dubai in November and December of 2023. One of the goals of the European Green Deal is for the EU to achieve carbon neutrality and net-zero GHG emissions by 2050. The agreements that Italy, France, and the Netherlands made with Qatar may challenge these goals.

Estimated remaining years of proven hydrocarbon reserves based upon three-year average (2020-2022) of production levels



Source: Energy Institute 2023

According to the Energy Institute, which compiles data on hydrocarbon reserves and production levels, the GCC region is rich in hydrocarbon reserves. The Energy Institute's most recent publication found that, based upon production rate three-year averages (2020-2022), Qatar, Kuwait, and Saudi Arabia each have well over 100 years of natural gas reserves, at 144, 135, and 107 years, respectively. As it relates to estimated proven oil reserves and three-year average production rates, Kuwait is projected to satiate demand for 99 years, with Saudi Arabia and the UAE each having over 70 years in reserves.

The GCC region's role supplying a large portion of the world's energy needs is likely to continue in the future through a combination of hydrocarbons and alternative energy solutions. Masdar, which is based in the UAE, is one of the world's largest renewable energy and green hydrogen companies. It operates in more than 40 countries across six continents and has invested, or committed to invest, in worldwide projects with a combined value of more than US$30 billion.[67]

Masdar's ambitions are impressive; one of its goals is to achieve 100 gigawatts of renewable energy capacity and produce one million tonnes of green hydrogen per year by 2030, which would save more than six million tonnes in carbon dioxide emissions. In early 2023, Masdar began collaborations with four Dutch companies to develop a supply chain to transport green hydrogen from Abu Dhabi to Amsterdam, where the renewable energy will used in "key European sectors, such as sustainable aviation fuel, steelmaking, and bunkering for shipping.[68, 69]

Masdar aspires to become a dominant global provider in the hydrogen industry. The size of the hydrogen industry was $129 billion in 2017. Fitch Solutions predicted the industry would reach $183 billion by year-end 2023.[70] The use of hydrogen as a renewable energy source is important in achieving net-zero carbon emissions by 2050, according to the International Energy Agency (IEA).[71] In May 2023, the IEA released a report calling for a 60% cut in oil and gas emissions by 2030 to stay on track for the net-zero goal by 2050. The IEA estimated it would cost $600 billion to cut oil and gas emissions by almost two-thirds by 2030.[72]

In addition to their hydrocarbon reserves, the GCC region is still discovering vast energy deposits. In November 2023, Saudi Aramco announced that two natural gas fields had been found in the Empty Quarter Region.[73] In May 2022, Abu Dhabi National Oil Company (ADNOC) announced the discovery of approximately 650 million barrels of onshore crude oil reserves.[74] In April of 2018, Bahrain discovered reserves that had an estimated 80 billion barrels of oil – the largest finding since 1932.[75, 76]

The Price of Oil and the Sukuk Market — Understanding the Relationship

Often, there are questions and misconceptions about the risk and return relationships of *sukuk* originating from hydrocarbon-dependent economies. While the performance of *sukuk* issued by hydrocarbon-dependent economies does not have a strong relationship to hydrocarbon commodity prices, performance is not entirely insulated from oil price movements. However, there are several characteristics of *sukuk* that can help insulate investors from short-term oil price shocks. These include the type of *sukuk* structure, the behavior of *sukuk* relative to other asset classes, the issuer's underlying credit quality, and the *sukuk*'s industry exposures. Over the intermediate-term to the longer-term period, the price of oil can adversely affect an issuer's credit profile, particularly with those issues directly tied to the Energy sector.

The Importance of Structure

To be considered *halal, sukuk* must conform to Islamic investing principles. The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) specifies that the investment certificate itself must represent "undivided shares in ownership of tangible assets, usufruct and services or (in the ownership of) the assets of [a] particular project or special investment activity."[77] This requires the certificate's structure to reflect a legal transfer of ownership of the underlying assets from the issuer to the investor, or in some cases a beneficial ownership is transferred.[78] Payments to the certificate holders are based on the profits of the underlying assets. The issuer cannot guarantee the security's investment return, such as a coupon rate (often referred to as the Islamic-compliant profit rate) or establish a predetermined price or principal value at the end of the investment certificate's tenure, the mark of a true risk-return relationship. This relationship is an extremely important tenet of Islamic finance that cannot be understated.

The core concepts of Islamic financial principles are to promote trade, commerce, fairness, and social justice.[79] Islamic finance "merges the ethical teachings of Islam with finance as a means to meet the needs of society and to encourage socioeconomic justice."[80] The term *halal* denotes practices, behaviors, and actions that are made in accordance with Islamic principles. If such practices, behaviors, and actions are not *halal*, then they are deemed *haram* – not being in congruence with Islamic principles.

Islamic finance uses both a principles-based framework and an exclusionary process in investing. Islamic principles promote the concept of risk-sharing. Investors share in both the potential for profits and for losses. *Gharar*, or the sale of what is not yet present, is discouraged. This applies to gambling, short-term speculation, and excessive risk-taking. Islam prohibits giving or receiving interest payments, also known as *riba*. The respective sacred texts of the three Abrahamic religions (Judaism, Christianity, and Islam) all prohibited usury, or lending with interest, because it fostered economic inequality and social injustice.[81]

Within Islamic finance, debt-related instruments are deemed *haram* due to their interest payments, lack of risk-sharing attributes, and that they are usually structured to guarantee fiscal performance regardless of the issuer's circumstances. Debt obligations are viewed in Islamic finance as risk-transferring instruments rather than risk-sharing instruments. Bond-like instruments in Islamic finance do exist, but they have been structurally modified to incorporate risk-sharing attributes. These instruments are *sukuk* or *murabaha*; the underlying instruments are tethered to the performance of the underlying assets, rather than a debt obligation. Payments of income from *sukuk* and *murabaha* are profit-sharing distributions, not interest payments.

Equities generally do not offer performance guarantees based on future results. They expose the investor and issuer to both profits and losses depending on the future performance of the underlying asset. Equity investments naturally incorporate the risk-sharing principles of Islamic finance between the issuer and the investor.

Islamic investment certificates are tethered to an underlying asset(s), and the expectation of steady income can help reduce short-term price volatility relative to energy commodities and other asset classes, such as the broader equity and bond markets. Some Islamic scholars are comfortable with a face value threshold of at least 33% physical assets underlying *sukuk* structures while other scholars require a threshold between 51% and 70%.[82]

Islamic-compliant investment certificates typically have a significant asset component within their investment structure. The assets could be tangible, such as equipment, real estate, infrastructure, or other operating assets. Some certificates are structured to have a broader range of assets and may have less tangible features. For example, Axiata, a Malaysian telecom operator, offers a certificate with income derived from cell phone usage through vouchers.[83]

An Islamic-compliant investment certificate may incorporate a broad range of assets only if it represents an "undivided share in the ownership," according to AAOIFI. This ownership can be direct (asset-backed *sukuk*) or a beneficial interest (asset-based *sukuk*). There are 14 different types of *sukuk* structures.[84] Over the years the market has largely coalesced around the adoption of two types, *sukuk al wakalah* and *sukuk al ijarah*. From 2010 to 2020, 52% of total international *sukuk* issuance was *sukuk al wakalah* and 22% was *sukuk al ijarah*.[85]

Beginning on January 1, 2021, AAOIFI mandated a minimum tangible-asset ratio be maintained by all Islamic-compliant investment certificates both at the time of issuance and until the certificates' maturity. The intention was to address *Shariah* compliance issues, given that securities were sometimes described as "asset-light." Standard 59, also known as the "tangibility requirement ratio," mandates that the certificate's tangibility ratio must be greater than 50% at the time of issuance and must be upheld all the way through the security's issuance and maturity. Should the security's tangibility ratio drop below 51%, the issuer is required to make good on the shortfall by raising the ratio back to at least 51% within a prescribed period of time. If the tangibility ratio falls below 33% and the issuer is unable to raise it to 51% within the prescribed period, the security must be delisted.[86]

Furthermore, it is entirely possible for *sukuk* investors to obtain a higher value at the end of the investment certificate's tenure if the market value of the security's underlying asset or business enterprise appreciates at a value above its issuance. Though such an event is unlikely, it does not preclude the possibility, as the rationale is based upon the Islamic tenant of risk sharing.[87] In the paper "Shariah Issues in the Application of Repurchase Undertaking in Sukuk Mudarabah," the authors state "[this] can be supported by another school of thought has it that, to be acceptable to undertake the underlying asset of *Sukuk* at fair value, net value, market value, or price that is agreed by both parties at the time of actual purchase according to the AAOIFI Shariah standard."

It is possible for *sukuk* investors to obtain a higher value when the *sukuk* reaches maturity if the underlying asset or business enterprise's market value appreciates at a value above its issuance.

What makes sukuk halal?

	Sukuk	Conventional Bonds
Underlying Asset	Proof of ownership in an asset	Debt obligation
Legal Structure	Holders each hold an undivided beneficial ownership in underlying assets	Issuer has a contractual obligation to pay bond holders interest and principal on certain specified dates
Halal considerations	The underlying assets are *halal*	n/a
Pricing	Pricing based upon value of underlying assets	Pricing based on credit rating of issue and issuer
Valuation	Buyers purchase assets that have value	Buyers act as creditors in implicit loan agreement
Investment rewards and risks	Holders receive a share of profits from the underlying assets (and accept a share of any loss incurred)	Holders receive regularly scheduled interest payment for the life of the bond, and the principal is returned at the bond's maturity date

JPMorgan's Inclusion of the GCC in its Emerging Market Benchmarks; Adoption and Acceptance of an Emerging Region.

In June of 2018, JPMorgan Chase & Co. began to consult with GCC members about potential plans to include GCC bonds and *sukuk* in its emerging market indices.[91] The inclusion of GCC members presented JPMorgan with several challenges. Typically, benchmarks employ various formulaic criteria to create a basket of similar securities to generate a desired exposure. Gross income per capita for GCC members (excluding Oman) was well above the $20,000 limit of JPMorgan's emerging market indices income criterion. For comparison, per capita income in 2018 was about $40,000 in the UAE, about $10,000 in Brazil, and about $50,000 in the US.[92, 93]

In September of 2018, JPMorgan formally announced its plans to include GCC bonds and *sukuk* in its Emerging Market Bond Index, as well as a few other emerging market indices, to be implemented in phases between January and September 2019.[94, 95] At the time of JPMorgan's announcement, market analysts anticipated that the GCC region could see upwards of $60 billion in new investor flows, causing spreads to tighten by 10-15 bps.[96] This meant that increased demand would most likely bid up the price of the securities, causing the yield (profit) spread to narrow.

Over time, JPMorgan increased its exposure of GCC issues to represent over 21% of the EMBI Global Core Index by year-end 2021.

GCC's Inclusion in the JPMorgan EMBI Global Core & Correlation Matrix for the Trailing 3-year Periods

	2017	2018	2019	2020	2021	2022	2023
GCC	2.5%	2.9%	17.1%	18.4%	19.5%	21.4%	20.3%
Correlation (Trailing 3-year, weekly)							
JPM EMBI (JPEICORE)	76.8%	78.2%	69.5%	84.7%	84.7%	80.9%	75.5%
BB US Agg (LBUSTRUU)	52.8%	63.9%	73.8%	72.3%	71.8%	75.4%	82.5%

Source: Bloomberg. Correlation of SBKU to JPM EMBI and BB US Agg

From 2017 through 2023, the JPMorgan EMBI Global Core Index correlated closely with the FTSE IdealRatings Sukuk Index, averaging 78.6%, and then declining to 75.5% at year-end 2023. This decline may be partially explained by JPMorgan's announcement in late September 2023 that it would include India in its emerging market indices. Indian issuers will begin to be added into the indices in June of 2024, spanning 10 months, ultimately reaching a maximum of 10% of the indices.[97] The inclusion of India also means that other countries' exposures, such as that of GCC member countries, will experience a decline to make room for India's announced inclusion.

Correlation Characteristics of Sukuk Relative to Other Asset Classes.

Sukuk are a separate and distinct asset class that share many attributes with conventional fixed income. Both typically offer a stated profit rate (or coupon) and maturity, and usually are rated by major credit rating agencies. *Sukuk* have attributes to promote liquidity and to encourage their adoption among global investors, particularly among the secular community. Learning how *sukuk* correlate with other asset classes allows us to understand their risk and return characteristics.

At year-end 2023, the five-year price correlation between the FTSE IdealRatings Sukuk Index and West Texas Intermediate (WTI) was 0.173. Stated differently, 17.3% of the price movement of the Index can be explained by crude oil prices, which were down from 29.3% at the prior five-year period at year-end of 2021. This five-year price correlation is notably lower than when we published the first edition of the GCC Sukuk Primer. At that point, the correlation was 36.7% for the five-year period ended March 31, 2020, reflecting a 50% reduction.

Correlation Matrix: 5-years *(December 31, 2018 - December 31, 2023)*

Asset Class	Crude Oil (WTI)	FTSE Sukuk	Bloomberg US Aggregate	JPMorgan EMBI Global Core	MSCI ACWI	S&P 500
Crude Oil (WTI)	1.000	0.173	-0.007	0.247	0.299	0.272
FTSE Sukuk	0.173	1.000	0.778	0.804	0.477	0.439
Bloomberg US Aggregate	-0.007	0.778	1.000	0.650	0.328	0.298
JPMorgan EMBI Global Core	0.247	0.804	0.650	1.000	0.731	0.666
MSCI ACWI Index	0.299	0.477	0.328	0.731	1.000	0.970
S&P 500	0.272	0.439	0.298	0.666	0.970	1.000

Source: Bloomberg (December 31, 2018 - December 31, 2023. Weekly Data)

This decline was not surprising for several reasons. First, most US dollar-denominated *sukuk* from the GCC are not directly tied to the Energy sector or the hydrocarbon industry. Second, many GCC sovereign issuers have prioritized the redirection of the economy away from the hydrocarbon industry. At year-end 2022, Saudi Arabia's non-oil economy, as expressed as a percentage of GDP, was 56%, with projections to rise to 71% by 2028.[88] The non-oil sectors of the UAE accounted for more than 70% of the country's GDP.[89] Third, the price of oil is largely managed by a consortium of oil-producing countries, such as OPEC+.[90] Fourth, technical and other exogenous factors can cause extreme volatility in the price of oil. After a contentious disagreement between Saudi Arabia and Russia in April of 2020, the price of oil fell to -$40.32. The price dynamics of a commodity are not necessarily associated with the business activities of a *sukuk* issuer.

When comparing the FTSE IdealRatings Sukuk Index with the WTI for the three-year period ended December 31, 2023, the correlation between the two becomes more pronounced at -7.0%. When the second edition of the GCC Sukuk Primer was published, this correlation was 32.8%. Again, WTI's price decline to -$43.32 in April of 2020 can help explain the material change in correlation.

Correlation Matrix: 3 years *(December 31, 2020 - December 31, 2023)*

Asset Class	Crude Oil (WTI)	FTSE Sukuk	Bloomberg US Aggregate	JPMorgan EMBI Global Core	MSCI ACWI	S&P 500
Crude Oil (WTI)	1.000	-0.070	-0.096	-0.080	0.164	0.142
FTSE Sukuk	-0.070	1.000	0.825	0.755	0.431	0.387
Bloomberg US Aggregate	-0.096	0.825	1.000	0.682	0.381	0.344
JPMorgan EMBI Global Core	-0.080	0.755	0.682	1.000	0.658	0.573
MSCI ACWI Index	0.164	0.431	0.381	0.658	1.000	0.962
S&P 500	0.142	0.387	0.344	0.573	0.962	1.000

Source: Bloomberg (December 31, 2020 - December 31, 2021. Weekly Data)

For the three-year period ended 2023, the Bloomberg US Aggregate Total Return Index and the JPMorgan Emerging Market Bond Global Core Index exhibited strong correlations with the FTSE IdealRatings Sukuk Index. This is because all three benchmarks are entirely composed of US dollar-denominated securities.

This relationship makes sense, as sukuk are structured similarly to conventional debt. Over the past two years, correlation among these three indices experienced a slight yet negligible drift. Essentially, this means that the FTSE IdealRating Sukuk Index's performance characteristics can be explained by the movements of either benchmark.

The correlation between the FTSE IdealRatings Sukuk Index and the WTI was 17.3% for the five-year period and -7.0% for the three-year period. This large change can be attributed to the price of oil falling to -$40.32 in April of 2020. The movement of the FTSE IdealRatings Sukuk Index in correlation to the EMBI Global Core Index was less dramatic, falling from 80.4% to 75.5%. Otherwise, most of the benchmark correlations remained relatively stable over the five-year and three-year periods. The differences in correlation between the five-year and three-year periods were negligible for the period ended 2021.

Correlation Matrix: Comparing Change in 5-year period vs. 3-year for year-end 2023

Asset Class	WTI	FTSE Sukuk Benchmark	BB US Agg Total Return	JPMorgan EMBI Global Core	MSCI ACWI Index	S&P 500
WTI	0.000	-0.243	-0.089	-0.327	-0.135	-0.130
FTSE Sukuk Benchmark	-0.243	0.000	0.047	-0.049	-0.046	-0.052
BB US Agg Total Return	-0.089	0.047	0.000	0.032	0.053	0.046
JPMorgan EMBI Global Core	-0.327	-0.049	0.032	0.000	-0.073	-0.093
MSCI ACWI Index	-0.135	-0.046	0.053	-0.073	0.000	-0.008
S&P 500	-0.130	-0.052	0.046	-0.093	-0.008	0.000

We have incorporated correlation attributes from the previous edition of this white paper for comparison.

Correlation Matrix: 5 years (December 31, 2016 - December 31, 2021)						
Asset Class	**WTI**	**FTSE Sukuk Benchmark**	**BB US Agg Total Return**	**JPMorgan EMBI Global Core**	**MSCI ACWI Index**	**S&P 500**
WTI	1.000	0.293	0.036	0.399	0.383	0.350
FTSE Sukuk Benchmark	0.293	1.000	0.720	0.834	0.437	0.400
BB US Agg Total Return	0.036	0.720	1.000	0.608	0.156	0.130
JPMorgan EMBI Global Core	0.399	0.834	0.608	1.000	0.694	0.635
MSCI ACWI Index	0.383	0.437	0.156	0.694	1.000	0.962
S&P 500	0.350	0.400	0.130	0.635	0.968	1.000

Source: Bloomberg (December 31, 2020 - December 31, 2021. Weekly Data)

Correlation Matrix: 3 years (December 31, 2018 - December 31, 2021)						
Asset Class	**WTI**	**FTSE Sukuk Benchmark**	**BB US Agg Total Return**	**JPMorgan EMBI Global Core**	**MSCI ACWI Index**	**S&P 500**
WTI	1.000	0.328	0.039	0.438	0.399	0.369
FTSE Sukuk Benchmark	0.328	1.000	0.718	0.847	0.481	0.452
BB US Agg Total Return	0.039	0.718	1.000	0.634	0.220	0.203
JPMorgan EMBI Global Core	0.438	0.847	0.634	1.000	0.748	0.702
MSCI ACWI Index	0.399	0.481	0.220	0.748	1.000	0.973
S&P 500	0.369	0.452	0.203	0.702	0.973	1.000

Source: Bloomberg (December 31, 2018 - December 31, 2021. Weekly Data)

Correlation Matrix: Comparing Change in 5-year period vs. 3-year period for year-end 2021						
Asset Class	**WTI**	**FTSE Sukuk Benchmark**	**BB US Agg Total Return**	**JPMorgan EMBI Global Core**	**MSCI ACWI Index**	**S&P 500**
WTI	0.000	0.035	0.003	0.039	0.016	0.019
FTSE Sukuk Benchmark	0.035	0.000	-0.002	0.013	0.044	0.052
BB US Agg Total Return	0.003	-0.002	0.000	0.026	0.064	0.073
JPMorgan EMBI Global Core	0.039	0.013	0.026	0.000	0.054	0.067
MSCI ACWI Index	0.016	0.044	0.064	0.054	0.000	0.005
S&P 500	0.019	0.052	0.073	0.067	0.005	0.000

Diversification Benefits

For investors seeking to diversify their asset allocations, *sukuk* may be a valuable option. The FTSE IdealRatings Sukuk Index exhibits significantly lower correlation with that of US dollar-denominated emerging market fixed-income benchmarks, while benefiting from exposure to emerging markets.

Essentially, the FTSE IdealRatings Sukuk Index exhibits lower equity correlation characteristics with the Bloomberg US Aggregate Index, yet provides investors with a more insulated exposure to emerging markets. This can create a unique balance for investors who seek diversification and emerging market fixed-income exposure, yet desire lower volatility.

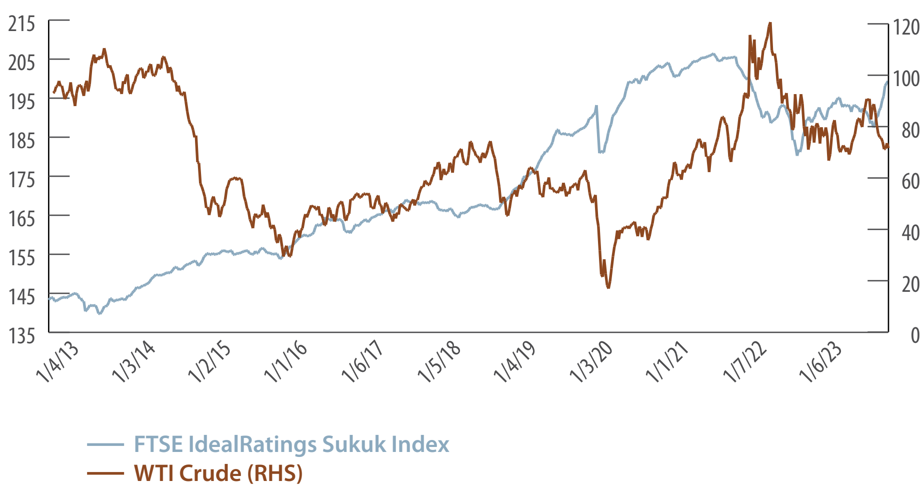
A Look Back in History: Oil's Previous Price Decline and the FTSE IdealRatings Sukuk Index

The correlation matrix demonstrates that a weak relationship does exist between the price of oil and movements in the *sukuk* market. The price of oil does have meaningful correlation characteristics with the broad-based investment performance of *sukuk*. When comparing the FTSE IdealRatings Sukuk Index against the WTI, we note divergence between the two over multiple time periods.

	10-Year		5-Year		3-Year		1-Year	
	(12/31/12 - 12/29/23)		(12/31/18 - 12/29/23)		(12/31/20 - 12/29/23)		(12/30/22 - 12/29/23)	
	Total Return	Annualized	Total Return	Annualized	Total Return	Annualized	Total Return	Annualized
FTSE Sukuk Benchmark	39.44%	3.07%	18.15%	3.39%	-1.98%	-0.67%		5.63%
West Texas Intermediate	-46.38%	-5.51%	95.31%	14.33%	100.23%	26.09%		-11.88%

Past performance does not indicate any assurance of future performance. *Sukuk* performance and oil returns do not behave in a lockstep manner; a more complex relationship exists.

Weekly Price History of FTSE IdealRatings Sukuk Index Compared to WTI



Putting a Pin in Relative Risk and Return

While the GCC *sukuk* market has grown rapidly in recent years, it is a nascent market subject to oil price shocks, regional tensions, fickle foreign institutional flows, and a host of other factors. Nonetheless, GCC debt and *sukuk* markets have demonstrated favorable risk and return profiles to warrant long-term investors' consideration. When comparing various regional and broad-based fixed-income benchmarks, the Bloomberg GCC Credit Total Index Unhedged USD and the FTSE IdealRatings Sukuk Index demonstrated competitive performance over the five-year, three-year, and one-year trailing periods ended December 29, 2023.

		5-year Trailing Return		3-year Trailing Return		1-year Return
		(12/30/18 - 12/29/23)		(12/31/20 - 12/29/23)		(12/30/22 - 12/29/23)
		Total Return	Annualized	Total Return	Annualized	Annualized
Bloomberg GCC Credit Total Return Index Value Unhedged USD	BGCITRUU Index	15.26%	2.88%	-7.90%	-2.71%	5.36%
Bloomberg EM Asia USD Total Return Index Value Unhedged	BEUCTRUU Index	9.01%	1.74%	-8.48%	-2.92%	7.07%
Bloomberg EM Hard Currency Agg. TR Index Value Unhedged USD	LG20TRUU Index	6.99%	1.36%	-10.92%	-3.79%	9.66%
JPMorgan EMBI Global Core	JPEICORE Index	8.79%	1.70%	-11.41%	-3.96%	10.84%
FTSE Sukuk	SBKU Index	18.15%	3.39%	-1.98%	-0.67%	5.63%
Bloomberg US Treasury Index measures	LUATTRUU Index	2.68%	0.53%	-11.03%	-3.83%	4.06%
Bloomberg Global Agg Treasuries Total Return Index	LGTRTRUU Index	-7.16%	-1.48%	-19.70%	-7.07%	4.19%
Bloomberg US Agg Total Return	LBUSTRUU Index	5.64%	1.10%	-9.62%	-3.32%	5.54%
S&P 500	SPX Index	107.04%	15.68%	33.02%	10.00%	26.34%
MSCI Emerging Markets Index	MXEF Index	21.76%	4.02%	-13.74%	-4.82%	10.15%
Crude (Oil)	CL1 Comdty	95.31%	14.33%	100.23%	26.09%	-11.88%

The FTSE IdealRatings Sukuk Index also demonstrated similar strong performance metrics relative to US fixed-income benchmarks such as the Bloomberg US Aggregate Total Return Index and the Bloomberg US Treasury Index.

We must stress that past performance does not indicate any assurance of potential future outcomes. However, the strong benchmark performance observed in this third edition of our GCC Sukuk Primer was also seen in our previous two editions. We employed the same benchmarks in each Primer edition to promote consistency and impartiality.

Risks should also be considered as an important factor to an investor. Equities can demonstrate favorable return characteristics over the long-term, yet this asset class can experience pronounced volatility in pursuit of realizing its return potential. As the adage goes, it's **time** in the market that is important, rather than **timing** the market. If one was fully invested in the S&P 500 from 1980 through 2018, save for the five highest-performing days, the investor's overall return would be reduced by 35%. In fact, missing the best 10 days between 1980 and 2018 would cut an investor's long-term results by more than 50%.[98]

Standard deviation measures the amount of variation, or dispersion, of a set of observed values and is commonly used to measure investment risk. In this case, the set of values comprises investment returns over time. The higher the standard deviation, the greater the dispersion of returns, both positive and negative. Greater return dispersion implies greater risk, while conversely, the lower the dispersion, the lower the risk. Standard deviation is best used in a relative framework to compare returns to other asset classes and therefore gain a sense of return variability.

Examining the five-year standard deviation among a broad range of asset class benchmarks can help position us better to estimate risk. The FTSE IdealRatings Sukuk Index demonstrated the lowest volatility when compared to the other selected benchmarks. Notably, volatility across all security indices for the five-year and three-year periods ended 2023 was lower compared to the same periods ended 2021. Volatility was also lower over the trailing three-year period ended 2023 when compared with the trailing five-year period.

		5-Year Period		3-Year Period	
		5-year Standard Deviation	Calculated Risk of Benchmark Relative to FTSE Sukuk Bnch (Expressed as a Multiple)	3-year Standard Deviation	Calculated Risk of Benchmark Relative to FTSE Sukuk Bnch (Expressed as a Multiple)
		(12/30/18 - 12/29/23)		(12/31/20 - 12/29/23)	
Bloomberg GCC Credit Total Return Index Value Unhedged USD	BGCITRUU Index	2.3%	1.9	2.0%	1.7
Bloomberg EM Asia USD Total Return Index Value Unhedged	BEUCTRUU Index	1.8%	1.5	2.0%	1.7
Bloomberg EM Hard Currency Agg. TR Index Value Unhedged USD	LG20TRUU Index	2.5%	2.1	2.4%	2.1
JPMorgan EMBI Global Core	JPEICORE Index	3.9%	3.3	3.4%	2.9
FTSE IdealRatings Sukuk	SBKU Index	1.2%	1.0	1.2%	1.0
Bloomberg US Treasury Index	LUATTRUU Index	2.7%	2.3	2.8%	2.4
Bloomberg Global Agg Treasurys Total Return Index	LGTRTRUU Index	2.8%	2.4	3.1%	2.6
Bloomberg US Agg Total Return	LBUSTRUU Index	2.6%	2.2	2.9%	2.5
S&P 500	SPX Index	9.7%	8.2	8.0%	6.7
MSCI Emerging Markets Index	MXEF Index	7.8%	6.6	7.4%	6.2
Crude (Oil)	CL1 Comdty	24.8%	20.9	17.9%	15.1

As of year-end 2023, WTI had the highest standard deviation among all the asset classes for the five-year period at 24.8%, down from 43.7% at year-end 2021. The S&P 500 Index had the second highest volatility over the same trailing five-year period at 9.7%, substantially lower than its year-end 2021 standard deviation of 18.1%. The MSCI Emerging Market Equity Index was third at 7.8%, down from 17.7%. For both the three-year and five-year periods ended 2021 and 2023, the S&P 500 demonstrated higher volatility relative to emerging market equities.

The FTSE IdealRatings Sukuk Index posted the lowest standard deviation metrics among all the benchmarks. It reported a standard deviation of 1.2% for both periods ended 2023, down from 2.9% for the five-year period and down from 3.5% for the three-year period ended 2021.

If we express the FTSE IdealRatings Sukuk Index as a single unit of risk relative to each of the other benchmarks, we can see their volatility relative to that Index. Using the five-year data for the period ended 2023 (1.2), the JPMorgan EMBI Global Core had a standard deviation of 3.9%, or 3.3x more variable than the FTSE IdealRatings Sukuk Index. The Bloomberg US Aggregate Index five-year standard deviation was 2.6%, or 2.2x more volatile. The S&P 500 Index was 8.2x more volatile, oil was 20.9x more volatile, and the Bloomberg US Treasury Index was 2.3x more volatile. The data is relatively consistent over the five-year and three-year periods.

Conclusion

On balance, GCC US dollar-denominated *sukuk* can be a valuable means of diversification for investors, as a distinct asset class possessing unique and favorable risk and return attributes.

The collective attributes of this region – with their large capital buffers, vast hydrocarbon reserves, and strong credit ratings – provide an appealing option for investors. The favorable investment attributes of *sukuk* are rarely found among emerging and frontier markets, and rarely observed among developed world fixed-income benchmarks. The steady high-decile performance metrics in conjunction with low-risk attributes warrants investors' consideration as a part of their comprehensive asset allocation.

While most investors may not have sukuk on their radar, we hope that you find this white paper useful for learning about this region, its community, and ultimately, the unique Islamic-compliant fixed-income market.

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Patrick T. Drum, Senior Investment Analyst and Portfolio Manager, joined Saturna Capital in October 2014. He is a former adjunct professor of finance for the Sustainable MBA Program at the Bainbridge Graduate Institute (BGI), currently known as Presidio Graduate School. Mr. Drum holds a BA in economics from Western Washington University and an MBA from Seattle University Albers School of Business. He is a Chartered Financial Analyst (CFA) charterholder and a Certified Financial Planner®.

Prior to joining Saturna Capital, Mr. Drum led environmental, social, and governance (ESG) research and was director of fixed income portfolio management since 2007 with a private account group at UBS Institutional Consulting Services, specializing in investment management for global conservation and national wildlife park endowments as well as sustainable-social screened client portfolios. He is a former Chair of the United Nations Principles for Investment (UNPRI) Fixed Income Outreach Subcommittee and a current member of the UNPRI's Bondholder Engagement Working Group (BEWG), an advisory committee working to elevate important ESG considerations and best practices among issuers and investors. Mr. Drum's past experience also includes business valuation at Moss Adams and portfolio management at Washington Mutual Bank.

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A Few Words About Risk

The Amana Funds limit the securities they purchase to those consistent with Islamic and sustainable principles. The Saturna Sustainable Funds limit the securities they purchase to those consistent with sustainable principles. This limits opportunities and may affect performance. Fund share prices, yields, and total returns will change with market fluctuations as well as the fortunes of the countries, industries, and companies in which it invests. Foreign investing involves risks not normally associated with investing solely in US securities. These include fluctuations in currency exchange rates, less public information about securities, less governmental market supervision, and the lack of uniform financial, social, and political standards. Foreign investing heightens the risk of confiscatory taxation, seizure or nationalization of assets, establishment of currency controls, or adverse political or social developments that affect investments.

While diversification does not guarantee against a loss in a declining market, it can help minimize the risk of the decline of a single market.

Index Definitions

The Bloomberg US Treasury Index measures US dollar-denominated, fixed-rate, nominal debt issued by the US Treasury. Treasury bills are excluded by the maturity constraint, but are part of a separate Short Treasury Index. STRIPS are excluded from the Index because their inclusion would result in double-counting.

The Bloomberg US Treasury Bills 1-3 Month Index is designed to measure the performance of public obligations of the US Treasury that have a remaining maturity of greater than or equal to 1 month and less than 3 months. The Index includes all publicly issued zero coupon US Treasury Bills that have a remaining maturity of less than 3 months and at least 1 month, are rated investment grade, and have $300 million or more of outstanding face value.

The Bloomberg US Corporate Bond Index measures the investment grade, fixed-rate, taxable corporate bond market. It includes USD-denominated securities publicly issued by US and non-US industrial, utility, and financial issuers.

The Bloomberg US Corporate High Yield Bond Index measures the USD-denominated, high-yield, fixed-rate corporate bond market. Securities are classified as high-yield if the middle rating of Moody's, Fitch, and S&P is Ba1/BB+/BB+ or below.

The Bloomberg Emerging Markets Hard Currency Aggregate Index is a flagship hard currency emerging markets debt benchmark that includes USD, EUR, and GBP-denominated debt from sovereign, quasi-sovereign, and corporate EM issuers. This includes the EM Hard Currency Aggregate: Corporate, and the EM Hard Currency Aggregate: Other Government Related.

The Bloomberg Emerging Markets Local Currency Government Universal Index is the broadest Barclays benchmark tracking the performance of fixed-rate local currency Emerging Markets (EM) debt. Classification as an EM is rules-based and reviewed annually using World Bank income group and International Monetary Fund (IMF) country classifications. This includes the Bloomberg EM Local Currency Universal Asia Total Return Index and the Bloomberg EM Local Currency Europe/Mideast/Africa Total Return Index.

The Bloomberg Emerging Markets Local Currency Government Index is a flagship index that measures the performance of local currency Emerging Markets (EM) debt. Classification as an EM is rules-based and reviewed annually using World Bank income group, International Monetary Fund (IMF) country classification and additional considerations such as market size and investability. This includes the Bloomberg Emerging Markets Local Currency Government Index: Americas.

The Bloomberg Emerging Markets Hard Currency Aggregate Index is a flagship hard currency emerging markets debt benchmark that includes USD-denominated debt from sovereign, quasi-sovereign, *and corporate EM issuers. This includes the Bloomberg Emerging Markets Hard Currency Aggregate Index. This index includes the Bloomberg GCC USD Credit Total Return Index.*

The Bloomberg Global Aggregate ex USD Index is a measure of investment-grade debt from 24 local currency markets. This multi-currency benchmark includes Treasury, government-related, corporate, and securitized fixed-rate bonds from both developed and emerging markets issuers. Bonds issued in USD are excluded. This includes the Bloomberg Global Aggregate ex USD Index.

The Bloomberg China Aggregate Index tracks the performance of the CNY-denominated fixed-income market. The China Aggregate Index was launched in March 2004, with an inception date of January 1, 2004. It contains fixed-rate Treasury, government-related (including policy banks), and corporate securities that are listed on the China Interbank market. This includes the Bloomberg China Aggregate Index (CNY Denominated).

The Bloomberg Pan-European Aggregate Index tracks fixed-rate, investment-grade securities issued in the following European currencies: EUR, GBP, NOK, DKK, SEK, CHF, CZK, HUF, PLN, RUB, and SKK. Inclusion is based on the currency of the issue, and not the domicile of the issuer. This includes the Bloomberg Pan European Aggregate Corporate TR Index Unhedged USD and the Bloomberg Pan-European Government Total Return Index Unhedged USD.

The Bloomberg Pan-European High Yield Index measures the market of non-investment grade, fixed-rate corporate bonds denominated in the following currencies: euro, pounds sterling, Danish krone, Norwegian krone, Swedish krona, and Swiss franc. Inclusion is based on the currency of issue, and not the domicile of the issuer. This includes the Bloomberg Pan-European High Yield (USD) Total Return Index Unhedged US.

The Bloomberg Global Aggregate Index is a flagship measure of global investment-grade debt from 24 local currency markets. This multi-currency benchmark includes Treasury, government-related, corporate, and securitized fixed-rate bonds from both developed and emerging markets issuers. This includes the Bloomberg Global Aggregate - United Kingdom Total Return Index Unhedged USD and the Bloomberg Global Credit - United Kingdom Total Return Index Unhedged USD.

The FTSE IdealRatings Sukuk measures the performance of global Islamic fixed-income securities, also known as sukuk. Investors cannot invest directly in the Index.

The FTSE WorldBIG Bond Index is a multi-asset, multi-currency index, which provides a broad-based measure of the global fixed-income markets.

The JPMorgan EMBI Global Core Index is composed of US dollar-denominated government bonds issued by emerging market countries. The Index is a broad, diverse US dollar-denominated emerging markets debt benchmark that tracks the total return of actively traded external debt instruments in emerging market countries. This includes the Bloomberg Global Credit - United Kingdom Total Return Index Unhedged USD.

The MSCI All Country World Index is produced by Morgan Stanley Capital International (MSCI). It is a broad measure of equity market performance throughout the world. Investors cannot invest directly in the Index.

The MSCI Emerging Markets Index, produced by Morgan Stanley Capital International, measures equity market performance in over 20 emerging market countries.

The MSCI Emerging Markets (EM) Currency Index tracks the performance of 25 emerging market currencies relative to the US dollar.

The MSCI World Net Total Return Index Futures are cash settled upon expiration. The underlying index is the MSCI World Net Total Return Index denominated in USD. This index covers approximately 85% of the free float-adjusted market capitalization across the World Developed Markets equity universe (large and mid-cap).

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