ISLAMIC FINANCIAL SERVICES BOARD

ISLAMIC FINANCIAL SERVICES INDUSTRY STABILITY REPORT 2017

ISLAMIC FINANCIAL SERVICES INDUSTRY STABILITY REPORT 2017

ISLAMIC FINANCIAL SERVICES BOARD

ISLAMIC FINANCIAL SERVICES INDUSTRY

STABILITY REPORT

2017

May 2017

This Report is printed with Technical Assistance Support from the Asian Development Bank

Published by

Islamic Financial Services Board
Level 5, Sasana Kijang, Bank Negara Malaysia
2, Jalan Dato' Onn, 50480 Kuala Lumpur, Malaysia
Email: ifsb_sec@ifsb.org

ISBN 978-967-5687-42-6

ABOUT THE ISLAMIC FINANCIAL SERVICES BOARD (IFSB)

The IFSB is an international standard-setting organisation which was officially inaugurated on 3 November 2002 and started operations on 10 March 2003. The organisation promotes and enhances the soundness and stability of the Islamic financial services industry by issuing global prudential standards and guiding principles for the industry, broadly defined to include banking, capital markets and insurance sectors. The standards prepared by the IFSB follow a lengthy due process as outlined in its Guidelines and Procedures for the Preparation of Standards/Guidelines, which involve, among others, the issuance of exposure drafts, holding of workshops and, where necessary, public hearings. The IFSB also conducts research and coordinates initiatives on industry-related issues, as well as organises roundtables, seminars and conferences for regulators and industry stakeholders. Towards this end, the IFSB works closely with relevant international, regional and national organisations, research/educational institutions and market players.

For more information about the IFSB, please visit **www.ifsb.org**.

TABLE OF CONTENTS

LIST OF BOXES, TABLES, CHARTS AND DIAGRAMS

LIST OF BOXES, TABLES, CHARTS AND DIAGRAMS

LIST OF BOXES, TABLES, CHARTS AND DIAGRAMS

LIST OF ABBREVIATIONS

ABBREVIATIONS	
ADB	Asian Development Bank
AMA	Advanced Measurement Approach
AMDB	Autoriti Monetari Brunei Darussalam
AML	Anti-Money Laundering
APICORP	Arab Petroleum Investments Corporation
AuM	Assets Under Management
BCBS	Basel Committee on Banking Supervision
BND	Brunei dollar
CAGR	Compound Annual Growth Rate
CAR	Capital Adequacy Ratio
CCA	Contingent Claims Analysis
CEBS	Committee of European Banking Supervisors
CIBAFI	General Council for Islamic Banks and Financial Institutions
CIMDO	Consistent Information Multivariate Density Optimizing
CIS	Collective Investment Schemes
D&Y	Deibold and Yilmaz
DAO	Decentralised Autonomous Organisations
DCR	Displaced Commercial Risk
DFSA	Dubai Financial Services Authority
DJ Global	Dow Jones Global Index
DJ Islamic	Dow Jones Islamic Market World Index
DLT	Distributed Ledger Technology
DSGE	Dynamic Stochastic General Equilibrium
ECL	Expected Credit Losses
EU	European Union
FATF	Financial Action Task Force
FCA	Financial Conduct Authority
FDI	Foreign Direct Investment
FDIC	Federal Deposit Insurance Corporation
FDR	Financing-to-deposits ratio
FinTech	Financial Technology
FMI	Financial Market Infrastructure
FSAP	Financial Sector Assessment Programme
FSB	Financial Stability Board
FSI	Financial Soundness Indicators
FX	Foreign Exchange
GAAP	Generally Accepted Accounting Principles
GARCH	Generalised Autoregressive Conditional Heteroscedasticity
GCC	Gulf Cooperation Council
GEM	Growth and Emerging Markets
GFC	Global Financial Crisis
GIC	Gulf Investment Corporation
GIIB	Government Islamic Investment Bond
GMM	Generalised Method of Moments
GRE	Government Related Entities
G-SIBs	Global Systemically Important Banks
G-SIIs	Global Systemically Important Insurers
HQLA	High Quality Liquid Assets
IAH	Investment Account Holders
IAIG	Internationally Active Insurance Group
IAIS	International Association of Insurance Supervisors
ICD	Islamic Corporation for the Development of the Private Sector
ICIS	Islamic Collective Investment Schemes

LIST OF ABBREVIATIONS

ABBREVIATIONS	
ICM	Islamic Capital Market
ICS	Global Insurance Capital Standard
IDB	Islamic Development Bank
IFC	International Finance Corporation
IFR	Islamic Finance Rules
IFSB	Islamic Financial Services Board
IFSI	Islamic Financial Services Industry
IIFS	Institutions offering Islamic Financial Services
IILM	International Islamic Liquidity Management Corporation
IMF	International Monetary Fund
IO	International Organisations
IOSCO	International Organisation of Securities Commissions
IPO	Initial Public Offering
IRRBB	Interest Rate Risk in the Banking Book
JII	Jakarta Islamic Index
JOD	Jordanian Dinar
KYC	Know Your Customer
LCR	Liquidity Coverage Ratio
M&A	Mergers and Acquisitions
MAV	Market Adjusted Valuation
MDB	Multilateral Development Banks
MENA	Middle East and North Africa
NFEOPC	Net Foreign Exchange Open Position to Capital
NPF	Non-Performing Financing
NPL	Non-Performing Loans
NSFR	Net Stable Funding Ratio
OECD	Organization for Economic Cooperation and Development
OIC	Organisation of Islamic Cooperation
OJK	Otoritas Jasa Keuangan
OMR	Omani Rial
OPEC	Organization of the Petroleum Exporting Countries
OTC	Over the Counter
P&L	Profit and Loss
P2P	Peer to Peer
PSIA	Profit Sharing Investment Accounts
PSIFIs	Prudential and Structural Islamic Financial Indicators
REITs	Real Estate Investment Trusts
ROA	Return on Assets
ROE	Return on Equity
RRF	Retakāful Risk Fund
RRP	Resolution and Recovery Plan
RRR	Rate of Return Risk
RRRBB	Rate of Return Risk in the Banking Book
RSA	Regulatory and Supervisory Authority
RTUs	*Retakāful* Undertakings
RWA	Risk Weighted Assets
SAMA	Saudi Arabian Monetary Authority
SBP	State Bank of Pakistan
SECP	Securities & Exchange Commission of Pakistan
SHF	Shareholders Fund
SMA	Standardised Measurement Approach
SME	Small and Medium Enterprises
SNCR	Sharīʿah Non-Compliance Risk

LIST OF ABBREVIATIONS

ABBREVIATIONS	
SPOE	Single-Point-Of-Entry
SR	IFSB IFSI Stability Report
SRA	Systemic Risk Amplification
STC	Simple, Transparent and Comparable
TA	Technical Assistance
TLAC	Total Loss-Absorbing Capacity
TN-2	IFSB Technical Note 2
UAE	United Arab Emirates
UFA	Universal Financial Access
USD	United States Dollar
VaR	Value at Risk

GLOSSARY

Commodity *Murābaḥah* or *Tawarruq*	A *murābaḥah* transaction based on the purchase of a commodity from a seller or a broker and its resale to the customer on the basis of deferred *murābaḥah*, followed by the sale of the commodity by the customer for a spot price to a third party for the purpose of obtaining liquidity, provided that there are no links between the two contracts.
Ijārah	A contract made to lease the usufruct of a specified asset for an agreed period against a specified rental. It could be preceded by a unilateral binding promise from one of the contracting parties. The *ijārah* contract is binding on both contracting parties.
Islamic window	That part of a conventional financial institution (which may be a branch or a dedicated unit of that institution) that provides both fund management (investment accounts) and financing and investment that are Sharī'ah-compliant, with separate funds. It could also provide *takāful* or *retakāful* services.
Muḍārabah	A partnership contract between the capital provider (*rabb al-māl*) and an entrepreneur (*muḍārib*) whereby the capital provider would contribute capital to an enterprise or activity that is to be managed by the entrepreneur. Profits generated by that enterprise or activity are shared in accordance with the percentage specified in the contract, while losses are to be borne solely by the capital provider unless the losses are due to misconduct, negligence or breach of contracted terms.
Murābaḥah	A sale contract whereby the institution offering Islamic financial services sells to a customer a specified kind of asset that is already in its possession, whereby the selling price is the sum of the original price and an agreed profit margin.
Mushārakah (Sharikat al-'Aqd)	A partnership contract in which the partners agree to contribute capital to an enterprise, whether existing or new. Profits generated by that enterprise are shared in accordance with the percentage specified in the *mushārakah* contract, while losses are shared in proportion to each partner's share of capital.
Qarḍ	The payment of money to someone who will benefit from it provided that its equivalent is repaid. The repayment of the money is due at any point in time, even if it is deferred.
Salam	The sale of a specified commodity that is of a known type, quantity and attributes for a known price paid at the time of signing the contract for its delivery in the future in one or several batches.
Sharī'ah	The practical divine law deduced from its legitimate sources: the Qur'ān, *Sunnah*, consensus (*ijmā'*), analogy (*qiyās*) and other approved sources of the Sharī'ah.
Sharī'ah non-compliance risk	An operational risk resulting from non-compliance of the institution with the rules and principles of Sharī'ah in its products and services.
Ṣukūk	Certificates that represent a proportional undivided ownership right in tangible assets, or a pool of tangible assets and other types of assets. These assets could be in a specific project or specific investment activity that is Sharī'ah-compliant.
Takāful	A mutual guarantee in return for the commitment to donate an amount in the form of a specified contribution to the participants' risk fund, whereby a group of participants agree among themselves to support one another jointly for the losses arising from specified risks.
Wakālah	An agency contract where the customer (principal) appoints an institution as agent (*Wakīl*) to carry out the business on his behalf. The contract can be for a fee or without a fee.
Waqf	A property that produces income and that may have been deeded to benefit a community.
Zakāh	A financial obligation that shall be disbursed through specific channels imposed on those whose wealth has reached a certain threshold (*niṣāb*) one year after it has been acquired.

1 FOREWORD

The fifth edition of the Islamic Financial Services Board's (IFSB) *Islamic Financial Services Industry Stability Report* takes place against a shifting global economic landscape led by new challenges emerging from a changing political environment, new monetary policy directions from the US, sluggish recovery in oil prices, unresolved geopolitical conflicts and a general uncertainty in economic outlook for 2017. Similarly, the protectionist economic policies announced by the new US administration and the withdrawal of US from the 12-nation Trans-Pacific Partnership has spurred this uncertainty. In Europe, the United Kingdom has formally invoked Article 50 to withdraw from the European Union (EU) while a rising anti-immigration sentiment in Western Europe could also strengthen far right parties leading to protectionist policies.

The rise in US interest rates for only the second (December 2016) and third time (March 2017) in nearly a decade since the global financial crisis of 2007-08 also indicates a possible end to unconventional monetary policies that saw a prolonged period of record low/negative interest rates. These increases in US rates have been mirrored by some monetary authorities and central banks in the other parts of the world and may add to economic growth pressure in some of these jurisdictions amid general economic and political challenges and a tightening in financial conditions. These events are also unfolding at a time when gradual implementation of new capital and liquidity regulatory requirements, initiated by the Group of Twenty and the Financial Stability Board post-financial crisis, has begun.

The above developments are likely to have important ramifications for the global economy. However, it remains to be ascertained the exact extent of this impact until more clarity emerges on the U.S. policies going forward and also on the future of economic and political ties among nations within the EU - and that of the EU with nations outside, in particular the United Kingdom.

Against this backdrop, the *IFSI Stability Report 2017* examines the implications on the global Islamic financial services industry (IFSI) of recent economic developments and changes in the global regulatory and supervisory frameworks. For a second year running, the global IFSI has undergone a slowdown in 2016, reversing the remarkable expansion in assets witnessed since the onset of the global financial crisis. The relatively untested resolution, recovery and insolvency structures of the institutions offering Islamic financial services (IIFS) could unearth a new of set of challenges for financial sector stability in at least 12 jurisdictions that are identified in this report as having domestic systemic importance for Islamic banking.

The growing market shares and rising domestic systemic importance of Islamic finance underscores the importance of developing strong regulatory frameworks for prudential regulation and supervision in Islamic finance jurisdictions, supported by proactive stress testing and an enhanced set of capabilities for macroprudential surveillance. In line with its mandate, the IFSB has responded on a number of fronts to such international developments with a series of next-generation prudential standards and guiding principles that align global regulatory frameworks with the specificities of Islamic finance. Aside from Standards and Guidance/Technical Notes, the IFSB Work Plan in recent years has also included working papers on diverse topics of emerging issues in Islamic finance including financial safety-nets, consumer protection, Sharī'ah non-compliance risk, resolution and recovery regimes, systemic links and macroprudential issues, and so on.

The IFSB's *IFSI Stability Report 2017* seeks to illuminate these issues for the IFSB's wide membership, as well as for all those who have a substantive interest in the stability and resilience of Islamic finance. Also in this report for the first time, the Islamic banking analysis has been carried out using data from the IFSB's Prudential and Structural Islamic Financial Indicators (PSIFI) database - this has enabled a wider geographical coverage of 18 jurisdictions (previously 10 jurisdictions) accounting for almost 97% of the industry's assets. This has also strengthened the Islamic banking analysis in this report as the data is sourced directly from respective regulatory and supervisory authorities. The broad themes and coverage in each of the four chapters of the *IFSI Stability Report 2017* are as follows:

Chapter 1 provides an overview of the global IFSI as well as updates on trends, growth and developments in the three main sectors of the industry - Islamic banking, Islamic capital market and *takāful*.

Chapter 2 examines the initiatives undertaken by international standard-setting bodies to further ensure the stability of the financial institutions and markets, as well as the implications of such reforms for IIFS. It also reviews the progress of various projects and initiatives undertaken by the IFSB to enhance the supervisory framework so as to ensure stability and soundness of the IFSI. These initiatives include updates on the development of new standards for the IFSI, surveys on existing regulatory and market principles and practices implemented, and also research undertaken for IFSB working paper series. This chapter also provides an update on the implementation progress of the IFSB Standards in 2016 across various member jurisdictions.

Chapter 3 assesses the resilience of the Islamic financial system, which includes technical analysis of selected indicators as well as assessment of risks, vulnerabilities and stability issues in the three main sectors of IFSI: Islamic banking, Islamic capital market and *takāful*. We also include a box article by Bank Indonesia, which examines the development of the Islamic financial sector in the jurisdiction. I am deeply grateful for the inputs provided by Bank Indonesia, which is a member of the IFSB Council.

Finally, **Chapter 4** addresses emerging issues in Islamic finance and is divided into two sections which include: (i) Stress Testing Islamic Banks: Essential Perspectives and Preliminary Empirical Insights; and (ii) FinTech in Islamic Finance: Sharī'ah and Regulatory Aspects. This chapter also benefits from box article contributions by the International Monetary Fund (IMF), which provides an overview into the evolving stress testing practices at the

IMF, and by the World Bank, which shares insights on financial inclusion and role of Fintech. We hope that this form of collaboration with other institutions will lead to the development of a global network of expertise that can help to increase awareness and understanding of emerging issues faced by the IFSI.

The *IFSI Stability Report 2017* was produced by a core team from the Technical and Research Division of the IFSB Secretariat, led by Zahid ur Rehman Khokher, Assistant Secretary-General, and comprising Syed Faiq Najeeb and Tarig Mohamed Taha Abdelgadir, who contributed to the first three chapters of the Report. Aminath Amany Ahmed worked as the Project Coordinator. Other contributions to chapter 2 were made by Kartina Md Ariffin, Ateeq Ali, Md Salim Al Mamun, Dian Dannira and Esam Osama Al-Aghbari. Syed Faiq Najeeb also authored the section on stress testing Islamic banks for Chapter 4. Overall, the staff of the IFSB were involved in all four chapters of the Report.

Among external contributors, Professor Volker Nienhaus authored the section on FinTech in Chapter 4. All sections of the Report benefited from constructive comments and feedback from Professor Volker Nienhaus and Peter Casey. Siham Ismail, Head, and Rosmawatie Abdul Halim, of the Communications and Awareness Programmes at the IFSB, provided assistance in the formatting and publication of the final document. The IFSB also wishes to gratefully acknowledge financial assistance by the Asian Development Bank (ADB) towards the hard-copy publishing costs of the *IFSI Stability Report 2017*.

Finally, much appreciation goes to Mr. Jaseem Ahmed, the former Secretary-General of the IFSB who has recently retired in April 2017. It was due to his forward-looking vision and sincere concern to raise awareness on imminent stability and resilience issues in the Islamic finance industry that the IFSB's IFSI Stability Report Series was launched with the inaugural issue in 2013. Mr. Ahmed's unwavering support, guidance and encouragement to the project team throughout the subsequent editions of the Report has substantially helped the IFSB Secretariat in improving the quality of this document.

As always, we hope that the *IFSI Stability Report 2017* will serve not only as a useful complement to the better understanding of issues by the various stakeholders of the IFSB, but also contribute to a wider cross-border engagement on stability issues in Islamic finance, while helping to strengthen the building blocks needed for greater resilience.

Zahid ur Rehman Khokher
Acting Secretary-General
Islamic Financial Services Board
May 2017

EXECUTIVE SUMMARY

2016 has been another year of slowdown for the global Islamic Financial Services Industry (IFSI) - in USD terms, the size of the IFSI has not changed much over the last year: The total Islamic banking assets increased from USD 1.4 trillion to USD 1.5 trillion, the volume of *ṣukūk* outstanding increased (USD 318.5 billion), but Islamic funds' assets decreased (USD 56 billion); *takāful* contributions increased slightly (USD 25 billion). However, the dynamics of the IFSI is not visible on the level of global aggregates. Instead, the analysis has to focus into the regional composition of aggregates and into Islamic finance achievements and setbacks in individual jurisdictions. This Report provides analyses on the global, regional and jurisdictional level.

Size and Resilience of the IFSI

Islamic banking: The development in Islamic banking was more dynamic than the stagnant total assets suggest: The regional composition of the global assets has changed. The assets of MENA excluding GCC – i.e. predominantly Iran – dropped from USD 607 billion to USD 541 billion due to a strong depreciation of the Iranian currency. This was compensated by asset growth in the GCC and Asia (despite currency depreciations). The share in total Islamic financial assets of MENA excluding GCC decreased to 30%, the GCC increased to 42%, and Asia remained at 22%. The majority of jurisdictions where IIFS operate, recorded reasonable levels of growth in assets, financing and deposits of Islamic banks. More importantly, Islamic banks' market shares increased in 18 and remained constant or decreased only marginally in 13 jurisdictions. This is a strong indication of a growing acceptance of Islamic finance in jurisdictions with dual financial systems. The number of jurisdictions where Islamic finance has achieved domestic systemic importance has expanded to 12.

A precondition for the resilience of Islamic banks is sufficient profitability. The average net profit margin declined somewhat to 40%, but the sector has sustained its ROA and ROE in the past two years, albeit on different levels in different jurisdictions. Considerable heterogeneities among jurisdictions suggest that statements about "the" IFSI have to be taken cautiously. This also holds true for the short-term liquidity position of Islamic banks: Lower oil prices and new Basel III / IFSB GN-6 liquidity standards lead to a general tightening of the liquid assets to short-term liabilities ratio. However, while some markets show indications for a build-up of pressure, others report excess liquidity. The ratio of liquid assets to short-term liabilities varies considerably between jurisdictions from 100% and more to 20% and less.

The household sector receives on average 41.7% of the financing of Islamic banks. High exposures to the real estate sector have been reduced for the Islamic banking sector, but it is still more than 25% in some jurisdictions. The NPF ratios of the IFSI globally and for most jurisdictions separately decreased to approx. 5%; an increase was observed in two countries, and high levels (around 12%) persisted in two jurisdictions. On average, total capital and Tier-1 capital adequacy ratios across Islamic banks declined to 12.1% and 9.7% respectively; this was mainly due to a decline of the ratios in Iran. Nevertheless, the ratios are still above the Basel III / IFSB-15 minimum regulatory requirements of 6%.

Islamic Capital Market: In summary, the ICM performed better in 2016 than in 2015: *Ṣukūk* issuances increased and Islamic stocks generated profits. However, there were also some setbacks: 2016 saw the first default of a *ṣukūk* in 6 years (issued by an oil and gas-based company in Singapore). Expected *ṣukūk* issuances in non-OIC jurisdictions did not materialise. In contrast to previous years, Sharī'ah-compliant equities generated lower returns than conventional equities. The number of Islamic funds has decreased slightly and nearly 30% of the funds have become inactive.

Ṣukūk: The volume of annual *ṣukūk* issuances reached USD 75 billion in 2016, bringing the volume of outstanding *ṣukūk* close to USD 320 billion. 79% of the issuances originated from sovereigns, including GREs and multilateral organisations (such as IDB and IILM); only 21% were corporate issuances. The corporate *ṣukūk* market has continued its downward trend for the fourth consecutive year. This may be partially due to socio-political and macroeconomic challenges, but there is also a widespread sentiment that issuing *ṣukūk* is (still) too complex, time consuming and costly.

For long, *ṣukūk* have been priced at higher rates of return to investors than bonds as a compensation for the lesser familiarity and liquidity of *ṣukūk*. For some 2016 issuances, this no longer applies: *Ṣukūk* were priced at par or even at lower rates of return than comparable bonds. Similarly, no consistent pattern indicates that *ṣukūk* investors always demand yields higher than those of comparable bonds; some *ṣukūk* have even traded at lower yields than bonds. Nonetheless, events that impact bond prices and yields also impact prices and yields of *ṣukūk*. The close link between *ṣukūk* and bond markets became apparent in November 2016 when investors restructured portfolios by selling-off bonds and buying US equities. This drove up the yields of bonds, and due to the interdependency of fixed income markets, yields of USD *ṣukūk* experienced an upward spike at the same time.

Sharī'ah-compliant Equities: Since Sharī'ah-compliant stocks are a subgroup of all listed stocks, it is not surprising that price movements of Islamic and conventional equities are correlated, but their performance can differ. For a decade, Islamic equity indices had outperformed conventional indices. This changed in 2016. Islamic indices attach a greater weight to healthcare and consumer goods/ services which lagged in performance while conventional indices include more financials, utilities and telecommunications, which had a better performance, particularly towards the end of 2016.

Islamic Funds: The equity markets suffered in 2015 and during most of 2016 from volatility-inducing political uncertainties, slow growth, depressed oil prices and volatile commodity prices. However, the unexpected election outcome in the US triggered a stock market rally in November and December, Islamic equity and fixed income funds benefited from the good performance of the Islamic equity indices and the increased *ṣukūk* yields. Positive results of Islamic commodity funds are mainly due to an increase of the oil price at the end of the year. Although the returns were positive in 2016, the resilience of Islamic funds cannot be taken for granted as most of them lack scale: 73% of the Islamic funds have less than USD 25 million AuM while the average size of conventional funds is USD 394 million AuM.

Takāful: The global *takāful* industry recorded a growth in contributions of 12% while conventional insurance premiums only grew by 4%. But despite the high growth rate, *takāful* is by volume still a small and rather fragmented industry with total contributions of USD 25 billion and 305 *takāful* and *retakāful* operators and windows. The GCC accounts for 47% of the contributions and 31% of the *takāful* operators, followed by MENA excluding GCC (i.e. mainly Iran) with 33% of contributions and 22% of the operators, and Asia with 18% of contributions and 15% of the operators.

While declining car sales negatively impacted motor *takāful*, *takāful* operators benefited from the introduction of mandatory medical insurance in some countries, especially Saudi Arabia which has the largest market for Islamic insurance (USD 10 billion contributions), followed closely by Iran (USD 8 billion contributions). The dominant business lines in the GCC are medical/health and motor *takāful*, while family *takāful* is the main business line in Southeast Asia. The insurance penetration in most OIC countries is rather low. This indicates untapped market potentials, but there is strong competition for market shares. As many *takāful* undertakings lack scale for efficient operations, it is expected that the consolidation of the industry by M&A activities will continue in Southeast Asia and the GCC.

Changes in the Global Financial Architecture

International standard setters have issued standards and policy papers to foster the stability of the financial services industry. Their implications for the IFSI will be considered by the IFSB.

Financial Stability Board (FSB): Having published "Key Attributes of Effective Resolution Regimes for Financial Institutions" in 2014, the FSB issued "Key Attributes Assessment Methodology for the Banking Sector" in October 2016. An IFSB working paper on "Recovery, Resolution and Insolvency Issues for IIFS" (due in 2017) shall explore how to apply FSB methodology in Islamic finance, i.e. how to incorporate Islamic finance recovery and resolution tools into resolution regimes of dual systems. The FSB published a report on "Elements of Effective Macroprudential Policies – Lessons from International Experience". Drawing from this report and other research, the IFSB is developing a working paper on 'Systemic Links and Macroprudential Issues for Islamic Banks' (due in 2017). The FSB's second annual report on "Implementation and Effects of the G20 Financial Regulatory Reforms" (August 2016) focussed on market liquidity, reactions of global banks in emerging markets and developing economies, and the openness and integration of the global financial system. The IFSB will follow the implementation of the reforms and assess their effects for the IFSI.

Basel Committee on Banking Supervision (BCBS): The BCBS issued three standards and one guidance note in 2016. The IFSB will consider them for the review and revision of IFSB-15 which shall begin in 2018. Disclosure issues could be addressed in the current revision of IFSB-4. In the revised standard on "Minimum Capital Requirements for Market Risk" (January 2016), the BCBS sets out a clearer and more stringent definition of trading books and trading desks and movements of instruments between the banking and the trading book. A standard on "Interest Rate Risk in the Banking Book (IRRBB)" (April 2016), provides extensive guidance for banks on the IRRBB management, including the development of stress scenarios and disclosures on risk measurement. The equivalent to the IRRBB is the rate of return risk (RRR) for IIFS. IIFS shall manage this risk in analogy to the IRRBB standard. The standard on "Revisions to the Securitisation Framework" (July 2016) amends the regulatory capital treatment of securitisations with riskier underlying exposures. It also lowers the risk weight for securitisation exposures that meet the BCBS/IOSCO criteria for 'simple, transparent and comparable' (STC) securitisations to 10%. The "Guidance on the Application of the Core Principles for Effective Banking Supervision to the Regulation and Supervision of Institutions Relevant to Financial Inclusion" (September 2016) addresses non-member jurisdictions. 19 of the 29 Core Principles are explicated in the note. The IFSB will work on a Technical Note on "Microfinance and Financial Inclusion (Islamic Banking Segment)" in 2017 for which the BCBS guidance will be a key reference document.

The BCBS published a number of consultative documents, which the IFSB will consider in the context of the revision of IFSB-15: "Standardised Measurement Approach for Operational Risk" (March 2016), "Pillar 3 Disclosure Requirements – Consolidated and Enhanced Framework" (March 2016), "Revisions to the Basel III Leverage Ratio Framework" (April 2016), "Regulatory Treatment of Accounting Provisions – Interim Approach and Transitional Arrangements" (October 2016), "Revisions to the Annex on Correspondent Banking" (November 2016).

International Association of Insurance Supervisors (IAIS): The IAIS develops a risk-based global insurance capital standard (ICS) and issued a consultation document in July 2016. Key topics are ICS valuation approaches, capital resources, capital requirements, and the scope of the group for which the ICS has to be calculated. The IFSB will use results of the IAIS consultations as input for a future revision of IFSB-11 "Standard on Solvency Requirements for *takāful* (Islamic Insurance) Undertakings". IAIS issued in June 2016 "Global Systemically Important Insurers: Updated Assessment Methodology". Although there are currently no global systematically important *takāful* operators, the IFSB may refer to the updated methodology to assess systemic significance when the market grows and some *takāful* companies become large, complex and more interconnected.

International Organization of Securities Commissions (IOSCO): IOSCO published a report on "Good Practice for Fees and Expenses of Collective Investment Schemes" (August 2016) with a list of disclosure requirements to the benefit of investors. The good practices can directly apply to Islamic CIS.

Recent Initiatives of the IFSB

New Standards: IFSB-18: Guiding Principles for *Retakāful* (Islamic Reinsurance): The guiding principles and best practices cover 12 major issues, pertaining to risk transfer versus risk sharing, commission, finite *Retakāful*, acceptance of non-Sharī'ah-compliant business, retro *takāful*, qarḍ, conflict of interest, coinsurance with conventional reinsurers, transparency and disclosure, Sharī'ah governance, Sharī'ah justification for the usage of *ḍarurah*, and *retakāful* windows.

TN-2: Technical Note on Stress Testing for IIFS: TN-2 provides a first benchmark guidance for Islamic banking sector stress testing. Data from the IFSB's Prudential and Structural Islamic Financial Indicators (PSIFI) database shall facilitate the stress testing for the Islamic banking industry.

IFSB-19: Guiding Principles on Disclosure Requirements for Islamic Capital Market Products (*Ṣukūk* and Islamic Collective Investment Schemes): The standard provides guidance on the disclosure requirements for various types of *ṣukūk* commonly used in the market and ICIS that invest in transferable securities. The standard covers the main stages of disclosure and complements existing IOSCO standards by dealing with issues specific to ICM products

IFSB Implementation Survey: The IFSB conducted its 5th survey on the implementation status of IFSB standards and guidance notes. The implementation rate has increased in all three sectors (banking, ICM, and *takāful*). In general, recently issued standards are implemented faster than old standards. However, some recent standards in the banking sector have replaced earlier ones (IFSB-15 replaced IFSB-2 and IFSB-7, IFSB-16 replaced IFSB-5); RSAs may skip older standards in favour of their replacements. RSAs identified the lack of staff with detailed knowledge of Islamic finance as the major challenge for the implementation of standards. Another challenge is the need to change or adapt existing statutory or legal frameworks outside the competence of the RSA. RSAs also asked for more workshops on standards implementation, more technical notes, and direct technical assistance.

Other IFSB Activities: The IFSB and ISRA published a joint working paper on "Sharīʿah Non-Compliance Risk in the Banking Sector: Impact on Capital Adequacy Framework of Islamic Banks". The paper specifies the Sharīʿah requirements for valid contracts and uses the disclosed Sharīʿah non-compliant income as a proxy for the Sharīʿah non-compliance risk (SNCR). From the analysis of a sample of 51 Islamic banks it was concluded that the SNCR is sufficiently covered by the current capital requirements for operational risks, but more detailed disclosure is recommended. The IFSB has started work on a research paper on "Resolution and Recovery Process of Insolvent IIFS". It aims at a cross-sectoral review of existing regulations and practices in Islamic banking, ICM, and *takāful* and shall raise awareness on issues specific to IIFS such as Sharīʿah compliance, the treatment of investment account holders, and the role of Sharīʿah boards. Effective resolution and recovery systems shall ensure the systemic stability of the IFSI.

Emerging Issues in Islamic Finance

Empirical Study to Support Stress Testing: The IFSB has dealt with conceptual issues of stress testing for IIFS in IFSB-13 and TN-2 and provides the Prudential and Structural Islamic Financial Indicators (PSIFIs) database. This work has now been supplemented by an empirical study on linkages between macroeconomic variables and financial variables of IIFS. A proper calibration of stress tests and an assessment of systemic vulnerabilities requires a quantification of these linkages. For 2008-2015, the study links in an econometric model annual data for eight macroeconomic variables of 10 countries – GDP growth, interest rate, inflation rate, unemployment rate, exchange rate, stock price index, real estate prices, oil price – to four variables collected from 57 full-fledged Islamic banks – nonperforming financing (NPF), total assets, total financing, total deposits (including PSIA). Empirical findings are: Unemployment is the most important macroeconomic shock factor; an increase of 2% in unemployment can lead to an increase of Islamic banking NPF by 9%. Islamic banks are impacted by interest rates; an increase of 2% can lead to a decrease in Islamic banking financing by 12% and in deposits by 11%. An increase of inflation by 2% can lead to a decrease in Islamic banking financing by 4.5%. A 10% decrease in real estate prices can lead to an increase in Islamic banking NPF by 10%. Oil prices do not have a direct impact on Islamic banks; they have an indirect impact on Islamic banks through the co-determination of macroeconomic variables such as unemployment. These results give an idea of plausible quantitative dimensions of the impact of macroeconomic variables on Islamic banking performance variables. However, one has to keep in mind the limitations of the analysis. For example, the study is based on a sample of banks which implies the possibility of a sampling bias. Nevertheless, the study contributes to the development of data-driven models for stress testing of individual Islamic banks, and for stability analyses of the Islamic finance industry in dual financial systems.

FinTech: In conventional finance, technology start-ups challenge financial institutions by promising their customers faster, cheaper, more convenient and innovative financial services. A similar challenge can emerge in Islamic finance. Currently only a few start-ups who claim to offer Islamic financial services have become operational, but their number and size is expected to grow. The technology as well as the products of Islamic FinTech pose a large number of legal, regulatory and Sharīʿah issues. Two areas have attracted much attention: the distributed ledger technology, which is at the core of cryptocurrencies (e.g. Bitcoin) and smart contracts, and multi-sided internet platforms, which are the basis of crowdfunding. Issues that have to be addressed by regulators and Sharīʿah authorities include the following: Should cryptocurrencies be allowed, and if so, should they be exchanged according to the Sharīʿah rules for commodities or for currencies? Do so-called smart contracts violate rules of Islamic contracts if they trigger the unstoppable execution of a series of conditional contracts? Are new types of virtual investment vehicles, without a corporate identity and decision making by majority rule, acceptable forms of partnerships? What are the disclosure requirements for fund seekers and platform operators in crowdfunding schemes? How can platform operators who hold themselves out to be Islamic ensure the Sharīʿah compliance of contracts and projects? Other issues are the enforceability of contracts in courts; taxation; prevention of moral hazard by fundraising parties; audit requirements of fund seeking and funded businesses; Sharīʿah governance, etc. The regulatory environment for FinTech is often still evolving. Several RSAs have created regulatory sandboxes, where they and the FinTech firms jointly learn, in controlled "practice experiments", what type of regulation would be most appropriate to balance innovation and consumer or investor protection, including the Sharīʿah dimension.

1.0 DEVELOPMENT OF THE ISLAMIC FINANCIAL SERVICES INDUSTRY

1.1 SIZE OF THE INDUSTRY AND JURISDICTIONS WITH SYSTEMICALLY IMPORTANT IFSI

The global economy underwent another volatile year affected by a series of events ranging from unexpected political developments (e.g. Britain's vote in favour of Brexit, and the outcome of the US Presidential elections) and geopolitical conflicts, to concerns about the world's economic growth rate and trade flows, volatility in energy prices, uncertainties in relation to global interest rates (on the back of potential US interest rate increases), and another round of asset sell-offs in emerging markets prompting exchange rate depreciations in a number of affected economies. These and other economic factors continued to influence business confidence measures and investor sentiment across 2016 and had a profound impact on the performance of the financial markets.

Another Year of Slowdown in the Global IFSI …

The year 2016 marks a second consecutive year of stagnant asset growth of the global Islamic financial services industry – the industry's total worth[1] across its three main sectors (banking, capital markets and *takāful*) is estimated at USD 1.89 trillion in 2016[2] [IFSI Stability Report (SR)2016[3]: USD 1.88 trillion; SR2015: USD 1.87 trillion] (see Table 1.1.1). The slowdown largely stemmed from an adjustment in the value of global Islamic banking assets in US Dollar terms on the back of exchange rate depreciations in key Islamic banking markets (e.g. Iran, Malaysia, Turkey, Indonesia).

As of 1H2016, global Islamic banking assets are recorded as USD 1.493 trillion [1H2015: USD 1.496 trillion] and the sector continues to dominate the global IFSI, representing 78.9% of the industry's assets [SR2016: 79.6%] (see Chart 1.1.1). As an indicative comparison and in US Dollar terms, the assets of the top 1,000 global conventional banks[4] had declined by 2.6% (between end-2014 and end-2015).

Table 1.1.1 Breakdown of IFSI by Sector and by Region (USD billion, 2016*)

Region	Islamic Banking	*Ṣukūk* Outstanding	Islamic Funds Assets	*Takāful* Contributions	Total
Asia	218.6	182.7	19.8	4.4	425.5
GCC	650.8	115.2	23.4	11.7	801.1
MENA (ex-GCC)	540.5	16.6	0.2	8.4	565.7
Africa (ex-North Africa)	26.6	1.9	1.5	0.6	30.6
Others	56.9	2.1	11.2	--	70.2
Total	**1,493.40**	**318.5**	**56.1**	**25.1**	**1,893.10**

** Data for ṣukūk outstanding and Islamic funds is for full-year 2016; data for Islamic banking is for the six months ended June 2016 (1H2016); data for takāful is as at end-2015.*

Source: Islamic Financial Services Board (IFSB) Secretariat Workings

Note: Data are mostly taken from primary sources (regulatory authorities' statistical databases, annual reports and financial stability reports, official press releases and speeches, etc. and including the IFSB's Prudential and Structural Islamic Financial Indicators [PSIFI] database). Where primary data are unavailable, third-party data providers have been used, including Bloomberg and Thomson Reuters. In only a few instances where there were still information gaps, data were estimated based on historical growth trends, news reports and country-specific assumptions. Takāful contributions are used as a basis to reflect the growth in the takāful industry. The breakdown of Islamic funds' assets is by domicile of the funds, while that for ṣukūk outstanding is by domicile of the obligor. The Islamic funds numbers reported for 2016 may not be directly comparable to previous years, due to a change in external database sources.

The *ṣukūk* market, however, reversed its earlier decline and *ṣukūk* outstanding expanded by 6.06% to close at USD 318.5 billion as at end-2016 [2015: USD 300.3 billion]. The widening budget deficits in key developing and energy-exporting countries encouraged a flurry of fund-raising issuances in 2016 – including debut sovereign *ṣukūk* issuances by Jordan and Togo – and the sector expanded its overall market share in the IFSI to 16.8% [SR2016: 15.5%]. The gross contributions in the *takāful* sector have also increased by 13.1% to close at USD 25.1 billion as at end-2015 [2014: USD 22.2 billion] and represented 1.3% of the global IFSI [SR2016: 1.2%]. As an indicative comparison and in US Dollar terms, the international debt securities outstanding in global markets[5] increased by 2.65% (between end-2015 and 1H2016); and the premiums in the global insurance industry grew by 3.8% in 2015[6].

---

1 The figure quoted here is in fact a composite made up by adding assets in the banking sector and Islamic funds to the value of *ṣukūk* outstanding and to *takāful* contributions. The latter is a measure of income, rather than assets. Elsewhere there may be elements of double-counting – for example, if a bank holds *ṣukūk*. The figure is nevertheless the best measure we can offer in the current state of data availability.

2 Data for Islamic capital markets is for full-year 2016; data for Islamic banking is for the six months ended June 2016 (1H2016); data for *takāful* is as at end-2015. See Table 1.1.1 and its explanatory notes for more detail.

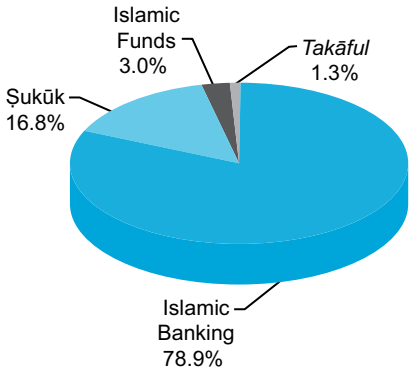
3 SR2016 = *IFSB IFSI Stability Report 2016*; SR2015 = *IFSB IFSI Stability Report 2015.*

4 Based on "Top 1000 World Banks 2016". Database maintained by The Banker.

5 Based on the Debt Securities Statistics database maintained by the Bank for International Settlements (BIS).

6 Swiss Re (Sigma No. 3/2016), "World insurance in 2015: steady growth amid regional disparities".

Chart 1.1.1 Sectoral Composition of the Global IFSI (2016)



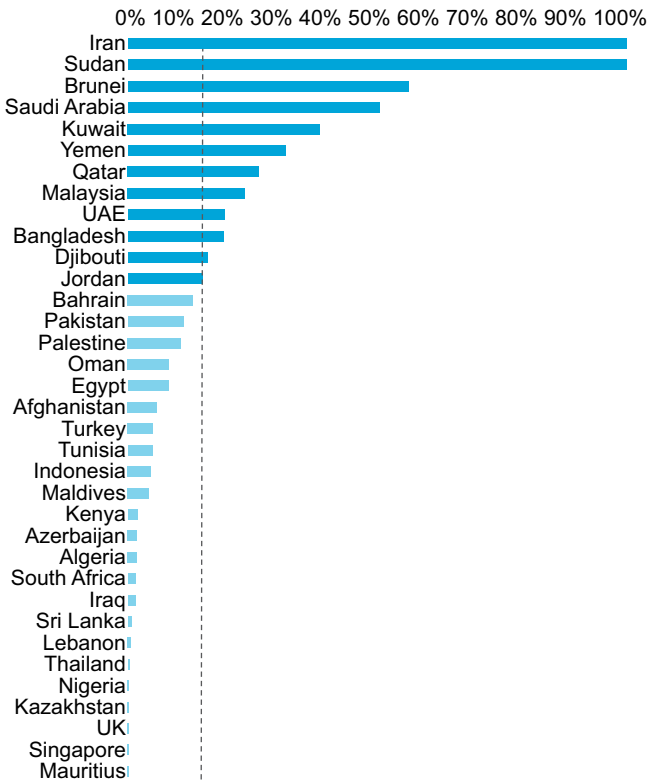
Source: IFSB Secretariat Workings

… But, Encouragingly, Domestic Market Shares Have Increased

Despite the slowdown recorded in global Islamic banking assets between 1H2015 and 1H2016 (in US Dollar terms), the domestic market share for Islamic banking in relation to the total banking sector increased in a large number of countries. Tracking an expanded list of 35 jurisdictions[7] (see Chart 1.1.2), Islamic banking experienced an increase in domestic market share in 18 countries while remaining constant in eight others (including Iran and Sudan, which have 100% market shares). Only five jurisdictions experienced very marginal declines, among them, two jurisdictions that are non-members of the Organisation of Islamic Cooperation (OIC).[8] The four newly added jurisdictions in the Islamic banking market-share tracker are Afghanistan (5.9%), Maldives (4.3%), Iraq (1.5%) and Kazakhstan (0.1%).

Based on the above, the number of jurisdictions where Islamic finance has achieved domestic systemic importance[9] has expanded to 12 in 1H2016, with the latest addition being Jordan, with a 15.2% market share for Islamic banking in its total domestic banking sector [1H2015: 14%]. Furthermore, four jurisdictions now boast a more than 50% share for Islamic banking. Aside from Iran and Sudan (which have 100% shares), Brunei is the most prominent, with Islamic banking now accounting for 57% [1H2015: 49%] of the domestic market share, followed by Saudi Arabia with a 51.1% share in 1H2016 [1H2015: 48.9%]. Improvements in market share were also made across other systemically important jurisdictions, including Kuwait at 39% (1H2015: 38.8%), Qatar 26.6% (1H2015: 26.1%), Malaysia[10] 23.8% (1H2015: 23%), United Arab Emirates (UAE) 19.6% (1H2016: 18.4%) and Djibouti 16.2% (1H2016: 15%). Collectively, the 12 systemically important Islamic finance jurisdictions are host to 88% of the global Islamic banking assets and to 84% of the global *ṣukūk* outstanding (see Charts 1.1.3 and 1.1.4).

Chart 1.1.2 Islamic Banking Share in Total Banking Assets by Jurisdiction (1H2016)



** The countries in dark-blue coloured bars indicate those that satisfy the criterion of having a more than 15% share of Islamic banking assets as a proportion of their total domestic banking sector assets, and hence are categorised as systemically important (see footnote 9).*

Source: IFSB Secretariat Workings (see Note in Table 1.1.1)

7 SR 2016: 31 jurisdictions.

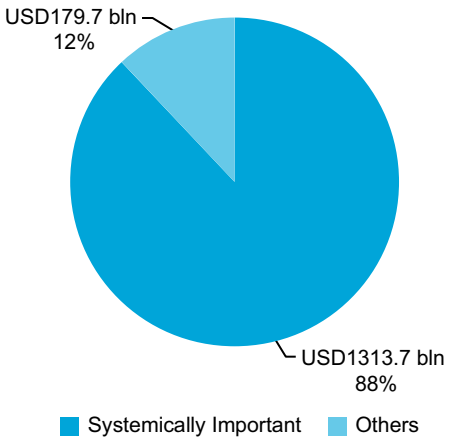
8 The five jurisdictions with a very marginal (less than 1%) decline in domestic Islamic banking market shares are Bahrain, Turkey, Yemen, Thailand and the United Kingdom.

9 This report considers the Islamic financial sector as being systemically important when the total Islamic banking assets in a country comprise more than 15% of its total domestic banking sector assets. The report uses the Islamic banking segment as the criterion for systemic importance of Islamic finance, since about 79% of Islamic financial assets are held within the banking sector.

10 Based on Islamic banks regulated by the Central Bank of Malaysia and excluding Development Financial Institutions (DFIs) regulated by the Ministry of Finance, Malaysia. The share for Islamic banking in Malaysia is over 25% if DFIs are also included in the banking sector pool of assets.

1.0 DEVELOPMENT AND ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SERVICES INDUSTRY

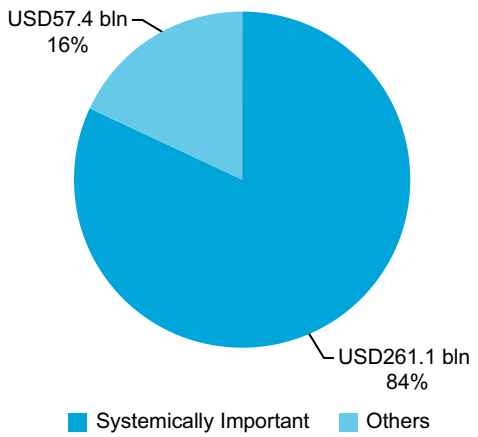
Chart 1.1.3 Islamic Banking Assets in Jurisdictions with an Islamic Finance Sector of Systemic Importance (1H2016)



** Based on the domicile of obligors.*

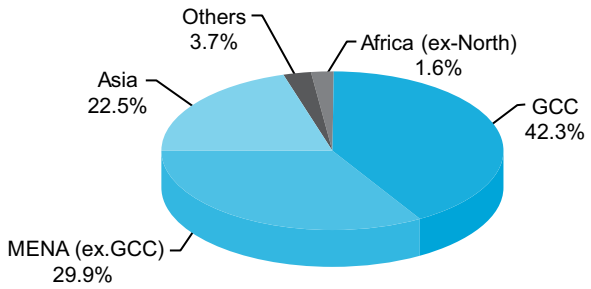
Source: IFSB Secretariat Workings

Chart 1.1.4 *Ṣukūk* Outstanding in Jurisdictions* with an Islamic Finance Sector of Systemic Importance (2016)



Regionally, the Gulf Cooperation Council (GCC) continues as the largest domicile for Islamic financial assets (see Chart 1.1.5); in 2016, the region experienced a further increase in market share to 42.3% of the global IFSI (SR2016: 39.5%) on the back of pegged exchange rates in the region, which have sustained values in US Dollar terms. The share of Middle East and North Africa excluding GCC (MENA ex-GCC) has contracted to 29.9% (SR2016: 33.2%), largely due to a decline in the Islamic banking assets of Iran in US Dollar terms (discussed further below). Asia has improved slightly, with a 22.5% share of the global IFSI (SR2016: 21.9%) following expansions in key markets such as Malaysia, Indonesia, Pakistan and Bangladesh. Islamic finance penetration in other regions, including Africa (ex-North Africa), the Americas, Australia and Europe, however, remains marginal to date.

Chart 1.1.5 Breakdown of IFSI by Region (2016)

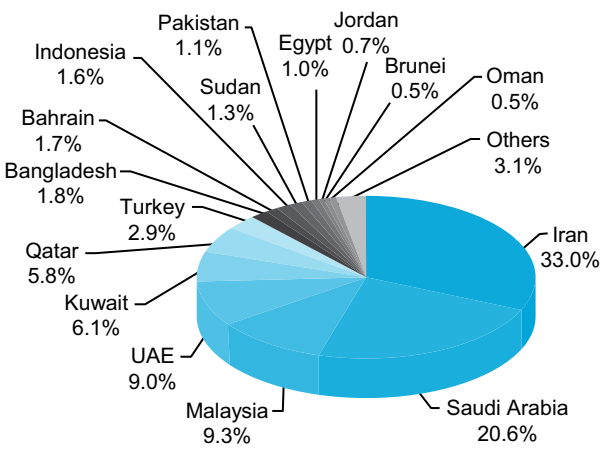


Source: IFSB Secretariat Workings

In terms of the top jurisdictions for Islamic banking assets, Iran has retained its position as the largest market, accounting for 33% of the global Islamic banking industry in 1H2016 (see Chart 1.1.6); however, its market share has been materially declining over the past two years (1H2015: 37.3%; 1H2014: 40.2%) on account of a steep depreciation in its local currency[11]. In contrast, the GCC states have been steadily increasing their market share, with Saudi Arabia at 20.6% (1H2015: 19%); UAE at 9% (1H2015: 8.1%); Kuwait at 6.1% (1H2015: 5.9%); and Qatar at 5.8% (1H2015: 5.1%). The shares of Malaysia and Turkey have experienced no change at 9.3% and 2.9% in 1H2016, respectively. The shares of other countries in general have remained close to those reported in the previous stability report.

Overall, the global IFSI has experienced a second consecutive year where the assets in its three main component markets have failed to register any growth in US Dollar terms; the market remains near the psychological USD 2 trillion mark but hasn't yet been able to breach it. A similar situation is also observed in the global financial industry in general, where growth rates have remained depressed (as analysed earlier) on account of various factors affecting the global economic environment. This chapter will analyse in detail the growth and developments across the three key sectors of the global IFSI. Further analyses from a stability and resilience perspective can be found in Chapter 3 of this report.

Chart 1.1.6 Shares of Global Islamic Banking Assets* (1H2016)



** The shares are apportioned in US Dollar terms.*

Source: IFSB Secretariat Workings

[11] Based on official figures by the Central Bank of Iran, the Iranian Rial depreciated by 19.2% between 1H2014 and 1H2016.6.

1.2 TRENDS IN THE DEVELOPMENT OF ISLAMIC BANKING

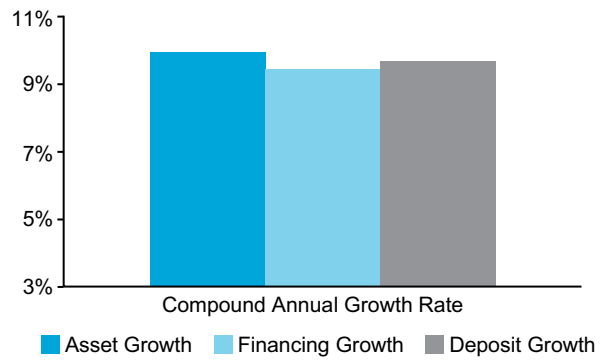
Islamic Banking Overview in Key Markets

The value of global Islamic banking assets declined by 0.2% in 2Q2016 (y-o-y)[12]. The decline is largely attributable to an adjustment to the value of Islamic banking assets in Iran[26], in addition to exchange rate depreciations in some key Islamic banking markets. For example, analysis of local-currency asset growth rates for Malaysia and Turkey, whose combined share in global Islamic banking assets is about 12%, shows Malaysia's Islamic banking assets growing at 9.5% in the year to 2Q2016, and the Turkish participation banking sector's assets expanding by 9% in the same period; the comparative growth figures in US Dollar terms for both countries are just 1.4% and 0.01%, respectively. (Where this report makes jurisdiction-specific analysis of the expansion in domestic market share of Islamic banking assets, and assesses growth rates in key Islamic banking indicators, such as financing and deposits, it therefore does so using domestic currencies.)

Between 4Q2013 and 2Q2016, Islamic banking assets showed moderate growth in US Dollar terms, expanding at a CAGR of 9.9% across 14 jurisdictions[13] which together represent about 94% of the global Islamic banking industry. Annual asset growth rates have rebounded in the first two quarters of 2016, growing at 9.6% and 10.9%, following a slowdown in 2015 when the Islamic banking sector grew at a modest 5.7% on average.

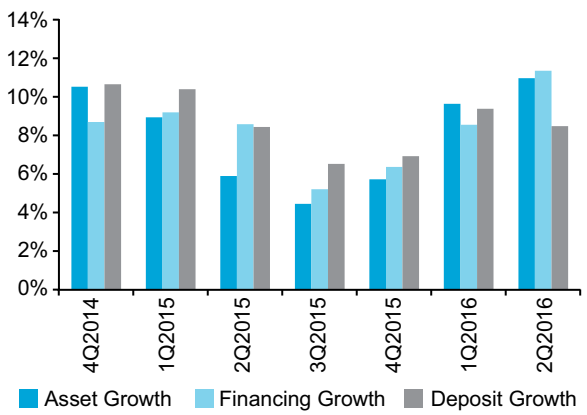
A similar pattern is observed in financing, with its CAGR recording 9.4% between 4Q2013 and 2Q2016, and showing signs of a slowdown in 2015 as it registered 6.3% expansion, but rebounding to 11.3% in 2Q2016. Deposits, while faring better than financing on both CAGR (9.7%) and 2015 rates (6.9%), had a less marked rebound in the second quarter of 2016, expanding by 8.5%, slower than assets and financing rates despite a promising first-quarter performance in which they registered a 9.4% growth rate.

Chart 1.2.1 Compound Weighted Average Growth of Key Islamic Banking Statistics (4Q2013–2Q2016)[14]



Source: PSIFIs, IFSB; IFSB Secretariat Workings

Chart 1.2.2 Islamic Banking Average Annual Growth Trends (y-o-y) (4Q2014–2Q2016)[15]



Source: PSIFIs, IFSB; IFSB Secretariat Workings

Country-specific analysis of growth rates[16] indicates that nine out of 14 countries in the sample achieved double-digit asset growth rates in the 12 months to 2Q2016. Higher rates are observable for countries new to the Islamic banking landscape, such as Nigeria and Oman, which registered 24.8% and 43.9% assets growth, respectively. Similarly, 11 jurisdictions recorded financing growth rates above 10.6%, and half the sample grew their deposit base by at least 10%. All but three countries – namely, Indonesia, Iran and Oman – experienced higher growth in financing than deposits in 2Q2016.

---

12 Growth rates (other than compound annual growth rate, or CAGR) for assets, financing and deposits are calculated on a year-over-year (y-o-y) basis.

13 Data used in calculating CAGR, as well as growth rates for assets, financing and deposits, were received from local banking regulatory authorities in the relevant jurisdictions and include data from both Islamic banks and windows in Bangladesh, Indonesia, Malaysia, Oman, Pakistan and Saudi Arabia, and from Islamic banks only in Iran, Jordan, Kuwait, Nigeria, Qatar, Turkey, the UAE, in addition to Sudan, whose growth data were available only until 1Q2016.

14 The term "deposits" in this section includes remunerative funding (*murābaḥah*, commodity *murābaḥah*, etc.), non-remunerative (current accounts, *wadī`ah*), and unrestricted profit-sharing investment accounts (UPSIAs), which are treated as equity in the financial statements of Islamic banks in some jurisdictions and as liabilities in others.

15 As stated earlier, growth rates in this subsection, other than CAGR, are calculated on a y-o-y basis, comparing figures at the end of a quarter with figures of the same indicator in the same quarter of the previous year. Therefore, as an example, an 8.4% deposit growth in 2Q2015 indicates that total deposits as at the end of 2Q2015 were 8.4% higher than the deposits figure as at the end of 2Q2014. In following with the IFSB's PSIFIs database, from which data were obtained for this analysis, quarterly notations (1Q, 2Q, 3Q and 4Q) are used to display the time series.

16 This analysis is performed using local currency assets, financing and deposit figures for each jurisdiction to eliminate the impact of exchange rate fluctuations.

1.0 DEVELOPMENT AND ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SERVICES INDUSTRY

Among the GCC countries in the sample, Kuwaiti Islamic banks recorded the lowest level of asset growth in the last three periods under review, posting 6.9% growth in 2Q2015 and a moderate 2.2% in 2015, slightly lower than their conventional peers who expanded their assets by 2.6% in 2015, reflecting a difficult operating environment for the Kuwaiti banking sector in light of prolonged low energy prices. Financing, however, increased at a faster pace in the Kuwaiti Islamic banking system, recording a 6.2% growth rate between 2Q2015 and 2Q2016. It was nevertheless the lowest level of financing growth among sample countries in that period[17]. The UAE[17] (10.8%) and Qatar (12.7%) posted double-digit asset growth rates throughout the quarters in review, exceeding their local averages (UAE: 4.1%; Qatar: 10.2%). Mirroring assets, financing growth rates in the two GCC countries were also in the double digits and exceeded those of their conventional counterparts. Deposits, on the other hand, appear to be expanding at a slowing, but still healthy, pace as of 2Q2016, registering 9.4% for the UAE, whose domestic banking system deposits expanded by 3.8%, and 7.8% for Qatar, comparing favourably to its total banking sector's deposit base, which gained 6.2% on average.

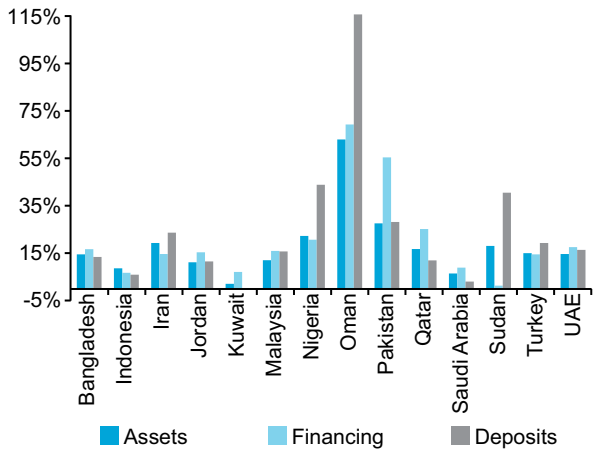
On the other hand, Turkish participation banks maintained good levels of asset, financing and deposit growth – all higher than 9% in 2Q2016, in spite of climbing non-performing financing (NPF) ratios and low profitability indicators.[18]

Iran has also shown high growth rates, particularly with deposits, which have increased by 19.5%, 24% and 30.5% in quarters two and four of 2015, and in quarter two of 2016. In contrast, and possibly due to large deposit withdrawals by the Saudi government, the Saudi Arabian Islamic banking system saw a contraction in deposit figures, down by about 4.3% in 2Q2016, contributing to a total decline of 3.3% in deposits in the Saudi banking sector (Islamic and conventional). The Saudi Arabian Monetary Authority (SAMA) responded through capital injections into the banking system, in the form of time deposits. This measure was announced in September 2016 and is expected to at least pull deposit growth rates back into positive territory in the following months.

Malaysian Islamic banks and windows continued to grow their aggregate deposit base, which increased by 8.2% between 2Q2015 and 2Q2016; the comparative figure for conventional Malaysian banks was 1.6%. Growth in Malaysian Islamic deposits can be attributed to the recovery in value, and deposits share, of its profit-sharing investment accounts (PSIAs).[19] This level of growth was, however, about half the 16% growth rate recorded in 2015, and lower than the previous quarters' results (2Q2015: 18.6%; 2014: 11.1%). Indonesian Islamic banks managed to arrest a decline in assets growth in 2Q2015, and ended 2015 with decent asset (8.8%) and financing (6.9%) growth rates, with further progress made in the first two quarters of 2016 where they grew by 12% and 7.8%, respectively, from a year earlier. The deposit base in Indonesian Islamic banks and windows followed a similar pattern, expanding at 13% in 2Q2016, following a slowdown in 4Q2015 (6.1%) and 2Q2015 (11.5%) relative to 4Q2014 (19%).

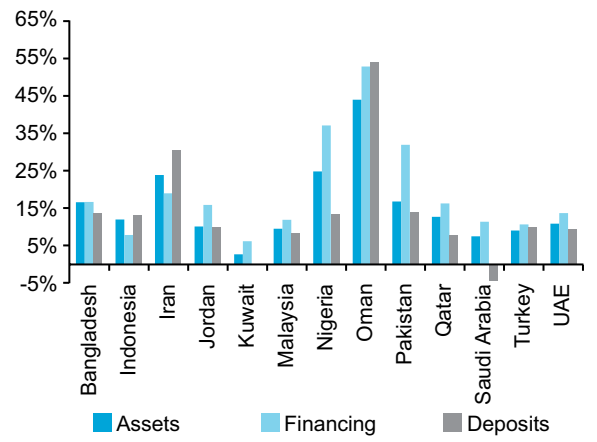
Bangladesh and Pakistan maintained robust levels of growth in their assets, financing and deposit portfolios. Pakistan, in particular, sustained a high level of financing growth in the second (57.6%) and fourth (55.9%) quarters of 2015, and the second quarter of 2016 (31.8%; financing in the Pakistani banking sector grew at 12.7% in the same quarter), progress spurred predominantly by conventional banks pursuing Islamic banking opportunities, innovation in financing products and government incentives.[20] Deposits in Pakistani Islamic banks and windows also fared better, at 14.1%, than the country's overall deposit base (10.6%) in 2Q2016.

Chart 1.2.3 Islamic Banking Average Annual Growth by Country (2015)[21]



Source: PSIFIs, IFSB; IFSB Secretariat Workings

Chart 1.2.4 Islamic Banking Average Annual Growth (y-o-y) by Country (2Q2016)[21]



Source: PSIFIs, IFSB; IFSB Secretariat Workings

[17] Excluding Sudan, due to data limitations.
[18] Refer to Chapter 3 of this report for further analysis on the resilience of the IFSI in several jurisdictions, including Turkey.
[19] See Chapter 3 of this report for further analysis on growth in PSIAs and their share of total deposits in the global Islamic banking industry.
[20] For example, the federal government of Pakistan introduced a 2% tax reduction for listed Sharī'ah-compliant manufacturing companies, to incentivise the industry to eliminate interest from their balance sheet and promote the development of the Islamic capital market in the country.
[21] Deposit data for Islamic banks in Kuwait were not available.

High levels of asset growth in some jurisdictions, shown in Charts 1.2.3 and 1.2.4, have translated into domestic market-share gains for Islamic banking assets. As stated in section 1.1 of this report, 18 jurisdictions[22] witnessed an increase in the market share of their Islamic banking assets relative to their total banking sector in the 12 months to 2Q2016. Among these countries, Brunei experienced the highest increase in domestic Islamic banking share, with its Islamic banking assets gaining a full eight percentage points in the year to June 2016, to hold a 57% share of the Bruneian banking system (SR2016: 49%). Brunei now has the highest domestic share of Islamic banking assets after Iran and Sudan, which remain as the only jurisdictions operating fully Sharī'ah-compliant Islamic banking systems. The substantial increase in Brunei's share continues a trend observed in SR2016, which highlighted that Brunei's share had increased from 41% in SR2015 to 49% in 2Q2015. This level of growth in Brunei's Islamic banking market share (16% in two years) stemmed from an increase in its Islamic banking asset base, growing at a CAGR of 8.95% between 2013 and 2Q2016, accompanied by a general decline in the country's total domestic banking size, which shrank by 10.8% between 2013 and 2Q2016 (and by more than 20% since 2011).[23]

The market share of Islamic banking assets in Malaysia has increased slightly to 23.8% as at 2Q2016 (SR2016: 23%). Bangladesh and Indonesia maintained their shares of Islamic banking services, registering 19.4% (SR2016: 19.4%) and 4.7% (SR2016: 4.7%)[24] respectively as at 2Q2016.

In Pakistan, assets of Islamic banks and windows sustained their share in the domestic market, which stood at 11.4% in 2Q2016 (SR2016: 11.1%) despite Islamic banking assets growing at 16.8%, highlighting comparable, or marginally lower, levels of asset growth in the overall banking system there. The State Bank of Pakistan (SBP) continues to make efforts to improve product profiles of Islamic banking institutions, and to achieve its target of having 15% of the country's banking assets in Islamic banks and windows by 2018.[25] SBP noted in its Strategic Plan: Islamic Banking Industry in Pakistan 2014–2018 that Islamic banking products in the country are overwhelmingly debt-based and do not meet the Sharī'ah objectives of risk and reward sharing. In this regard, SBP recently issued a circular exempting Islamic banking institutions from using the Karachi Interbank Offered Rate (KIBOR) for *muḍārabah*, *mushārakah* and *wakālah* financing products while requiring these institutions to submit alternative pricing mechanisms for these products.

The Saudi Islamic banking sector now represents more than one-half of the banking sector in the Kingdom, with its assets accounting for 51.1% of the domestic banking sector at 2Q2016 (SR2016: 49%). This reflects the faster growth in Saudi Islamic banking assets (7.5%) in comparison to the overall Saudi banking system, which expanded by 2.1%. Kuwait and Qatar remain as the markets with the largest domestic Islamic banking shares in the GCC behind Saudi Arabia, with both countries having marginally improved their shares of Islamic banking assets to 39% (SR2016: 38.8%) and 26.6% (SR2016: 26.1%), respectively. The UAE's Islamic banking assets now represent 19.6% of its domestic banking sector. In May 2016, the UAE cabinet sanctioned the creation of a central Sharī'ah authority by the Central Bank of the UAE to approve Islamic finance products and reduce inconsistency and disagreements on Sharī'ah standards.

Bahrain was the only GCC country whose Islamic banking share experienced a setback in the year to 2Q2016 – declining to 13.3% (SR2016: 13.5%). The banking sector in Bahrain expanded by approximately 1.5% in that period, but its Islamic banking sector declined by 0.3%. The Central Bank of Bahrain continues its drive to encourage mergers and acquisitions between Islamic banks to increase their efficiency and resilience in the face of a challenging operating environment. On the other hand, Oman maintained its remarkable progress on the Islamic banking front, registering the biggest gain in domestic Islamic banking assets among its GCC peers. The Sultanate's domestic Islamic banking sector, which was launched only in 2012, has increased by 1.9 percentage points in the year to 2Q2016 to constitute 8.4% (SR2016: 6.5%) of total banking assets there.

Elsewhere in the Middle East, Jordan is a new addition to the list of jurisdictions in which the Islamic financial sector is regarded as systemically important, with the Kingdom's Islamic banking share now standing at 15.2% of its total banking sector assets (SR2016: 14%) following 10.1% growth in its Islamic banking assets, exceeding growth in the overall Jordanian banking sector which registered 2.5% growth between 2Q2015 and 2Q2016. Palestine has also been expanding its pool of Islamic banking assets, representing 10.8% of the Palestinian banking assets as at 2Q2016 (SR2016: 10%).

In spite of lacklustre growth in 2015, Tunisia's Islamic banking sector doubled its share of total domestic banking assets to stand at 5% in 2Q2016 (SR2016: 2.5%). The North-African country received loans from the International Monetary Fund (IMF) and the World Bank in mid-2016 to

---

22 The list of countries for which domestic Islamic banking assets market share is calculated has four new additions this year, namely: Afghanistan, the Maldives, Iraq and Kazakhstan, increasing the total number of tracked countries to 35.

23 The fall in assets of the Bruneian banking sector has been attributed to a decline in placements with banks and financial institutions outside Brunei.

24 Box 3.2.1 of this report, titled "The Development of the Islamic Financial Sector in Indonesia" describes the Islamic banking sector in Indonesia as having 5.13% share of the country's overall banking system as at September 2016, higher than the 4.7% indicated above. The difference arises from the conversion of an Indonesian bank from conventional operations into a fully-fledged Islamic bank during the third quarter of 2016, whereas this report utilises data up to June 2016 in its Islamic banking analysis.

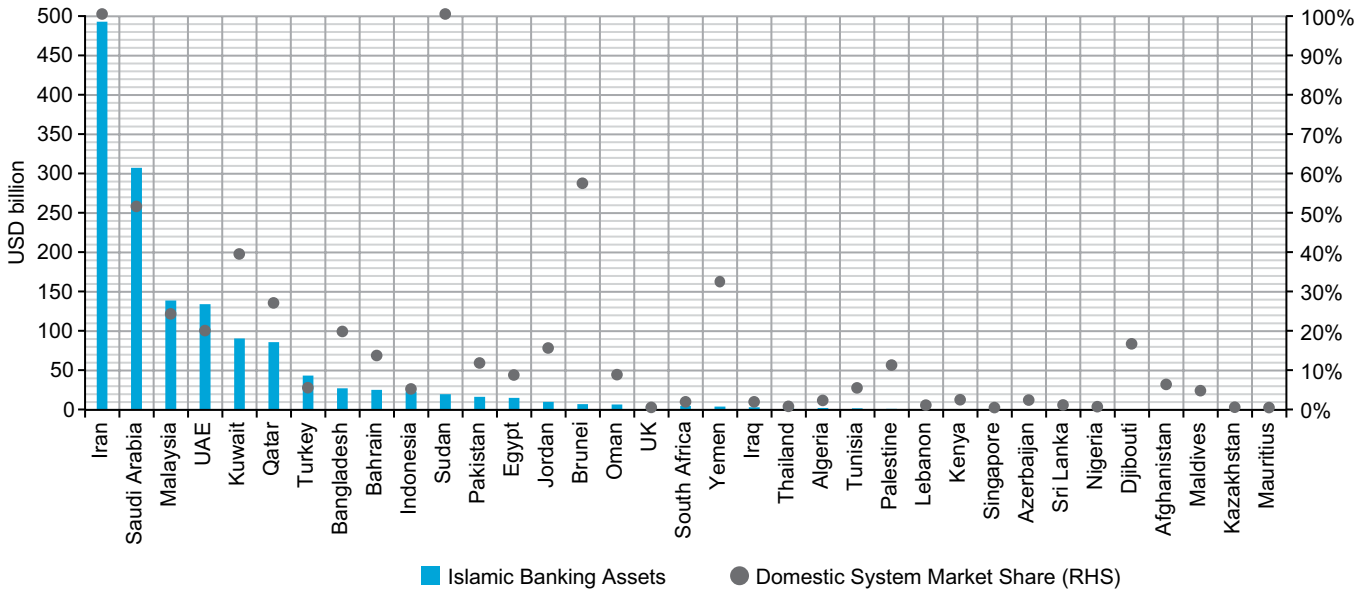
25 As set by SBP in its Strategic Plan for the Islamic Banking Industry 2014–2018.

1.0 DEVELOPMENT AND ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SERVICES INDUSTRY

boost economic growth and reduce unemployment rates – steps that are expected to accelerate credit demand for Tunisian Islamic and conventional banks. Tunisia is also continuing its efforts to strengthen the regulatory and supervisory framework for the domestic Islamic banking sector and, in July 2016, introduced a new banking law that covers governance aspects of Islamic banking regulations. Also in North Africa, Morocco has taken its final steps in launching participative banking in the Kingdom after Bank Al-Maghrib approved the establishment of five participative banks in January 2017. This follows the introduction of a law in 2015 to regulate participative financial products in the Kingdom.

In Sub-Saharan Africa, Nigeria's non-interest banking has maintained its share of total domestic banking assets, standing at 0.2% in 2Q2016 (SR2016: 0.2%). The country's only full-fledged non-interest bank was granted a national banking licence in May 2016, after having operated on a regional licence that allowed it access to a third of the country since 2012. This move could possibly enable non-interest banking to broaden its asset portfolio, enhance its deposit mobilisation capabilities and widen its reach in Africa's most populous country. In Uganda, efforts are being made by both lawmakers and the Bank of Uganda to facilitate the establishment of Islamic banking in the country. The country's Financial Institutions Act (2004) was amended in January 2016, with the new version of the law embracing Islamic banking. Bank of Uganda is currently preparing Islamic banking legislation that is expected to pave the way for the roll-out of Islamic banking in that country as soon as the supervisory and regulatory framework is in place.

Chart 1.2.5 Islamic Banking Assets and Market Share (2Q2016)



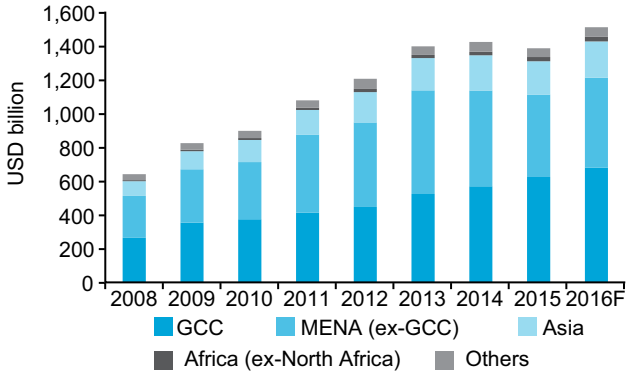
Source: PSIFIs, IFSB; IFSB Secretariat Workings

The value of Islamic banking assets globally is forecast to amount to approximately USD 1.51 trillion in 2016[26] (see Chart 1.2.6). Factors that were in play and which influenced the analysis last year remain, including persistently low oil prices and a general slowdown in economic growth. The US Dollar values of Islamic banking assets in several jurisdictions were affected by exchange rate fluctuations, particularly in Iran, Malaysia, Nigeria and Turkey, whose national currencies depreciated by more than 10%[27] against the US Dollar in 2015, with an average decline of 19.2%. The Malaysian Ringgit and Turkish Lira gained single-digit percentage points of their value in 2Q2016 in comparison to their average 4Q2015 rates, whereas both the Iranian and Nigerian currencies continued to decline.

[26] The estimated figure for global Islamic banking assets as at end-2015 was reported in SR2016 as USD 1.57 trillion. The actual figure for end-2015 was USD 1.38 trillion, with the revision drawing mainly from an adjustment to the value of Islamic banking assets in Iran, which now uses official data provided by the Central Bank of Iran.

[27] The calculation of exchange rate movements uses official, end-of-year exchange rates as provided by the banking regulatory and supervisory authority of each respective jurisdiction.

Chart 1.2.6 Islamic Banking Assets (2008–2016F)



Source: PSIFIs, IFSB; IFSB Secretariat Workings

Assets of the Islamic banking industry remain geographically concentrated, with about 88% of those assets held in countries in which the Islamic financial sector is classified as systemically important. Furthermore, the top 10 Islamic banking jurisdictions by asset size[28] account for 91.8% of the global Islamic banking industry as of 2Q2016, similar to the levels reported in 2Q2015 (SR2016: 92.1%). The stability of the Islamic financial system is therefore highly dependent on the soundness and resilience of Islamic banking operations in these countries.

Overall, despite challenging economic conditions, the majority of jurisdictions recorded reasonable levels of growth in key Islamic banking statistics, with many expanding their assets, financing and deposit portfolios at double-digit rates. However, the current, and possibly prolonged, macroeconomic challenges could limit future progress in the development of the Islamic banking sector, particularly in countries, and economic sectors, in which Islamic banking assets are concentrated. The majority of governments in the GCC are taking measures to address budget deficits and reduced revenues, which may reduce growth prospects for the region's Islamic and conventional banking sectors alike in 2017. Several countries are, however, paving the way for the roll-out of Islamic banking services domestically by developing the necessary legal and regulatory infrastructure, which may improve the industry's growth opportunities over the long term. Fluctuating currency exchange rates will continue to influence aggregate growth rates and the value of the global Islamic banking industry and its indicators. While Islamic banking assets are generally expanding, the quality of those assets may deteriorate in light of the prevailing macroeconomic conditions. Weaker deposit growth, relative to financing growth rates, may lead to further liquidity pressures for Islamic banks. Chapter 3 of this stability report provides further analysis on the fundamentals and resilience of the Islamic financial services industry.

Box 1.2.1 Prudential and Structural Islamic Financial Indicators (PSIFIs): Features and Application Methodology to the Stability Report

Prudential and Structural Islamic Financial Indicators (PSIFIs) is a project of the IFSB to establish a global Islamic finance database of prudential statistics for the Islamic financial services industry. The underlying purpose of PSIFIs is to facilitate monitoring and analysis of the soundness and stability of the IFSI while capturing the unique characteristics of Islamic finance. As a starting point, the IFSB has focused on the Islamic banking sector of its member countries due to its relative size and significance. The IFSB plans to collect and disseminate data on other sectors (*takāful*, Islamic capital markets and other non-bank financial institutions) at a later stage. PSIFIs differentiate between the aggregated macro-level data for stand-alone Islamic banks (separately incorporated or independent subsidiaries of other banks) and that for Islamic windows (Islamic finance activity of conventional banks).

The PSIFIs database includes three type of indicators, called "core", "additional" and "structural" indicators. Core indicators are aimed at capturing important indications of the health and financial soundness of the country's Islamic banking sector on capital adequacy, asset quality, earnings, liquidity, and risk sensitivity of Islamic banks. A set of additional indicators provides further information on economic sectors (sectoral distribution of the data among economic activities based on the list of the International Standard Industrial Classification) as well as Sharī'ah-compliant contracts. The structural indicators on the size and components of the balance sheet and assets of the Islamic banks/Islamic windows provide an overall picture of the Islamic banking sector in a country.

The PSIFIs statistics currently cover macro-level data on the Islamic banking sector collected directly from regulatory and supervisory authorities (RSAs) of 17 IFSB member countries.[29] Most of these jurisdictions have a significant share of Islamic banking in their financial systems. Overall, the PSIFIs member countries collectively held around 91% of global Islamic banking assets at the end of the second quarter of 2016. So far, the IFSB has released the data in five disseminations via the PSIFIs web portal (**http://PSIFIs.ifsb.org**) on the IFSB website, covering 10 quarters of data from the fourth quarter of 2013 to the first quarter of 2016. The IFSB established a Task Force comprising representatives from each participating RSA to finalise the indicators and conduct capacity-building workshops for PSIFIs. Representatives from the IMF, the IDB and the ADB are also members of the PSIFIs Task Force.

[28] These jurisdictions are Iran, Saudi Arabia, Malaysia, the UAE, Kuwait, Qatar, Turkey, Bangladesh, Bahrain and Indonesia.

[29] Apart from three G20 members (Indonesia, Saudi Arabia and Turkey), the countries include five from emerging and developing Asia (Bangladesh, Brunei Darussalam, Iran, Malaysia and Pakistan), one from central Asia (Afghanistan), five from the Middle East (Bahrain, Jordan, Kuwait, Oman and United Arab Emirates), and three from Africa (Egypt, Nigeria and Sudan).

1.0 DEVELOPMENT AND ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SERVICES INDUSTRY

Box 1.2.1 Prudential and Structural Islamic Financial Indicators (PSIFIs): Features and Application Methodology to the Stability Report (Continued)

This stability report aggregates the PSIFIs data of different jurisdictions by converting local-currency values of the underlying components of different indicators into US Dollars using end-of-period exchange rates. For the purposes of calculating cross-country ratios/averages, the "weighted average" method is applied to these aggregates. Growth figures are calculated on a year-over-year basis, unless stated otherwise. If a jurisdiction's data is unavailable for a period under consideration, the report uses that jurisdiction's data of the same indicator from the previous period. Performance data (e.g. return on assets and return on equity) is generally received by the IFSB after being annualised by the relevant jurisdiction, or is annualised by IFSB staff if received on a quarterly, or cumulative, basis from any jurisdiction.

As some countries with active Islamic banking industries do not contribute data to PSIFIs, the database's scope is limited to its 17[30] jurisdictions. A few of these jurisdictions do not report the full set of requested ratios and/or their underlying components. When a jurisdiction's data for a particular ratio/average are not available, that jurisdiction is excluded from the calculations and analysis of that ratio. Further issues of consistency among jurisdictions in submitting data are observed: for example, most countries include Islamic banking data for domestic operations only, while a few others provide Islamic banking data that include foreign operations of local Islamic banks, creating the possibility of double-counting and impacting the quality of analysis and estimations of domestic, and global, shares of Islamic banking in these jurisdictions. We also realise that jurisdictions involved in the PSIFIs project may apply different regulatory frameworks – some may apply IFSB standards, while others may use Basel I, II or III. Therefore, industry-wide capital adequacy ratios or liquidity ratios may not be calculated on a fully consistent basis, since they will be influenced by the varying operating environments among jurisdictions.

1.3 ISLAMIC CAPITAL MARKETS: DEVELOPMENT REVIEW

In contrast to the previous year, 2016 has been relatively better for the three sectors of the Islamic capital markets (ICM): the *ṣukūk* market, the Sharī'ah-compliant listed-equity market, and the Islamic funds market. The *ṣukūk* market experienced moderate improvements year-on-year in both issuances volume in the primary market and *ṣukūk* outstanding in the secondary market; this was also supported by two debut sovereign issuances by Jordan and Togo, and by a debut multilateral *ṣukūk* issuance by the Islamic Corporation for the Development of the Private Sector (ICD). Sharī'ah-compliant listed equities have overall generated positive returns over the year on the back of improving commodities/energy products prices and bullish investor sentiment following the November 2016 US election results. The positivity in the equity market has also been partly reflected in the returns of the Islamic funds market, the yields of which were better in 2016 than in the previous year.

Nonetheless, not all was positive; there were also some setbacks in terms of growth and development in the ICM. Notably, there was a case of *ṣukūk* default from an oil and gas-based issuer in 2016; in a reversal of the past trend, the Sharī'ah-compliant listed-equity market appears to have generated lower returns in contrast to the conventional listed equity market; and there is a slight fall in the number of Islamic funds in the market to 1,167 [2015: 1,220] among which 341 funds are inactive as at end-2016, signalling a risk of further possible Islamic fund closures going into 2017. The following subsections of this chapter comprehensively analyse the growth, development and challenges of the ICM in 2016.

1.3.1 *Ṣukūk*[31]

Following a stagnant 2015, the global *ṣukūk* outstanding has experienced a moderate increase of 6.06% to close at USD 318.5 billion as at end-2016 [2015: USD 300.3 billion]; this development follows a near-zero percentage change in outstanding volume in US Dollar terms in 2015 (see Chart 1.3.1.1). On the other hand, issuances in the primary market have experienced a 16.3% increase in volume to USD 74.8 billion in 2016 on the back of increased issuances by sovereign and government-related entity (GRE) issuers (including multilateral organisations), and also due partly to a relatively smaller base of issuances volume in 2015[32] [USD 64.3 billion] (see Chart 1.3.1.2). Despite these improvements, however, the *ṣukūk* market has failed to regain its momentum of previous years, particularly 2012–2014, when annual issuances surpassed the USD 100 billion mark consecutively, and the resounding post-financial crisis years of 2009–14, when *ṣukūk* outstanding expanded at a CAGR of 19.56% (2011–2016: CAGR 12.36%). This subsection analyses the recent growth and development trends of the *ṣukūk* market, while subsection 3.3 in Chapter 3 assesses that market's resilience fundamentals.

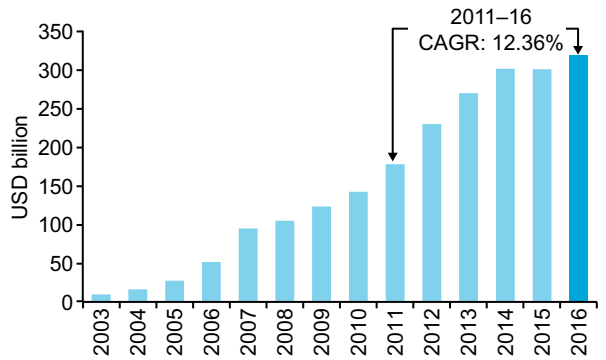
---

30 For its Islamic banking resilience analysis, this report uses data from the 17 jurisdictions participating in PSIFIs plus Qatar, for which the IFSB Secretariat collected Islamic banking data separately.

31 *Ṣukūk* are certificates of investment in underlying assets, services or investment activities that generate fixed or floating returns according to Islamic principles. The instruments offer an alternative funding tool to conventional bonds that can be structured and utilised for a vast array of purposes. In recent years, *ṣukūk* products have seen significant innovation with the introduction of hybrid, convertible, perpetual, retail and regulatory capital *ṣukūk*.

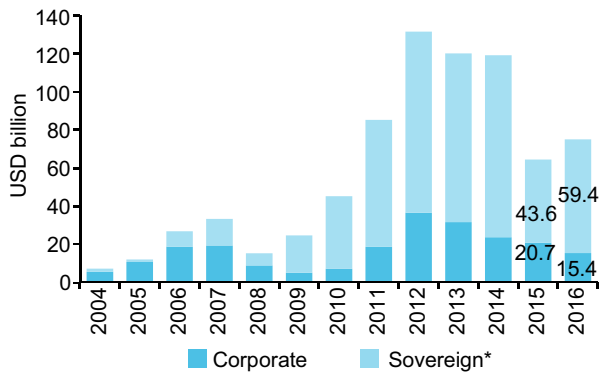
32 Reasons for subdued performance of the *ṣukūk* market in 2015 were covered in IFSI Stability Report 2016.

Chart 1.3.1.1 Global *Ṣukūk* Outstanding Trend (2003–2016)



Source: IFSB Secretariat Workings

Chart 1.3.1.2 Global *Ṣukūk* Issuances – Sovereign and Corporate (2004–2016)



**Includes all government-related entities (GREs), multilateral development banks (MDBs) and international organisations (IOs). For the purposes of this report, "GREs" refers to ṣukūk obligors with a shareholding structure representing more than two-thirds (66.67%) of government ownership through either ministries, authorities, etc. or other GREs such as sovereign wealth funds.*

Source: IFSB Secretariat Workings

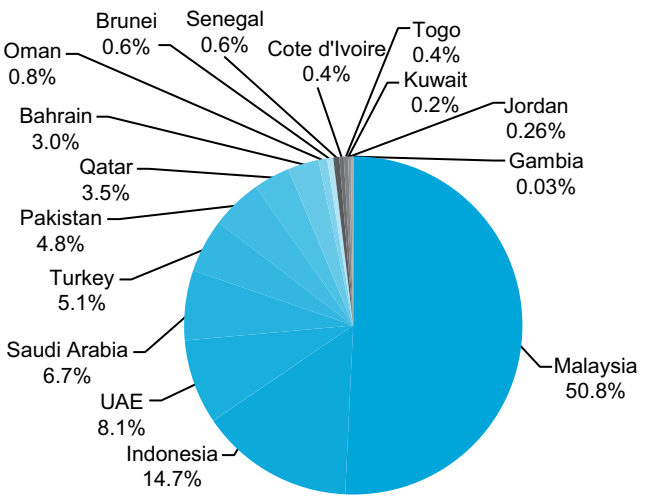
Sovereign Ṣukūk

Sovereigns, including GREs and multilateral issuers, accounted for approximately USD 59.4 billion, or 79.4% of the total issuances volume in 2016 [2015: USD 43.6 billion, or 67.8%]; this marks a 36.4% increase in volume as compared to the previous year. It includes about USD 11.7 billion (19.7%) of liquidity that was raised through short-term *ṣukūk* (less than one-year maturity) [2015: 21.8%]. There is also an increase in the number of jurisdictions that issued sovereign *ṣukūk* – in 2016, sovereign issuers across 16 jurisdictions issued *ṣukūk* [2015: 13 jurisdictions] (see Chart 1.3.1.3). Notably, two jurisdictions debuted in the sovereign *ṣukūk* market in 2016 – namely, Jordan in the Middle East and Togo in West Africa.

Jordan issued its maiden sovereign *ṣukūk* in May 2016, a *murābaḥah*-based 5-Year Ṣukūk worth JOD 75 million (USD 105.9 million) with proceeds raised to help finance purchases by state utility firms, the National Electric Power Company and the Water Authority of Jordan. The offering attracted an order book oversubscribed 2.73 times while paying a profit rate of 3.5%. Jordan followed on with a second sovereign *ṣukūk* issuance in October 2016, this time a 5-Year Ṣukūk al-Ijārah worth JOD 34 million (USD 47.9 million) which, offering a profit rate of 3.01%, was oversubscribed by more than three times. The Jordanian government cited the sovereign issuance to be of great significance in supporting liquidity management for the country's full-fledged Islamic banks.

Togo has now become the third country, following Senegal and Ivory Coast (Cote d'Ivoire), among the eight West African Economic and Monetary Union[33] states to issue sovereign *ṣukūk*. On 10 August 2016, the Republic of Togo closed its maiden sovereign *ṣukūk* offering, a 10-Year Ṣukūk al-Ijārah worth XOF 150 billion (USD 252.9 million) and paying a 6.5% annual profit rate. Previously, Senegal had debuted in 2014 and Ivory Coast in 2015. Both Senegal and Ivory Coast re-tapped the sovereign sukūk market in 2016, raising XOF 200 billion (USD 341 million) via a 10-Year Ṣukūk al-Ijārah and XOF 150 billion (USD 252.9 million) via a 7-Year Ṣukūk al-Ijārah, respectively. The Senegal *ṣukūk* was backed by shares in the Léopold Sedar Senghor International Airport, while the Ivory Coast *ṣukūk* was backed by the property assets of the state, including the building of the International Trade Centre of Abidjan and administrative towers A and B, which are the seat of several ministries.

Chart 1.3.1.3 Sovereign *Ṣukūk* Issuances by Jurisdiction* (2016)



 # Includes all GREs, MDBs and IOs.

** MDBs and IOs for 2016 include ṣukūk issuances by the Islamic Development Bank (IDB), the Islamic Cooperation for the Development of the Private Sector (ICD), the International Islamic Liquidity Management Corporation (IILM), the Arab Petroleum Investments Corporation (APICORP) and the Gulf Investment Corporation (GIC). These ṣukūk issued have been traced to their headquarter jurisdictions – namely, Saudi Arabia for IDB, ICD and APICORP; Malaysia for IILM; and Kuwait for GIC.*

Source: IFSB Secretariat Workings

[33] The eight West African countries share the common West African CFA franc currency (XOF) and comprise the West African Economic and Monetary Union (UEMOA). They include Benin, Burkina Faso, Guinea-Bissau, Ivory Coast (Côte d'Ivoire), Mali, Niger, Senegal and Togo.

1.0 DEVELOPMENT AND ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SERVICES INDUSTRY

Among the regular sovereign issuers, Malaysia has retained its position as a key issuer, accounting for USD 30.1 billion, or 50.8%, of total sovereign *ṣukūk* issuance in 2016 (2015: 57.6%). This includes USD 9.3 billion that is attributable to the multilateral IILM headquartered in Malaysia.[34] The Malaysian government returned to the international *ṣukūk* market in April, raising USD 1.5 billion from two tranches: a 10-Year Wakālah Ṣukūk worth USD 1 billion and a 30-Year Wakālah Ṣukūk worth USD 500 million. Additionally, it raised nearly USD 9 billion through local currency sovereign *ṣukūk* issuances of various tenors. The Malaysian GREs were also very active, predominantly in the infrastructure sector, where government-linked entities in the electricity, transportation and water industries issued *ṣukūk* for funding various expenditures. The issuances raised funds across four currencies: the US Dollar, the Singaporean Dollar, the Hong Kong Dollar and the Malaysian Ringgit.

Indonesia has also retained its position as the second most active sovereign *ṣukūk* issuer, raising USD 8.75 billion or 14.7% of total sovereign *ṣukūk* issuance in 2016 (2015: USD 7.22 billion, or 17.5%). The Indonesian government, through its Ministry of Finance, raised USD 2.5 billion in March through two tranches of US Dollar *ṣukūk*: a 10-Year USD 1.75 billion Ṣukūk al-Ijārah, which represents the largest-volume US Dollar *ṣukūk* in 2016; and another USD 750 million 5-Year Ṣukūk al-Ijārah. Other issuances included regularly issued local currency *ṣukūk* of diverse types, including long-term project financing *ṣukūk* short-term capital and liquidity management *ṣukūk*, as well as retail *ṣukūk*, partly intended to mobilise national savings from retail customers. Notably, this year also saw *ṣukūk* issuance by a GRE, Angkasa Pura I PT, which is responsible for the management of airports in Indonesia.

Turkey and Pakistan were the other two emerging markets that raised large volumes of funds through the sovereign *ṣukūk* market in 2016 for fiscal expenditure and budgetary support purposes. The Turkish Treasury nearly tripled the funds it raised in 2016 through *ṣukūk* – approximately USD 3.1 billion [2015: USD 1.3 billion] through six Ṣukūk al-Ijārah certificates, including five denominated in local currency and a USD 1 billion tranche in US Dollars. The maturities of these six instruments ranged from two to five years. The Government of Pakistan, which had no issuances in 2015, tapped the market through three Ṣukūk al-Ijārah, raising approximately USD 2.9 billion which included two local currency *ṣukūk* and a USD 1 billion tranche in US Dollars. The maturities of the local currency *ṣukūk* were three years, while that of the US Dollar tranche was five years.

In the Gulf Cooperation Council region, sovereign (including GREs) and/or multilateral *ṣukūk* activity took place in all six member states. Bahrain returned to the international *ṣukūk* market with a USD 1 billion 7-year 4-month Ṣukūk al-Ijārah issued in October 2016. In the domestic market, the Central Bank of Bahrain also continued its regular short-term liquidity management *ṣukūk* programme, issuing USD 755.9 billion worth of both Ṣukūk al-Salam and Ṣukūk al-Ijārah certificates. The Government of Oman, which launched its debut sovereign *ṣukūk* in 2015, also tapped the market in 2016, raising USD 500 million via a 6-Year Ṣukūk al-Ijārah. This issuance was in US Dollars, in contrast to its programme the previous year, which was in Omani Rials (2015: OMR 250 million ~ USD 650 million). The proceeds raised from the sophomore issuance are to be used in financing ongoing development projects.

Sovereign issuances in the United Arab Emirates more than doubled, as USD 4.79 billion [2015: USD 1.91 billion] was raised through seven US Dollar *ṣukūk*. Among these, two were issued by the Dubai Department of Finance on a wakālah structure, a 9-year USD 569 million and a 10-year USD 300 million tranche, as the emirate continues its efforts to establish a *ṣukūk* benchmark yield curve by regularly issuing *ṣukūk* of various maturities. The Emirate of Sharjah also returned to the *ṣukūk* market in 2016 (following its debut in 2014) with a sophomore issuance of 5-Year Ṣukūk al-Ijārah worth USD 300 million and the proceeds to be used for budgetary support. The two largest-volume *ṣukūk* issued in the UAE were by two GREs: (1) a maiden USD 1.5 billion 5-Year wakālah Ṣukūk issued by the country's national airline, Etihad Airways; and (2) a USD 1.2 billion 7-Year Ṣukūk issued by Dubai's DP World Crescent Ltd. The remaining two issuances were by government-owned Islamic banks, including a perpetual additional Tier-1 regulatory *ṣukūk*.

Sovereign issuances in Qatar also more than doubled (in terms of volume) in 2016, with nearly USD 2.1 billion [2015: USD 859 million] raised mostly through local-currency issuances of different maturities by the Qatar Central Bank on behalf of the Government of Qatar. This also includes a debut USD 500 million 5-Year US Dollar Ṣukūk al-*Wakālah* issued by a Qatari GRE, Ezdan, involved in the real estate sector.

Meanwhile in Saudi Arabia and Kuwait, multilateral issuers were active in the non-corporate *ṣukūk* market. The Saudi-based Islamic Development Bank continued its annual *ṣukūk* issuance programme and raised a total of USD 3.3 billion through five instruments – including three denominated in US Dollars and one each in Euros and Malaysian Ringgits as part of IDB's currency diversification initiatives in its funding profile. In 2016, an IDB affiliate, Islamic Corporation for Development of the Private Sector (ICD), also debuted in the public debt capital market with a 5-Year USD 300 million Ṣukūk al-*Wakālah*. Proceeds from this transaction will be used by ICD for the financing of economic and social development projects in its member countries. Arab Petroleum Investments Corporation (APICORP) was the other Saudi-based multilateral issuer[35] that raised SAR 250 million (USD 67 million) through a 3-Year Ṣukūk. This represents APICORP's sophomore issuance following its debut transaction in 2015 worth USD 500 million. The Kuwait-based Gulf Investment Corporation (GIC)[36] also tapped the *ṣukūk* market in 2016 by reissuing a MYR 500 million *ṣukūk* as part of its previously established funding programme that aims to diversify GIC's funding sources.

Finally, the Central Banks of Brunei and Gambia each continued their short-term liquidity management *ṣukūk* programmes – worth USD 343.1 million and USD 17.7 million, respectively – in 2016 [2015: USD 377.1 million and USD 13.4 million, respectively].

[34] For shares of *ṣukūk* issuances by jurisdiction, excluding multilateral issuances, see Chart 1.3.1.6(b).

[35] APICORP was created by the Organisation of Arab Petroleum Exporting Countries (OAPEC) in 1975 as a commercially focused financial institution that can help provide nuanced and efficient financing options to the Arab energy industry.

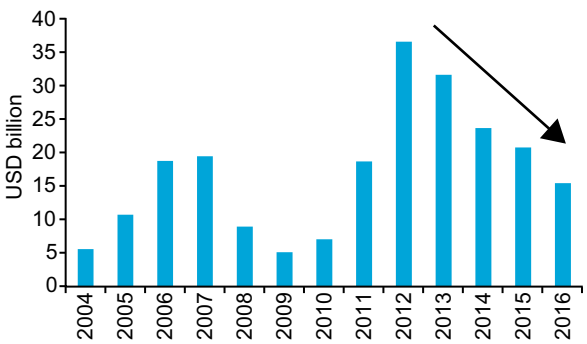
[36] GIC is an investment company incorporated in the State of Kuwait on November 15, 1983 as a Gulf Shareholding Company. It is equally owned by the governments of the six member states of the Gulf Cooperation Council (GCC).

Overall, the sovereign and multilateral *ṣukūk* market in 2016 was more positive compared to the previous year, although, notably, there were no issuances by any non-Organisation of Islamic Cooperation (OIC) member state issuer.

Corporate Ṣukūk

The corporate *ṣukūk* market has continued its downward trend in terms of volume raised in US Dollar terms for a fourth consecutive year – in 2016, global corporate *ṣukūk* issuances amounted to USD 15.4 billion, a 25.7% decline from the previous year [2015: USD 20.7 billion] (see Chart 1.3.1.4). The downward trend commenced in 2013, starting with the US Federal Reserve's first indications in mid-2013, and eventual decision in early 2014, to gradually begin scaling back its quantitative easing programme, leading to concerns of rising global interest rates; this has been followed in 2015–2016 with socio-political and macroeconomic challenges in various regions of the global economy, leading to subdued economic growth performances. Another factor to which this slowdown is attributed is the cost effectiveness of issuing *ṣukūk* in contrast to conventional bonds; despite improvements over the years, issuing *ṣukūk* is still alleged to be more time-consuming, costly and complex.[37] Such a factor bears prominence for the commercially focused corporate issuers.

Chart 1.3.1.4 Global Corporate *Ṣukūk* Issuances (2004–2016)



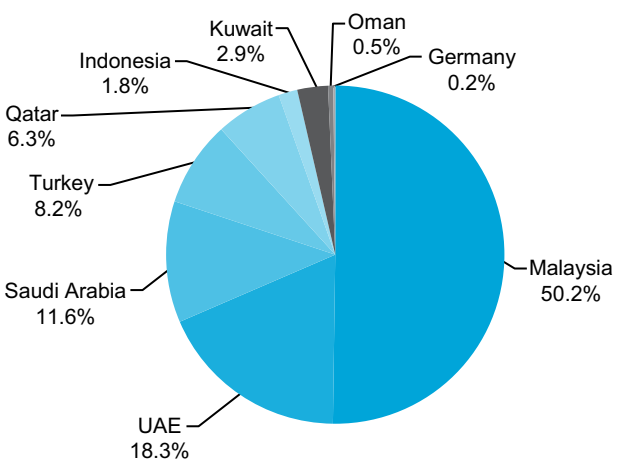
Source: IFSB Secretariat Workings

Despite the challenges, the corporate *ṣukūk* market was tapped by issuers across nine jurisdictions in 2016 [2015: eight jurisdictions] (see Chart 1.3.1.5). Compared to 2015, corporate issuers from Bahrain and Pakistan were absent in 2016, while additions were from Kuwait, Oman and Germany. Consistent with previous years, issuances by Malaysian obligors represented the largest share of corporate *ṣukūk* volume; a total of USD 7.7 billion was raised, representing 50.2% of total issuances in 2016 [2015: USD 7.1 billion, or 33.7%]. These issuances were structured on a variety of Sharī'ah-compliant contracts (including *ijārah*, *murābaḥah*, *wakālah*, *muḍārabah* and *mushārakah*) while supporting a wide range of maturities – from as short as one month to as long as 40 years. A perpetual *ṣukūk* was also issued by a corporate issuer hailing from the plantations sector. The majority of the issuances utilised the local currency, while a few tranches in the telecommunications sector were denominated in US Dollars. Overall, the Malaysian corporate issuers belonged to a diverse range of industrial sectors, including agriculture, automotive, business conglomerates, financial services, health-care services, telecommunications, oil and gas, real estate and transportation.

The UAE corporate *ṣukūk* market represented the second-largest volume in 2016; a total of USD 2.8 billion (or 18.3% of total global volume) was raised, a nearly 18% decline in volume as compared to the previous year [2015: USD 3.4 billion, or 18.9%]. The market was spearheaded in particular by two *ṣukūk* tranches: (1) a USD 1 billion 5-Year Wakālah Ṣukūk issued by a local Islamic bank; and (2) a USD 750 million 10-Year Ṣukūk al-Ijārah issued by the real estate company Emaar. These two *ṣukūk* also, respectively, represent the two largest corporate *ṣukūk* issued in 2016 (in terms of face value in a single tranche). The remaining corporate issuances in the UAE were by various Islamic banks issuing capital-boosting regulatory *ṣukūk*. Notably, all *ṣukūk* (sovereign and corporate) issued in the UAE in 2016 were in US Dollars.

Saudi Arabia ranked third in the corporate *ṣukūk* market in 2016 with a relatively modest USD 1.8 billion worth of issuances [2015: USD 5.4 billion]. This volume included USD 1.2 billion raised by three Islamic banks' *ṣukūk* (including one perpetual AT-1 *ṣukūk*); the remainder were corporate issuances by obligors in different sectors, including manufacturing, retailing conglomerate, and oil and gas. All corporate *ṣukūk* in Saudi Arabia were denominated in Saudi Riyals with the exception of one Islamic bank *ṣukūk* which was in US Dollars.

Chart 1.3.1.5 Corporate *Ṣukūk* Issuances by Jurisdiction* (2016)



** Based on obligor's domicile.*

Source: IFSB Secretariat Workings

[37] This factor is deliberated on further under "Summary and Challenges" later in this subsection, as well as in Chapter 3, subsection 3.3.

Among the other GCC countries, issuances in Qatar [2016: USD 973 million; 2015: USD 1.3 billion] and Kuwait [2016: USD 450 million; 2015: nil] were all US Dollar *ṣukūk* tranches by Islamic banks; in particular, in Kuwait, there were two perpetual AT-1 capital-boosting *ṣukūk* issuances by two Islamic banks. This was also observed in Turkey where all corporate *ṣukūk* issuances were by Islamic banks that collectively raised USD 1.3 billion [2015: USD 714 million]; however, the majority of these issuances were in the local currency, with only two (out of 17) in US Dollars.

In the case of Oman, the corporate *ṣukūk* was issued by Mohammed Al Barwani Holding, an industrial conglomerate business group. The 5-Year Ṣukūk was structured on a *wakālah* contract and is also only the second of Oman's corporate *ṣukūk* to date. Most notably, this issuance represents Oman's first dual-currency *ṣukūk* tranche; certificates, worth a combined USD 76 million, were available to investors to purchase in either Omani Rials or US Dollars.

Finally, the Indonesian corporate *ṣukūk* market was relatively subdued in 2016, with a total of USD 280.7 million raised, representing a mere 1.8% share in the total market [2015: USD 569.1 million, or 3.2%]. The corporate issuers represented diverse sectors, including financial services, food and beverage, real estate and telecommunications. The *ṣukūk* were structured on either *ijārah* or *muḍārabah* contracts; were all denominated in the local Indonesian Rupiah; and their maturities ranged from one to 10 years.

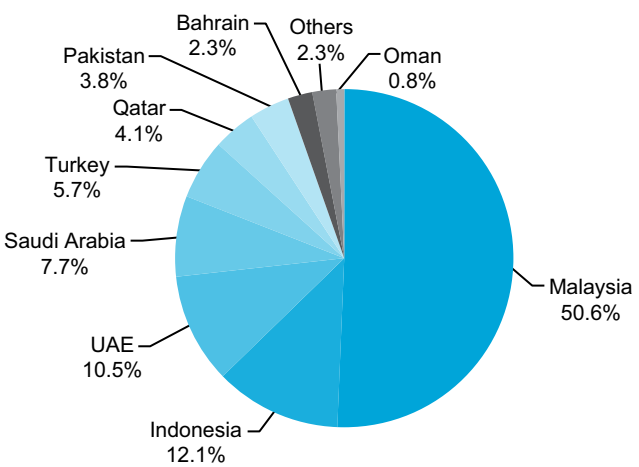
A non-OIC member state issuer in 2016 was ATLANTICLUX Lebensversicherung S.A. (ATL), sponsored by ATL's parent company, FWU AG, headquartered in Germany. This was the third and final issuance by the SPV Salam III Limited, representing FWU Group's Ṣukūk Al-Wakālah Programme. The final issuance was worth USD 28.4 million, with a maturity of five years, and represented a specific portion of contributions receivable from a pool of existing Italian and Spanish unit-linked life *takāful* policies originated by FWU's fully owned subsidiary, Atlanticlux S.A.

In general, the corporate *ṣukūk* market in Malaysia reflected a wider utilisation of different Sharī'ah-compliant structures and a broad range of short-, medium- and long-term maturities that is critical in enabling a robust benchmark *ṣukūk* yield curve. The other markets, however, remain focused on short to medium maturities for corporate *ṣukūk* issuances with virtually no issuances beyond the 10-year maturity mark in 2016 (with the exception of perpetual AT-1 Islamic banks' regulatory *ṣukūk*). There were also local structure biases observable in other markets; for instance, all corporate *ṣukūk* issued in Turkey were on an *ijārah* contract (reflecting the local regulations that support a lease-based structure); the Indonesian corporate market used *ijārah* and *muḍārabah*; the UAE used *ijārah* and *wakālah*; while Saudi Arabia and Qatar corporate issuances were on either a *wakālah* or a *muḍārabah* contract.

Overall Analysis

Overall, analysing the sovereign (including GREs/MDBs/IOs) and corporate *ṣukūk* market combined, issuance activity took place across 17 jurisdictions in 2016 (2015: 14 jurisdictions). Malaysia and Indonesia retained their positions as the first- and second-largest issuers of *ṣukūk* in terms of volume (see Chart 1.3.1.6(a)), accounting for 50.6% (2015: 50.4%) and 12.1% (2015: 13.2%) of the issuances in 2016, respectively. The UAE, Saudi Arabia and Turkey filled in the other spots to complete the top five with 10.5% (2015: 8.9%), 7.7% (2015: 11.8%) and 5.7% (2015: 3.4%) shares, respectively. Additionally, for only the second time to date,[38] the *ṣukūk* primary market in all six member states of the GCC experienced issuances within a single calendar year – in 2016, the GCC region accounted for USD 19.3 billion of primary market issuances, representing 25.9% of the total market [2015: 29.8%]. Germany was the only non-OIC member state jurisdiction in 2016 where an issuer tapped the *ṣukūk* market [2015: Hong Kong and the US-headquartered World Bank issued *ṣukūk*]. Furthermore, there were four West African states that tapped the *ṣukūk* market in 2016: Gambia, Ivory Coast, Senegal and Togo. In terms of the debutants, Togo issued its first-ever *ṣukūk* across all issuer types, while Jordan issued its maiden sovereign *ṣukūk*.

Chart 1.3.1.6 (a) *Ṣukūk* Issuances by Jurisdiction and Share (2016)



** Based on obligor's domicile.*

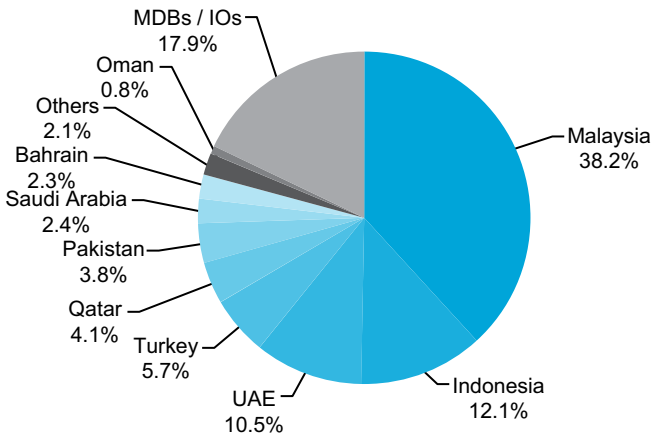
Source: IFSB Secretariat Workings

The share of issuances by MDBs and IOs notably expanded in 2016: USD 13.4 billion, or 17.9%, of all issuances were attributable to this issuer type [2015: USD 8.3 billion, or 14%]. Five MDBs/IOs participated in the *ṣukūk* market in 2016, including a debut by the Saudi-based ICD, which is an affiliate entity of the IDB. The Malaysia-based IILM expanded its short-term liquidity management *ṣukūk* programme to USD 9.3 billion volume in 2016, of which

[38] The first being in 2013 when Oman debuted in the global *ṣukūk* market with a corporate issuance.

USD 2.45 billion was outstanding as at year-end [2015: USD 6.4 billion]. Similarly, the Saudi-based IDB raised USD 3.26 billion in 2016 through its regular issuances programme [2015: USD 1.56 billion]. Excluding the share of issuances by MDBs and IOs, the ranking of jurisdictions by volume is presented in Chart 1.3.1.6(b). The share of Malaysia remains the largest at 38.2% (or USD 28.6 billion) after excluding issuance volume attributable to the IILM, while Saudi Arabia slips to seventh place with a 2.4% share (or USD 1.8 billion) after excluding issuances volume attributable to the IDB, ICD and APICORP.

Chart 1.3.1.6 (b) *Ṣukūk* Issuances [ex-MDBs and IOs] by Jurisdiction and Share (2016)

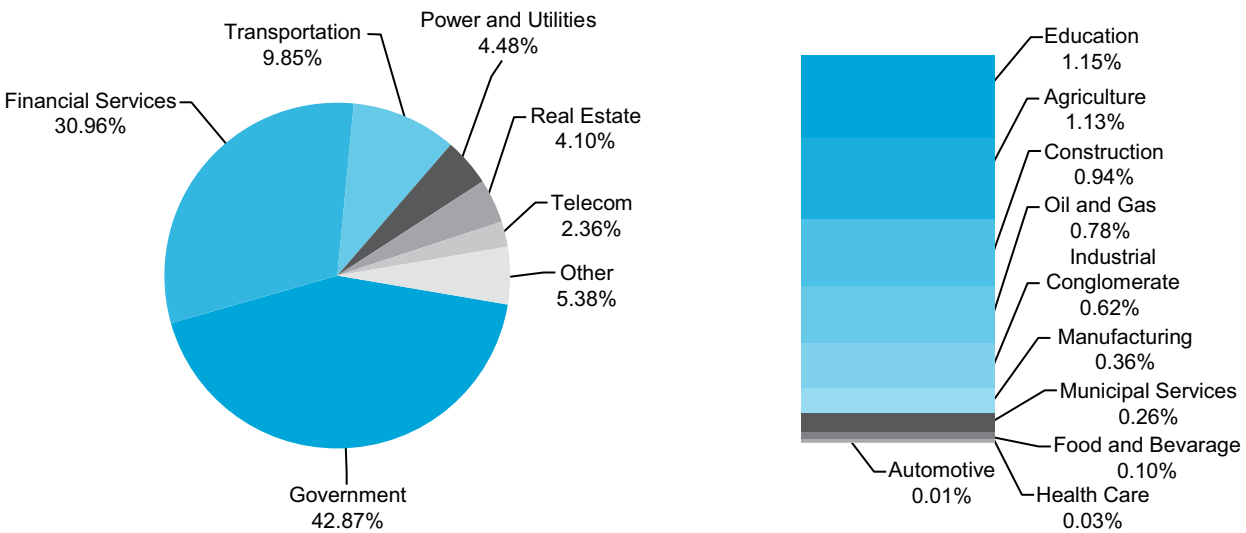


** Based on obligor's domicile.*

Source: IFSB Secretariat Workings

Analysing *ṣukūk* issuances by sector, the government and financial services sectors continue to dominate the market (see Chart 1.3.1.7), albeit with lower shares in 2016 compared to the previous year; the two sectors accounted for 42.9% and 31% shares of volume, respectively, in 2016 [2015: 43.5% and 34.4%]. The financial services sector has surged since 2014 on the back of issuances of regulatory-compliant capital and liquidity *ṣukūk* by Islamic financial institutions – coinciding with the gradual implementation of Basel III/IFSB-15. Meanwhile, in 2016, there was an active participation by infrastructure-linked issuers, predominantly in Malaysia – collectively, the power and utilities, transportation and telecommunication sectors accounted for USD 12.5 billion, or 16.7%, of total issuances [2015: USD 7.1 billion, or 11.9%]. The real estate sector also experienced an improvement with USD 3.1 billion raised, accounting for 4.1% of the market [2015: USD 1.3 billion, or 2.2%]. Other sectors in 2016 included education (1.2%), agriculture (1.1%), construction (0.9%), oil and gas (0.8%) and industrial conglomerate (0.6%), among others. Notably in 2016, the *ṣukūk* market was also tapped by an issuer in Malaysia involved in offering municipal and waste management services, raising USD 192.9 million through 21 tranches of local-currency *ṣukūk*.

Chart 1.3.1.7 *Ṣukūk* Issuances by Sector* (2016)



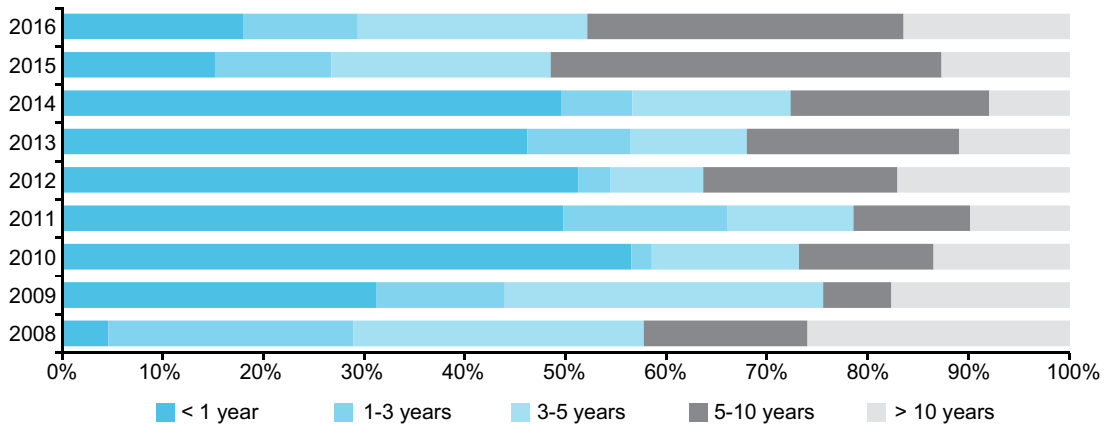
** Issuances by GREs are traced to their respective economic sectors (e.g. GRE Ṣukūk by an airline is traced to the transportation sector, as opposed to government).*

Source: IFSB Secretariat Workings

1.0 DEVELOPMENT AND ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SERVICES INDUSTRY

The maturity profile of *ṣukūk* issuances overall has generally remained consistent with that of 2015 (see Chart 1.3.1.8): the short-term maturity bracket of less than 12 months[39] accounted for 18% of total issuances in 2016 [2015: 15.2%]; the 1–3 years maturity bracket for 11.3% [2015: 11.6%]; the 3–5 years bracket for 22.8% [2015: 21.8%]; the 5–10 years bracket for 31.4% [2015: 38.8%]; and the 10+ years bracket for 16.5% [2015: 12.8%]. However, a particular observation is that all *ṣukūk* issuances[40] beyond the 10-Year maturity mark were by Malaysian obligors, signalling the limitation in activity (or possibly a lack of appetite) for longer-term *ṣukūk* by issuers in other jurisdictions globally. The average *ṣukūk* maturity across all issuances by Malaysian obligors was 7 years and 7 months in 2016, which is in contrast to the average 3 years and 7 months maturity for the rest of the world (again excluding perpetual *ṣukūk*).

Chart 1.3.1.8 *Ṣukūk* Maturity Trend of New Issuances (2008–2016)

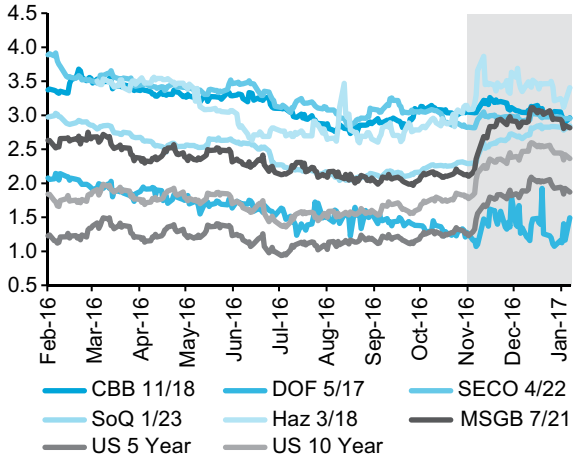


Source: IFSB Secretariat Workings

Finally, in terms of the secondary market returns performances of *ṣukūk* instruments, in the days following the US Presidential election results in November, a sell-off was triggered in the world's bond market, driving up the required yields on bond instruments. This shift in the bond market was based on an investor sentiment that perceived a boost in business investments and a potential increase in the US inflation rate under a Trump administration, hence driving up the demand for US equities. The *ṣukūk* market, operating alongside the bond market in the financial world, was also affected and yields on US Dollar *ṣukūk* across various jurisdictions experienced an upward spike in November (see Chart 1.3.1.9).

Some yields have stabilised since then and moved back towards pre-US election results levels, partly as a target rate hike by the US Federal Reserve in December 2016, for only the second time since the financial crisis, drove up demand by investors for US Dollar instruments. This has been combined with a downward pressure on emerging market currencies as investors resumed offloading local-currency bonds and *ṣukūk* in favour of US and other "safe-haven" currency-denominated instruments – a trend that had led to substantial depreciations in emerging market currencies in 2015. *Ṣukūk* pricing and yields, particularly in comparison to bonds, is explored further in detail in Chapter 3 of this report.

Chart 1.3.1.9 Selected USD *Ṣukūk* Yields versus US Government Securities Yield (February 2016 – January 2017)



Source: Bloomberg, IFSB

Note: CBB = Central Bank of Bahrain, DOF = Dubai Department of Finance, SECO = Saudi Electricity Company, SoQ = State of Qatar, Hazine = Hazine Mustesarligi [Turkish Under Secretariat], MSGB = Malaysia Ṣukūk Global Berhad, US 5Y = US 5 Year Generic Government Yield, US 10Y = US 10 Year Generic Government Yield.

[39] This bracket has accounted for as much as more than 50% of total issuances volume during years the 2009–2014; however, it was mainly buoyed by a short-term liquidity management *ṣukūk* programme by the Central Bank of Malaysia. Since 2015, the Malaysian central bank has stopped this programme, which explains the structural shift in the *Ṣukūk* maturity breakdown trend starting 2015. This aspect has been covered in detail in last year's IFSI Stability Report 2016.

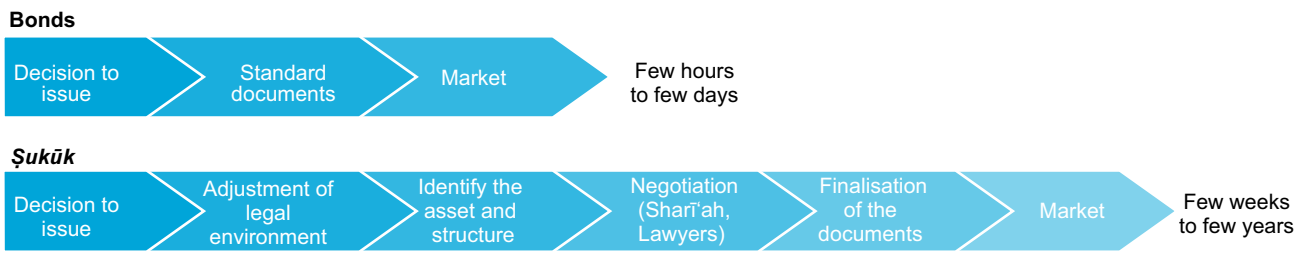
[40] Except one sovereign *ṣukūk* in Indonesia (15 years and 10 months maturity) and excluding perpetual *Ṣukūk*.

Summary and Challenges

In summary, aggregate issuances of between USD 65 billion and USD 75 billion annually is the new normal in the global primary *ṣukūk* market.[41] This shift in the level of annual issuances, however, did not prevent an expansion in the global *ṣukūk* outstanding in 2016, valued at almost USD 319 billion, since the reduction in earlier years resulted primarily from the withdrawal of the short-term maturity *ṣukūk* programme by Bank Negara Malaysia.[42] The regular issuers of *ṣukūk* continued tapping into the pool of Sharī'ah-compliant liquidity in 2016 with the addition of Togo from West Africa as an overall debutant issuer in the *ṣukūk* market – the latter's addition now ensures that issuers from more than 30 jurisdictions[43] globally have tapped the *ṣukūk* market in one manner or another.

There are, however, some adverse fundamentals that appear to be signalling potential challenges in terms of the future growth and development of the *ṣukūk* market. The corporate *ṣukūk* market is one particular area where the annual issuances volume has been on a downward trend since peaking in 2012. While the ensuing global economic and financial developments have undoubtedly contributed significantly to this trend, another factor driving this decline is the still-prevailing view that issuing *ṣukūk* is more complex and relatively more costly than issuing conventional bonds. Major international rating agencies suggest that, despite progress made in simplifying processes and reducing the cost gap, *ṣukūk* issuance still lags conventional bonds issuance, particularly when one considers the time and cost spent by sponsors on employing lawyers and drafters of documentation, and the need to identify assets linked to the transaction as being Sharī'ah-compliant (see Chart 1.3.1.10).

Chart 1.3.1.10 *Ṣukūk* versus Conventional Bond Issuance



Source: Standard and Poor's Global Ratings

Another aspect to look at is the *ṣukūk* market in the non-OIC member state jurisdictions. The financial crisis had encouraged many non-OIC jurisdictions to explore the Islamic capital market as an alternative funding source. A number of non-OIC jurisdictions had also undertaken initiatives to facilitate the *ṣukūk* market, including the United Kingdom, Luxembourg, South Africa, Hong Kong, Singapore and others. However, *ṣukūk* instruments have failed to become a choice for issuers in these markets, and sovereign issuances (if any) in these jurisdictions have largely been symbolic without generating a similar enthusiasm in the other sectors of the jurisdiction, particularly corporates. In 2016, there was only a single *ṣukūk* tranche issued by an issuer at a non-OIC jurisdiction worth USD 28.4 million – this represents a negligible 0.04% of the total primary issuances market. The only *ṣukūk* default case of 2016 also took place in a non-OIC jurisdiction (Singapore), when, in August, an issuer exposed to the oil and gas industry defaulted on its *ṣukūk* obligations. However, this was also followed by conventional bond defaults by other oil and gas players in the jurisdiction.

Within the *ṣukūk* market in the OIC member states, *ṣukūk* issuances have generally focused on short- to medium-term maturities, which restricts the development of a longer-term Sharī'ah-compliant fund-raising market. An exception is Malaysia, where issuances span a wide range of maturity – as short as one month to as long as 40 years – thus enabling an active and established *ṣukūk* benchmark yield curve across various maturities. Lack of appropriate pricing benchmarks is also an adverse factor that sometimes diverts issuers to prefer the more established conventional bond markets.

Among the traditional challenges of the *ṣukūk* market relating to Sharī'ah compliance – for instance, the issue of differing Sharī'ah opinions on *ṣukūk* tradability[44] and the use of credit enhancements[45] – issuers have moved away from triggering such issues by preferring widely accepted *ṣukūk* financing structures. Hence, structures that invoked differences of opinion in the past – such as Bay' Bithaman Al-Ajil, for example – are no longer used. International *ṣukūk*

41 Bank Negara Malaysia's short-term liquidity management *ṣukūk* programme was worth approximately USD 47 billion in 2014; hypothetically adding this to the 2015 and 2016 annual issuances would generate volumes of USD 111.3 billion and USD 121.8 billion, respectively.

42 It is understood that Bank Negara Malaysia has switched to other instruments for liquidity management that cater specifically to the Islamic banks it regulates; the previous ṣukūk programme was being subscribed to by a broad array of investors, preventing the *ṣukūk* from reaching their intended end-users (primarily Malaysian Islamic banks for liquidity management purposes).

43 Based on domicile of obligor, and this number excludes offshore domiciles (e.g. Jersey, Guernsey, Cayman Islands, etc.) that facilitate the establishment of *ṣukūk* special purpose vehicles (SPVs).

44 That is, whether only at par values or not for *ṣukūk* backed by a combination of debt/receivables and real assets and what are the acceptable thresholds for this composition before an instrument is deemed tradable.

45 For example, use of repurchase undertaking and liquidity facilities in Mushārakah and Muḍārabah Ṣukūk.

that are to be marketed and sold to multiple jurisdictions are now adopting harmonised and previously tested Sharī'ah-compliant structures.[46] This, however, does not mean that innovation in *ṣukūk* has been stalled.

Ṣukūk issuers continue to explore innovative ways to facilitate *ṣukūk* issuances; for example, Malaysia's sovereign *ṣukūk* issued in 2016 was the first such *ṣukūk* that utilised 100% non-physical assets – namely, vouchers representing entitlement to a specified number of travel units and Sharī'ah-compliant shares as underlying assets to the Wakālah Ṣukūk. This is an important development, as it overcomes one of the fundamental challenges of issuing *ṣukūk* – that is, issuers not having enough physical assets to support the asset-based structures of the instrument. More importantly for sovereigns, it addresses the challenge of having to transfer ownership of physical sovereign assets to the issuing SPV (leading to a transfer of ownership to *ṣukūk* investing holders) which is not allowed by the law of the land in some countries. Other innovative *ṣukūk* structures have also included exchangeable *ṣukūk*, which come with an option for the investors to take up ownership of the underlying equities/stocks instead of redeeming the principal value of the *ṣukūk* at maturity.

Overall, the *ṣukūk* market has established itself firmly in its traditional markets where regular issuance programmes continue by sovereigns and quasi-sovereigns; the challenge remains in encouraging more corporates to adopt *ṣukūk* for meeting their funding needs. Recently revised *ṣukūk* regulations by jurisdictions in the GCC – for example, Kuwait and Oman – bore results, and there was *ṣukūk* issuance activity across all GCC member states in 2016. There has also been a positive drive for *ṣukūk* by governments and regulatory authorities in the African states in recent years, and four jurisdictions were issuers in 2016; it is expected that their experience will encourage debut issuances by others on the continent, including Niger, Nigeria, Morocco, Tunisia and Kenya, which have all been exploring the feasibility of a sovereign *ṣukūk* in recent years. The issues relating to pricing of *ṣukūk* and their complexity, and also the impact of global developments on the returns performances of *ṣukūk* in the secondary markets, are discussed further in Chapter 3 of this report, together with other factors that facilitate an assessment of the resilience of the global *ṣukūk* market in itself and also in comparison to the bond market.

1.3.2 Islamic Equity Indices and Funds

In contrast to 2015, the global stock markets generally ended 2016 on a relatively positive note; equities in the US particularly rallied following the November 2016 US election results which were unexpected by market participants. A number of emerging markets also fared well in 2016 on the back of a turnaround in commodity and energy products prices – the price of a key commodity, oil, surged from under USD 30 per barrel at the start of 2016 to over USD 50 per barrel towards the end of the year. These positive developments later in the year come in spite of a fair share of volatility-inducing events; in the first half of the year, concerns about rising US interest rates, a decline in the Chinese economy's growth rates and an oversupply of energy commodities continued to influence investor sentiments. The year also experienced some political upheaval events, most notably the British voters' decision in favour of "Brexit" in a nationwide referendum held in June. The IMF's World Economic Outlook in January, April and October 2016 highlighted slowness in global growth and subdued world demand. In currencies, the US Dollar experienced strong gains against most world currencies, including the Euro and the Yen, following the US election results.

The global Islamic-listed equity markets,[47] benchmarked by the performance of Islamic equity indices, also experienced volatilities on account of these international developments and some region-specific events. As a deviation from the past trend in 2016, however, returns generated in the conventional sector appear to be better than those generated by comparable benchmark Islamic indices. The Dow Jones Islamic Market World Index (DJ Islamic) generated an annual total return of 11.2% in 2016, compared with the 13.6% return generated by the Dow Jones Global Index (see Table 1.3.2.1). This is mainly due to the sectoral composition of the indices; DJ Islamic had greater proportionate exposures to the health-care and consumer goods and consumer services sectors, which generally lagged in performance in 2016; in comparison, DJ Global had higher proportionate exposures to other economically sensitive sectors such as financials, utilities and telecommunications (see Chart 1.3.2.1).

Table 1.3.2.1 Total Returns of Dow Jones Global Index versus Dow Jones Islamic Market World Index

	Dow Jones Global Index	DJIM World Index
2016	13.6.%	11.2%
3 Yr	3.8%	6.1%
5 Yr	42.5%	40.5%
10 Yr	17.5%	40.1%

Source: Bloomberg, IFSB

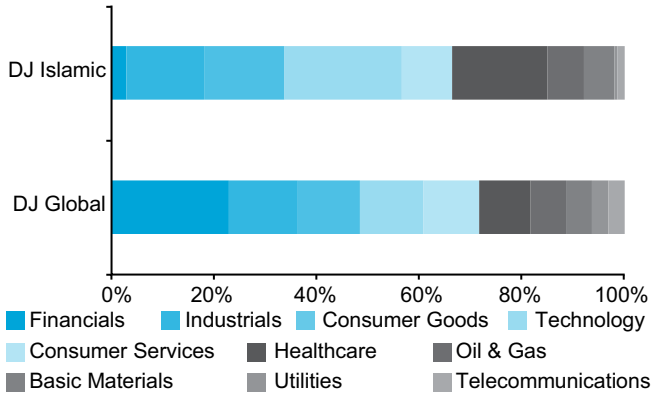
As per the Dow Jones Industry Indices, in 2016, health care, consumer goods and consumer services generated –5.9%, 1.8% and 2.9%, respectively; while financials, utilities and telecommunications generated 9.6%, 8.4% and 5.6%, respectively. DJ Islamic's major exposure was to the technology (22.9%) and health-care (18.5%) sectors, whereas DJ Global's major exposure was to the financial (22.9%) and industrial (13.4%) sectors. In terms of both the number of components and market capitalisation, DJ Global substantially outnumbers DJ Islamic (see Charts 1.3.2.2 and 1.3.2.3). Market capitalisation is another indicator that

[46] Please see Chart 3.3.1.5 and its related discussions in Chapter 3 of this report.

[47] In contrast to the *ṣukūk* market, where alternative instruments are issued that raise a separate pool of capital, the Islamic-listed equity securities are a subset of the broader global stock market securities that have passed defined screening criteria to assess their compliance with Sharī'ah principles, and hence are considered as Sharī'ah-compliant. Therefore, the volatilities and pricing movements in global stock markets have a dominant effect on securities categorised as Sharī'ah-compliant. For details on a typical Sharī'ah screening process, please refer to Box 1.3.2.1 in IFSI Stability Report 2016.

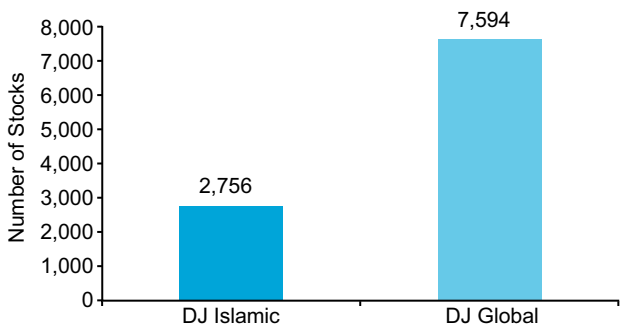
signals the relatively worse performance of DJ Islamic in 2016; DJ Islamic's market capitalisation reduced by 4.5% to USD 22.1 trillion from 2,756 component stocks [2015: USD 23.2 trillion from 2,653 stocks]. In contrast, DJ Global's market capitalisation increased by 3.4% to USD 53.5 trillion from 7,594 component stocks [2015: USD 51.8 trillion from 7,285 stocks].

Chart 1.3.2.1 Sector Allocation (2016)



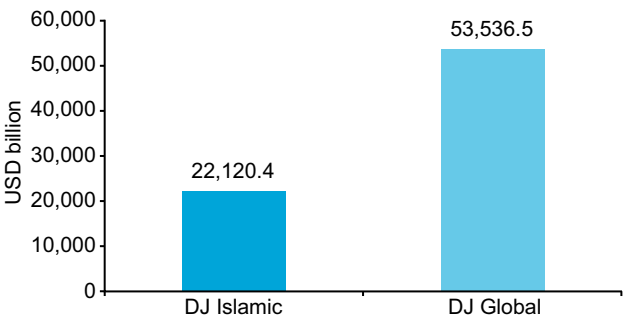
Source: Dow Jones, IFSB

Chart 1.3.2.2 Number of Components (2016)



Source: Dow Jones, IFSB

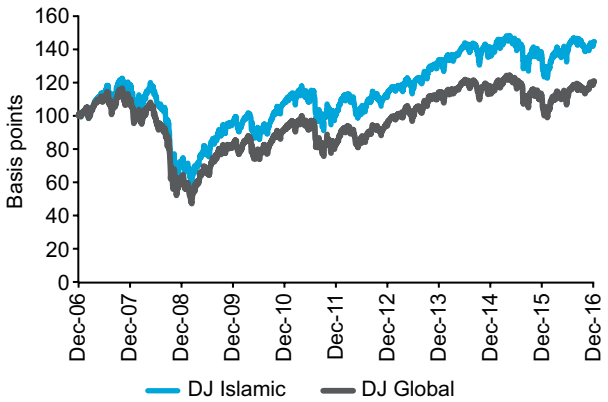
Chart 1.3.2.3 Market Capitalisation (2016)



Source: Dow Jones, IFSB

Nonetheless, on a longer-term trend basis and including the period of the Global Financial Crisis (GFC), the DJ Islamic index outperforms the DJ Global index (see Chart 1.3.2.4 and Table 1.3.2.1). On a 10-year horizon from 2006 to 2016, DJ Islamic has generated 40.1% returns, which is more than double the 17.5% returns generated by DJ Global in the same period.

Chart 1.3.2.4 10-Year Historical Performance of Dow Jones Global Index versus Dow Jones Islamic Market World Index (2006–2016)



** The two indexes are standardised at a scale of 100 for comparative purposes.*

Source: Bloomberg, IFSB

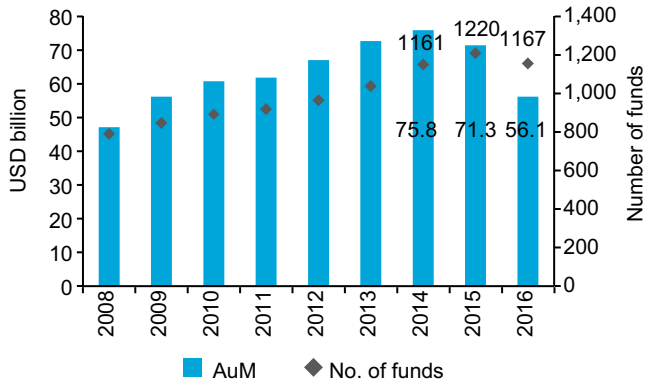
The performances of the Islamic equity and *sukūk* markets, in turn, have impacted the returns generated on Islamic collective investment schemes (ICIS). As per available data,[48] there were 1,167 Islamic funds[49] holding about USD 56.1 billion of assets under management (AuM) as at end-2016 (see Chart 1.3.2.5). Among these, 826 funds holding approximately USD 51.2 billion AuM are classified to be active with investments and redemptions activity; based on this, the average fund AuM for active funds is USD 64.9 million. The 341 inactive Islamic funds hold about USD 4.9 billion AuM combined, or USD 14.4 million on average individually. This reaffirms the long-standing concerns in the Islamic funds market that a considerable number of funds may not reach a critical mass in volume, which could potentially lead to closures of Islamic funds struggling to find economies of scale.

[48] The Islamic funds numbers reported for 2016 may not be directly comparable to previous years due to a change in external database sources. Hence, the numbers reported for 2016 and the resulting comparisons to previous years should be interpreted with caution.

[49] Funds that are marketed and offered generally with their data publicly available, and excluding private equity funds.

1.0 DEVELOPMENT AND ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SERVICES INDUSTRY

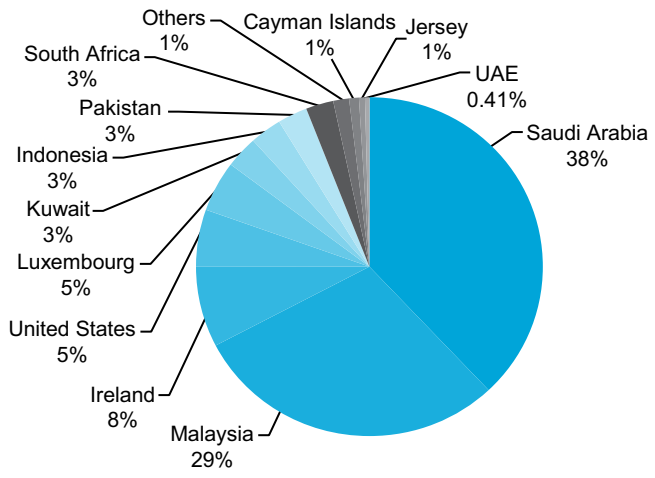
Chart 1.3.2.5 Assets under Management and Number of Islamic Funds (2008-2016)



Source: Bloomberg, IFSB

The Islamic funds market also appears to have made little progress in diversifying its domiciles; funds based in only five jurisdictions hold approximately 85% of the total Islamic funds AuM in 2016 [2015: 87%]. The uptake of the remaining 15% AuM, worth a modest USD 8.2 billion, is segregated between 32 other jurisdictions (including offshore domiciles). Saudi Arabia and Malaysia remain as the two largest domiciles, holding 38% and 29% of the total industry's AuM, respectively [2015: 40% and 28%, respectively] (see Chart 1.3.2.6). Notably, however, out of the 37 jurisdictions that are domiciles for Islamic funds, 22 jurisdictions are non-OIC member states with the key ones being Ireland, Luxembourg and South Africa.

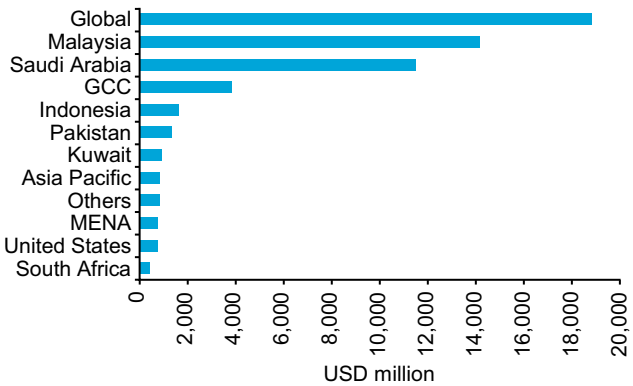
Chart 1.3.2.6 Islamic Fund Assets by Domicile (2016)



Source: Bloomberg, IFSB

The geographical focus of Islamic funds' investments has experienced a change, as funds with a global investments focus[50] are now the largest category, accounting for 34% of the total AuM in 2016 (see Chart 1.3.2.7). This is a plausible trend given the difficult and unpredictable economic environment globally that likely encouraged funds to achieve portfolio diversification by having exposures in different markets. The Malaysian focus was the second largest, accounting for 25% of the total AuM in 2016. In absolute dollar terms, the Malaysian focus of funds appears to have contracted [2016: USD 14.2 billion; 2015: USD 16.3 billion]; however, this is likely due to a material depreciation in the Malaysian Ringgit in 2016, since all funds with a Malaysian market focus were denominated in Malaysian Ringgits (except one, which was in SGD). The Saudi market represented the third-largest focus, accounting for 21% of the total AuM in 2016 [2015: 31%]. This suggests the most number of diversifications by funds to a global focus originated from purely Saudi Arabia-focused funds.

Chart 1.3.2.7 Islamic Fund Assets by Geographical Focus (2016)



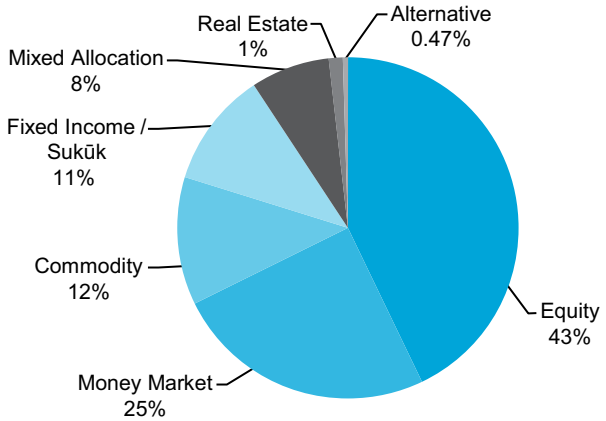
Note: "Others" comprise countries/regions that have not been listed in the chart (e.g. Egypt, Jordan, United Kingdom, Europe, etc.)

Source: Bloomberg, IFSB

Finally, in terms of asset-class breakdown of the global Islamic funds' AuM, the share of equity-based funds has surged to 43% in 2016 [2015: 36%] on the back of improved performances by the equity markets in 2016 (see Chart 1.3.2.8). Correspondingly, the share of money market-based funds has contracted to 25% [2015: 35%]. The commodity-based funds were the other asset class that experienced an improvement in share, accounting for 12% of total AuM [2015: 10%] on the back of rising prices. The other significant asset classes include fixed income/ *ṣukūk*, mixed allocation and real estate.

[50] Global focus funds are those investing in two or more countries without a specific jurisdictional focus and could include countries/regions that have been listed separately in Chart 1.3.2.7.

Chart 1.3.2.8 Islamic Fund Assets by Asset Class* (2016)



Note: There may be some overlaps between the asset classes. For example, if a fund focuses on commodities by investing in the equities of companies operating in that sector, it could in principle be treated as a commodity fund or an equity fund. For the purposes of this report, the funds are categorised by asset class based on classifications as provided by Bloomberg.

Source: Bloomberg, IFSB

1.3.3 Conclusion

The global Islamic funds market remains a niche sector; only two jurisdictions account for 67% of the total AuM of the industry, while the remaining 33% AuM is dispersed between 35 jurisdictions. This indicates that the operation of Islamic funds is still limited, including in many key Islamic finance jurisdictions with deep-rooted Islamic banking sectors (e.g. UAE, Pakistan, Indonesia, Kuwait, Qatar, etc.). It may also suggest that the uptake of Islamic funds is similarly limited, though it is difficult to be sure without data on the extent to which funds are sold cross-border.

Generally, 2016 has ended on a positive note for the equities and commodities market, which has led to better returns on these asset classes in contrast to others. However, it is critically observed that out of the 1,167 primary share Islamic funds, there were 341 inactive Islamic funds in 2016. They are at high risk of closure, although the reasons for their inactivity are not clear (e.g. they may include lack of sufficiently available Sharīʿah-compliant investment opportunities, or high levels of redemption and outflows during the economic downturn period).

The active Islamic funds themselves record an average AuM of under USD 65 million per fund, which remains small in contrast to the conventional market; statistics from 2014[51] put the average AuM of nearly 80,000 mutual funds at USD 394 million. This indicates that Islamic funds need to explore potential mergers in order to achieve a critical mass volume and economies of scale that will enable them to become, and remain, competitive in the global fund industry.

We revisit these issues, including others related to challenges in, and resilience of, the global asset management industry in general, and the Islamic funds market in particular, in Chapter 3 of this report.

1.4 *TAKĀFUL:* DEVELOPMENT REVIEW[52]

The global *takāful* industry has sustained double-digit growth in recent years although growth has moderated in key markets, owing to challenging economic conditions, complex regulations, and compliance and operational challenges in the *takāful* industry.[53]

In 2016, the global insurance market reported steady growth rates, supported mainly by emerging markets. Non-life premiums in emerging Asia expanded at a rate of 7.3% in 2016, after a strong 9% growth in 2015.[54] Another notable trend in emerging Asia was the slowdown in motor insurance uptake following lower car sales. Similarly, anecdotal evidence points to lower sales of new cars in the key *takāful* domain of Saudi Arabia in 2016,[55] and to a 13% decline in car sales in Malaysia in the same year.[56]

Meanwhile, medical expense premiums in emerging markets continued to grow at double-digit rates in 2016,[57] attributable to operators in China where private medical insurance is gaining traction alongside state medical support schemes. Of importance, policymakers in selected GCC countries have recently pushed for mandatory medical coverage requirements, thus supporting the uptake and premiums of medical *takāful* in the region.

51 https://www.statista.com/topics/1441/mutual-funds/

52 The financial performance of the global *takāful* industry remains challenging to gauge as information concerning *takāful* operations is mostly irregular and scant for most operators. For aggregate data, data inputs were derived from insurance/ *takāful* authorities and based on annual reports of *takāful* operators, where available.

53 Moody's (September 2016). Prospects remain robust for Islamic finance despite subdued ṣukūk issuance.

54 Swiss Re, "Global Insurance Review 2016 and Outlook 2017/2018".

55 "Recession cripples car sales", Saudi Gazette (October 2016).

56 "MAA expects slight increase in car sales this year", The Star Online (January 2017).

57 Swiss Re, "Global Insurance Review 2016 and Outlook 2017/2018".

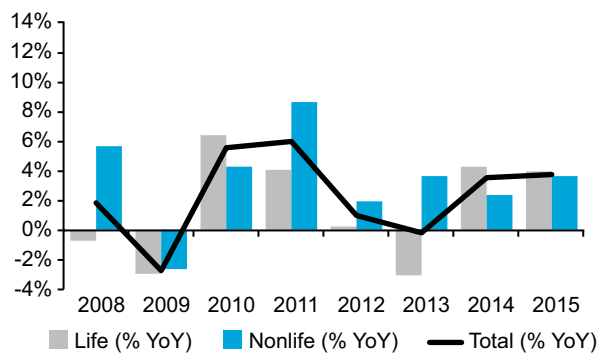
1.0 DEVELOPMENT AND ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SERVICES INDUSTRY

In the life insurance market, premium growth in emerging Asia and the MENA region was robust, attributable to a rising middle-class and a supportive regulatory environment. A Swiss Re report highlighted savings products as a high-growth segment in these regions.

In 2015, the global insurance industry witnessed a significant scale of merger and acquisition (M&A) activities against the backdrop of a low interest rate environment and moderate economic growth. According to a study,[58] the value of global insurer M&A reached new heights in 2015, quadrupling the value in 2014 with an aggregate USD 194.9 billion in announced transactions in the property-casualty, life and health sectors. The number of transactions also increased to 22 in 2015 from 13 in 2014. Although M&As in the insurance sector have mainly involved conventional insurers, the pursuit of revenue growth and improved operating efficiencies was also the main focus of most *takāful* operators globally, in light of ongoing economic challenges impacting business growth and investment revenue. In the next few years, it is expected that industry consolidation, including M&A activities, will continue in the *takāful* sector across Malaysia, Indonesia and the GCC markets as a result of regulatory reforms, and the quest for economies of scale and broader access to new markets or business. At this time of heightened competition within the entire insurance and *takāful* industry, insurance operators are looking for viable business ventures and strategies to improve market penetration.

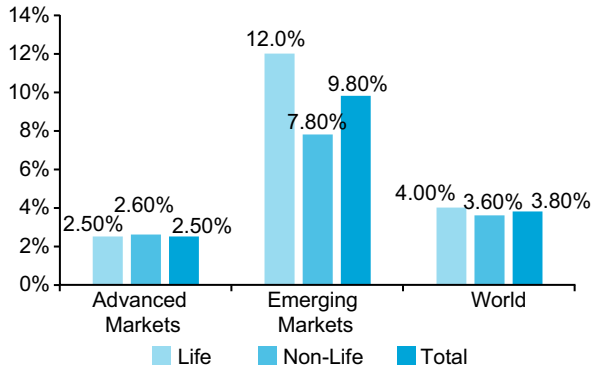
Growth-wise, in 2015,[59] the global insurance industry premium grew by 3.8%, up from 3.5% in the previous year[60] (see Chart 1.4.1). The growth in life premiums slowed to 4% from a 4.3% gain in 2014; while global non-life premiums improved to 3.6% in 2015, up from 2.4% in the previous year, based on the Swiss Re report findings. The better performance of non-life was contributed by strong growth in the advanced markets of Asia, in particular, as well as by growth in North America and Western Europe.

Chart 1.4.1 Growth Rate of Premiums in Insurance Sector (total, % y-o-y) (2008–2015)



Source: Swiss Re (2016), Sigma-World Insurance Database. Unless otherwise stated, all premium growth rates indicate changes in real terms (i.e. adjusted for local consumer price inflation).

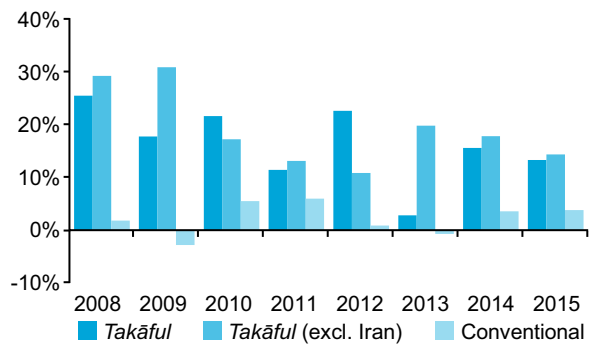
Chart 1.4.2 Global Real Premium Growth Rates (2015)



Source: Swiss Re (Sigma No. 3/2016), Sigma-World Insurance Database. All premium growth rates indicate changes in real terms (i.e. adjusted for local consumer price inflation).

Despite a series of challenging global economic conditions in the past decade, the global *takāful* sector has witnessed an average annual growth of 16% (including Iran's data) and 19% (without Iran's data) for 2008–2015.[61] In 2015, the global *takāful* industry gross contributions continued to record double-digit growth, in comparison to the insurance sector, which only recorded only 3.8% premium growth in the same business year (see Chart 1.4.3). Global *takāful* contributions registered 12% growth, lower than 2014's growth of 15.5%. However, if Iran is omitted from the dataset, the global *takāful* growth rate is in a much better position, standing at 14.3%.

Chart 1.4.3 Growth Rate of Premiums in *Takāful* and Conventional Insurance Sectors (% y-o-y) (2008–2015)



Source: Annual Reports and Central Banks; Finance Forward, World Takāful Report 2016; World Takāful Insights, Swiss Re (2016); Sigma-World Insurance Database; Malaysian Takāful Dynamics, Central Compendium 2015

[58] Conning, "Global Insurer Mergers & Acquisitions in 2015 – The Big Bang" (2016).

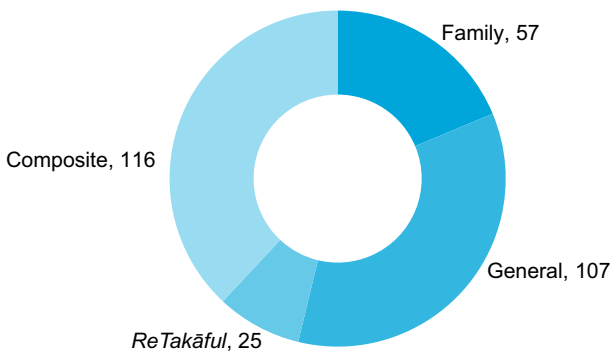
[59] Given that the available data and analysis for *takāful* are for 2015, for comparative purposes the corresponding data from the insurance sector are also provided for 2015.

[60] Swiss Re (Sigma No. 3/2016), "World insurance in 2015: steady growth amid regional disparities".

[61] The analysis in the *takāful* sections in Chapter 1 will include Iran where possible, as the country has a sizeable *takāful* sector. However, due to the limited information available, Iran may be excluded in some parts of the analysis, especially in the *takāful* section of Chapter 3.

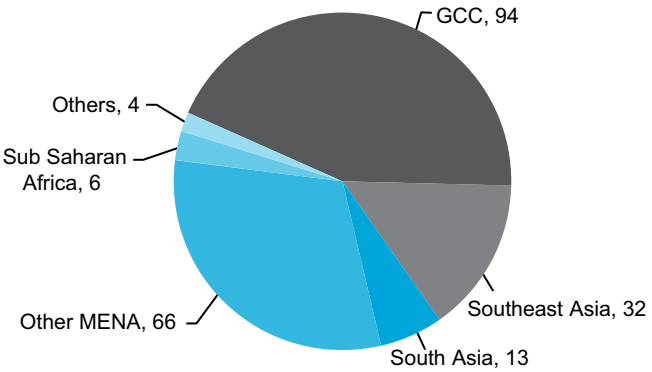
The *takāful* industry is still an underdeveloped segment in many jurisdictions. This small, yet growing, industry is served by 305 *takāful* providers (based on the latest available figures), including 25 *retakāful* companies (see Chart 1.4.4). Notwithstanding, in cognisance of its potential roles in tapping underserved and voluntarily-excluded (due to religious beliefs) customer segments, more awareness and regulatory reviews are expected to take place in new markets with a high share of Muslim population, especially in the MENA and African regions. In Oman, for instance, with the launch of *takāful* in 2014, the *takāful* sector has started to gain momentum; the sector now constitutes around 9% of the insurance industry's OMR 442 million direct premium income and 5% of total paid claims.[62] In emerging or more mature *takāful* markets, reforms are directed towards solidifying the industry. For example, in Indonesia, a law came into effect in 2014 that requires conventional insurers to spin off their Islamic windows into full-fledged *takāful* companies and encourage foreign investors into the market. Elsewhere, in Pakistan, the SECP allowed five non-life insurers to transact window *takāful* business during the year – the move by SECP was mainly to widen the offering of *takāful* products in the country and to increase insurance penetration by way of enabling conventional insurers to offer Islamic products and reach out to a wider audience through their extensive branch network. As in Islamic banking, the direction of a jurisdiction's licensing approach (i.e. to allow windows or to spin off windows) is typically based on domestic market needs and the state of development in the country. In the case of Indonesia, there were 44 *takāful* windows and only eight full-fledged *takāful* undertakings as at end-2015. The move to spin off *takāful* windows was intended to enable long-term capacity building of the *takāful* operators based on a larger pool of bigger *takāful* players.

Chart 1.4.4 Number of *Takāful* Operators and Windows Globally (2015)[63]



Source: Finance Forward, World Takāful Report 2016; "Connecting the Dots, Forging the Future", ICD Thomson Reuters (2015)

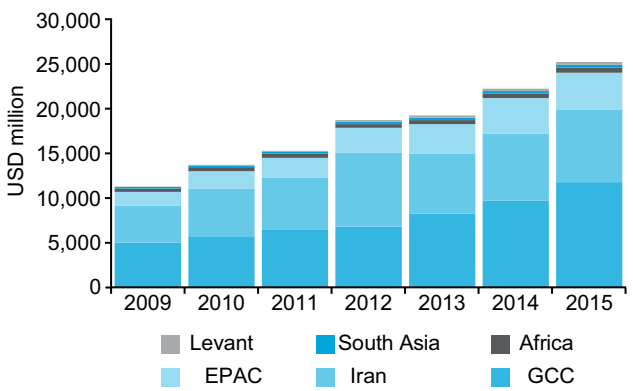
Chart 1.4.5 Number of *Takāful* Operators (excluding Windows) by Region (2015)



Source: Finance Forward, World Takāful Report 2016; "Connecting the Dots, Forging the Future", ICD Thomson Reuters (2015). Note: This chart excludes Takāful windows; variation is therefore expected from Chart 1.4.4.

Looking at the regional stride, the GCC and African regions were the fastest-growing regions for the year, with both recording more than 20% growth in gross contributions (see Chart 1.4.6). The growth of GCC gross contributions stood at 21%, a 3-percentage point gain as compared to 18% growth in 2014. By comparison, S&P Global Ratings reported that conventional insurance premiums grew by about 10% during the same period in the GCC. The gross *takāful* contribution in the region has doubled to USD 11.7 billion compared to the 2011 amount of USD 6.4 billion. Both Saudi Arabia and the UAE represent about a 92% share of GCC *takāful*. These markets' strong underlying growth (including privatisation of medical care and services) and still-low insurance penetration continue to fuel the *takāful* companies in the region, despite being a highly competitive market for the *takāful* players. Another factor contributing to this regional growth is the new entrant in the *takāful* market – namely Oman, which was launched in 2014.

Chart 1.4.6 Gross Contributions by Country Groups (2009–2015)

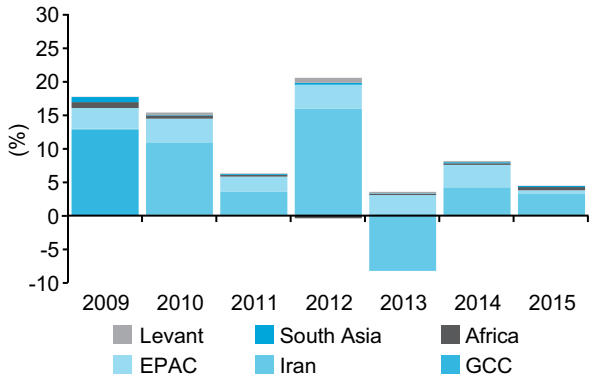


Source: Annual Reports and Central Banks; Finance Forward, World Takāful Report 2016; World Takāful Insights, Swiss Re (2016); Sigma-World Insurance Database; Malaysian Takāful Dynamics, Central Compendium 2015

[62] Capital Market Authority of Oman.
[63] This chart includes *takāful* windows. The number of *takāful* providers differs from Chart 1.4.5.

1.0 DEVELOPMENT AND ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SERVICES INDUSTRY

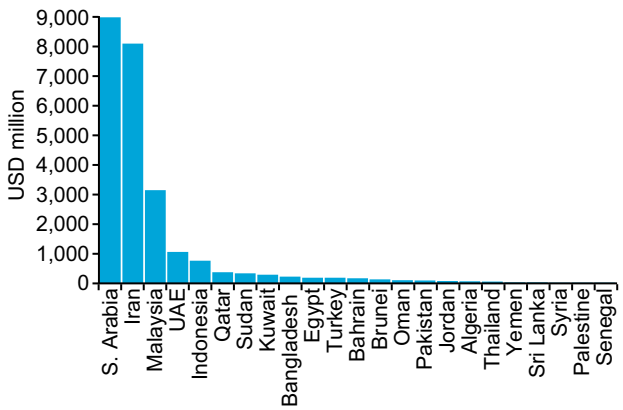
Chart 1.4.7 Contributions to Total Growth of *Takāful* Industry (2009–2015)



Source: Annual Reports and Central Banks; World Takāful Insights, Swiss Re (2016); Sigma-World Insurance Database; Malaysian Takāful Dynamics, Central Compendium 2015

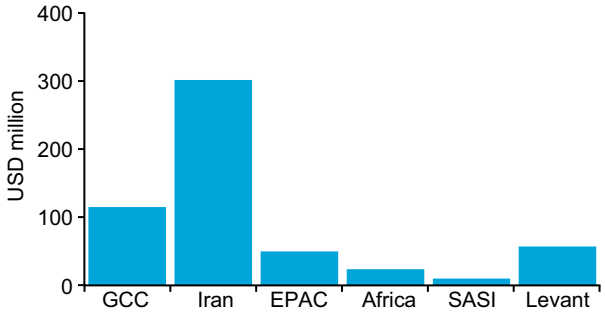
Takāful gross contributions in the East Asia and Pacific markets increased to USD 4.1 billion from USD 3.97 billion (growth rate of 22%). The lower growth rates in East Asia and the Pacific are largely due to currency depreciations of major markets in the region, particularly Malaysia and Indonesia.

Chart 1.4.8 Gross Contributions by Country (2015)



Source: Annual Reports and Central Banks; Finance Forward, World Takāful Report 2016; World Takāful Insights, Swiss Re (2016); Sigma-World Insurance Database; Malaysian Takāful Dynamics, Central Compendium 2015

Chart 1.4.9 Gross Contributions per *Takāful* Operator (2015)



Source: Annual Reports and Central Banks; Finance Forward, World Takāful Report 2016; World Takāful Insights, Swiss Re (2016); Sigma-World Insurance Database; Malaysian Takāful Dynamics, Central Compendium 2015

Saudi Arabia[64] and Iran account for 71% of the total global *takāful* contributions. Saudi Arabia is the largest *takāful* market, with its gross contributions amounting to USD 9.7 billion in 2015 (see Chart 1.4.8). Health insurance remained the main line of business for the year, with a 52% share, consistent with the 2014 trend; while the protection and savings insurance remained the smallest line of business, accounting for 3% of the total gross contributions. The second-largest market, Iran, with 19 *takāful* companies, accounted for USD 8.1 billion in gross contributions. Iran also had a significantly higher gross contribution per operator (USD 300 million), almost three times that of the GCC operators (see Chart 1.4.9). The remaining 29% share was contributed by other jurisdictions.

The *takāful* sector in the UAE witnessed the highest growth rate of 24% in 2015, a result of its mandatory health insurance law, which came into force in 2014. Under the new law, employers who fail to provide health insurance to their workers face fines of between Dh 500 and Dh 150,000. The UAE's insurance premiums rose 10.2% in 2015. Oman swiftly overtook Pakistan, with Oman's *Takāful* contributions reaching USD 100 million. *Takāful* comprised 9% of its gross direct premiums in 2015. In Kuwait, as of the end of 2015, 14 of the country's 23 domestic insurers operated according to Islamic principles and *takāful* gross contributions represented about 19% of total insurance gross contributions.

[64] Saudi Arabia operators are known as "Islamic cooperative insurance operators". Article 1 of the Law of Supervision of Cooperative Insurance Companies in Saudi Arabia stated that insurance in the Kingdom shall be undertaken through registered insurance companies operating in a cooperative manner as it is provided within the article establishment of the National Company for Cooperative Insurance and in accordance with the principles of Sharī'ah.

Malaysia and Indonesia remain at the forefront in the ASEAN region. These countries also have received strong international interest for stake acquisition both in the *takāful* and the insurance sector (see Table 1.4.1). Competition in these markets continues to drive industry consolidation and push their product innovation and distribution strategies. In Brunei, the overall insurance and *takāful* gross premiums increased by 3.4% in 2015, from BND 307.5 million in 2014 to BND 318.1 million.[65] The general insurance segment in Brunei witnessed a decrease of 10.8% due to the switch to *takāful* business. It is reported that the total general *takāful* contributions increased by 5.2%, from BND 119.9 million to BND 126.2 million, in 2015. The *takāful* sector in Indonesia is expected to benefit from its five-year road map for the Islamic banking industry, as well as from its new ownership policy for Islamic banks and a law requiring conventional insurers to spin off their *takāful* windows to become full-fledged players after a certain time or once they reach a certain size. Sharīʿah insurance and reinsurance businesses as of 31 December 2015 numbered 55 companies, comprising 44 insurance companies with a Sharīʿah unit, three reinsurance companies with a Sharīʿah unit, and eight Sharīʿah insurance companies.

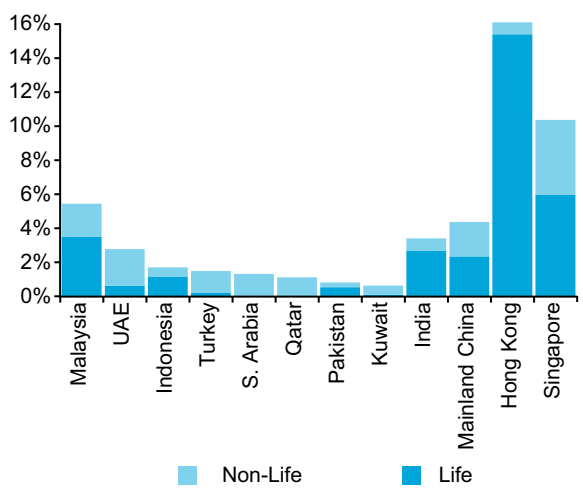
Table 1.4.1 Foreign Acquisitions in the Insurance and *Takāful* Industry, Malaysia and Indonesia

Year	Target Company/Country	Acquirer/Country	Value (US$m)
2014	20% stake in Asuransi Jiwa Sequis Life PT (Indonesia)	Nippon Life Insurance Company (Japan)	428
2014	40% stake in PT BNI Life Insurance (Indonesia)	Sumitomo Life Insurance Company (Japan)	360
2013	40% stake in PT Panin Dai-inchi Life (Indonesia)	The Dai-ichi Life Insurance Company Limited (Japan)	338
2014	50% AmLife Insurance Berhad &	MetLife Inc (US)	248
50%	AmFamily *Takāful* Berhard (Malaysia)	Saniam Emerging Markets (Pty) Limited (South Africa)	119
2015	MCIS Insurance Berhad (Malaysia)		
2014	Uni Asia General Insurance Berhad (Malaysia)	Liberty UK and Europe Holdings Limited (UK)	113
2015	Multip-Purpose Insurans Bhd (Malaysia)	Generali Asia N.V. (Netherlands)	102
2013	20% Ansuransi Bina Data Arta PT Tbk (Indonesia)	Mapfre SA (Spain)	45

Source: Malaysian Takāful Dynamics, Central Compendium 2015

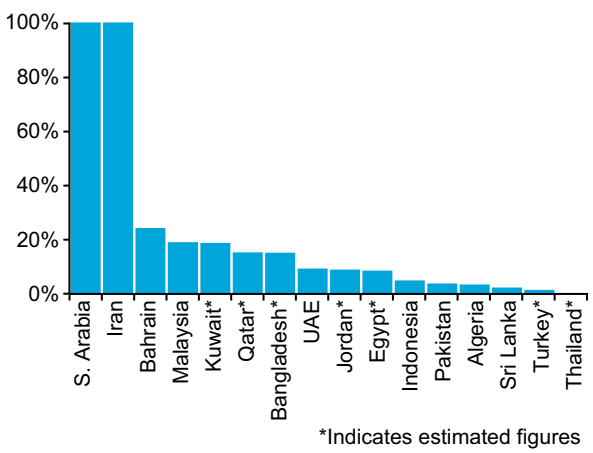
Looking at the potential of the *takāful* sector moving forward, the level of insurance penetration rates in key *takāful* markets is still low and signalling untapped potential as compared to more advanced markets, particularly for life insurance business. Malaysia stands out as having a relatively high penetration rate for family *takāful* business compared to other *takāful* markets – for example, GCC countries (see Chart 1.4.12).

Chart 1.4.10 Insurance Penetration Rates in Selected Countries (% GDP) (2015)



Source: Swiss Re (2016); Sigma-World Insurance Database; Malaysian Takāful Dynamics, Central Compendium 2015

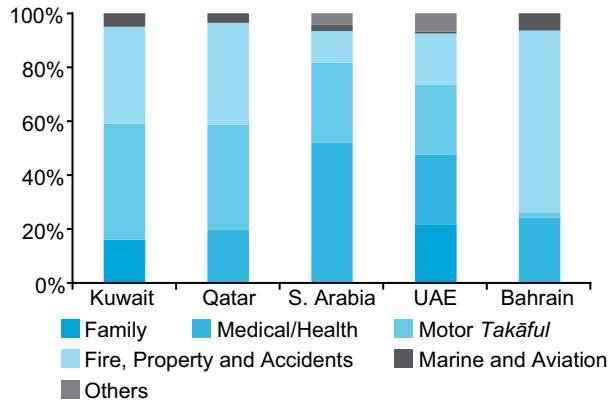
Chart 1.4.11 Share of *Takāful* Gross Premiums in Total Gross Premiums by Selected Countries (2015)



Source: Annual Reports and Central Banks; Finance Forward, World Takāful Report 2016; World Takāful Insights, Swiss Re (2016); Sigma-World Insurance Database; Malaysian Takāful Dynamics, Central Compendium 2015

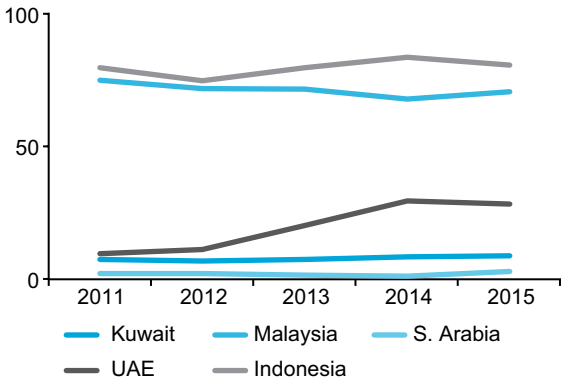
[65] Autoriti Monetari Brunei Darussalam.

Chart 1.4.12 Key *Takāful* Business Lines in Sample Markets (2015)



Source: Annual Reports and Central Banks; Finance Forward, World Takāful Report 2016; World Takāful Insights, Swiss Re (2016)

Chart 1.4.13 Share of Family *Takāful* in Total Gross *Takāful* Contributions (2009–2015)



Source: Annual Reports and Central Banks; Finance Forward, World Takāful Report 2016; World Takāful Insights, Swiss Re (2016); Sigma-World Insurance Database; Malaysian takāful Dynamics, Central Compendium 2015

Business profiles of *takāful* operators were similar to those previously reported. In the GCC *takāful* markets, motor *takāful* and fire, property and accidents *takāful* remain the key concentrations (see Chart 1.4.12). Family *takāful* is still a small market with the availability of comprehensive social security benefits in the country. In Kuwait, for instance, 79% of its *takāful* gross contributions were contributed by these two business lines. The two business lines contributed 77% of *takāful* gross contributions in Qatar and 69% in Bahrain. In Malaysia, consistent with previous years, family *takāful* continues to be the key business line, accounting for 71% of the total Malaysian *takāful* contributions generated. Based on Bank Negara Malaysia's industry aggregate figures, the growth of *takāful* contributions within the life insurance and family *takāful* sector has accounted for 18% of the industry's[66] new premiums and contributions. Family *takāful* remains a small business in Saudi Arabia, with only a 3% share.

Takāful is still a small industry within the Islamic finance segment; however, it is gradually building its own importance and development focus in several Islamic finance markets among insurance authorities and industry players. Measures and factors driving the industry are mixed and tailored to each market's developmental needs. In the UAE, *takāful* was fuelled by its measure requiring employers to provide health insurance to their workers. A new market like Morocco has also introduced *takāful* and *ṣukūk* regulation in May 2015. The law in Morocco requires *takāful* operators to be set up as separate companies, rather than as windows of conventional insurers.

The *takāful* industry is still a small and untapped segment within the Islamic financial system. Demographic factors in the GCC, such as an expanding population base, increasing life expectancy and a growing awareness of health insurance, are expected to fuel insurance/*takāful* demand in the region. An upward growth trajectory is also expected in the Asian markets. In Malaysia and Indonesia, the M&A activities that are taking place are expected to strengthen the capital base and capabilities of the merged entities to better compete with insurance providers in the country, as well as to widen their offering in more high-risk and specialised business lines. The Malaysian insurance and *takāful* industry is also undertaking pricing and commission structural reforms that are expected to foster greater innovation, promote sustainability, and improve choice and value for consumers.[67] The current performance and state of resilience of the *takāful* operators is examined in Chapter 3.

1.5 OVERALL SUMMARY

The subdued global economic growth conditions and unexpected developments in the world political architecture have factored-in to shape another year of slowdown in the global IFSI. In a reversal from years of double-digit growth, the global IFSI assets have failed to register any expansion for a second consecutive year in 2016.

[66] BNM Financial Stability Report 2015.
[67] BNM Financial Stability Report 2015.

Islamic Banking

The Islamic banking segment has been the main contributor to this slowdown, predominantly due to exchange rate depreciations in key Islamic banking markets that have factored adversely in US Dollar values of the Islamic banking assets. Following a moderate growth by 1.4% in 2015, the assets of the global Islamic banking industry contracted by 0.2% in 2016. However, there were a number of positives from a domestic market perspective: Islamic banking market share (in relation to total domestic banking sector) has increased in 18 countries while remaining constant in eight others. Furthermore, Islamic banking is now held to be of domestic systemic importance in 12 countries, with Jordan being the latest addition. Among these, four jurisdictions (Iran, Sudan, Brunei and Saudi Arabia) now also boast a more than 50% share for Islamic banking in the domestic market. A very marginal contraction in market share was observed, however, in five jurisdictions among which are two non-OIC jurisdictions (Yemen, Bahrain, Turkey, Thailand and the United Kingdom). Overall, Islamic banking assets contributed 78.9% to the global IFSI in 2016.

Islamic Capital Markets

The Islamic capital markets fared relatively better in 2016 in contrast to the previous year. The *ṣukūk* outstanding market reversed its earlier stagnant growth to post a moderate 6.06% expansion in 2016. The *ṣukūk* primary market also posted a 16.3% growth in volume with debut sovereign issuances by Jordan and Togo. Nonetheless, the market appears to have shifted in equilibrium to reflect the range of USD 65–75 billion as the new normal volume of annual issuances, in contrast to an average USD100 billion in issuances during 2010–2014. While the sovereign, GREs and multilateral *ṣukūk* market experienced an improvement, issuances in the corporate *ṣukūk* market declined for a fourth consecutive year signalling deeper underlying problems related to the global economy in general, and to specific structural issues in *ṣukūk* in particular. There was also a notable absence of issuers from non-OIC jurisdictions in 2016 (except for a small-sized corporate *ṣukūk* by a German obligor).

On the other side, a late rally in global stock markets and an increase in oil prices in 2016 enabled Sharīʾah-compliant listed equities and associated Islamic funds to record positive returns, reversing a nearly all-negative returns performance across various types of asset classes in 2015. However, in 2016, the Sharīʾah-compliant listed-equity market appears to have generated lower returns in contrast to the conventional listed-equity market based on identical benchmark samples for both categories. Furthermore, the Islamic funds market also indicates a fall in the number of funds offered, to 1,167 [2015: 1,220], among which 341 funds are recorded as "inactive" as at end-2016, signalling a risk of further possible Islamic fund closures going into 2017.

Overall, the Islamic capital markets, however, generated positive market growth and development results in 2016 which has enabled this segment to expand its contribution to 19.8% in the global IFSI.

Takāful

The *ṣukūk* sector is still a small segment of the IFSI, including in those jurisdictions that possess relatively more active Islamic banking and capital market segments. Building on from its small base of contributions, *ṣukūk* was the only segment to post a double-digit growth of 12% in gross contributions in 2015, which is nevertheless still lower than its 15.5% growth in the previous year. Two markets account for the bulk of the global gross *ṣukūk* contributions – namely, Saudi Arabia and Iran. Market penetration rates differ by type of business; for instance, based on sample countries, Malaysia had a higher market penetration rate for family *ṣukūk* business compared to the GCC countries, where general *takāful* was the main business. The trend is slated to change in future as recent initiatives in the GCC, which include compulsory medical programmes for residents/employees, are likely to increase the uptake of general medical insurance and *ṣukūk* business in the region. The industry is small, served by 300 *ṣukūk* providers globally among which are 25 *retakāful* companies. Due to the fact that many of the target markets of the *ṣukūk* sector, such as Turkey, Saudi Arabia, Pakistan, Qatar and Egypt, have a growing middle-class and young populations with sound urbanisation prospects, there is room for much higher penetration rates of the *ṣukūk* sector in future. Overall, the *ṣukūk* sector represented 1.3% of the global IFSI in 2016.

In summary, the global IFSI has been able to withstand adverse economic and political effects to sustain its asset value in 2016; comparative indicators from the global banking, insurance and capital markets appear to suggest a worse growth performance by the conventional markets.[68] The markets move into 2017 on an uncertain trajectory in the light of new political realities that, if implemented as being propagated, will likely alter the present structure of global economic and trade linkages, with likely implications for the financial markets. A critical factor driving global economic growth in 2017 and beyond will invariably be the strategic policies of the United States under a new administration, as well as the future cooperation and partnerships in the European Union. Elsewhere in Asia, the resilience of the Chinese economy will be another major factor to consider.

This chapter has analysed the growth and development of the three key sectors of the global IFSI (Islamic banking, Islamic capital markets and *takāful*) in detail. An analysis of the stability and resilience of the same three sectors of the global IFSI can be found in Chapter 3.

[68] See section 1.1, "Size of the Industry and Jurisdictions with Systemically Important IFSI", for the conventional market growth comparisons.

2.0 ISLAMIC FINANCE AND THE CHANGING GLOBAL FINANCIAL ARCHITECTURE

2.1 GLOBAL DEVELOPMENTS AND IMPACT OF IFSI

The global regulatory landscape has undergone several developments as an outcome of various initiatives and work programmes undertaken by international standard-setting bodies. As the first phase of regulatory reforms that followed the Global Financial Crisis is nearing completion, new initiatives are being undertaken due to ongoing challenges in market conditions such as low growth and increasing non-performing loans. The next phase of financial reform is focused on addressing the new and constantly evolving risks and vulnerabilities in the financial system. Over the past year, international standard setters such as the Basel Committee on Banking Supervision (BCBS), the International Organization of Securities Commissions (IOSCO) and the International Association of Insurance Supervisors (IAIS), as well as the Financial Stability Board (FSB), have issued various policy papers and recommendations for the financial sector to foster the stability of the financial services industry.

The following sections highlight key developments in the global financial services industry, and in particular its regulation, and seek to identify the impact these may have on both the IFSI and the work of the IFSB.

2.1.1 Financial Stability Board

The FSB issued several policy documents, progress reports and consultative documents in the last year as part of its mandate to monitor and assess the vulnerabilities affecting the global financial system and their implications for regulatory policy and the corresponding development of strong regulatory, supervisory and other financial-sector policies.

(a) Recovery and Resolution Regimes

Resolution regimes and resolution planning are an ongoing focus area for the Financial Stability Board and other global standard setters. The FSB published its *Key Attributes Assessment Methodology for the Banking Sector*[69] in October 2016. The methodology sets out essential criteria to guide the assessment of the compliance of a jurisdiction's bank resolution frameworks with the FSB's *Key Attributes of Effective Resolution Regimes for Financial Institutions* ("Key Attributes").

At the end of 2016, the FSB also published guidance on the continuity of access to financial market infrastructure (FMI) for firms in resolution.[70] This paper builds on the annexure to the FSB's Key Attributes paper, setting out objectives and rules for FMI participants. Maintaining a failing firm's access to and participation in the FMI, and ensuring that any critical functions it carries out are not disrupted, is a key component of financial system and economic stability in a resolution scenario.

At the same time, the FSB published draft guidance on the internal total loss-absorbing capacity (TLAC) of global systemically important banks (G-SIBs).[71] A key objective of this paper is to provide regulatory authorities with confidence that their G-SIBs can be resolved in an orderly manner. This may be achieved through ensuring that mechanisms exist within a bank's corporate structure to downstream capital to subsidiaries in times of stress and resolution.

The IFSB is currently developing a cross-sectoral working paper on recovery, resolution and insolvency issues for IIFS (due for finalisation in 2017). While the FSB's Key Attributes are a global standard, there are a number of complexities with regards to Islamic structures and Sharī'ah compliance that the paper seeks to explore and address.

The paper will help jurisdictions where Islamic finance is present to incorporate Islamic finance-specific recovery and resolution tools into their developing resolution regimes. It also seeks to offer guidance with regards to mechanisms and structures that may be employed to help move the IFSI to a systemically self-insured model and away from the moral hazard issues seen in the conventional market.

(b) Elements of Effective Macroprudential Policies – Lessons from International Experience

This report, published jointly in August 2016 by the FSB, the IMF and BIS,[72] was a response to the G20's request to take stock of lessons learned from experiences by jurisdictions and supranational bodies in the development and implementation of effective macroprudential policies. These policies have been introduced post-GFC in order to limit systemic risks that could damage/disrupt the wider financial system and the real economy due to market downturns and shocks.

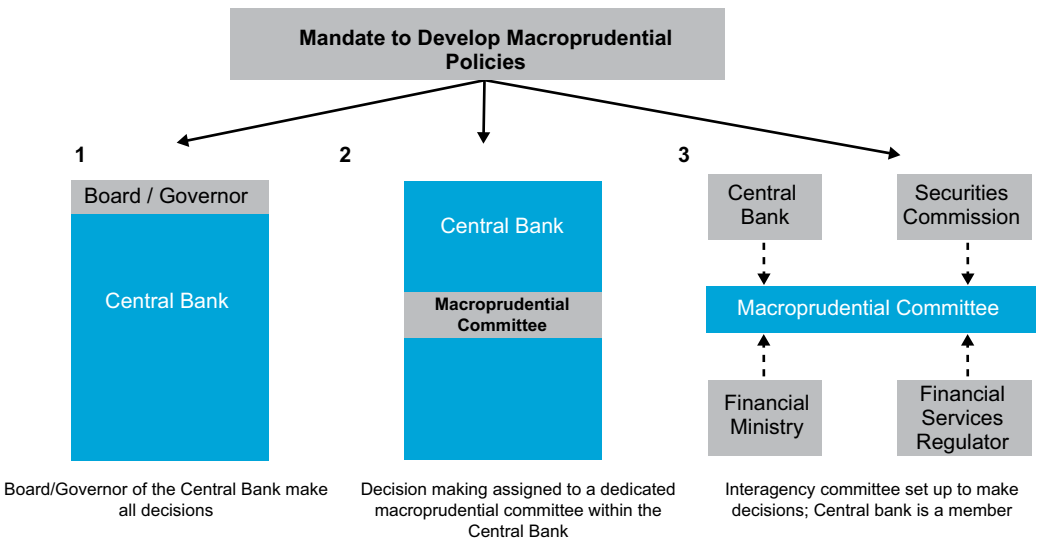
The report finds that experience with macroprudential policy is growing, with a number of countries setting up institutional arrangements dedicated to dealing with the subject. There is also an increasing body of empirical research available that evaluates the effectiveness of these policies. Importantly, the report has found that there is no "one size fits all" approach in this area. The nuances and complexities of each specific financial system require a tailored approach to policy thinking. However the paper accumulates global experiences in the field which can be useful for any jurisdiction when developing macroprudential policies.

---

69 Financial Stability Board (2016), *Key Attributes Assessment Methodology for the Banking Sector.*
70 Financial Stability Board (2016), *Guidance on Continuity of Access to Financial Market Infrastructures (FMI) for a Firm in Resolution.*
71 Financial Stability Board (2016), *Guiding Principles on the Internal Total Loss-absorbing Capacity of G-SIB's* ("Internal TLAC").
72 Financial Stability Board (2016), *Elements of Effective Macro-prudential Policies.*

The report has found three main institutional models being used for policymaking in this field:

- ***Model 1:*** The mandate is assigned to the central bank with the board/governor making macroprudential decisions. This model is prevalent where the central bank already holds supervisory/regulatory powers given its access to the needed data and its overall understanding of the financial system.
- ***Model 2:*** The mandate is assigned to a dedicated committee within a central bank. This model helps reduce the potential risk of dual mandates regarding monetary and macroprudential policy. External experts can take part in the process more easily and the model helps discipline the powers of the central bank.
- ***Model 3:*** The mandate is assigned to an inter-agency committee which is outside of the central bank (although it will sit on the committee). Other entities such as finance ministries can have a more prominent role under this model, with the potential for more political legitimacy.



The report also examines operational considerations across various jurisdictions. This includes the monitoring and analysis of systemic risk, which can be done by considering economic and sectoral vulnerabilities, as well as maturity/foreign exchange (FX) mismatches. Many jurisdictions also use early warning indicators to detect stress before it crystallises. Again, there are various indicators being monitored (i.e. house prices, liquidity risks and FX movements).

International experience also shows that a broad range of tools may be needed to ensure that macroprudential policy/stability objectives are met. These include broad-based capital tools, sectoral and asset-side tools, and liquidity-related tools. The actual operationalisation of macroprudential policy involves translating the assessment of systemic risks to policy action. The report shows that calibrating policy responses to risk is also varied. It may be broad-based or targeted, rules-based or discretionary, and may involve using a single tool or multiple tools.

The IFSB is currently developing a working paper entitled "Systemic Links and Macroprudential Issues for Islamic Banks" (due for publication in 2017). The IFSB will refer to the above report in regards to this paper.

(c) Implementation and Effects of the G20 Financial Regulatory Reforms (2nd Annual Report)

The 2nd annual implementation report[73] was published in August 2016 and describes the progress by FSB jurisdictions in implementing G20 regulatory reforms to ensure a safer and more resilient financial system.

The report's overall conclusions are that the effects of reform are generally positive, and that implementation is ongoing but uneven. Specifically, the issue of "too big to fail" banks remains persistent, given that only a very few jurisdictions have a resolution regime in place that contains all the powers required by the FSB's Key Attributes document. All 24 FSB jurisdictions have the core elements of Basel III liquidity risk and capital adequacy rules in force. There are, however, deviations in the rules of certain advanced economies in respect to Basel requirements which still need to be addressed.

[73] Financial Stability Board (2016), *Report on Implementation and Effects of Reforms.*

2.0 ISLAMIC FINANCE AND THE CHANGING GLOBAL FINANCIAL ARCHITECTURE

There are three key areas of focus in this report. These are:

(a) Market liquidity: There is some evidence of less depth in certain sovereign and corporate debt (secondary) markets, potentially due to the emergence of high-frequency traders, increased post-trade transparency and less dealer bank market making. The conventional repo market also looks to have suffered from declines in volume (the UK and the US; but not Europe and Japan). For the IFSI, however, liquidity is an ongoing structural issue due to a lack of high-quality liquid assets and an underdeveloped secondary market for *ṣukūk* given both commercial and Sharī'ah difficulties. Issuances in some jurisdictions have also reduced, such as in Malaysia where Bank Negara stopped short-term issuances in 2015. Some key markets have also turned to conventional bonds for large-volume capital raising, such as Saudi Arabia's USD 17.5 billion issuance in October 2016.

(b) Emerging markets and developing economies: Global banks may be reducing their business activities in these markets given general economic sentiment and risk aversion. However, these jurisdictions have not themselves reported any major unwanted consequences as a result of the reforms. Importantly for the IFSI, emerging and frontier markets are growth areas for the sector, and robust regulatory frameworks will be needed to ensure stable and sustainable growth.

(c) Open and integrated global financial system: There has been more of a shift to locally funded lending, and away from international lending. The reforms have generally, however, been found to avoid significant retrenchment, although the report indicates that more work is needed in this area to assess their true effects.

FSB jurisdictions that are the subject of this report include Saudi Arabia, Turkey and Indonesia, where Islamic finance either already has a significant market share or has potential for rapid growth. The IFSB will remain cognisant of the ongoing implementation of these reforms and its effect on the IFSI.

Specific Developments in Islamic Finance Markets

	Basel III						Compensation	Resolution		
Reform Area	Risk-based capital	Liquidity coverage ratio (LCR)	Higher loss absorbency for G-SIBS (home)	Requirements for D-SIBs	Leverage ratio	Net stable funding ratio (NSFR)		Transfer/bail-in/ temporary stay powers for banks	Recovery & resolution planning for systemic banks	Transfer/bridge/run-off powers for insurers
Indonesia										
Saudi Arabia	C	LC					◊			
Turkey	C	C								
Agreed Phase in (Completed) Date	2013 (2019)	2015 (2019)	2016 (2019)	2016	2018	2018				

	Basel III: Final rule published and in force
◊	**Basel III:** Final rule in force, but certain elements not yet implemented
	Basel III: Final rule published but not in force
	Basel III: Requirements reported as non-applicable
	Basel III: Draft regulation not published
C	**Basel III:** Regulatory Consistency Assessment Programme assessed as **compliant**
LC	**Basel III:** Regulatory Consistency Assessment Programme assessed as **largely compliant**

2.1.2 Basel Committee on Banking Supervision

Since the publication of the *IFSB IFSI Stability Report 2016*, the BCBS has finalised and issued a number of standards that were already in development at the time of the 2016 stability report. This section looks at selected new standards and guidelines issued by the BCBS following the publication of the 2016 report.

Some consultative documents that were discussed in the previous IFSI stability report have now been finalised and published by the BCBS. These include: *Interest Rate Risk in the Banking Book* (April 2016) and further changes to Revisions to the *Securitisation Framework* (July 2016). Importantly, the BCBS has finalised and published its standard on *Minimum Capital Requirements for Market Risk* (January 2016), which revises the market risk framework for both the standardised and internal models approaches. Some specific documents issued by the BCBS are discussed below.

(a) Correspondent Banking

The FSB published a progress report[74] in December 2016 on its examination into correspondent banking and its international decline. The FSB had previously presented an action plan to G20 leaders in November 2015 to address this issue. Correspondent banking relationships are important in facilitating payments, and the lack of such relationships could be a hindrance to both growth and financial inclusion.

A focus area of the FSB's study is compliance with anti-money laundering legislation and the Financial Action Task Force's (FATF) guidance. This has been a key area for correspondent banking in light of heightened regulatory scrutiny and sanctions for such violations.

Part of the FSB's action plan included the BCBS consultation paper *Revisions to the Annex on Correspondent Banking*[75] in November 2016. The proposals in the paper are consistent with FATF and focus on clarifying the rules for banks conducting correspondent banking services. The proposed revisions guide banks in the application of the risk-based approach for correspondent banking relationships, recognising that not all correspondent banking relationships bear the same level of risk. The proposed revisions also clarify conditions for using Know Your Customer (KYC) utilities.

The issue of anti-money laundering/countering the financing of terrorism risk for Islamic banks will be addressed by the IFSB's new research paper on this topic, which will be drafted in 2017. The IFSB will refer to the above BCBS paper and consider the risk from a correspondent banking perspective in its paper.

(b) Minimum Capital Requirements for Market Risk

Following two rounds of consultation in October 2013 and December 2014, and a number of quantitative impact studies, the BCBS published its revised market risk framework standard in January 2016.[76] The framework will come into effect on 1 January 2019 and is part of the ongoing response from the BCBS to the GFC (2007–2008). The revision affects both the standardised and internal model approaches to market risk, aiming to ensure credible capital outcomes as well as implementation consistency across jurisdictions.

The revised framework sets out a clearer and more stringent definition of both trading books and trading desks, as well as the movement of instruments between the banking and trading book.

Some of the most significant changes to the market risk framework that will affect IIFS include:

- The calculation and capital add-on for counterparty credit risk in the trading book. Specifically, this will affect over-the-counter (OTC) contracts such as swaps and any repo-style alternatives.
- For the standardised approach, the capital charge will be the sum of (1) the risk charge calculated using the sensitivities method, (2) the default risk charge, and (3) the residual risk add-on. IIFS will need to be aware of which of these risks is applicable to positions and instruments in their trading books.
- For the internal models approach, the value at risk (VAR) methodology will be replaced by the expected shortfall method. This is likely to produce a higher capital charge given the shortfall method averages out losses over an N-day period, assuming the loss is greater than the 99th percentile of the loss distribution.

In December 2013, the IFSB published IFSB-15: *Revised Capital Adequacy Standard*. The IFSB's *Strategic Performance Plan 2016–2018* schedules this standard for review beginning in 2018. This review is expected to take account of a number of developments in the BCBS standards, including this change in the approach to market risk.

(c) Standardised Measurement Approach for Operational Risk – Consultative Document

The BCBS proposed making revisions to the standardised approach to operational risk in October 2014. This consultative document[77] was issued in March 2016, for comments by June 2016. An important finding by the BCBS during its review of banks' operational risk models under the Advanced Measurement Approach (AMA) was that the AMA's inherent complexity, and the wide range of internal modelling practices, have exacerbated variability in risk-weighted asset (RWA) calculations, and eroded confidence in risk-weighted capital ratios. As a result, the BCBS has proposed removing the AMA altogether.

---

74 Financial Stability Board (2016), *FSB Action Plan to Assess and Address the Decline in Correspondent Banking.*
75 Basel Committee on Banking Supervision (2016), *Revisions to the Annex on Correspondent Banking.*
76 Basel Committee on Banking Supervision (2016), *Minimum Capital Requirements for Market Risk.*
77 Basel Committee on Banking Supervision (2016), *Consultative Document – Standardised Measurement Approach for Operational Risk.*

The new approach proposed in this document is the Standardised Measurement Approach (SMA), which will be the only method for calculating operational risk. The SMA is an attempt at building upon the current standardised method and also including the risk sensitivity of the AMA, without the need for actual modelling. A key aim of the SMA is to promote consistency and comparability among banks in how they calculate operational risk charges.

The SMA has two components: (1) the Business Indicator (BI) calculation, which is similar to the current BI approach, but with some updates (The BI method accounts for operational risk based on the profit and loss (P&L) of different business lines); and (2) a loss multiplier, which requires banks to analyse historic data (10-year) on their actual internal loss experience.

The potential impact of BCBS adopting this approach could be significant to IIFS, as it will require them to record good-quality loss data over an extended time series. The added cost of doing so could have a high impact on banks, depending on what systems/operational risk infrastructure they currently have in place. There may be a general increase in capital charge for operational risk should the SMA be adopted.

Depending on whether the BCBS goes ahead with these changes, the IFSB will consider making adjustments to IFSB-15 upon the commencement of its revised standard in 2018.

(d) Pillar 3 Disclosure Requirements – Consolidated and Enhanced Framework – Consultative Document

The BCBS made revisions to its Pillar 3 disclosure requirements framework in January 2015. A consultative document that builds upon these revisions was issued in March 2016.[78] Together with the overall framework, this forms the consolidated and enhanced Pillar 3 framework.

The key enhancements are as follows:

1. The inclusion of a set of key regulatory metrics that will be included in the "Overview" section of a bank's Pillar 3 report. This will effectively form a dashboard summarising capital position and RWAs, LCR, NSFR and leveraging.

2. A benchmarking of a bank's capital requirements based on its internal models against what it would be required to hold should it use the standardised approach for credit risk, market risk, securitisation framework and counterparty credit risk.

3. A new disclosure template that provides a breakdown of a bank's aggregate prudent valuation adjustment (quantitative).

Enhancements (1) and (3) above will have a direct disclosure impact on IIFS. Enhancement (2) will be less significant, given that very few IIFS use internal models for their capital calculations.

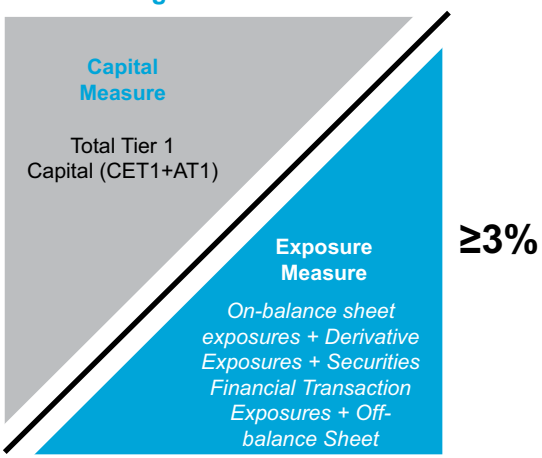
It should also be noted that should the BCBS decide to go ahead with SMA for operational risk, this will require specific disclosure, as will the new standardised approach to market risk. Again, these two elements will be directly applicable to IIFS.

The IFSB has started its revision of IFSB-4: *Disclosures to Promote Transparency and Market Discipline for IIFS.* The IFSB will take the BCBS's proposals, and any amendments to them, into account as part of this revision.

(e) Revisions to the Basel III Leverage Ratio Framework – Consultative Document

The Basel III framework introduced a simple, transparent and non-risk-based leverage ratio as a supplementary measure to the various risk-based capital requirements imposed on banks. The leverage ratio is a direct answer to the over-leveraging seen both on-balance and off-balance sheet in banks during the financial crisis. The ratio aims to restrict the build-up of leverage in the banking sector. Public disclosure on leverage ratios for banks started on 1 January 2015.

Leverage Ratio Calculation



[78] Basel Committee on Banking Supervision (2016), *Consultative Document – Pillar 3 Disclosure Requirements – Consolidated and Enhanced Framework.*

The BCBS consultative document[79] (issued in April 2016) proposes revisions to the design and calibration of the leverage ratio under Basel III. The proposed revisions are as follows:

- the measurement of derivative exposures (including limitations to the recognition of collateral/margining);
- the treatment of how regular-way purchases and sales of financial assets are measured to ensure consistency despite accounting differences;
- allowing both general and specific provisions that have decreased Tier-1 capital (including off-balance sheet) to reduce the leverage ratio; and
- incorporating revisions to credit conversion factors for off-balance sheet items from the revised standardised approach to credit risk into the leverage ratio framework (upon finalisation).

BCBS will be conducting a comprehensive quantitative impact study before finalising the design and calibration of the overall leverage ratio framework as per the above proposals.

The IFSB will monitor these finalisations and look to incorporate the relevant changes into its revision of IFSB-15, as well as any disclosure requirements that may arise into the revised IFSB-4.

(f) Interest Rate Risk in the Banking Book

The BCBS issued its finalised standard on interest rate risk in the banking book (IRRBB) in April 2016.[80] This standard revises the BCBS's *Principles for the Management and Supervision of Interest Rate Risk* (2004). The key enhancements introduced by this standard are as follows:

- Extensive guidance for banks on what is expected in the IRRBB management process. Specifically, this includes the development of stress scenarios incorporating a variety of interest rate shock scenarios and subsequent modelling assumptions. This will likely increase the amount of capital needing to be held by banks in their Pillar 2 add-ons.
- More disclosure on how IRRBB is measured and managed. This will include quantitative disclosures in terms of shock scenarios.
- An updated standardised framework that may be implemented by regulatory and supervisory bodies, ensuring that banks follow a harmonised standard.
- The publication of supervisory criteria for identifying "outlier banks". This tightens the materiality test from 20% of economic value of equity against Tier-1 capital to 15%.

IRRBB translates as rate of return risk (RRR) for IIFS given the use of benchmark rates for pricing on both the asset and liabilities side of the balance sheet, and also the competitive environment in which many IIFS operate. IIFS are subject to RRR, and this must be managed effectively to ensure resilience and stability to market changes. The above impacts will also affect IIFS in a similar way.

The standard is to be implemented by 2018. The IFSB will look to incorporate this standard when it revises IFSB-15. Any disclosure requirements in this area will be incorporated into the revised IFSB-4, where time allows. The IFSB's Technical Note 2 (TN-2) also provides some guidance on stress testing the RRR.

(g) Revisions to the Securitisation Framework

The BCBS published an amended standard on the regulatory capital treatment of securitisation exposures in July 2016.[81] This standard updates the existing framework found in 2014's *Capital Standards for Securitisations*. The BCBS published criteria for "simple, transparent and comparable" (STC) securitisations jointly with IOSCO in 2015.[82] This standard builds on these criteria.

The standard includes additional criteria for differentiating STC securitisations from other securitised transactions. They include the exclusion of transactions where the standardised risk weights for the underlying assets exceed certain limits. The aim of the standard is to ensure that securitisations with riskier underlying exposures are treated correctly from a regulatory capital perspective.

The standard has also lowered the risk weight for STC securitisation exposures, with the floor for senior tranches going down to 10% (previously 15%).

The IFSB will consider this standard with regards to securitisation exposures for IIFS (namely *ṣukūk*) when revising IFSB-15 in 2018.

(h) Guidance on the Application of the Core Principles for Effective Banking Supervision to the Regulation and Supervision of Institutions Relevant to Financial Inclusion

This guidance note[83] from the BCBS on financial inclusion is based on previous work carried out on applying the *Core Principles for Effective Bank Supervision* to entities engaged in financial inclusion (e.g. microfinance).

---

79 Basel Committee on Banking Supervision (2016), *Consultative Document – Revisions to the Basel III Leverage Ratio Framework.*
80 Basel Committee on Banking Supervision (2016), *Standard – Interest Rate Risk in the Banking Book*
81 Basel Committee on Banking Supervision (2016), *Revisions to the Securitisation Framework.*
82 Basel Committee on Banking Supervision (2016), *Criteria for Identifying Simple, Transparent and Comparable Securitisations.*
83 Basel Committee on Banking Supervision (2016), *Guidance on the Application of the Core Principles for Effective Supervision to the Regulation and Supervision of Institutions Relevant to Financial Inclusion.*

2.0 ISLAMIC FINANCE AND THE CHANGING GLOBAL FINANCIAL ARCHITECTURE

Out of the 29 *Core Principles*, 19 have been identified in this note where the BCBS feels further guidance is needed in their applicability to financial inclusion entities. Importantly, this note does not create any new core principles. The guidance has been written with BCBS non-member jurisdictions in mind. Some of the key core principles and discussion points in the paper are summarised below:

Core Principles	Summary
CP 4: Permissible Activities	The permissible activities of a licensed banking institution should be clearly defined. Financial inclusion entities may be involved in deposit-taking activities (similar to a bank), despite not being actually licensed as a bank. They may engage in other bank-related activities such as remittances, e-money and insurance distribution. Allowing such institutions (which may be non-seasoned and lack the managerial expertise) to carry out bank-related activities will require thorough supervisory assessment of the institution's capacity, management and control framework.
CP 8: Supervisory Approach	Effective supervision requires forward-looking assessments of an institution's risk profile. A key consideration in this principle is that of proportionality, linked to systemic importance. Entities providing financing to the underserved demographic will require a specific and tailored supervisory approach that remains cognisant of the systematically low impact many financial inclusion entities have.
CP 14: Corporate Governance	Robust corporate governance through systems, controls and policy will be very important for financial inclusion entities. Given the demographic they will be dealing with, particular importance must be placed on the treatment of customers, the way products and services are sold (and the assessments done on customers), and the general culture within the firm.
CP 16: Capital Adequacy	Capital requirements set by an RSA must take into account the nature of risk being undertaken by an institution. Requiring less-complex entities to comply with Basel standards is not a prerequisite to compliance with the BCBS's core principles. Financial inclusion entities will likely be exposed to a riskier class of customer and may also find it difficult to raise capital in times of stress. The paper emphasises that a less-complex entity does not necessarily equate to lower capital ratios; RSAs need to assess each firm individually to understand the balance sheet risks and set appropriate capital requirements.
CP 28: Disclosure & Transparency	RSAs are expected to require all firms to disclose a minimum amount of information. Financial inclusion entities may be subject to more rapid loan deterioration, thus requiring a higher frequency of certain disclosures to the RSA to ensure that financial resilience and stability is monitored. Similarly, such entities also need to be making adequate public disclosures to ensure transparency and consumer protection.

The IFSB will be drafting a *Technical Note on Microfinance and Financial Inclusion (Islamic Banking Segment)* in 2017. The BCBS guidance note will be a key reference document in developing this note.

(i) Consultative Document: Regulatory Treatment of Accounting Provisions – Interim Approach and Transitional Arrangements

Discussion Paper: Regulatory Treatment of Accounting Provisions

In October 2016, the BCBS issued two papers on the IFRS-9 accounting standard and the regulatory treatment of provisions.

IFRS-9 changes the current treatment of provisions by banks from a reactive approach based on time in arrears, to a forward-looking "expected credit losses" (ECL) modelling approach. The standard becomes binding in January 2018. The impact on banks in general will be significant, both from a regulatory capital perspective (due to perceived increases in provisions) as well as from the perspective of system requirements, governance and disclosure.

The BCBS consultative document[84] proposes to retain for the interim period the current regulatory treatment of provisions. The BCBS will consider further options for the regulatory treatment of the new provisioning requirements going forward. Importantly, the BCBS states that it cannot determine or recommend any transitional arrangements at this stage. It will continue to assess the impact of this provisioning change through quantitative impact studies.

The discussion paper[85] states that the BCBS will set up a task force to analyse the application of ECL and its impact on regulatory capital. The paper also discusses policy considerations for the long-term regulatory treatment of accounting provisions within the Basel III framework.

2.1.3 International Association of Insurance Supervisors

The International Association of Insurance Supervisors (IAIS) issued two key documents in 2016. The first, issued in June 2016, pertains to the assessment methodology for global systemically important insurers (G-SIIs). The second document is the Insurance Capital Standard Public Consultation document, which was issued in July 2016.

(a) Insurance Capital Standard: Progress

In 2013, the IAIS announced its plan to develop a risk-based global insurance capital standard (ICS). This was in response to the request by the Financial Stability Board that the IAIS produce a work plan to create "a comprehensive group-wide supervisory and regulatory framework for Internationally Active Insurance Groups". A first consultation paper was issued in 2014, and the IAIS subsequently adopted the higher loss absorbency requirement for G-SIIs in October 2015. These developments were reported in more detail in the stability reports for 2015 and 2016. Development of the ICS was originally scheduled to be completed in 2016, but the timetable has moved back, with the first version of the ICS (referred to as "ICS 1.0") now scheduled to be adopted for confidential reporting in mid-2017. ICS 2.0 is scheduled to be adopted by the end of 2019. The development process is being accompanied by extensive field testing. The 2016 consultation focuses on issues that are considered critical for ICS 1.0. Key topics are:

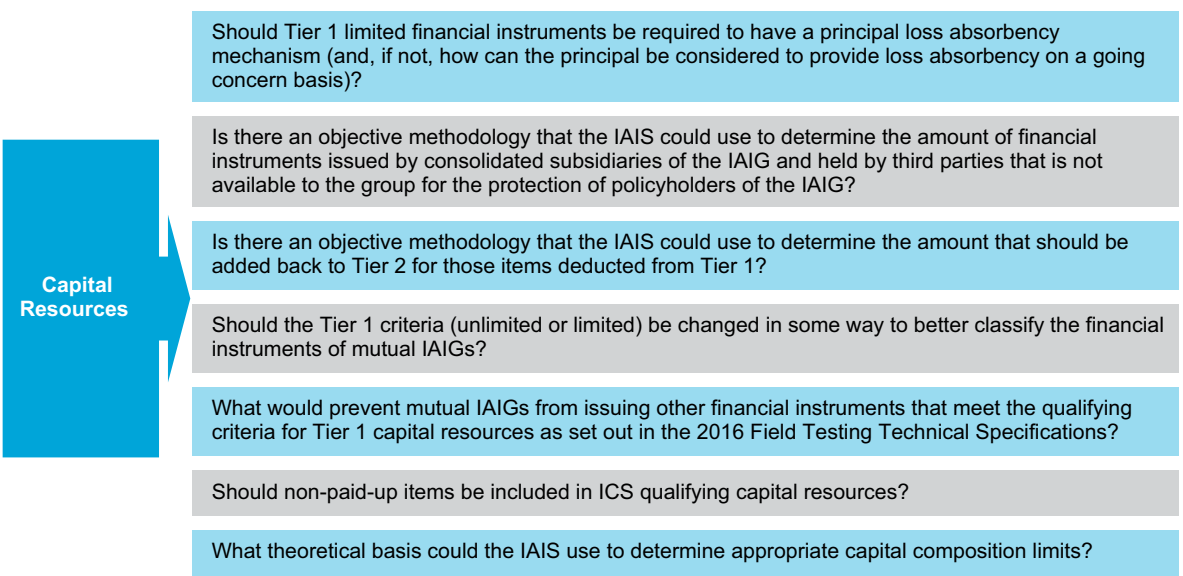
(a) ICS valuation covering the two valuation approaches – i.e. market-adjusted valuation (MAV) and GAAP (generally accepted accounting principles) with adjustments (GAPP Plus);

(b) ICS capital resources;

(c) ICS capital requirement based on the standard method; and

(d) scope of the group: perimeter of the calculation of the ICS.

Although the IFSB is not involved in the development of the ICS, the developing standard will be a key input to any future revision of IFSB-11: *Standard on Solvency Requirements for Takāful (Islamic Insurance) Undertakings.* The currently ongoing research on *Issues Arising from Changes in Takāful Capital Requirements* may benefit from the various input provided by the conventional industry as reflected in the *Questions for Stakeholders*[86] of the IAIS. The following are some of the areas highlighted by the IAIS, where answers from the industry may give insights to the IFSB in addressing issues pertaining to the capital resources of *takāful*/*retakāful* undertakings.

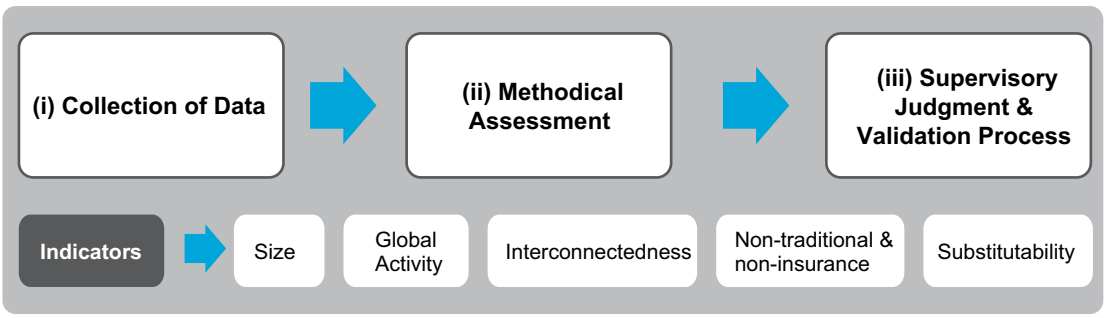


[84] Basel Committee on Banking Supervision (2016), *Regulatory Treatment of Accounting Provisions – Interim Approach and Transitional Arrangements.*
[85] Basel Committee on Banking Supervision (2016), *Discussion Paper – Regulatory Treatment of Accounting Provisions.*
[86] www.iaisweb.org/page/consultations/current-consultations/risk-based-global-insurance-capital-standard--second-consultation//file/62297/questions-for-stakeholders.

2.0 ISLAMIC FINANCE AND THE CHANGING GLOBAL FINANCIAL ARCHITECTURE

(b) Updated G-SII Assessment Methodology

On 18 July 2013, the IAIS issued the *Global Systemically Important Insurers (G-SIIs): Initial Assessment Methodology.* The objective of this initial assessment is to identify insurance-dominated financial conglomerates whose failure would have a significant impact on the global financial system due to their size, complexity and interconnectedness. This assessment methodology involves three different steps, namely: (i) collection of data; (ii) methodical assessment; and (iii) supervisory judgement and validation. process. Various indicators were used to collect the data from the G-SIIs, and these indicators were grouped into five different categories: size, global activity, interconnectedness, non-traditional and non-insurance activities, and substitutability. The assessment process then split the business portfolio into traditional insurance, non-traditional insurance, non-insurance financial and industrial activities where risk weights are assigned according to the systemic importance of the various business activities of insurance companies. The risk weights reflect the IAIS position that systemic importance in insurance is primarily associated with the conduct of non-insurance financial and non-traditional insurance business. All the information collected would then be used during the supervisory judgment and validation process. It was agreed in this initial assessment methodology that a three-year review would be conducted to update the assessment approach.



The updated G-SIIs assessment methodology, issued on 16 June 2016,[87] outlines a five-phase approach to the assessment process. Certain indicators used in the initial assessment methodology were also modified to address issues related to indicator responsiveness, connection with systemic risk and data quality, including reliability (across both insurers and jurisdictions). This latest assessment methodology also covers all types of insurance and reinsurance, as well as other financial activities of global insurers. The adopted five-phase assessment approach is best illustrated in the following diagram:

Phase I	• Quantitative components of the 2016 methodology, including a data collection phase
Phase II	• Determination of a quantitative threshold
Phase III	• Collection and analysis of additional quantitative or qualitative information that is not captured in Phase II indicators
Phase IV	• Enables prospective G-SIIs to receive information regarding that insurer's status through the first three phases and to present additional information relating to any aspect of the 2016 methodolog
Phase V	• Combines phases I–IV to produce an overall assessment that concludes with the IAISs' recommendation to the FSB

Although the IFSB's *takāful* initiative has not broadened to include issues pertaining to globally systemically important *takāful* operators, the 2016 assessment methodology may provide a reference to the upcoming work on prudential and structural Islamic financial indicators (PSIFIs) in 2017, which will focus on data collection of the *takāful* industry. The criteria will also be relevant to developing a methodology to assess systemic significance within the *takāful* industry when the market grows and some *takāful* companies become large, complex and more interconnected.

[87] Updated_G-SII_Assessment_Methodology_16_June_2016.pdf.

(c) Development in Other Areas

The IAIS issued its Issues Paper on Cyber Risk to the Insurance Sector in August 2016. The paper addresses increasing concerns over cybersecurity across all sectors of the global economy. While it is not meant to create supervisory expectations, the paper provides guidance to support supervisors in addressing cyber-risk in their respective jurisdictions.

As observed through the survey conducted by the IAIS on this issue, respondents attributed cybersecurity weaknesses to missing or incomplete overview of the information and technology landscape, inadequate control processes regarding user privileges, and improper access to super-user accounts. The cost of lack of cybersecurity will be the loss of confidential data, disruption of business, and reputational damage to the insurers.

The paper highlights some best practices:[88]

Governance	Together with the engagement and commitment of the board and senior management, a proper cyber resilience framework contributes to the mitigation of cyber-risk.
Identification	Identification means identifying those business functions and processes that should be protected against compromise. Information assets (including sensitive personal information) and related system access should be part of the identification process. Regular reviews and updates are key factors, as cyber-risk is constantly evolving and "hidden risks" can emerge.
Protection	Comprehensive protection entails protecting interconnections and other means of access to insider and outsider threats to the institution.
Detection	Comprehensive protection entails protecting interconnections and other means of access to insider and outsider threats to the institution.
Response and Recovery	Resumption of services (if interrupted) should be achieved within a reasonable time frame,depending on the impact of the incidents and the criticality of the service. Contingency planning, design and business integration, as well as data integrity (also in the case of data-sharing agreements) are keyenablers for fast resumption. To make contingency planning effective, it should be subject to regular testing. Steps to prevent contagion can mitigate further risks.
Testing	Testing programmes, vulnerability assessments, scenario-based testing, penetration tests, and red team tests are cornerstones of the testing phase. Cybersecurity testing should be included when systems are specified, developed and integrated.
Situation Awareness	Awareness contributes to the identification of cyber threats. Accordingly, the establishment of a threat intelligence process helps to mitigate cyber-risk. In this regard, insurers should consider participating in established information-sharing initiatives.
Learning and Evolving	Insurers should continually re-evaluate the effectiveness of cybersecurity management. Lessons learned from cyber events and cyber incidents contribute to improved planning. New developments in technology should be monitored.

This document is equally applicable and informative for the *takāful* and *retakāful* sectors of the Islamic financial services landscape.

[88] www.iaisweb.org/page/supervisory-material/issues-papers//file/61857/issues-paper-on-cyber-risk-to-the-insurance-sector.

2.1.4 International Organization of Securities Commissions (IOSCO)

(a) Report on Corporate Governance in Emerging Markets[89]

In 2015, the OECD released the updated G20/OECD *Principles of Corporate Governance* ("OECD Principles"), which was intended to assist policymakers to evaluate and improve the legal, regulatory and institutional framework for corporate governance, with a view to supporting economic efficiency, sustainable growth and financial stability. The Growth and Emerging Markets (GEM) Committee of IOSCO then published, in October 2016, its *Report on Corporate Governance in Emerging Markets* ("the Report") where it examined current corporate governance practices in emerging markets and the progress in aligning these markets' regulatory frameworks and practices to global standards.

Taking the OECD Principles as a benchmark, the Report focused on three key areas – namely: (1) board composition and responsibility; (2) remuneration and incentive structures; and (3) risk management and internal controls. The results of a comprehensive survey designed to gather information on current corporate governance practices and priority areas for GEM regulators revealed that there is general agreement among regulators of the need to: improve the quality of boards; ensure that remuneration and incentive structures work to create long-term value, rather than to promote excessive risky behaviour; and improve risk management and internal controls.

The Report also identified practical ways to transpose the OECD Principles into regulatory measures in GEM capital markets. Among the key takeaways to be considered by the emerging market regulators was in the area of disclosure. This included disclosure of personal or commercial relations of board members, disclosure of compensation policies and remuneration plans, disclosure of risk factors, and disclosure concerning internal control systems and risk management policies.

(b) Good Practice for Fees and Expenses of Collective Investment Schemes[90]

The financial crisis of 2007–2008 highlighted the need for greater transparency in the world of investment funds, together with a requirement for clearer and more focused investor disclosure. In order to assist investors in collective investment schemes (CIS) in making investment decisions, they need to be aware of the fees and expenses charged and of their impact on investment returns.

IOSCO had published a set of standards on CIS fees and expenses in 2004. Following recent developments in its member jurisdictions, IOSCO carried out a second review in 2015 in which it looked at a wider range of regulatory approaches towards markets at differing stages of maturity. These regulatory approaches vary from one jurisdiction to another due to their different regulatory frameworks and national asset management landscapes, and the varying ways in which regulators assess the risks faced by investors.

In comparison to the standards published in 2004, the 2015 standards provided an expanded list of disclosure approaches that would benefit investors. They include:

- defining permitted and prohibited costs, and how new or increased fees should be approved and/or notified to investors;
- the provision of summarised information to investors on key elements of fees and expenses;
- the use of electronic media for disclosing information to investors about fees and expenses;
- more disclosure about types of costs charged to CIS as transaction costs;
- disclosure of double charging structures when one CIS invests in another; and
- more detail about keeping information on fees and expenses up to date and giving investors adequate notice of material changes.

These best practices should also apply equally to the fee arrangements and expenses of an Islamic CIS. Since the IFSB's ICM disclosure standard is intended to complement rather than replace existing conventional standards, no change to it is necessary.

[89] https://www.iosco.org/library/pubdocs/pdf/IOSCOPD544.pdf.
[90] https://www.iosco.org/library/pubdocs/pdf/IOSCOPD544.pdf.

2.2 RECENT INITIATIVES UNDERTAKEN BY THE IFSB

2.2.1 Development of New Standards

2.2.1.1 Guiding Principles for Retakāful (Islamic Reinsurance)

The IFSI Stability Report 2016 described the initiatives taken to prepare a new standard on *Retakāful*, and the results of the survey undertaken as part of that work. This standard was published as an Exposure Draft in late 2015, and the final version was adopted by the Council in its 28th meeting in April 2016.

IFSB-18: Guiding Principles for *Retakāful* (Islamic Reinsurance) sets forth 11 basic principles and associated best practices pertaining to the *Retakāful* activities of both *takāful* and *retakāful* operators. These principles and best practices deal with 12 major issues pertaining to risk transfer versus risk sharing, commission, finite *retakāful*, acceptance of non-Sharīʿah-compliant business, retro*takāful*, *qarḍ*, conflict of interest, coinsurance with conventional reinsurers, transparency and disclosure, Sharīʿah governance, Sharīʿah justification for the usage of *ḍarurah*, and *retakāful* windows.

Principles 1.1–1.5 focus on the need for *retakāful* undertakings (RTUs) to have in place comprehensive governance structures appropriate to their business models. Alongside a well-defined and preserved independence and integrity of each organ of governance, RTUs need to ensure that their officials adopt an appropriate code of ethics and conduct in their dealings with stakeholders. With Sharīʿah compliance being one of the main interests of cedant *takāful* undertakings ceding to RTUs, due care and diligence in this area helps to protect the confidence of cedants and the insuring public in the Sharīʿah integrity of the *retakāful* sector.

Principle 2.1 highlights the importance of Sharīʿah governance in RTU activities. As recommended best practices, Sharīʿah advisors of RTUs should, in their capacity as a governance function of the institution, ensure the following:

1	The operations of the RTU follow the *retakāful* model approved by Sharīʿah advisors.
2	Policies and procedures are in place with regards to the treatment of surplus arising in the *Retakāful* Risk Fund (RRF).
3	Should the RRF go into run-off, there is a policy in place governing the distribution of any residual surplus once all valid claims have been met.
4	There is a procedure in place for Sharīʿah assessment of proposed *retrotakāful* arrangements.
5	There is a procedure in place for Sharīʿah assessment of any proposed profit commission arrangements in inward or outward *retakāful* contracts.
6	There is a procedure in place for Sharīʿah assessment of any proposed ceding commission arrangements in inward or outward *retakāful* contracts.
7	There is a procedure in place to ensure Sharīʿah compliance before accepting risks from conventional insurers.
8	There is a procedure in place to review and assess the Sharīʿah-compliant status of contracts that are written on a coinsurance basis together with conventional reinsurers.
9	There is a procedure in place to review and assess the Sharīʿah-compliant status of activities carried out on a supplementary basis in addition to *retakāful* business.
10	There is a procedure in place to identify any tainted income, and to purify it as appropriate.

Principles 3.1–3.3 highlight the need for RTUs to have risk management, solvency and investment frameworks within the organisation structure. These subjects are dealt with in more detail in IFSB-14: Standard on Risk Management for *Takāful* (Islamic Insurance) Undertakings and in IFSB-11: Standard on Solvency Requirements for *Takāful* (Islamic Insurance) Undertakings.

For a solvency framework, *retakāful* operators must ensure there is a sufficient level of capital to meet the obligations to the various stakeholders by having in place a solvency mechanism for its shareholders' fund (SHF), as well as for each RRF that it maintains as a segregated fund attributable to cedants. RTUs should also undertake liquidity planning and have in place a mechanism to ensure that adequate liquidity can be supplied to each RRF as is needed, having regard to the liquidity needs of different parts of the business and the restricted fungibility that exists between different funds within the RTU. In addition (and consistent with IFSB-11), the recommended best practices set out in principle 3.2 are as follows:

- A *Retakāful* operator can maintain assets in the SHF that it holds out as available for transfer as *qarḍ* to the RRF, in the event that the position of the RRF requires such a transfer.
- A *retakāful* operator should be required to give its consent to its RSA that a *qarḍ* facility provided to an RRF cannot be withdrawn by the *retakāful* operator before the RRF is considered to meet solvency requirements independently of any *qarḍ* facility.
- Any drawdown of a *qarḍ* facility into an RRF should in principle be repaid from future surpluses of the RRF.
- Where a *retakāful* window requires *qarḍ*, the RSA should satisfy itself that the assets provided or earmarked fulfil the requirements of the *retakāful* operator's Sharī'ah advisors with respect to Sharī'ah compliance.
- Where the RTU is regulated in more than one jurisdiction, the *retakāful* operator's processes for approval of *qarḍ* mechanisms must comply with the requirements of all involved RSAs.
- SHF assets representing a *qarḍ* facility, and any *qarḍ* asset in the SHF, should not be double-counted for solvency purposes.

For an investment framework, RTUs should have in place a sound investment strategy, with due regard to the risk-and-return expectations of their stakeholders (their shareholders in the case of SHF investments, and their cedant *takāful* undertakings in the case of investments of RRFs), and policies and procedures to implement that strategy. There should be an appropriate process in place to ensure that its investment activities are in compliance with Sharī'ah, including processes for assessing investments (initially and ongoing) for Sharī'ah compliance, and for identifying and purifying any tainted/non-halal income.

Principle 4.1 is concerned with transparency and disclosure, and recognises the need of market participants for appropriate disclosures that provide them with fair access to material and relevant information. Information regarding the solvency requirements for a *retakāful* undertaking that is material and relevant to the market participants should be publicly disclosed to enhance market discipline and the accountability of the RTU. There should also be regular public reporting of information to enable participants, investors, creditors and other stakeholders to understand the nature of the risk management framework. *retakāful* undertakings need to ensure that information disclosed should be derived from systems and processes that are properly controlled and regularly assessed by the RTU for effective operation.

Principle 5.1 provides guidance to regulatory and supervisory authorities with regards to supervision of *retakāful* /reinsurance programmes of *takāful* undertakings. Recommended best practices may best be summed up as follows:

- Inform cedants that their risks are pooled with those of other cedants.
- Include provision for consideration of all factors relevant to the decision into the Sharī'ah governance process.
- Clarify the terms of the arrangement to permit identification of the contract on which the arrangement is based.
- Consider whether the use of conventional reinsurance risks compromises the integrity of the claim to Sharī'ah compliance made by the cedant.
- Document the policy regarding the attribution of cash flows.

2.2.1.2 TN-2: Technical Note on Stress Testing for IIFS

In December 2016, the IFSB released TN-2: *Technical Note on Stress Testing for IIFS*. TN-2 attempts to provide regulatory and supervisory authorities and market players of the Islamic banking industry with appropriate technical guidance to develop, conduct and assess stress tests specific to Islamic banks. This project began in 2014 and was overseen by a Task Force comprising 21 members from 16 RSAs and two international organisations.

Stress Tests for the IFSI

Stress testing has become a tool widely used by financial institutions and RSAs to: (i) identify financial sector vulnerabilities; (ii) influence and support policy decisions affecting the financial system and individual institutions; and (iii) support and guide financial institutions' own risk management. Regulatory stress tests have also become a central tool for enhancing the resilience of the banking system.

However, from the perspective of the Islamic financial services industry, stress testing for risk management is an evolving area where much work at all levels, including by supervisory authorities and market players, is required.

The credit, market and operational risk profiles of Islamic financial instruments do not correspond exactly with those of conventional financial instruments. In addition to these risks, an IIFS is, or may be, exposed to other risks, such as Sharī'ah non-compliance risk, rate of return risk and equity investment risk, which need to be taken into account by an IIFS in its stress testing. In view of an IIFS's limited access (as is currently the case in most jurisdictions) to short-term funding and high-quality liquid assets (HQLA) to meet the expectations on liquidity risk management, particularly maintenance of HQLA, due consideration must be given to liquidity stress tests.

The IFSB had previously released IFSB-13: Guiding Principles on Stress Testing for IIFS, which followed a principles-based approach and includes guidance on the basic elements that a stress-test framework in IIFS and RSA should incorporate. However, IFSB-13 did not provide technical guidance on how to conduct the stress tests in practice. During the development of and public consultation on IFSB-13, the need for detailed guidelines on the operationalisation of the standard was emphasised. It was agreed to address the technical details of stress testing in due course in a separate IFSB Technical Note.

TN-2: Five Stress Test Templates and Other Technical Guidelines

Accordingly, TN-2 is proposed to be used by IIFS and RSAs as guidance in developing, conducting and assessing stress testing of Islamic banks. TN-2 addresses multiple types of risk and their interrelated effects on the overall financial position and performance of the portfolio, institution, group or system. These risks include, but are not limited to, credit risk within financing portfolios, market risk on assets held, foreign exchange risk, liquidity risk, rate of return risk, and discussions on the aspect of Sharī'ah non-compliance risk.

In particular, the objectives of TN-2 include:

(a) to facilitate the design and simulation of solvency and liquidity stress tests for IIFS, including providing guidance on establishing macrofinancial links, running scenarios of various assumptions and stress parameters;

(b) to highlight the specificities of risk exposures in IIFS and how they need to be captured in stress-testing exercises; and

(c) to provide stylised numerical examples of IIFS stress tests under different shock scenarios.

A key feature of TN-2 is that it is accompanied by five basic Excel-based stress test templates: one each for conducting credit, market and liquidity risk assessments, as well as for rate of return risk, and a scenario analysis template that combines credit and market risk stress tests. The proposed basic stress test templates in TN-2 provide the flexibility of having stress test results analysed and assessed across three levels: at the portfolio level, the institution level and the aggregate industry-wide level. The industry-wide stress tests are introduced in TN-2 as an exercise on aggregated values of the Islamic banking sector only. The results enable RSAs to identify any weaknesses or potential vulnerabilities to plausible extreme shocks in the Islamic banking system.

TN-2 stress test templates incorporate risk specificities of Sharī'ah-compliant contracts when conducting stress tests on an Islamic bank. This approach involves evaluating the various risk exposures experienced by an IIFS, which are segregated by the contractual relationships of the balance sheet components. The stress test templates also duly take into account the role of loss-absorbing unrestricted PSIAs, which help to sustain better capital adequacy for Islamic banks as compared to the conventional banks during stress events. In an event where a jurisdiction implements the regulatory alpha factor, the stress test templates are readily adjustable to account for the same.

The liquidity stress test template in TN-2 includes four different modules for analysing the liquidity position of IIFS and/or the Islamic banking system under stress scenarios: (i) implied cash flows analysis (ICFA) (five days and 30 days); (ii) liquidity coverage ratio; (iii) maturity mismatch analysis; and (iv) net stable funding ratio. The decision on which modules are necessary to be applied by IIFS for liquidity stress tests will depend upon the local regulations; for example, LCR and NSFR have begun to be implemented in some jurisdictions that have already adopted Basel III/ IFSB-15/GN-6.

An additional important aspect covered in TN-2 is rate of return risk in the banking book of an IIFS. This was covered and introduced in TN-2 in response to Basel's recent BCBS Standards, Interest Rate Risk in the Banking Book (April 2016). Excessive RRRBB can pose a significant threat to IIFSs' current capital base and/or future earnings (solvency issues) if not managed appropriately. It can also lead to liquidity issues if a sudden withdrawal of funds is initiated by IIFS depositors/IAHs. TN-2 provides technical guidelines on how to undertake RRRBB stress tests along with an introductory Excel-based stress test template.

TN-2 also includes discussion on Sharī'ah non-compliance risks and their consideration in operational risk stress tests. In the IFSI, operational risk for IIFS has an added scope in the form of the losses resulting from Sharī'ah non-compliance and failure to meet their fiduciary responsibilities. TN-2 stresses the importance of being able to identify the worst possible impact on capital adequacy and profitability of an IIFS due to a Sharī'ah non-compliance event. The event should have been material enough to inflict a sizeable adverse impact on the IIFS's profitability and capital adequacy, thus justifying its consideration in the operational risk stress tests.

Other notable aspects in TN-2 include a dedicated subsection outlining the importance of data needs for stress tests. Lack of appropriate data too often is a major challenge for Islamic finance-specific stress-testing exercises. TN-2 provides a generalised data template for use by IIFS and RSAs to collect necessary data in order to support their stress-testing exercises. Where data are lacking or insufficient, TN-2 discusses the role and importance of exploring relevant data proxies. Additionally, when use of proxies is not a meaningful solution, expert judgments concerning the nature and extent of shocks on IIFS' financial statement components are proposed, including the process of acquiring expert judgments by RSAs/IIFS.

2.0 ISLAMIC FINANCE AND THE CHANGING GLOBAL FINANCIAL ARCHITECTURE

System-wide Stress Tests in Dual-banking Jurisdictions

TN-2 has also attempted to address the most fundamental challenge in dual-banking jurisdictions: when considering system-wide stress tests (the entire banking system) in dual-banking jurisdictions, a question legitimately arising is whether RSAs need to stress test Islamic banks in aggregate (industry-wide and excluding conventional banks) separately. TN-2 has suggested one possible solution in this regard, which is to conduct industry-wide stress tests of IIFS (excluding conventional banks) as a separate exercise, and to consider including only the industry-wide (all IIFS) stress test results as a single and aggregated Islamic banking component alongside conventional banks in the broader system-wide stress-testing framework.

The advantages of such a method are three-pronged: (1) all IIFS are individually subjected to appropriate stress tests, enabling the RSAs to identify problem banks (if any); (2) it provides the RSAs with an outlook on the aggregated performance and resilience of the Islamic banking sector under stressed conditions; and (3) by inserting an aggregated Islamic banking component in the broader stress-testing framework alongside conventional banks, the RSA can gain an indication of joint (conventional and Islamic) system-wide banking sector vulnerabilities under stressed conditions (if any). By inserting only an aggregated component of IIFS, the numbers need to be adjusted only once for the IIFS results to fit into the conventional system-wide framework.

This method rests particularly well in dual-banking system jurisdictions where the Islamic banking sector is small. However, in the case where a jurisdiction has an IIFS that has achieved a sizeable and material market share of the domestic banking sector, this IIFS could be added as a separate component in the system-wide stress-testing framework, in addition to the other aggregated data on Islamic banks and conventional banks.

The final decision on the inclusion of either all or some Islamic banks in the industry-wide and/or system-wide stress test rests with the local RSA, which will take an appropriate decision depending upon several considerations – for example, the market share of Islamic banks in the domestic banking system, the systemic importance of one or more Islamic banks in the system, the profitability and interconnectedness of Islamic banks in the system, and so on.

Group Stress Testing Exercises (Conventional Parent with Islamic Businesses)

TN-2 also discusses stress tests in relation to groups with conventional parent banks that operate either Islamic subsidiaries or Islamic window operations. In the first case where a conventional parent operates an Islamic subsidiary, in general, Islamic subsidiaries are to stress test their balance sheets separately using methodologies suited to account for the specificities of the IFSI. This may include an additional set of customised shock designs and scenarios, separate from those at the group level, which are more applicable and relevant to the Islamic subsidiary's business.

In the second case where a conventional parent bank operates Islamic window operations, ideally, the window's operations should be stress tested[91] separately with customised stress test shocks and designs as discussed for subsidiaries. However, the RSA and conventional bank may wish to assess factors that might lead them in some cases to waive separate stress tests for the windows and parent bank for assessing the same types of risks, in view of the substantial costs and complex formulation of assumptions required for separate stress tests and in light of the materiality of risks posed by window operations to the parent.

In both system-wide and group-based stress-testing circumstances, TN-2 leaves the final decision on the choice of an appropriate stress test with the local RSA, which will take a decision depending upon the type and nature of businesses and risk exposures that Islamic banks (including subsidiaries/windows) are permitted to undertake in the jurisdiction.

Future Stress-testing Exercises

Finally, TN-2 highlights some of the recent developments in stress tests that will shape and guide future stress-testing exercises. These include discussions on integrated liquidity and solvency stress tests, network contagion and second-round effect analysis, and cross-border macro stress testing. These methods are still being explored and developed in the conventional finance sector and the IFSB will explore in future the possibility of commencing work on another technical note addressing the above latest developments in the stress-testing realm for the Islamic banking sector.

Conclusion

In conclusion, the scope and application of TN-2 is subject to the adoption of other applicable IFSB standards and guiding principles – in particular, IFSB-12: *Guiding Principles on Liquidity Risk Management for IIFS*; IFSB-13: *Guiding Principles on Stress Testing for IIFS;* and IFSB-16: *Revised Guidance on Key Elements in the Supervisory Review Process of IIFS*. The TN also complements IFSB-17: *Core Principles for Islamic Finance Regulation (Banking Segment)* and will support as a key facilitator for the broader Islamic financial sector stability and resilience surveillance. In multiple Core Principles, IFSB-17 highlights the importance of adequate stress-testing exercises and the usage of its results as, for instance, a supervisory tool to regularly review and assess the safety and soundness of IIFS and the banking system. TN-2 provides a first benchmark guidance for the Islamic banking sector on stress testing. With the availability of wide-spanning Islamic banking industry data, enabled by the IFSB's Prudential and Structural Islamic Financial Indicators (PSIFI) database, stress testing for the Islamic banking industry, including possibly as part of wider international financial-sector surveillance exercises, is expected to be greatly facilitated. TN-2 is currently available in both English and Arabic languages for download from the IFSB website.

[91] The stress-testing exercise should, however, in no way violate the principle of separation of funds of the two businesses – Islamic and conventional.

2.2.1.3 Guiding Principles on Disclosure Requirements for Islamic Capital Market Products (Ṣukūk and Islamic Collective Investment Schemes)

For Islamic capital market products to be acceptable to all investors and issuers, it is important that they comply with universally accepted principles of securities regulation. The objectives of regulating ICM products, including regulating disclosure, should be no different from the objectives of securities regulation generally: protecting investors; ensuring that markets are fair, efficient and transparent; and reducing systemic risk. At the same time, ICM products have to conform to Sharī'ah principles in order to meet the expectations of Muslim investors. Regulators have to be concerned, therefore, that ICM products are indeed true to label in order to safeguard trust in these products.

As a growing segment of the global capital markets, the Islamic capital market also needs, as much as any other traditional part of the financial sector, to be regulated by sound disclosure requirements. In particular, in widening the acceptability and global appeal of the ICM, efforts need to be focused, among other things, on having in place an effective disclosure regime for ICM products. With the increased focus on investor protection, robust disclosure standards for the ICM will help to strengthen the overall regulatory framework and promote greater cross-border activity. Furthermore, it is widely acknowledged that greater disclosure contributes to stable financial markets.

In April 2017, the IFSB released its *Guiding Principles on Disclosure Requirements for Islamic Capital Market (Ṣukūk and Islamic Collective Investment Schemes (ICIS))*. The work on the standard began in April 2015, after receiving inputs from industry players and regulators that: (1) there is a need to ensure that investors and customers are given adequate information about the products offered in the ICM; and (2) that ICM products raised disclosure issues different from or additional to those of their conventional counterparts. Overall, the standard is intended to meet the following objectives:

(i) to provide a basis for regulatory and supervisory authorities to set rules and guidelines on disclosure requirements for ICM products, specifically for *ṣukūk* and ICIS;

(ii) to outline a basis for RSAs to assess the adequacy of the disclosure frameworks specified by others (e.g. by an exchange that is also the listing authority);

(iii) to provide a comprehensive disclosure framework for participants in the ICM; and

(iv) to create greater harmonisation of regulation and practice in the ICM, and thus facilitate cross-border offerings.

An Exposure Draft was issued in October 2016, and during the public consultation period, which ran from 31 October to 31 December 2016, a roundtable and a public hearing were held. The inputs received from regulatory and industry stakeholders during the public consultation provided valuable feedback in finalising the standard.

The standard provides guidance on the disclosure requirements for various types of *ṣukūk* commonly used in the market and ICIS that invest in transferable securities. The standard, which covers the main stages of disclosure such as initial, ongoing (periodic and immediate) and point-of-sale disclosure, also complements the existing IOSCO standards by dealing with issues specific to ICM products. This allows RSAs that have regulatory regimes based on the IOSCO standards also to regulate ICM products by applying the recommended disclosures outlined in this standard. Even where disclosures are not required by regulation, it is hoped that some offerors will make them voluntarily.

2.0 ISLAMIC FINANCE AND THE CHANGING GLOBAL FINANCIAL ARCHITECTURE

There are three sets of guiding principles outlined in the standard – namely, General Principles, *Ṣukūk* Disclosure and ICIS Disclosure. General Principles are common principles applicable to both *ṣukūk* and ICIS. They consist of the following:

General Principles	Summary
Principle G.1: Clear and Accurate Information **Information provided in the offering documents or other documents prepared for investors and prospective investors should be clear, accurate and not misleading.**	The principle states the importance of clear and accurate information in order to protect investors' interests and the integrity of their decision making. Clarity of language and presentation are important, particularly for retail investors who are less sophisticated than professional investors. Though no specific disclosures are recommended beyond the requirements under the IOSCO standards, the standard recommends that there should be a general requirement along the lines of the principle, and that its terms should be broad to cover disclosures related to Sharī'ah aspects of the issuance.
Principle G.2: Sufficient Information **There should be full disclosure of information which a reasonable investor would view as material to their decision whether to invest, or to remain invested.**	What is material information will depend on the type of instrument itself and the type of investor at whom it is targeted. Consistency and comparability of the information, disclosure on Sharī'ah matters, and accessibility of documents are crucial factors to consider to further assist investors' decision-making process. The principle recommends applying a standard format in prospectuses where disclosures are made under specific headings. It also recommends the use of a "catch-all" provision to require disclosure of any other information that investors should be aware of.
Principle G.3: Timely Information **There should be timely disclosure of information which is reasonably material to an investment decision.**	The standard does not specify the periods for timely disclosure, as what is considered "timely" will depend on the nature of the information and the circumstances. The principle does, however, mention in what circumstances immediate or periodic disclosures are required, and in what sort of documents these disclosures are made.

In regard to *ṣukūk*, the standard explains the application to private/public offerings, government and multilateral issuances, and cross-border issuances. The four guiding principles specific to *Ṣukūk* Disclosure are summarised below.

***Ṣukūk* Disclosure**	Summary
Principle S.1: General Disclosure Principles Applicable to *Ṣukūk* **The disclosure framework for any *ṣukūk* should reflect the particular characteristics of the securities.**	Certain characteristics of some *ṣukūk* may resemble those of conventional securities, and many of the basic disclosures – for example, about the business and management of the originator – should therefore be similar. However, for *ṣukūk* with significantly different basic financial, credit, risk or other characteristics, disclosures should be made to describe those characteristics, as well as any special Sharī'ah considerations that arise.
Principle S.2: Sharī'ah-related Disclosures for *Ṣukūk* **Sufficient disclosures should be made about Sharī'ah aspects of the *ṣukūk* to allow an informed judgment as to initial and ongoing Sharī'ah compliance of the *ṣukūk* to be made.**	Compliance with Sharī'ah requirements is key to all *ṣukūk* offerings. An offering will normally be the subject of a *fatwā*, from Sharī'ah scholars, on which many investors will rely. The principle therefore covers the recommended disclosures relating to Sharī'ah scholars and the review process, *fatwā* and reasoning, underlying assets and activities, purification and compensation payments, ongoing disclosure, and so on. Any change of the assets or activity of the issuer/obligor, or enforcement or restructuring activities that occur after the *ṣukūk* issuance, may also require disclosures on Sharī'ah matters.

Ṣukūk Disclosure	Summary
Principle S.3: Structure-related Disclosures for *Ṣukūk* **The structure of the *ṣukūk* should be described with sufficient clarity to allow an investor to understand it and assess any risks associated with it, including any legal risks associated with the interactions of multiple parties within the *ṣukūk* structure under various agreements.**	The principle reiterates the importance of language and format of disclosure to provide more clarity to investors of publicly or privately offered *ṣukūk*. The principle identifies some structure-related aspects that require disclosure and hence recommends disclosures concerning structure and contracts, specific contracts and arrangements, underlying assets and ownership rights, source of payments and recourse, default, enforcement, restructuring and insolvency, ongoing disclosure and other material information.
Principle S.4: Entities about which Disclosures Should be Made **Appropriate disclosures should be made about all entities material to an investment decision in the *ṣukūk*.**	The principle states the need for RSAs to require relevant disclosure not only about the *ṣukūk* issuer but also about the *ṣukūk* obligor and/or originator. Similarly, RSAs should also be careful that the liability for defective disclosures does not apply to the *ṣukūk* issuer alone. Apart from that, the principle also recommends disclosure that experts have consented to the use of their name and reports in the offering document – for example, consent from the Sharī'ah advisors as to inclusion of their names and *fatwā*.

On the subject of ICIS Disclosure, the standard also explains how it applies in certain situations – that is, different legal structures, different types of investment, non-retail funds and cross-border sales. The Guiding Principles for ICIS Disclosure are divided into the three following principles:

ICIS Disclosure	Summary
Principle C.1: Sharī'ah -related Disclosures for ICIS **An ICIS should make sufficient disclosures about its Sharī'ah governance and Sharī'ah compliance to allow an investor sensitive to those issues, and of a type for whom the ICIS is intended, to make an informed decision whether to invest or to remain invested.**	Unlike a *ṣukūk*, ICIS buy and sell investments during their lifetime and therefore require disclosures to ensure that Sharī'ah compliance is met continuously throughout the lifetime of the ICIS. The ICIS should therefore disclose the types of Sharī'ah-compliant assets in which it will invest, and the process that will be used to ensure that each such asset is Sharī'ah-compliant. The principle also recommends items to be disclosed in the prospectus or annual report regarding treatment of tainted assets and income, as well as zakāh or other Sharī'ah-related obligatory payments.
Principle C.2: Operations-related Disclosures for ICIS **An ICIS should make sufficient disclosures about operational matters and their Sharī'ah compliance to allow an investor sensitive to such issues to make a reasonable judgment as to whether investment in the ICIS is, or remains, appropriate.**	Apart from investment activities, other transactions need to be Sharī'ah-compliant as well. This section of the standard calls for the disclosure of how cash balances are invested, whether ICIS employs leverage, whether Sharī'ah-compliant hedging instruments are used, and the reason why these activities are judged as Sharī'ah-compliant. These aspects of the ICIS's operations should be addressed in the report by Sharī'ah advisors or Sharī'ah auditors, so far as they are relevant.
Principle C.3: Specialist ICIS Disclosure **Disclosures for special types of ICIS need to reflect their specific structures, operational considerations and risks.**	The disclosures outlined under this principle are over and above those already covered under Principles C.2 and C.3, and disclosures normally required for conventional funds. The principle discusses the recommended disclosures for property funds, Islamic real estate investment trusts (REITs), exchange traded funds, money market funds, private equity/venture capital funds and commodity funds.

Although the standard focuses on disclosure requirements for *ṣukūk* and ICIS, as the Islamic capital market continues to develop, the IFSB may produce standards for other ICM products in the future.

2.2.2 The IFSB Standards Implementation Survey

The IFSB Secretariat conducts an annual survey on its standards' implementation among member RSAs with the aim of following up on the progress made in implementing standards, identifying the challenges in that process, and assessing the support required by the RSAs in implementing these standards.

IFSB member RSAs implement the IFSB's standards and guidelines on a voluntary basis. These RSAs determine their own timeline for implementation based on the market and industry dynamics in their respective jurisdiction and sector.

Since 2012, the IFSB Secretariat has conducted four such surveys on standards implementation. In its fifth implementation survey, which covers the year 2016, a total of 36 RSAs from the three sectors – Islamic banking, *takāful* and the Islamic capital market – participated in the survey.

IFSB Standards Covered in the 2016 Survey

The IFSB standards and guidelines that have been published by the IFSB until December 2015 are illustrated in Table 2.2.2.1 IFSB-1, 2, 3, 4, 5, 7, 12, 13, 15, 16, 17 and GN-6 are relevant for RSAs that regulate Islamic banking. IFSB-6 is applicable to RSAs governing capital markets, while IFSB-8, 11 and 14 are applicable to RSAs governing the *takāful* sector. IFSB-9 and IFSB-10 are applicable across sectors. Standards issued subsequent to December 2015 were not included in this survey.

Table 2.2.2.1 IFSB Standards Covered in the 2016 Implementation Survey

BANKING SECTOR
• IFSB-1: Risk Management for IIFS (2005) • IFSB-2: Capital Adequacy Standard for IIFS (2005) • IFSB-3: Corporate Governance for IIFS (2005) • IFSB-4: Disclosures to Promote Transparency and Market Discipline for IIFS (2007) • IFSB-5: Key Elements in the Supervisory Review Process of IIFS (2007) • IFSB-7: Capital Adequacy Requirements for *Ṣukūk*, Securitisation and Real Estate Investments (2009) • IFSB-12: Liquidity Risk Management for IIFS (2012) • IFSB-13: Stress Testing for IIFS (2012) • IFSB-15: Revised Capital Adequacy Standard for IIFS (2013) • IFSB-16: Revised Guidance on Key Elements in the Supervisory Review Process for IIFS (2014 • GN-6: Guidance Note on Quantitative Measure for Liquidity Risk Management (2015) • IFSB-17 Core Principles for Islamic Finance Regulation (2015)
ISLAMIC CAPITAL MARKET SECTOR
• IFSB-6: Governance for Islamic Collective Investment Schemes (2008)
***TAKĀFUL* SECTOR**
• IFSB-8: Governance for *Takāful* Undertakings (2009) • IFSB-11: Solvency Requirements for *Takāful* Undertakings (2010) • IFSB-11: Solvency Requirements for *Takāful* Undertakings (2010)
CROSS SECTOR
• IFSB-9: Conduct of Business for IIFS (2009) • IFSB-10: Sharī'ah Governance Systems for IIFS (2009)

Source: IFSB Secretariat

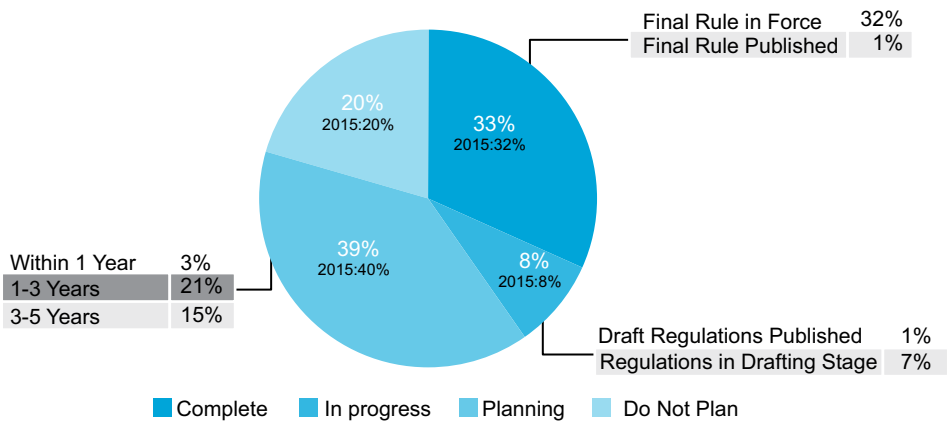
Implementation Status Progress

The survey inquired about the implementation status of 18 IFSB standards and guidance notes. These included one new standard, IFSB-17, which was not included in the 2015 survey.

RSAs were asked to state the most applicable implementation status among four categories, including "Complete", "In Progress", "Planning", and "Do Not Plan (to implement)". The overall implementation status is consistent with last year, with minor differences in the "Complete" and "Planning" statuses (see Chart 2.2.2.1).

The "Complete" status has increased by 1%, while the "Planning" status has decreased by 1%, compared to last year. This actually represents an improvement in standards implementation, given that an additional standard is now included.

Chart 2.2.2.1 RSA Overall Implementation Status

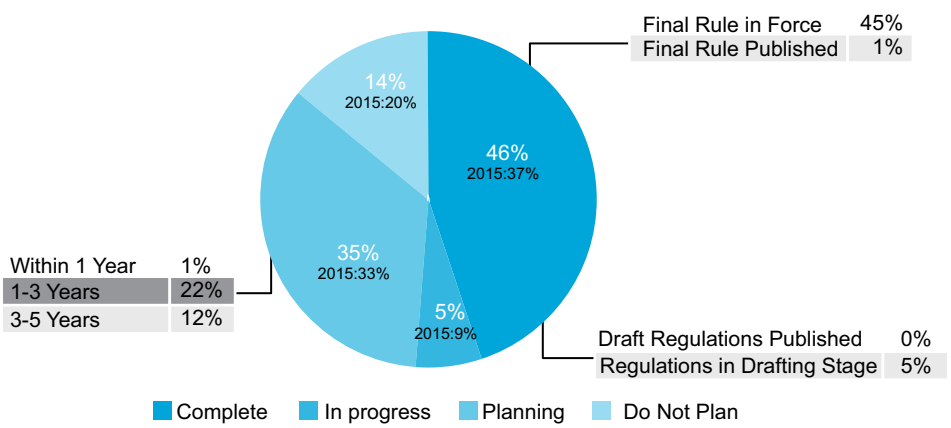


Base: All Respondents n=36

Source: IFSB Standards Implementation Survey, 2016: Q4. Please record the most applicable implementation status.

Considering only the 22 RSAs that also participated in the 2015 survey, the "Completed" status is higher by 9%, and "Planning" status has increased by 2%. On the other hand, the "Do Not Plan" status has decreased by 6%, and the "In Progress Status" is down by 4%. This is visible in Chart 2.2.2.2. Chart 2.2.2.3 analyses on a standard-by-standard basis the number of these respondents who reported complete implementation. The analysis demonstrates that the **standard implementation rate has increased in all three sectors.**

Chart 2.2.2.2 Consistent RSA Members – Overall Implementation Status



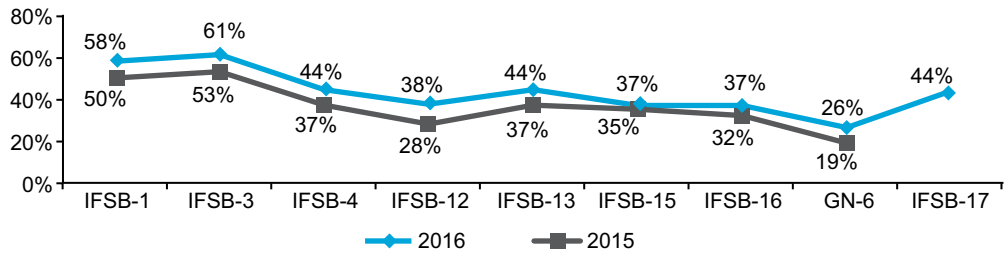
Base: All Respondents, n=22

Source: IFSB Standards Implementation Survey, 2016: Q4. Please record the most applicable implementation status.

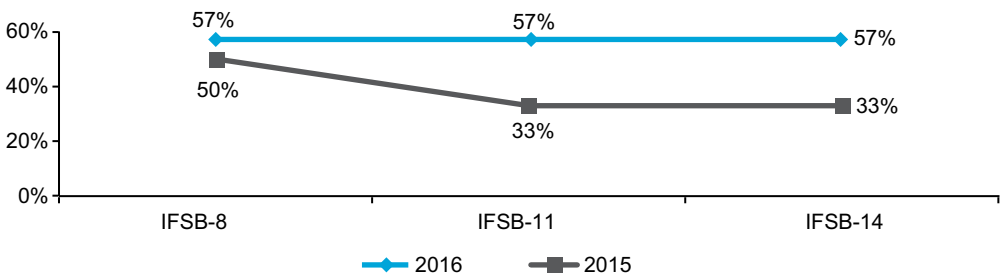
Chart 2.2.2.3 RSA Consistent Members and Implementation by "Complete" Status

Total Implementation
48%
(2015: 38%)

Islamic Banking
43%
(2015: 36%)



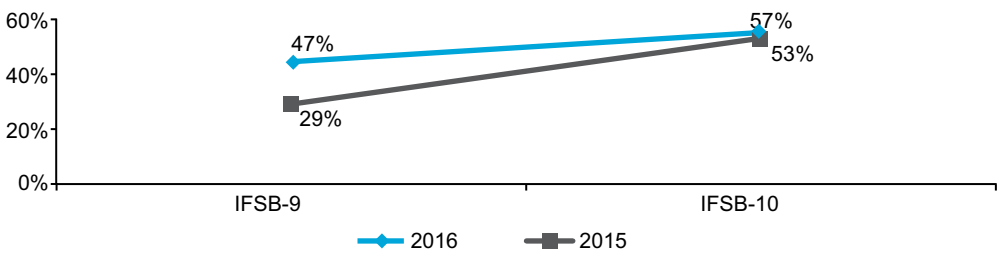
Takāful
57%
(2015: 39%)



50%
(2015: 36%)

Islamic Capital Market
IFSB-6
50%

Cross Sectors
52%
(2015: 41%)



Base: All Respondents, n=22 (Only RSA Members who also participated in 2015.)

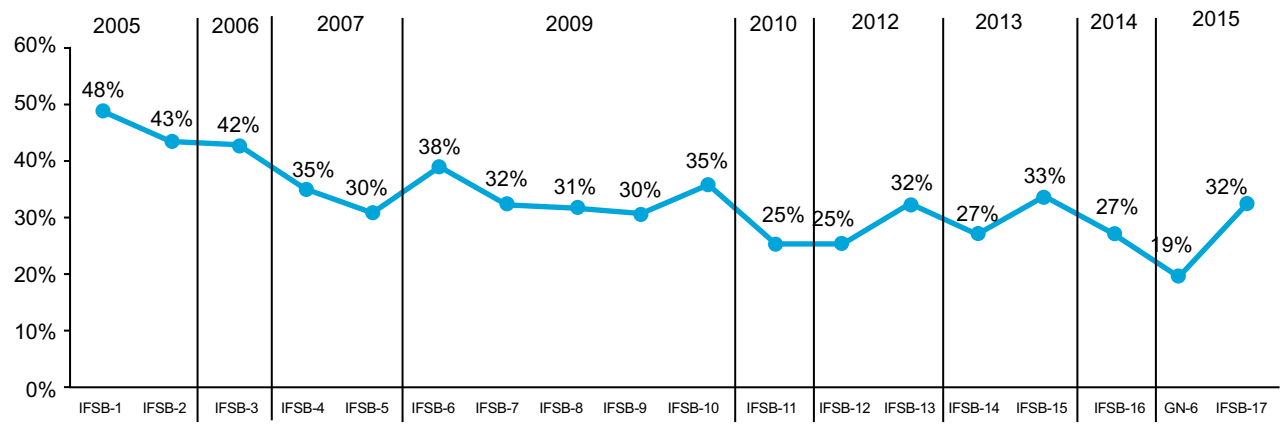
Source: IFSB Standards Implementation Survey, 2016: Q4. Please record the most applicable implementation status.

[92] This is the ratio of the percentage completion rate of implementation of a particular standard divided by the number of years since it has been published..

Chart 2.2.2.4 shows there has been a higher speed of implementation for recently issued standards compared to those issued prior to 2012.

In particular, **IFSB-12, IFSB-13, IFSB-14, IFSB-15, IFSB-16, GN-6** and **IFSB-17** have a higher take-up rate, where the take-up rate is defined as the implementation rate of a standard in relation to the number of years since its issuance. It should be noted, however, that some standards in the banking sector have replaced earlier ones. For instance, IFSB-15 replaced IFSB-2 and IFSB-7, and IFSB-16 replaced IFSB-5. It is therefore possible that, in the future, some RSAs will skip over the earlier standards in favour of their later replacements.

Chart 2.2.2.4 Standards Completed by Timeline



Average rate of RSA implementation per year since issuance[92]																	
4	4	4	4	3	4	4	4	4	4	4	5	6	7	8	9	10	16

Base: All Respondents, n=36

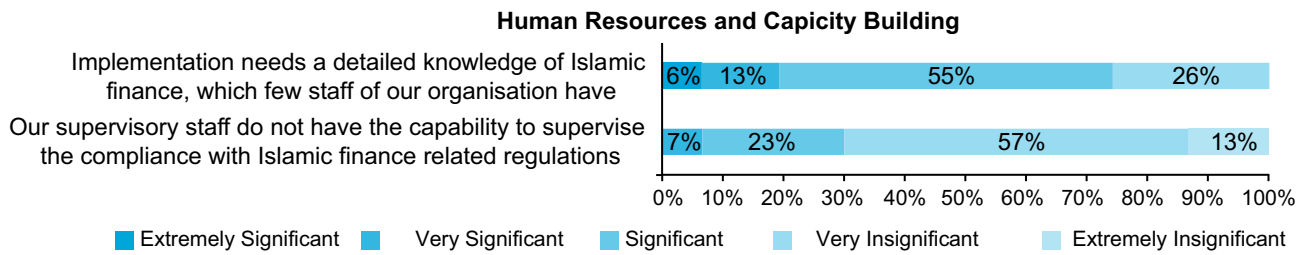
Source: IFSB Standards Implementation Survey, 2016: Q4. Please record the most applicable implementation status.

Challenges Faced by RSAs in Implementing IFSB Standards

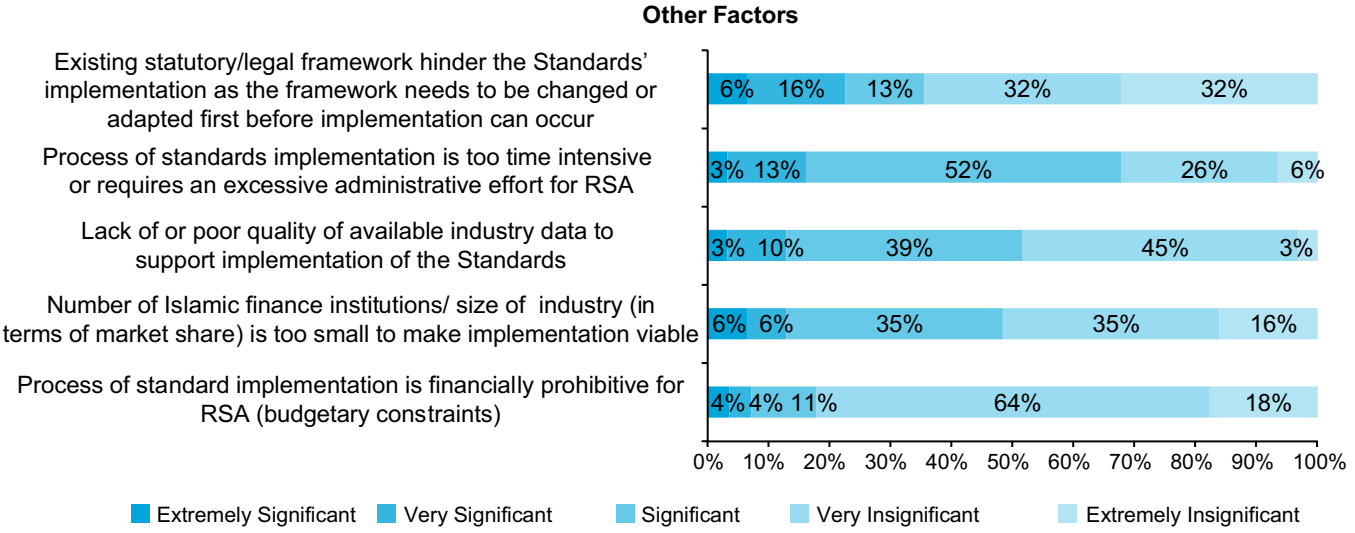
RSAs were asked about the challenges they face in implementing standards. As illustrated in Chart 2.2.2.5, with respect to human resources and capacity building, the need for staff with detailed knowledge of Islamic finance for implementation of standards is identified as a major challenge faced by RSAs. However, the capability of staff to supervise compliance with Islamic finance-related regulations, once they are issued, was not rated as highly significant.

With respect to other factors, the need to change or adapt existing statutory/legal frameworks was identified as the major constraint hindering the implementation of standards, whereas "budget constraints" seems to be the least important challenge faced by the respondents.

Chart 2.2.2.5 Challenges in Implementation



2.0 ISLAMIC FINANCE AND THE CHANGING GLOBAL FINANCIAL ARCHITECTURE



*Base: n=32 (*4 RSA Members did not respond to the question.)*

Source: IFSB Standards Implementation Survey, 2016: Q5. How significant are the following challenges in terms of implementation of the IFSB standards?

As illustrated in Chart 2.2.2.6, in general, **the need to change existing statutory/legal frameworks before implementing the standards seems to be a significant challenge among all respondents,** with RSAs from the African region finding it the most significant compared to other regions. RSAs from Europe seem to find most of the challenges significant. However, this could be as a result of the small sample of RSAs from the European region that participated in the survey. Notably, RSAs from the Middle East and Asia did not rank any of these challenges as highly significant.

Chart 2.2.2.6 Challenges in Implementation (Regional Breakdown of Cumulative Ratings for Two Categories – Extremely Significant and Very Significant)

Challenge	Total n=32	Africa n=3	Asia n=13	Europe n=2	Middle East n=14
Human Resources and Capacity Building					
Implementation needs a detailed knowledge of Islamic finance, which few staff of our organisation have	19%	33%	15%	50%	14%
Our supervisory staff do not have the capability to supervise the compliance with Islamic finance related regulations, once issued	7%	0%	8%	0%	7%
Other Factors					
Lack of or poor quality of available industry data to support implementation of the Standards	13%	33%	8%	0%	14%
Process of standards implementation is too time intensive or requires an excessive administrative effort for RSA	16%	0%	15%	50%	14%
Process of standard implementation is financially prohibitive for RSA (budgetary constraints)	7%	0%	8%	0%	8%
Number of Islamic finance institutions/size of industry (in terms of market share) is too small to make implementation viable	13%	0%	15%	50%	7%
Existing statutory/legal framework hinders the Standards' implementation as the framework needs to be changed or adapted first before implementation can occur.	23%	67%	23%	50%	7%

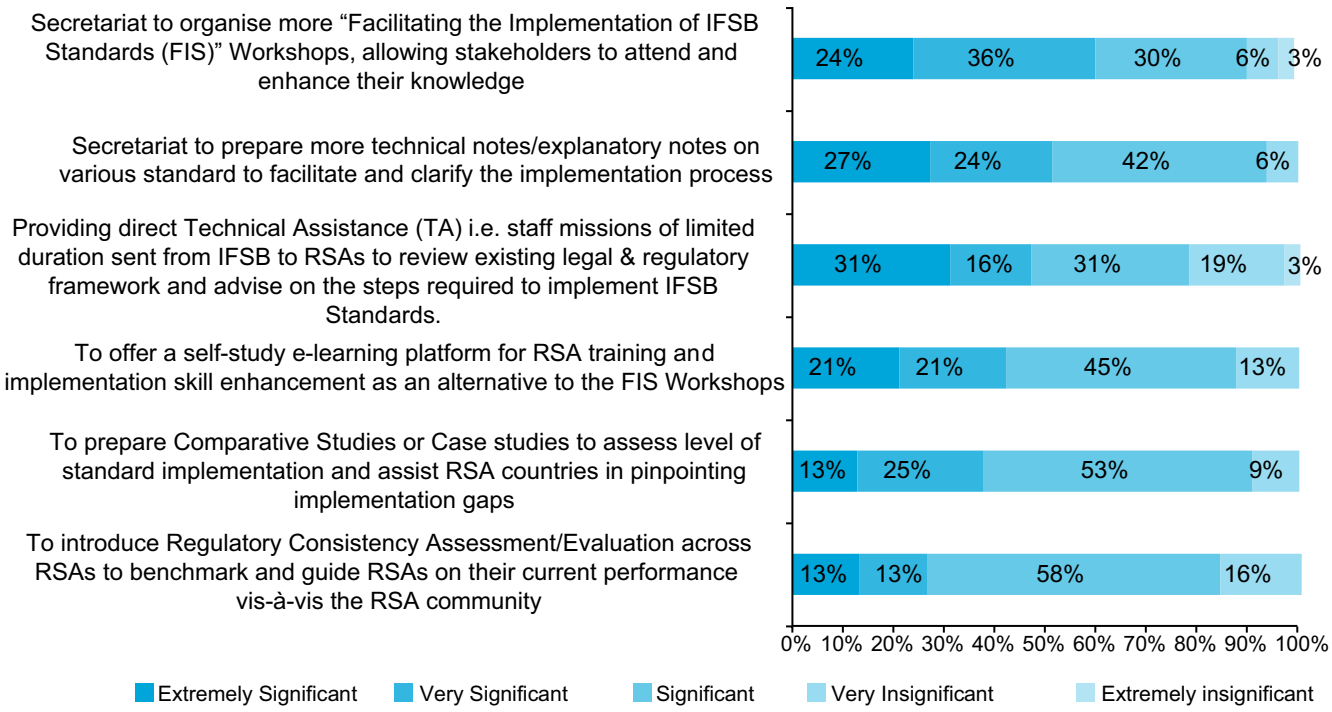
*Base: n=32 (*4 RSA Members did not respond to the question.)*

Source: IFSB Standards Implementation Survey, 2016: Q5. How significant are the following challenges in terms of implementation of the IFSB standards?

Type of Support Desired by RSAs

Survey participants were asked to rate the form of support they require from the Secretariat to implement the standards. Chart 2.2.2.7 illustrates that **the most significant form of support required by RSAs is organising more "Facilitating the Implementation of IFSB Standards (FIS)" Workshops,** with 24% of the respondents finding it extremely significant and 36% very significant. This was followed by the preparation of more Technical Notes and the provision of direct Technical Assistance (TA) to RSAs, which ranked overall as second- and third-highest, respectively, in terms of their significance.

Chart 2.2.2.7 Support in Implementing Standards



Base: All Respondents, n=33 (3 RSA Members did not respond to the question.)

Source: IFSB Standards Implementation Survey, 2016: Q7. How significant are the following activities to support implementation of the IFSB standards?

As illustrated by Chart 2.2.2.8, **the majority of the respondents (61%) believe that organising more (FIS) Workshops is very significant in assisting RSAs to implement the standards.** RSAs from the European and African regions consider organising more FIS Workshops, providing TA and preparing more technical notes would be beneficial in supporting them to implement the standards. In addition, RSAs from the African region consider a self-study e-learning platform for RSA training as being important. RSAs from the Middle East are more interested in accessing support through more Comparative Studies and introducing Regulatory Consistency Assessments. RSAs from the Asian region found FIS workshops to be the most significant form of support required.

Chart 2.2.2.8 Support in Implementing Standards – Regional Cluster (Top Two Categories – Extremely Significant and Very Significant)

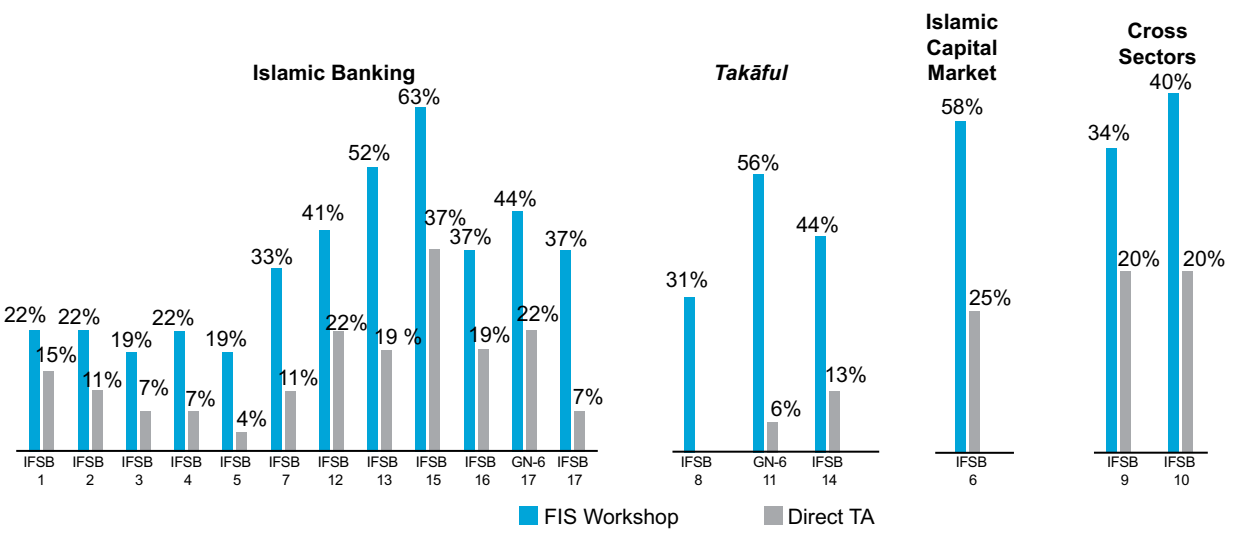
Strategies	Total (n=33)	Middle East (n=14)	Asia (n=12)	Africa (n=4)	Europe (n=2)
Secretariat to organise more "Facilitating the Implementation of IFSB Standards (FIS)" Workshops, allowing stakeholders to attend and enhance their knowledge	61%	36%	75%	75%	100%
Providing direct Technical Assistance (TA) i.e. staff missions of limited duration sent from IFSB to RSAs to review existing legal & regulatory framework and advise on the steps required to implement IFSB Standards.	48%	31%	42%	100%	100%
Secretariat to prepare more technical notes/explanatory notes on various standards to facilitate and clarify the implementation process	50%	36%	42%	100%	100%
To prepare Comparative Studies or Case Studies to assess level of standard implementation and assist RSA countries in pinpointing implementation gaps (successful implementers vs. those which have faced challenges)	39%	50%	33%	0%	50%
To introduce Regulatory Consistency Assessment/Evaluation across RSAs to benchmark and guide RSAs on their current performance vis-à-vis the RSA community	27%	50%	8%	0%	0%
To offer a self-study e-learning platform for RSA training and implementation skill enhancement as an alternative to the FIS Workshops	41%	36%	33%	75%	50%

Base: All Respondents, n=33 (3 RSA Members did not respond to the question.)

Source: IFSB Standards Implementation Survey, 2015: Q8. How significant are the following activities to support implementation of the IFSB standards?

As shown in Chart 2.2.2.9, **it is observable that there is greater demand for support in implementing the newer standards than the old ones**. In the Islamic banking sector, IFSB-15 has the highest rating, followed by IFSB-13, GN-6, IFSB-12 and IFSB-16. This may, of course, reflect the fact that some of these standards supersede older ones, and may also be influenced by the standards being implemented in the conventional sector, since the newer standards are based on Basel III rather than Basel II. Among the *takāful* sector standards, IFSB-11 requires more support compared to IFSB-8 and IFSB-14. For cross-sector standards, IFSB-10 has a higher rating than IFSB-9. Across all sectors, FIS Workshops are the most required form of support, followed by the direct Technical Assistance provided by the Secretariat.

Chart 2.2.2.9 FIS Workshop and Direct TA

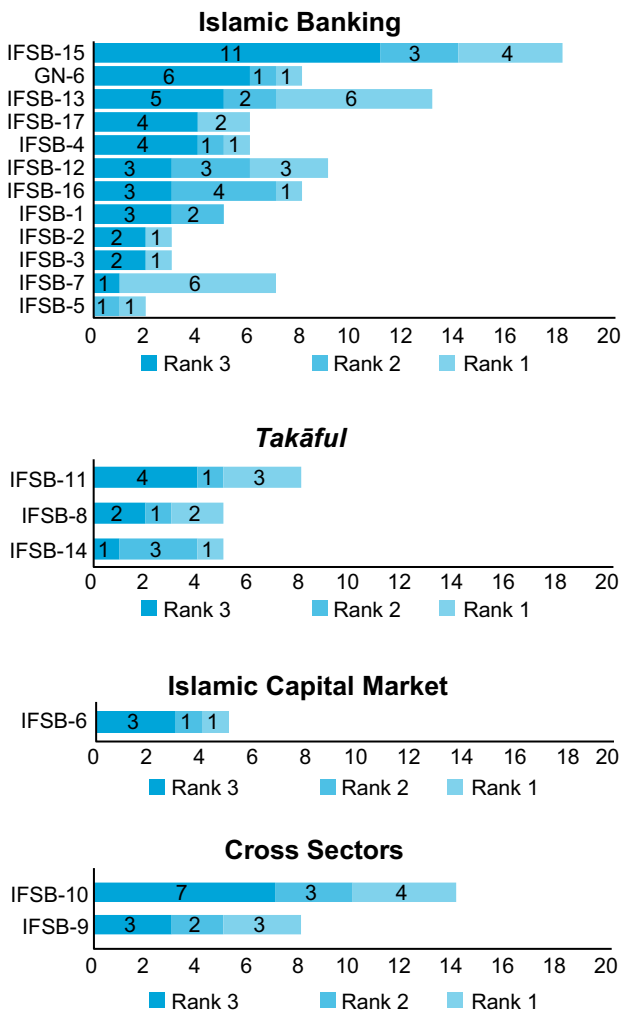


Base: All Respondents, n=33 (3 RSAs didn't respond to the questions.)

Source: IFSB Standards Implementation Survey, 2016: Q8. Please select five standards which require support, and provide the ranking of their importance from 1 to 5 (1 being the least important and 5 being the most important).

Chart 2.2.2.10 shows the ranking of standards' importance, with Rank 3 considered the most important and Rank 1 the least important. For the Islamic banking sector, IFSB-15 had the highest ranking, followed by IFSB-12 and IFSB-13. In the *takāful* sector, IFSB-11 was ranked the most important, compared to IFSB-11 and IFSB-8. For the cross-sector standards, IFSB-10 appears to be the most important in comparison to IFSB-9.

Chart 2.2.2.10 Standards Priority for Workshop and Direct TA



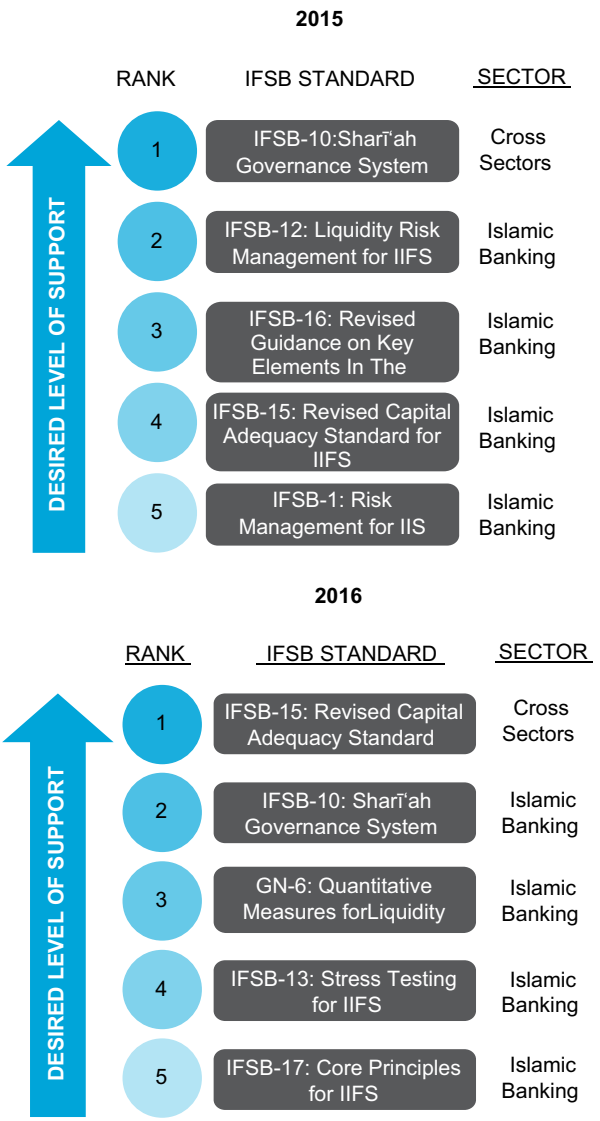
*Base: All Respondents, n=27 (*9 RSA Members did not rank their priorities.)*

Source: IFSB Standards Implementation Survey, 2016: Q8. Please select five standards which require support, and provide the ranking of their importance from 1 to 5 (1 being the least important and 5 being the most important).

Chart 2.2.2.11 shows the ranking of IFSB standards with respect to the required level of support from the IFSB Secretariat for implementation. In 2016, IFSB-15, on revised capital adequacy, has been rated as the topmost priority for obtaining support (FIS workshop and direct TA) at an overall level. This standard has risen as a priority area, as compared to the 2015 survey which ranked it at number 4.

IFSB-10, a cross-sector standard on Sharī'ah governance, which was ranked as the topmost priority in the 2015 survey, has been rated as the second-most important priority in the 2016 survey. GN-6, IFSB-13 and IFSB-17 were also ranked, in that order, as requiring support for implementation.

Chart 2.2.2.11 Standards Priority for Workshop and Direct TA



*Base: All Respondents, n=27 (*9 RSA Members did not rank their priorities.)*

Source: IFSB Standards Implementation Survey, 2016: Q8. Please select five standards which require support, and provide the ranking of their importance from 1 to 5 (1 being the least important and 5 being the most important).

2.0 ISLAMIC FINANCE AND THE CHANGING GLOBAL FINANCIAL ARCHITECTURE

Key Take-outs and Recommendations

1. The implementation status has been consistent with last year's survey with a slight increase of 1% in the "Complete" status and a slight decrease of 1% in the "Planning" status. Because one further standard was included in the 2016 survey, this implies a significant increase in the standards implemented.

2. The implementation status among consistent RSA members indicates that more RSAs are in the completion or planning stages of implementation of standards compared to in 2015. On the other hand, fewer RSAs are in the "Do Not Plan" category.

3. The "Complete" status among consistent members has also increased by 10% in 2016 compared to last year. The increase can be witnessed in all three sectors.

4. In terms of implementing all standards, two jurisdictions report complete implementation of all the standards in the Islamic banking sector, four jurisdictions in the *takāful* sector and four in the Islamic capital market sector.

5. Out of 36 respondents, 18 RSA members have implemented at least one standard.

6. The average rate of adopting standards is also consistent with last year where new standards have a faster average take up time.

7. The most significant challenges faced by RSAs are the lack of "Detailed knowledge in Islamic Finance" that is required to transform standards into regulations and rulebooks. The lengthy time required to implement the standards is another major challenge. In addition, African RSAs see the need to change existing statutory/ legal frameworks as the most significant challenge in standards implementation.

8. IFSB-15, IFSB-16, GN-6, IFSB-10 and IFSB-13 were identified as the standards where RSAs find significant challenges in implementation. Consequently, the aforementioned standards were rated higher in terms of the desired level of support needed from the Secretariat.

9. Among all sectors, "Facilitating the Implementation of Standards (FIS)" workshops were the most required form of support, followed by "Preparing more Technical Notes".

2.2.3 Other IFSB Initiatives

2.2.3.1 The IFSB-ISRA Joint Working Paper on Sharīʿah Non-compliance Risk in the Banking Sector: Impact on Capital Adequacy Framework of Islamic Banks

In the past two decades, there has been an increased recognition of operational risk, not only by banks and RSAs, but also by the international standard-setting bodies. The increased complexity and size of the banking sector is creating greater potential exposure by banks to operational risk, while globalisation, the sophistication of new financial products and the use of highly automated technology encourage RSAs to be more cautious about operational risk, especially after a series of major losses – or near collapses – faced by some conventional banks as a result of operational risk events.

Sharīʿah Non-compliance Risk in Islamic Banks

The IFSB capital adequacy standards define operational risk as the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events, which includes, but is not limited to, legal risk and Sharīʿah non-compliance risk.[93] Sharīʿah non-compliance risk (SNCR), on the other hand, is defined as "the risk that arises from IIFS' failure to comply with the Sharīʿah rules and principles determined by the Sharīʿah Board of the IIFS or the relevant body in the jurisdiction[94] in which the IIFS operate".[95]

Similar to the Basel II framework, the IFSB, in its Capital Adequacy Standard issued in 2005 (IFSB-2), assigned a capital charge for the operational risk of IIFS, and stated that RSAs can apply an additional capital charge on the IIFS if SNCR is deemed significant.[96] The revised capital adequacy standard, IFSB-15,[97] kept the framework for operational risk of IIFS unchanged in line with Basel III.[98]

For the purposes of this research, Sharīʿah non-compliance risks are identified through the underlying contracts applied. There are four essential elements in the contract – two contracting parties, subject matter (asset and price), and offer and acceptance.

---

93 As defined in the IFSB's latest capital adequacy standard for Islamic banks (IFSB-15), operational risk in Islamic banking can be broadly divided into three categories: general, legal and Sharī'ah non-compliance risks. While the general and legal risks facing Islamic banks are mostly similar to, but not limited to, those faced by conventional banks, Sharī'ah non-compliance is a unique risk for Islamic banks.

94 This definition, however, excludes the risk that the Sharī'ah board of an IIFS is in error and that a higher authority (e.g. a court) ascertains this error (or non-compliance with resolutions of a national Sharī'ah board, if such a board exists, etc.). The excluded type of risk may cause particularly high losses.

95 FSB (2005), IFSB-1: Guiding Principles on Risk Management for Institutions (other than Insurance Institutions) offering only Islamic Financial Services (IIFS).

96 IFSB (2005), IFSB-2: Capital Adequacy Standard for Institutions (other than Insurance Institutions) offering only Islamic Financial Services (IIFS).

97 IFSB (2013), IFSB-15: Revised Capital Adequacy Standard for Institutions offering Islamic Financial Services (Excluding Islamic Insurance (*Takāful*) Institutions and Islamic Collective Investment Schemes).

98 Basel Committee on Banking Supervision (2010), Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems.

Essential Elements and Conditions for the Validity and Effectiveness of a Sharīʿah-compliant Contract

Contracting Parties	Subject Matter	Offer and Acceptance
• Legal capacity • Legal authority	• Valuable asset • Free from uncertainty • Known by both parties • Recognised by the Sharīʿah • In existence during the contract's session	• Clear and understandable • Consistent and continuous

In addition, the contract should be free from prohibitive elements,[99] such as *ribā*, duress (*ikrāh*), mistake (*ghalaṭ*), inequality (*ghubn*), deception (*taghrīr*), and illegal goods or illegal assets. Failure to satisfy the essential elements of a contract and the necessary requirements renders the contract invalid, and hence the risk of Sharīʿah non-compliance will arise.

Considering the above, the empirical study focuses on the identification of SNCR resulting from the failure of Islamic banks to satisfy the essential Sharīʿah requirements and conditions as stipulated in the relevant jurisdiction's standards, or widely accepted international Sharīʿah standards, the implications of which are reflected in Islamic banks' Sharīʿah non-compliant income (SNCI), which serves as a "proxy" for SNCR.[100] Utilising the data of 51 Islamic banks from 11 countries[101] for a five-year period from 2010 to 2014, the paper performs both descriptive and correlation analysis, as well as regression tests to examine the significance of Sharīʿah non-compliance income vis-à-vis bank-specific variables and macroeconomic indicators.[102] The paper also conducts ratio analyses to measure the impact of SNCR on the capital adequacy, total assets, total equity and total net income of Islamic banks. This analysis is supplemented by stress testing in the form of outlining two scenarios to analyse SNCR as a tail risk under extreme but plausible events.

Findings and Recommendations

The analysis highlights that the current methods used to calculate operational risk for capital requirements adequately cover the wider set of operational risks faced by Islamic banks, including SNCI. However, based on the available data on SNCI and its analysis, it is apparent that the level of SNCI is negligible in most cases. The analysis also demonstrates that the impact of severe SNCR levels on CAR is rather limited. These results lead to the conclusion that the application of an additional capital charge to cover SNCR in Islamic banks will not serve the purpose, and that tools available to RSAs under the supervisory review process (Pillar 2) could offer a more effective mechanism for dealing with individual instances of a high level of SNCR.

Key Recommendations and Policy Options

- Collect adequate information on SNCR and set up key risk indicators for different Sharīʿah-compliant contracts.
- Evaluate SNCR under Pillar 2 (Supervisory Review Process) due to possible reputational risk.
- Provide consistent and elaborate SNCR disclosure requirements.
- Implement effective and comprehensive Sharīʿah governance systems.

The study proposes some policy options and guidance for regulatory and supervisory authorities to address SNCR. In this context, it suggests that RSAs and Islamic banks collect adequate information on material developments of SNCR in the Islamic banks in order to undertake an effective supervisory review process. Similarly, the paper highlights the importance of setting up key risk indicators for identifying the SNCR inherent in different kinds of Sharīʿah-compliant contracts, and of outlining a set of variables that help to estimate the likelihood and severity of SNCR.

It is conceptually possible for Islamic banks to become insolvent because of reputational risk that is triggered by the SNCR. Therefore, and as outlined in IFSB-16,[103] SNCR can be evaluated under Pillar 2 (Supervisory Review Process) by the RSAs, who also have the discretion to impose additional capital charges, collectively for the market or for individual Islamic banks, as the authority deems fit. RSAs need to focus more on establishing control processes specifying the manner used to assess and mitigate the SNCR of an Islamic bank, and should use available remedial and enforcement tools for dealing with inadequate management of SNCR. In addition to their own supervisory review, RSAs may collect additional information on Sharīʿah governance and controls of an Islamic bank through independent assessments by external auditors, or by adopting a Sharīʿah ratings approach as used by various credit rating agencies.

---

99 Some of the prohibitive elements in an Islamic contract may not be peculiar to Islamic banks. They are also sources of operational risk in conventional banks, such as fraud, deception and mistake.

100 The Working Paper acknowledges the limitations of using Sharīʿah non-compliant income as a "proxy" since a majority of Islamic banks do not report, in their financial statements, detailed information about Sharīʿah-compliant contracts and the number of events leading to Sharīʿah non-compliant income.

101 These 11 countries mainly represent jurisdictions where local regulations stipulate the Sharīʿah governance framework applicable to Islamic banks.

102 Examples of these variables include size, profitability and capitalisation of Islamic banks.

103 IFSB (2014), IFSB-16: *Revised Guidance on Key Elements in the Supervisory Review Process of Institutions offering Islamic Financial Services (Excluding Islamic Insurance (Takāful) Institutions and Islamic Collective Investment Schemes).*

2.0 ISLAMIC FINANCE AND THE CHANGING GLOBAL FINANCIAL ARCHITECTURE

The study also emphasises the significance of implementing an effective and comprehensive Sharī'ah governance system, and highlights that the implementation of IFSB-10 and other best practices will help ensure that all Islamic banks operate within Sharī'ah rules and principles as approved by their respective Sharī'ah boards. In addition, the research underlines several issues and challenges in the disclosure practices of Islamic banks in relation to SNCR and, in line with the recommendations of IFSB-4[104], recommends RSAs to provide a detailed and well-rounded set of guidelines for the disclosure requirements on SNCR.[105] The paper[106] also suggests that the Sharī'ah board statement on SNCI be made more explicit, and that a statement of "sources and uses of the charity account" will provide a useful tool for stakeholders to assess the magnitude and historical trend of non-Sharī'ah-compliant income over the years.

2.2.3.2 Resolution and Recovery Process of Insolvent IIFS

The IFSB's Strategic Performance Plan 2016–2018 includes the preparation of a research paper on recovery, resolution and insolvency issues for IIFS. This work began in 2016.

In line with the work plan, the IFSB commenced research on recovery and resolution issues, aimed at highlighting the existing regulations and practices across different jurisdictions while raising awareness of issues affecting IIFS in the process, such as Sharī'ah compliance and structural/legal obstacles. The research is cross-sectoral, covering Islamic banking, Islamic capital markets and *takāful*.

The paper will review the key literature on the topic, including Key Attributes of Effective Resolution Regimes for Financial Institutions,[107] the treatment of investment account holders, and the roles of resolution authorities and Sharī'ah boards. Recovery and resolution is a key issue for regulators and governments, following the financial crisis. During and after the crisis, the overarching issue of "too big to fail" firms and their reliance on government bail-outs attracted considerable criticism and hostility, as the bail-outs support corporate welfare through using taxpayers' money. This creates moral hazard, leading to inefficiency in the wider solvability framework.

This paper will examine the possibilities of adopting self-insured structures and mechanisms to help safeguard the IFSI. This includes the use of bail-ins for IIFS in line with the existing regulations of recovery and resolution on the conventional side, as well as considering the use of any Sharī'ah-based structure to pool liquidity from within the financial system to aid a failing firm. From that context, the paper also reviews the Federal Deposit Insurance Corporation's (FDIC) single-point-of-entry (SPOE) approach under the Dodd-Frank Act.[108]

The paper will also review the legal frameworks present in a number of jurisdictions with regards to insolvency procedures for IIFS. These include Malaysia, the UAE, the UK and the US, with an attempt to define the key principles for an effective recovery and resolution framework for IIFS in the light of Islamic finance under a secular setting. Another area of discussion in the current literature focuses on the framework of orderly liquidation authority provisions, as contained in the Acts of some jurisdictions for their conventional financial systems. Since IIFS in several countries are systematically important from the context of the domestic financial system, such a framework may also be applicable to the sector. Overall, the paper tries to provide a model of a self-insured financial system for IIFS but ensures cognisance of structural, regulatory and Sharī'ah issues.

As part of the research, the IFSB conducted a survey of member RSAs in the banking and capital markets sectors. The survey sought to understand (i) the current state of resolution and recovery frameworks (and, if relevant, resolution and recovery plans (RRPs), as well as insolvency and bankruptcy practices and frameworks for IIFS; (ii) what tools and legal options are available to resolution authorities when dealing with an IIFS resolution/insolvency-bankruptcy; and (iii) the Islamic finance landscape across various jurisdictions, in order to better design solutions for recovery, resolution and insolvency of IIFS. Along with providing a summary of survey responses, the study will address the relevant issues for IIFS identified in the survey and tailor the solutions offered.

---

104 IFSB (2007), IFSB-4: *Disclosures to Promote Transparency and Market Discipline for Institutions offering Islamic Financial Services (Excluding Islamic Insurance (Takāful) Institutions and Islamic Mutual Funds)*

105 The IFSB has commenced the revision of IFSB-4 in order to reflect global regulatory developments since the GFC and changes in the products and services offered by the Islamic banking sector, as well as to include consumer protection aspects. This new standard, the development of which has been approved by the IFSB Council as part of its *Strategic Performance Plan 2016–2018*, will further enhance the guidance for Islamic banks and RSAs on disclosure and transparency regimes.

106 This Working Paper is available free-to-download at http://ifsb.org/sec03.php

107 Financial Stability Board (2011), *Key Attributes of Effective Resolution Regimes for Financial Institutions.*

108 Congress of the United States of America (2010), Dodd-Frank Act.

3.0 ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SYSTEM

3.1 INTRODUCTION

The global economy has undergone another lacklustre year with growth estimated at 3.1% in 2016[109] (2015: 3.2%). The outlook moving forward has become generally uncertain given the advent of new unexpected political realities that will have profound implications for the global economy. In the United States, the recently inaugurated administration has set the tone for a more protectionist US economic policy going forward. In the European Union, the British government is preparing to invoke a formal exit from the Union. In the emerging markets and developing economies, a number of countries (e.g. Brazil, China, India, Nigeria, Mexico, Indonesia, etc.) have experienced softening of growth prospects on account of various economic and domestic political pressures. The geopolitical risks still persist in a number of regions, including the Middle East and Africa.

Against this backdrop, the global financial sector operates in an adverse environment where financial risks originate from a number of activities, including volatile exchange rate movements due to a reversal in capital flows and as investors search for safe-haven placements; asset quality pressures in the balance sheets of financial institutions given price volatilities and concerns about liquidity of collateral; contraction in margins and declining profitability given financial tightening and generally a subdued demand; and counterparty risks and credit defaults, particularly in highly geared sectors and institutions. The downside risks are further aggravated in the light of spending cuts and austerity measures, particularly in countries affected severely by the prolonged low energy and commodity prices, thus heightening their vulnerability to further external shocks.

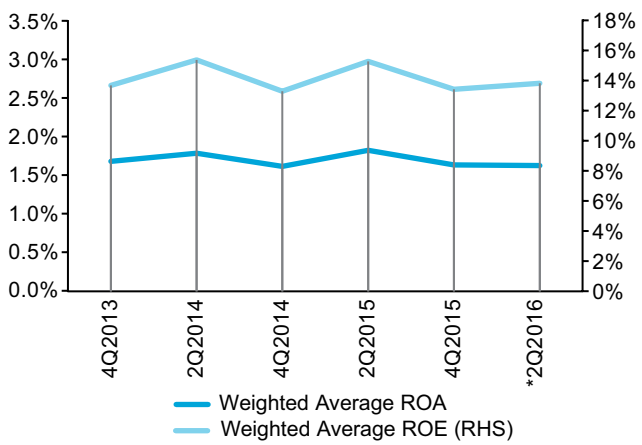
The global IFSI, operating alongside the conventional sector, is also susceptible to these developments and the various downside risks. As was highlighted in Chapter 1, the assets of the IFSI have remained stagnant over the last two years. A majority of the key IFSI jurisdictions are classified as emerging, developing and/or commodity/energy-exporting countries. This chapter analyses the stability and resilience of the three main sectors of the global IFSI.

3.2 ISLAMIC BANKING: ASSESSMENT OF RESILIENCE

3.2.1 Profitability

Average return on assets (ROA) and return on equity (ROE) for stand-alone Islamic banks[110] stood at 1.63% (2014: 1.61%) and 13.4% (2014: 13.27%), respectively, in 2015, below their moving averages[111] (1.68% and 14.27%, respectively). In the year to 2Q2016, Islamic banks averaged 13.8% ROE (See Chart 3.2.1.1), and compared favourably to banks in the United States and the European Union, whose returns on equity in the same period were 9.45% and 5.7%, respectively.

Chart 3.2.1.1 Weighted Average ROA and ROE for Stand-alone Islamic Banks[112]



** 2Q2016 data for Sudan not available; 1Q2016 data used.*

Source: PSIFIs, IFSB; IFSB Secretariat Workings

Several GCC countries, including Bahrain, Kuwait, Saudi Arabia and the UAE, have maintained, or experienced, marginal declines in their profitability indicators in 2015, notwithstanding a persistent drop in oil prices averaging 48.6% (OPEC, 2015) (See Charts 3.2.1.2 and 3.2.1.3).[113] The UAE experienced higher inflation in 2015, leading to greater uncertainty and higher volatility in collateral prices and financial risk (Central Bank of the UAE, 2015), while Qatari banks faced lower credit demand from the public sector which curtailed deposit mobilisation. However, recent government initiatives in expanding and developing other economic sectors within these jurisdictions (e.g. efforts to reduce reliance on the hydrocarbon sector in Qatar and Saudi Arabia) helped to mitigate the impact of lower oil prices and to maintain banks' profitability levels.

Oman has shown negative, but continuously improving, ROAs and ROEs throughout the analysis period as the only two full-fledged Islamic banks, and four of the six Islamic windows in the Sultanate, continued to report pre-tax losses (Central Bank of Oman, 2016). This may

[109] *IMF World Economic Outlook Update,* January 2017.

[110] "Stand-alone Islamic banks" refers to fully-fledged Islamic banks, and Islamic subsidiaries of conventional banks, but excludes Islamic windows of conventional banks.

[111] The moving average was calculated using quarterly data between 4Q2013 and 4Q2015 (nine quarters), reflecting the time period for which data are available in the PSIFIs database to facilitate the calculation.

[112] Total assets used as weight (denominator) for weighted average ROA calculation excludes off-balance sheet items. This calculation is based on data from 17 jurisdictions contributing to the IFSB's PSIFIs database (excluding Egypt and Iran, due to data limitations, and Afghanistan, which has no fully-fledged Islamic banks) plus Qatar. Calculations of weighted average ROA and ROE exclude data of Islamic windows.

[113] This is the average decline in OPEC Reference Basket crudes.

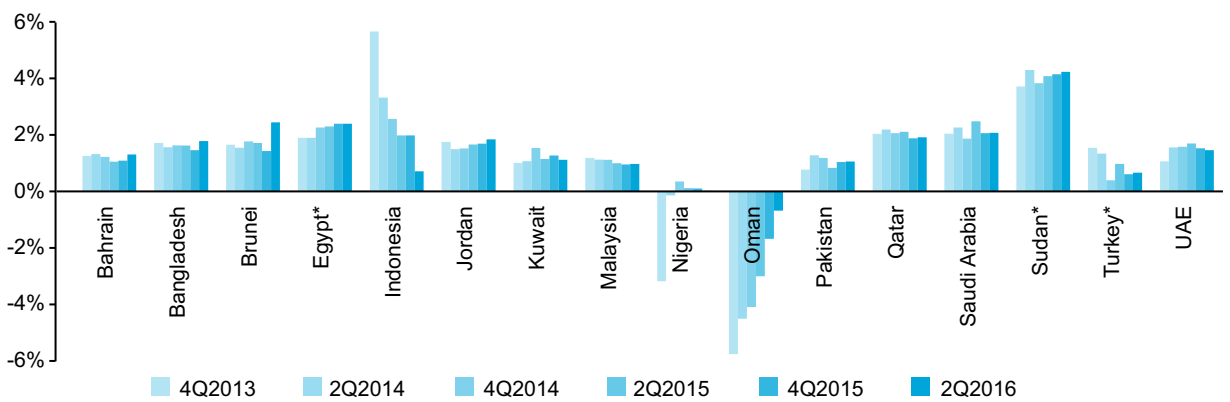
not be surprising due to Oman's status as a newcomer in the Islamic banking landscape. The country released its comprehensive Islamic Banking and Regulatory Framework in December 2012 with its two full-fledged Islamic banks commencing operations soon after. Saudi Arabia, meanwhile, saw its Islamic banking's ROA and ROE increase in 2015 to 2.1% and 13.9%, respectively, from the 2014 figures (ROA: 1.9%; ROE: 13%). These indicators improved further in the first quarter of 2016, and declined slightly in the following quarter. Affected by the low levels of oil prices, the Kingdom's cabinet announced budgetary measures effective from the fourth quarter of 2016 to close the widening budget deficit. Profitability of the Saudi Islamic banking sector may therefore have declined in the second half of 2016 as the government cut back on its spending and withdrew some of its deposits, creating liquidity pressures and increasing the cost of funding.

The Indonesian Islamic banking sector continued to experience declining ROA and ROE, dropping to 2% and 22.5%, respectively, in 2015 (2014: 2.6% and 32.3%). This was in part due to capital injections, increased assets and an expanding branch network resulting in higher operating costs and lower returns (Bank Indonesia, 2016). On the other hand, the ROA and ROE levels of Malaysian Islamic banks remained unchanged between 2015 and the second quarter of 2016, registering 1% and 14.2%, respectively, despite having recovered in 1Q2016. These figures appear to show a marginally declining profitability performance of Islamic banks in Malaysia when considered alongside the 2014 (ROA: 1.1%; ROE: 16%) and 2013 (ROA: 1.2%; ROE: 17.3%) financial results. In ROE terms, Islamic banks in Malaysia compared favourably to the overall Malaysian banking system (ROE: 12.4%) in 2015, but underperformed the overall ROA average of 1.3% (Bank Negara Malaysia, 2015).

Brunei's economy contracted by 0.6% in real GDP terms in 2015, making it a challenging year for the Sultanate. This was in addition to deflation, contraction in the oil and gas and government services sectors, reduced exports, and a 6.9% depreciation in the Brunei Dollar against the US Dollar (Autoriti Monetari Brunei Darussalam, 2015). These conditions appear to have contributed to a decline in both ROA and ROE for Bruneian Islamic banks in 2015, where figures for the first quarter were among the lowest recorded between 2013 and 2Q2016. The Bruneian Islamic banking sector ended 2015 with an average ROA and ROE of 1.4% (2014: 1.8%) and 9.5% (2014: 12.6%) respectively. These indicators declined further in the first quarter of 2016, but showed signs of recovery in 2Q2016, in which ROA stood at 2.5% and ROE climbed to 16.9%.

As of 2Q2016, Turkish participation banks registered average ROA and ROE of 0.7% and 7.4%, respectively, with only Oman and Nigeria posting lower averages. Several factors affected Turkish banks in 2015, including relatively higher inflation levels leading to increased customer expectations on deposit profit rates, political events and the depreciating Turkish Lira against the US Dollar. The Central Bank of the Republic of Turkey increased its overnight lending rate in January 2017,[114] which will increase the cost of funding and reduce the profitability of Turkish participation banks. These challenges are expected to affect the results and performance of Turkey's participation banking sector in 2017, until participation banks are able to adjust their net profit margin in line with market dynamics.

Chart 3.2.1.2 Average ROA for Stand-alone Islamic Banks by Country



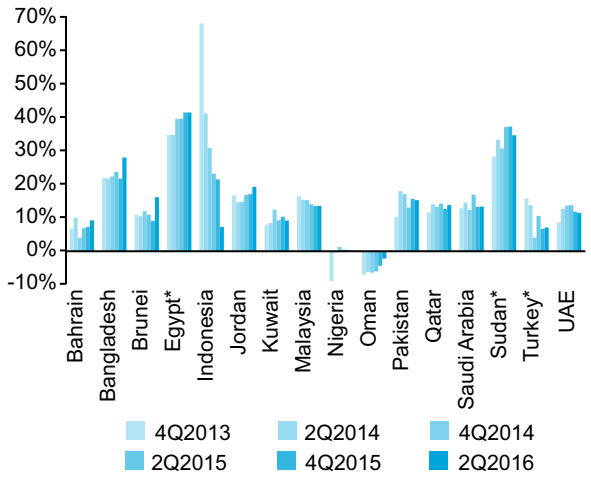
** 2Q2016 data for Egypt and Sudan not available; 1Q2016 data used.*

Source: PSIFIs, IFSB; IFSB Secretariat Workings

[114] "Turkish Central Bank Hikes Lending Rate, But Leaves Policy Rate on Hold", Reuters, 24 January 2017.

3.0 ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SYSTEM

Chart 3.2.1.3 Average ROE for Stand-alone Islamic Banks by Country



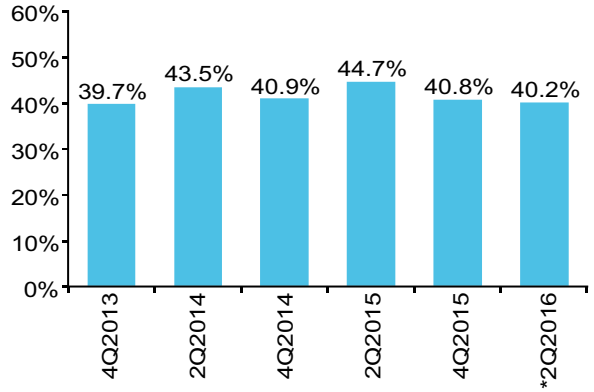
** 2Q2016 data for Egypt and Sudan not available; 1Q2016 data used.*

Source: PSIFIs, IFSB; IFSB Secretariat Workings

Amid the lower oil prices and escalating geopolitical risks, the GCC countries responded with spending cuts, resulting in lower economic growth and lower credit demand. This led to minor declines in net profit margins[115] for Kuwait, Qatar, Saudi Arabia and the UAE in 2Q2016 (y-o-y). However, despite the weak economic environment, Bahrain has recorded an increase of 6.1% in net profit margin, while Oman, including its Islamic banking windows, has displayed positive progress by transitioning from a negative profit margin (–61.4%) in 2013 to a net profit margin (15.1%) by 2Q2016 (See Chart 3.2.1.4).

In Asia, Brunei has seen its net profit margin fluctuate between a high of 69.2% in 1Q2014 and a low of 43.1% in 1Q2016, registering 57.4% in the following quarter. Brunei's margin is still relatively higher than those of its neighbours, Malaysia and Indonesia, which recorded net profit margins of 38.8% and 10.6%, respectively, in 2Q2016. Indonesian Islamic banks have sustained reduced profits owing to reduced financing growth (about 4.9% y-o-y in 2Q2016) and an increase in the rate of non-performing financing (2Q2016: 5.1%; 2Q2015: 4.7%). Bangladesh (42.5%) and Pakistan (28.4%) both saw increases in net profit margin of 2.25% in 2Q2016 from 2Q2015.

Chart 3.2.1.4 Islamic Banking Average Net Profit Margin[116]

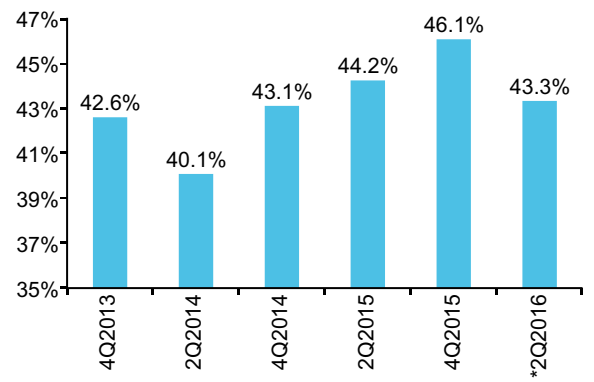


** 2Q2016 data for Afghanistan and Sudan not available; 1Q2016 data used.*

Source: PSIFIs, IFSB; IFSB Secretariat Workings

Several jurisdictions reported sustained, and in some cases reduced, levels of cost-to-income ratio between 2013 and 2Q2016, including Middle Eastern countries,[117] Bangladesh, Brunei, Sudan and Turkey, reflecting gross income growth rates that outpaced the increase in operating costs for most countries (See Charts 3.2.1.5 and 3.2.1.6). Qatari Islamic banks appeared to improve their efficiency and recorded the lowest cost-to-income ratio (24%) in 2Q2016, while Bahrain recorded a substantially high cost-to-income ratio (65.6%). Egypt, Kuwait, Saudi Arabia and the UAE indicated cost-to-income ratios of 28.7%, 34.7%, 40.2% and 33.4%, respectively.

Chart 3.2.1.5 Islamic Banking Average Cost-to-Income[118]



** 2Q2016 data for Afghanistan and Sudan not available; 1Q2016 data used.*

Source: PSIFIs, IFSB; IFSB Secretariat Workings

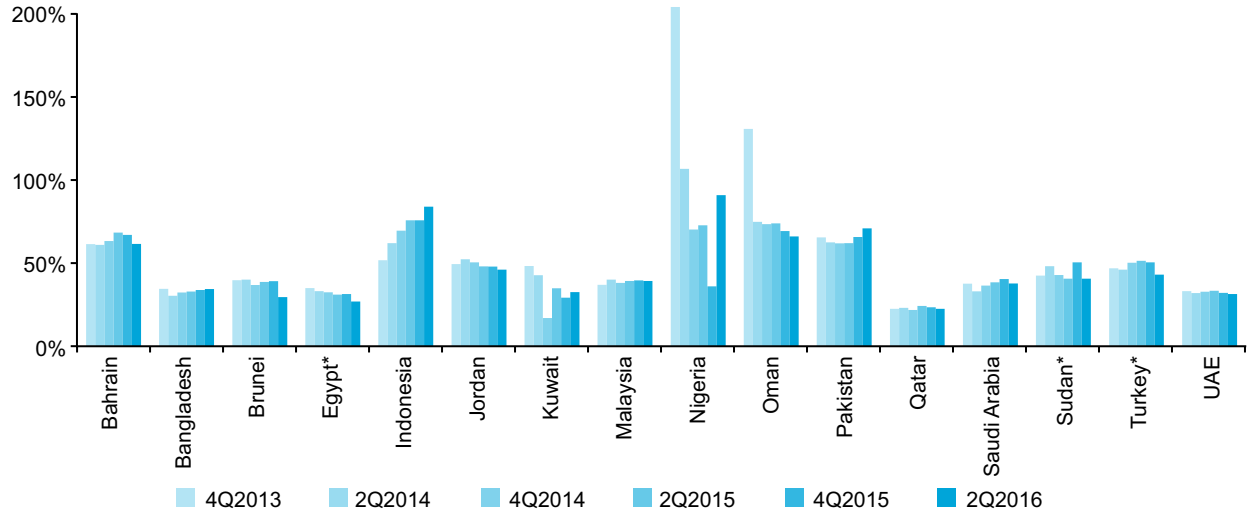
115 Net profit margin = net income (before extraordinary items, taxes and *zakah*) / gross profit.

116 Net profit margin = net income (before extraordinary items, taxes, and *zakah*) / gross income. The average net profit margin calculation is based on data from 17 jurisdictions contributing to the IFSB's PSIFIs database (excluding Egypt, Iran and Kuwait, due to data limitations) plus Qatar.

117 Middle Eastern countries include Bahrain, Egypt, Jordan, Kuwait, Oman, Qatar, Saudi Arabia and the UAE.

118 Cost to income = operating costs / gross income. The average cost-to-income calculation is based on data from 17 jurisdictions contributing to the IFSB's PSIFIs database (excluding Egypt, Iran and Kuwait, due to data limitations) plus Qatar. It is observed that movements in average net profit margin and cost-to-income closely mirror those of Saudi Arabia's individual rates due to its considerable size in Islamic banking, and particularly given the unavailability of data from Iran for these calculations.

Chart 3.2.1.6 Islamic Banking Cost-to-Income by Country

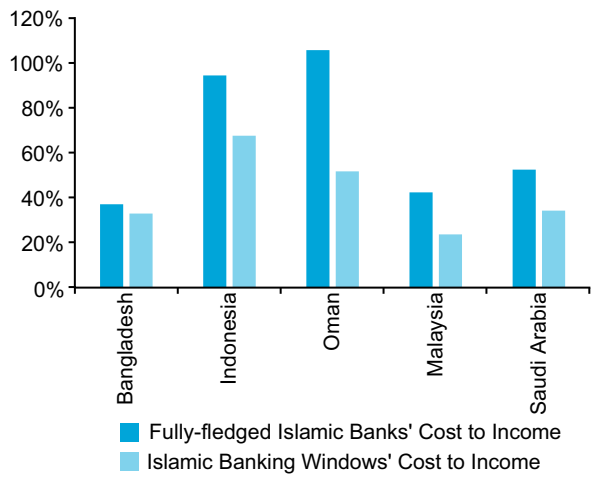


** 2Q2016 data for Egypt and Sudan not available; 1Q2016 data used.*

Source: PSIFIs, IFSB; IFSB Secretariat Workings

While the cost-to-income ratio was relatively stable or showed a decreasing trend in most countries, it significantly increased in Indonesia over the whole observation period. Expanding branch networks, higher level of assets and increased non-performing financing (NPF) provisions have resulted in an overall increase in operating costs, and an overall reduction in returns, for the Indonesian Islamic banking sector between 4Q2013 and 2Q2016. The increase in operating costs has mainly affected full-fledged Islamic banks in the country, whose operating costs have had a compound annual growth rate of 32.1%. Islamic banking windows, on the other hand, are able to capitalise on the infrastructure and support from their conventional parent, therefore minimising and sustaining their operating costs. This stands true for other countries that reported operating cost data for their Islamic windows[119] (See Chart 3.1.2.7). In Indonesia, operating costs of Islamic windows declined from 3,981.5 billion Rupiah in 4Q2013 to 3,339.6 billion (annualised) in 2Q2016, although a part of the decline can be attributed to the spin-off of one window that merged with a full-fledged Islamic bank in July 2014. As at 2Q2016, the average cost-to-income ratio of Indonesian Islamic banks and windows stood at 89.4%, up from 80.8% a year earlier and 55.1% in 2013.

Chart 3.2.1.7 Cost to Income (Stand-alone Islamic Banks and Islamic Banking Windows) as at 2Q2016



Source: PSIFIs, IFSB

3.2.2 Liquidity

The latest General Council for Islamic Banks and Financial Institutions (CIBAFI) Global Islamic Bankers' Survey, titled "Confidence, Risk and Responsible Business Practices", highlights liquidity as a risk priority for Islamic banks, particularly larger banks, second only to macroeconomic risk (CIBAFI, 2016). This appears to be a consequence of general macroeconomic conditions and negative sentiment resulting from lower oil prices, as well as of the need to comply with the new Basel III liquidity standards. However, data from Pakistan and Bangladesh indicate that many Islamic banks experience excess liquidity, and are unable to earn returns on liquid assets given the low supply of short-term Sharī'ah-compliant investment instruments.

[119] These jurisdictions are Bangladesh, Oman, Malaysia and Saudi Arabia.

3.0 ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SYSTEM

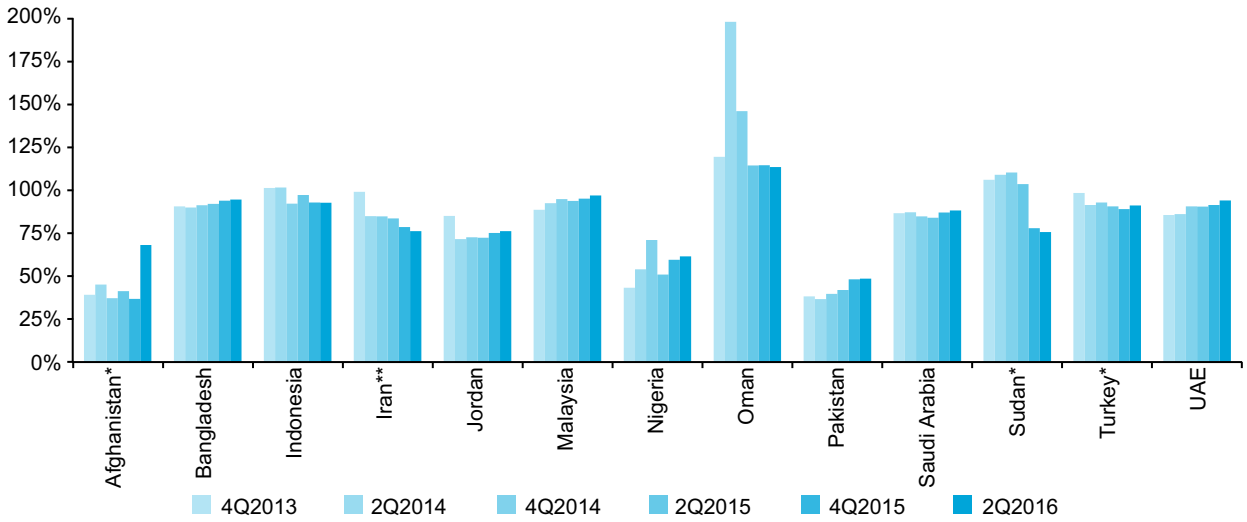
In Bangladesh, as highlighted in last year's IFSI Stability Report, Islamic banks rely mainly on the Government Islamic Investment Bond (GIIB) – an instrument introduced in 2004 – to manage their liquidity. However, a single government instrument may not be able to sustain and meet the liquidity management needs of Islamic banks in the country.

Country-specific analysis of the financing-to-deposits ratio (FDR)[120] shows two jurisdictions with FDR ratios above 100% – namely, Oman (112.7%) and Qatar (104.9%). Omani Islamic banks and windows have never, on average, achieved an FDR below 100% – possibly relying on other funding sources (in particular, capital) to cover the gap (See Chart 3.2.2.1).[121]

The Pakistani Islamic banking system's FDR jumped more than 6% from a year earlier to stand at 48.2% in 2Q2016, closely matching the average position of conventional banks there (46.3%). This could indicate improved deposit-mobilisation capacity in Pakistan's Islamic banks, especially considering the excess liquidity present in the country's Islamic banking system. However, this level of FDR remains low. The Malaysian Islamic banking sector maintained an FDR of 96.2% in 2Q2016, 3% higher than a year earlier and 8% up from the 2013 levels, suggesting higher utilisation of deposits for financing purposes and reduced, but still healthy, liquidity levels when considered along with other liquidity indicators (See Chart 3.2.2.2).

Saudi Islamic banks have registered stable levels of FDR, averaging 85.2%, in the 11 quarters from 4Q2013, to stand at 87.6% as at 2Q2016, with 24.9% of their assets classified as liquid. They are noticeably more liquid than their conventional peers, as the Saudi banking system's liquidity ratio was at 17.5% in 2Q2016. Deposits in the Saudi banking system continued to grow in 2015, but demand deposits in particular experienced negative growth as government entities moved their funds from the banking system to newly issued government bonds. It remains to be seen whether continued demand-deposit withdrawals by government entities will have a significant impact on the long-term liquidity conditions of Saudi banks, Islamic and conventional. A report by S&P predicts that oil prices will average USD 45 in 2017 and USD 50 in 2018, which may squeeze liquidity conditions further in oil-exporting countries, and increase the banking sector's cost of funding (S&P Global Ratings, 2016).

Chart 3.2.2.1 Islamic Banking Financing-to-Deposit Ratio by Country



** 2Q2016 data for Afghanistan and Sudan not available; 1Q2016 data used.*
*** 4Q2013 data for Iran not available; 1Q2014 data used.*

Source: PSIFIs, IFSB

The liquid assets to short-term liabilities ratio[122] captures information on adequacy and potential liquidity mismatch between readily available assets and short-term liabilities and provides an indication of the extent to which IIFS could meet short-term withdrawals of funds without facing liquidity problems. Indonesian banks appear to have the lowest levels of liquid assets to short-term liabilities (24.3%), after Iran (17.1%), as at 2Q2016, nevertheless marking a marginal improvement on the 2Q2015 figures (23.4%) on the back of lower credit growth and financial expansion efforts by the Indonesian government in the second half of 2015. The low level, relative to the sample, of liquid assets to short-term liabilities for Indonesian Islamic banks is coupled with an FDR that has declined somewhat (2Q2016: 92.1%; 2Q2015: 96.5%). Liquidity for Indonesian Islamic banks therefore appears to be stable but requiring careful monitoring, particularly as Islamic banks continue to make investments into an expanded branch network in

120 FDR is a widely used ratio that assesses the ability of financial institutions to support unforeseen needs of banks. Deposits for the purposes of FDR calculation include unrestricted profit-sharing investment accounts, remunerative funding (*murābaḥah*, commodity *murābaḥah*), non-remunerative funding (current accounts, *wadī`ah* accounts) and exclude interbank funding.

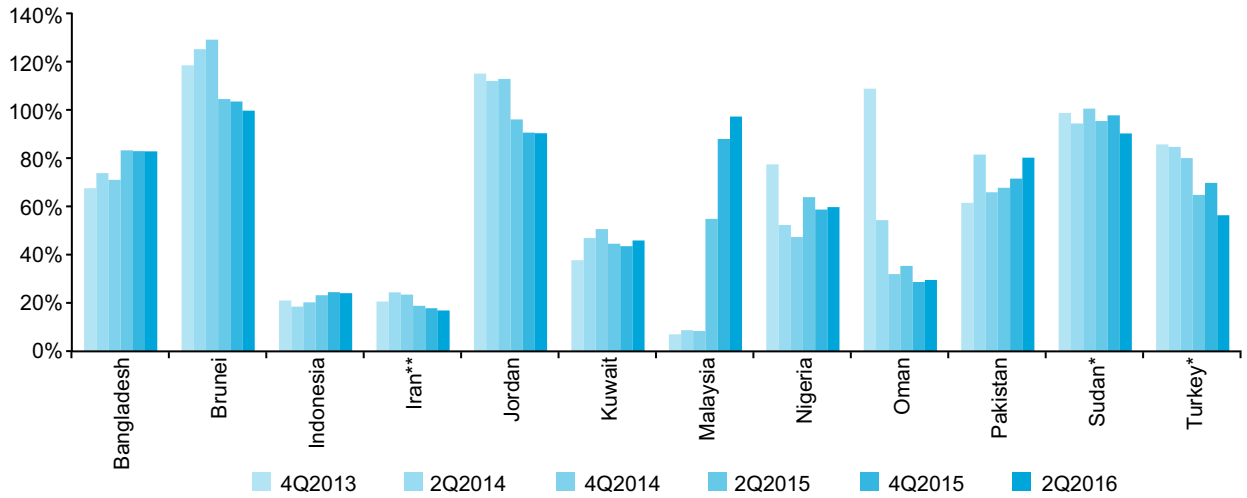
121 For example, for the quarter ending June 2016, capital and reserves constituted about 29% of total funding in Oman's Islamic banks, while deposits formed 64.1%. The remaining funding was either interbank liabilities or other liabilities.

122 This measure is different from the regulatory liquidity coverage ratio (LCR).

the country. Contrasting trends were seen in neighbouring Malaysia in spite of large external liquidity outflows from the banking system in 2015. The gradual adoption of the LCR[123] requirement from June 2015, the introduction of shorter-term liquidity instruments and the reduction of the statutory reserve requirement in February 2016 enabled Islamic banks in Malaysia to match 98% of their short-term obligations in liquid assets.[124]

Liquidity has also tightened, but remains high, in Jordan and Sudan, with liquid assets averaging 91% and 90.9% of short-term liabilities, respectively.

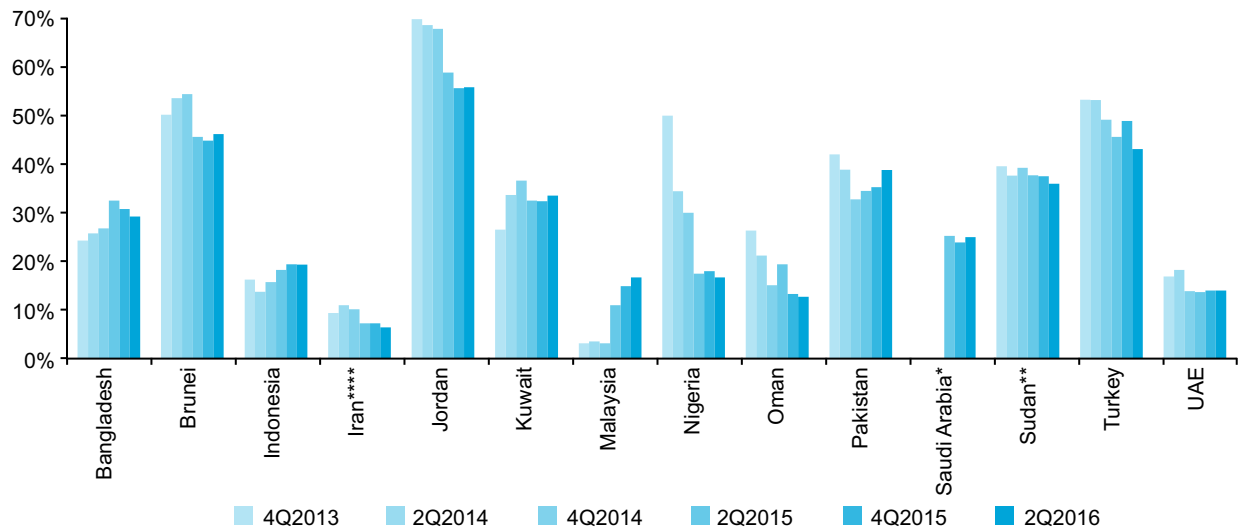
Chart 3.2.2.2 Islamic Banking Liquid Assets to Short-term Liabilities by Country



** 2Q2016 data for Afghanistan and Sudan not available; 1Q2016 data used.*
*** 4Q2013 data for Iran not available; 1Q2014 data used.*

Source: PSIFIs, IFSB

Chart 3.2.2.3 Islamic Banking Liquid Assets Ratio[125]



** Data for Saudi Arabia are available from 1Q2015.*
*** 2Q2016 data for Sudan not available; 1Q2016 data used.*
**** 4Q2013 data for Iran not available; 1Q2014 data used.*

Source: PSIFIs, IFSB

123 On regulatory liquidity measures, five jurisdictions reported the LCR requirement in PSIFIs, and all exceeded the 100% required benchmark. These jurisdictions are Bangladesh, Kuwait, Oman, Saudi Arabia and Turkey.

124 Malaysian banks started transitional arrangements to implement the LCR from 2Q2015, which resulted in unusually low figures of liquid assets in 1Q2015, which were reported under the previous "Liquidity Framework – Islamic" issued by Bank Negara Malaysia in 1998.

125 Liquid asset ratio = liquid assets / total assets. "Liquid assets" usually consist of assets maturing within one year (preferably on a remaining maturity basis), held either in cash or near-cash equivalents – that is, readily convertible into cash with little or no loss of value. An amount of broad liquidity assets may comprise: (i) currencies, (ii) deposits and other financial assets available on demand or within at most three months (including interbank position), as well as (iii) securities traded in liquid markets, readily convertible into cash, with insignificant risk of change in value under normal circumstances.

3.0 ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SYSTEM

3.2.3 Financing Exposures

Available data[126] suggest that financing of Islamic banks and windows is largely concentrated in the household sector. This was followed by the wholesale and retail trade, repair of motor vehicles and motorcycles, and the manufacturing sectors.

Overall, the household sector received 41.7% of total financing from Islamic banks and windows in jurisdictions for which data were available as at 2Q2016. This was driven mainly by high levels of consumption and household credit demand in Malaysia, where households received 58.1% of total Islamic financing, the highest level among sample countries and supported by relatively stable employment and income outlook (Bank Negara Malaysia, 2015). Nevertheless the household sector's share in Malaysia has been consistently declining throughout the review period (4Q2013: 61.3%), suggesting slower expansion in demand for personal financing, possibly due to macroprudential measures implemented by the Malaysian central bank to reduce rising levels of household debt. Similar high levels of household share of financing were seen in Oman (53.91%) and, to a less extent, in Saudi Arabia (41.3%) and the UAE (37.1%) (See Chart 3.2.3.1).

In Brunei, the household sector's share of Islamic financing was on a declining trend between 2013 and 2Q2015, dropping from 39.9% to 29.3%. Autoriti Monetari Brunei Darussalam (AMBD) issued several regulatory notices in 2015, which, among others, allowed banks to increase their portfolio of unsecured personal financing facilities to 40% (from 30%) of total credit facilities, and to set a higher limit on the amount of unsecured personal financing relative to net monthly salary. These measures appear to have spurred growth into the household financing sector, whose share rose steadily from 3Q2015 to stand at 34.4% of total financing as at 2Q2016.

Construction and real estate financing continues to play a major role in Bahrain, with a combined share of 33.5% of Islamic financing in the Kingdom at the end of the second quarter of 2016. Their share throughout the review period fluctuated between a low of 28.3% and a high of 35.1% – in line with the total real estate and construction exposure of retail banks in Bahrain, which averaged 30% as at 1Q2016 (32.7% for Islamic banks) (Central Bank of Bahrain, 2016). A similar focus on real estate and construction was seen in Jordan (35.9%) and Kuwait (31.6%). The concentration of Bahraini Islamic banks on business financing (76.6% of Islamic financing goes to sectors other than household) reflects the positive sentiment among GCC Islamic bankers towards business financing, including real estate, as a top driver of banking sector growth (CIBAFI, 2015).

Corporate credit was the main destination of financing in Iran, where manufacturing and wholesale and retail trade received a combined 85.8% of total financing in 2Q2016. These sectors also remain as primary recipients of financing in Bangladesh (64.7%) and Pakistan (73.9%; 67.1% of which was in manufacturing).

Chart 3.2.3.1 Islamic Banking Sectoral Composition of Financing by Country (2Q2016)[127]

Source: PSIFIs, IFSB

Another addition to this year's report is analysis on growth of financing by Islamic banks and windows to the private sector,[128] in comparison to growth in total Islamic financing in each jurisdiction, underscoring the sector's importance in a global environment characterised by low oil prices and, consequently, reduced reliance on government spending to boost business and growth. This is especially relevant in the GCC, where governments work on strategic plans to build the necessary infrastructure and enhance the private sector's participation in economic growth and job creation. For example, private-sector Islamic financing in the UAE stood at 48.7% of total Islamic financing in 2Q2016, up from 46.8% a year earlier. The UAE's efforts to diversify its economy to lessen its dependency on oil revenues has resulted in consistent double-digit growth rates in private-sector Islamic financing since 4Q2014. Comparisons also show that growth in private-sector financing by Islamic banks in the Emirates has been consistently outpacing growth in total financing.

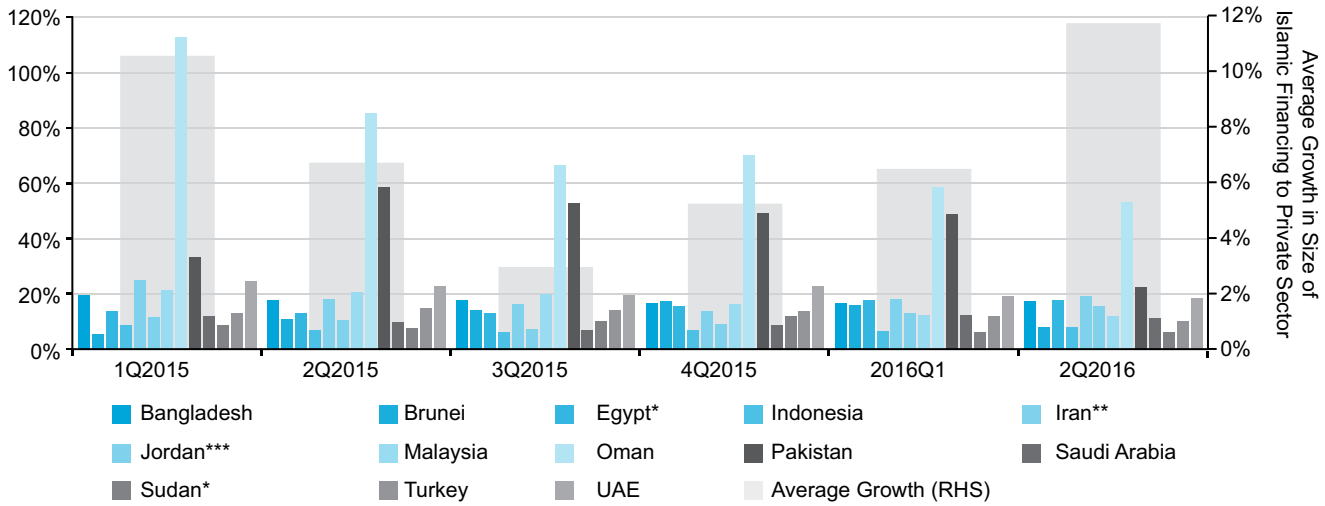
[126] Financing exposure calculation considered data as at 2Q2016 from PSIFIs-contributing jurisdictions excluding Afghanistan, Egypt, Nigeria, Sudan and Turkey, due to data limitations.

[127] Data are reported in the IFSB's PSIFIs database as submitted by the regulatory and supervisory authority of each respective jurisdiction.

[128] "Private sector" is defined in the PSIFIs database as non-government-owned non-financial corporations and households. Financing to private-sector growth is calculated by comparing Islamic financing to the private sector as at the end of each quarter with the financing amount as at the end of the same period in the previous year.

All countries providing private-sector data[129] reported positive growth rates in financing to the private sector in 2Q2016 (See Chart 3.2.3.2). The data highlight that, in several jurisdictions including Afghanistan, Indonesia, Malaysia and Oman,[130] growth in total Islamic financing was entirely attributed to the private sector. Bangladesh has had a consistently high level of growth in financing to the private sector, standing at 17.2% as at 2Q2016, and higher than its overall growth in Shari'ah-compliant financing. The same can be said for Pakistan for private-sector growth, which is not surprising as more than two-thirds of Islamic financing in the country goes to the manufacturing sector. However, in Sudan, a widening gap between private-sector financing growth and total financing growth is observable between 4Q2014 and 2Q2015, which reflects the composition of financing in Sudan, where only 49.5%[131] of credit is held with the private sector – the second-lowest percentage among sample countries, after the UAE.[132] Nevertheless, Sudan's growth in private-sector financing showed positive signs in subsequent quarters (See Table 3.2.3.1).

Chart 3.2.3.2 Average and By-Country Growth in Size of Islamic Financing to Private Sector (y-o-y)



** 2Q2016 data for Egypt and Sudan not available; 1Q2016 data used.*
*** 4Q2013 data for Iran not available; 1Q2014 data used.*
**** 1Q2014 and 3Q2014 data for Jordan not available, 4Q2013 and 2Q2014 data used, respectively.*

Source: PSIFIs, IFSB; IFSB Secretariat Workings

Table 3.2.3.1 Total Islamic Financing Growth and Islamic Financing Growth to Private Sector by Country (y-o-y)[133]

	4Q2014		2Q2015		4Q2015		2Q2016	
	% Islamic Financing Growth	% Private-Sector Financing Growth	% Islamic Financing Growth	% Private-Sector Financing Growth	% Islamic Financing Growth	% Private-Sector Financing Growth	% Islamic Financing Growth	% Private-Sector Financing Growth
Afghanistan	-3.9%	-3.9%	4.8%	4.7%	32.2%	44.3%	240.8%*	240.8%*
Bangladesh	20.7%	19.4%	17.7%	17.6%	16.9%	16.6%	16.6%	17.2%
Brunei	1.8%	2.4%	11.0%	10.7%	15.7%	17.1%	6.3%	7.8%
Indonesia	8.2%	8.3%	6.8%	6.7%	6.9%	6.9%	7.8%	7.8%
Iran	16.5%**	20.2%**	17.8%	18.0%	14.9%	13.5%	18.9%	19.1%

[129] Data for Bahrain, Kuwait, Nigeria and Qatar were not available.
[130] Unusually high 2014 growth figures in Oman could be linked to the then recent establishment of Omani Islamic banks which, at the time, were rapidly expanding their asset base.
[131] It should be noted that Sudan's banking sector is entirely Islamic; therefore, measurement of private- and public-sector financing by the country's overall banking system is captured within its Islamic banking sector. Other jurisdictions may provide high levels of credit to the public sector through its conventional banks; however, measurement of these practices is beyond the scope of analysis performed in this report.
[132] All PSIFIs-contributing jurisdictions provided data facilitating this calculation except Bahrain, Egypt, Kuwait and Nigeria.
[133] Growth of Islamic financing to the private sector for individual jurisdictions is provided in local currency terms for each country. However, aggregate growth rates for the industry can be lower than individual jurisdiction-growth rates due to the depreciation of several currencies from the above jurisdictions against the US Dollar.

3.0 ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SYSTEM

Table 3.2.3.1 Total Islamic Financing Growth and Islamic Financing Growth to Private Sector by Country (y-o-y)

	4Q2014		2Q2015		4Q2015		2Q2016	
	% Islamic Financing Growth	% Private-Sector Financing Growth	% Islamic Financing Growth	% Private-Sector Financing Growth	% Islamic Financing Growth	% Private-Sector Financing Growth	% Islamic Financing Growth	% Private-Sector Financing Growth
Jordan	-4.4%	-0.9%	12.2%	10.4%	15.6%	8.8%	15.9%	15.5%
Malaysia	19.0%	19.0%	20.3%	20.3%	16.2%	16.2%	11.9%	11.9%
Oman	139.1%	138.8%	84.8%	84.9%	70.0%	69.9%	52.7%	52.7%
Pakistan	27.8%	34.3%	57.6%	58.1%	55.9%	49.0%	31.8%	22.1%
Saudi Arabia	N/A***		10.3%	9.5%	9.1%	8.7%	11.3%	11.1%
Sudan	16.7%	14.1%	24.4%	7.4%	-0.5%	11.6%	-0.5%*	6.0%*
Turkey	4.5%	4.9%	16.6%	14.6%	14.7%	13.5%	10.6%	10.1%
UAE	22.7%	30.7%	21.4%	22.5%	17.8%	22.7%	13.7%	18.2%

** Period's data unavailable; latest available data used.*
*** Period's data unavailable, data from following period used.*
**** Data unavailable.*

Source: PSIFIs, IFSB

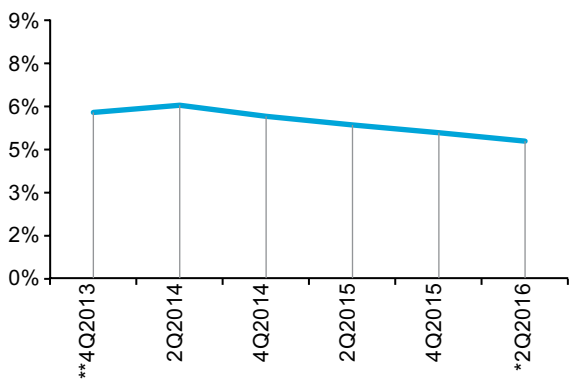
3.2.4 Asset Quality

The Islamic banking industry has so far been able to maintain and enhance the quality of its assets, with data between 4Q2013 and 2Q2016 showing a consistent improvement in measures of asset-quality of Islamic banks and windows, registering an average[134] NPF ratio of 5% as at 2Q2016, down from 5.6% a year earlier and 6% in 4Q2013 (See Chart 3.2.4.1). Egypt, Jordan, Kuwait and the UAE registered overall improvements in NPF levels (See Chart 3.2.4.2).

Sudanese commercial banks have withstood significant economic pressures and high inflation levels in recent years, reporting their lowest NPF performance throughout the review period in 2Q2014 (8.4%),[135] which coincided with an inflation rate of 45.3% for the period in Sudan (Central Bank of Sudan, 2014). The latest available data show a noticeable improvement in Sudanese banks' asset quality, with their average NPF dropping to 5.1% as at 4Q2015 from 7.1% in the corresponding quarter of 2014, possibly benefiting from a lower inflation rate (16.9%) and higher economic growth (4.9%) in 2015 (2014: 36.9% and 2.7%, respectively) (Central Bank of Sudan, 2015).

NPF rates in Oman have been consistently the lowest among jurisdictions for which data were analysed, at 0.2%. Saudi Arabia had the third-lowest NPF rate at 2Q2016 (1%); however, the Kingdom's cabinet announced cuts to subsidies and public-sector bonuses – measures that took effect from 2016's fourth quarter and were taken to close the widening budget deficit resulting from persistently low oil prices. The Saudi Islamic banking sector may therefore see its profitability, and possibly NPF rates, impacted in the following quarters. These risks are pertinent to the majority of Islamic banking institutions in the GCC, which may have faced elevated levels of credit risk in the remainder of 2016 and may possibly do so throughout 2017. Government spending cuts may result in delayed payments and/or suspension of infrastructure projects in the region, which could impede the ability of both Islamic and conventional banks to maintain low NPF rates.

Chart 3.2.4.1 Islamic Banking Average Gross Non-Performing Financing to Total Financing[136]

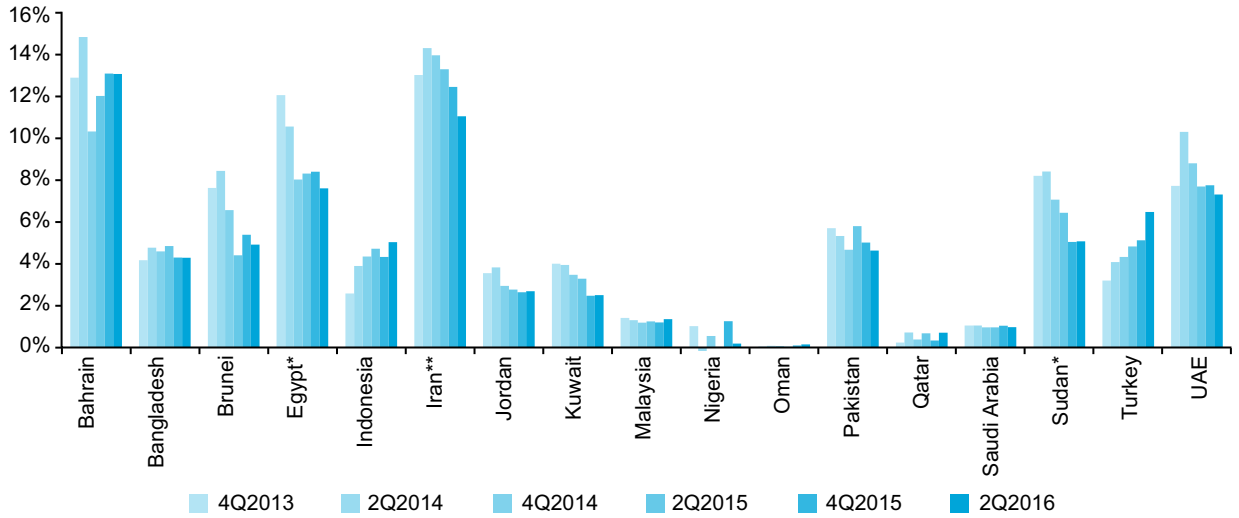


** 2Q2016 data for Sudan not available; 1Q2016 data used.*
*** 4Q2013 data for Iran not available; 1Q2014 data used.*

Source: PSIFIs, IFSB; IFSB Secretariat Workings

134 Asset quality calculation considered data from PSIFIs-contributing jurisdictions (excluding Afghanistan, Egypt and Kuwait, due to data limitations), plus Qatar.
135 Interestingly, Bahrain, Brunei, Iran and Jordan also reported their highest level (throughout the assessment period) of NPF in 2Q2014, causing the average Islamic banking NPF to rise to 6.3% at period end – the highest average in the 30 months to 2Q2016.
136 Average non-performing financing to total financing calculation is based on data from 17 jurisdictions contributing to the IFSB's PSIFIs database (excluding Afghanistan and Egypt, due to data limitations) plus Qatar.

Chart 3.2.4.2 Islamic Banking Average Gross Non-Performing Financing to Total Financing by Country



** 2Q2016 data for Egypt and Sudan not available; 1Q2016 data used.*
*** 4Q2013 data for Iran not available; 1Q2014 data used.*

Source: PSIFIs, IFSB; IFSB Secretariat Workings

A new analysis on NPF by economic sector is included this year, facilitated by the availability of data from the IFSB's PSIFIs database. Aggregated data from sample jurisdictions indicate that the construction sector's NPF ratio[137] represents 12.1% of the total NPF in Islamic banking, in spite of receiving just 4.7% of total Islamic financing as at 2Q2016 (See Table 3.2.4.1). This was apparent in Bahrain, Brunei, Malaysia and Saudi Arabia – countries in which the construction sector received between 4.3% and 6.3% of total Islamic financing, but where the lowest NPF rate observed was 13.4%. Similarly, the wholesale and retail trade sector received, on average, a 10% share of financing, but experienced a 20.5% share of NPF, mainly due to high NPF reports from Bangladesh, Brunei, Indonesia and Jordan, which launched its first credit bureau in December 2015 to help reduce the overall size of domestic non-performing credit in the country (Central Bank of Jordan, 2015).

Table 3.2.4.1 Islamic Banking Sectoral Composition of Financing and NPF by Country

	2Q2016							
		Real Estate	Manufacturing	Household/ Personal	Wholesale, Retail and Trade	Construction	Agriculture	Other
Bahrain	% of Islamic Financing	27.24%	4.42%	23.42%	11.10%	6.26%	0.10%	27.46%
	% NPF of Islamic banking NPF	28.74%	10.33%	13.16%	14.23%	13.44%	0.23%	19.86%
Bangladesh	% of Islamic Financing	7.05%	32.58%	6.55%	32.13%	4.15%	1.45%	16.09%
	% NPF of Islamic banking NPF	6.31%	30.32%	1.09%	46.09%	3.71%	0.35%	12.13%

[137] NPF ratio by sector = NPF amount in the sector / total NPF in the jurisdiction as at the end of the respective period. The weighted average NPF by sector calculation utilised the same sample jurisdictions whose data was used to compute the weighted average financing exposure by sector.

3.0 ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SYSTEM

Table 3.2.4.1 Islamic Banking Sectoral Composition of Financing and NPF by Country

		2Q2016						
		Real Estate	Manufacturing	Household/ Personal	Wholesale, Retail and Trade	Construction	Agriculture	Other
Brunei	% of Islamic Financing	23.51%	10.66%	34.43%	3.80%	4.79%	0.24%	22.57%
	% NPF of Islamic banking NPF	22.44%	10.56%	9.86%	16.43%	19.15%	2.52%	19.04%
Indonesia	% of Islamic Financing	26.67%	8.06%	13.99%	12.81%	4.87%	4.15%	29.46%
	% NPF of Islamic banking NPF	15.27%	9.86%	8.46%	21.48%	6.33%	4.24%	34.36%
Jordan	% of Islamic Financing	24.55%	5.43%	20.51%	14.51%	11.37%	0.79%	22.84%
	% NPF of Islamic banking NPF	11.76%	7.96%	13.56%	51.79%	5.74%	3.52%	5.67%
Malaysia	% of Islamic Financing	5.30%	4.93%	58.09%	3.91%	4.34%	2.87%	20.56%
	% NPF of Islamic banking NPF	11.11%	10.51%	35.40%	7.12%	14.8%	2.32%	18.73%
Oman	% of Islamic Financing	5.99%	2.22%	53.91%	1.60%	17.51%	0.00%	18.77%
	% NPF of Islamic banking NPF	9.72%	1.31%	63.95%	0.00%	24.70%	0.00%	0.33%
Saudi Arabia	% of Islamic Financing	6.04%	11.75%	41.30%	10.33%	4.40%	0.88%	25.31%
	% NPF of Islamic banking NPF	1.40%	10.67%	30.16%	19.74%	14.68%	0.01%	23.36%

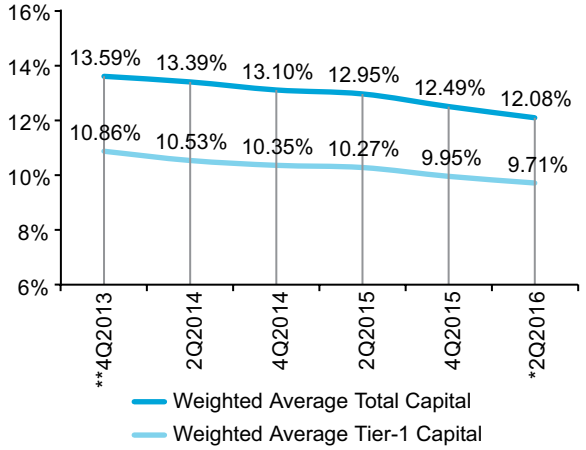
Source: PSIFIs, IFSB

3.2.5 Capitalisation

On average, total capital and Tier-1 capital adequacy ratios[138] across Islamic banks declined to 12.1% and 9.7%, respectively, at end-2Q2016 (2Q2015: 13% and 10.3%) (See Chart 3.2.5.1). Iran's banking sector has experienced a decline in its capital adequacy ratios over the analysis period, with its total CAR standing at 6.3% and Tier-1 capital at 3.3% as at 2Q2016, dropping by 1.7% and 0.9% from a year earlier. The decline in Iran's ratios explains the general declining trend of CARs for the Islamic banking industry – total and Tier-1 CARs would rise to 17.3% and 15.6% should Iran's data not be considered (See Chart 3.2.5.2). Recent political developments that led to the lifting of economic sanctions on Iran could be beneficial to the country's economy as it re-enters the oil market and improves its liquidity and cost-of-funding positions. Consequently, Iran's banks could benefit from improved credit growth and, possibly, lower NPF rates.

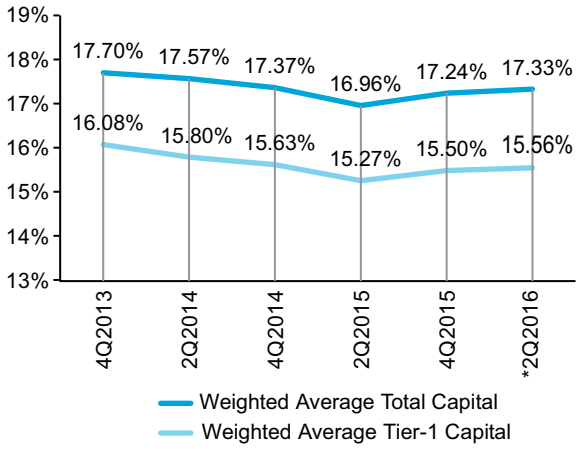
[138] These ratios are calculated using the definitions prevailing for regulatory purposes in each jurisdiction. To the extent that these definitions change – for example, as a result of implementing new prudential regimes – this may lead to change in the ratios and affect the year-on-year comparisons.

Chart 3.2.5.1 Islamic Banking Average Capital Adequacy Ratios[139]



** 2Q2016 data for Sudan not available; 1Q2016 data used.*
*** 4Q2013 data for Iran not available; 1Q2014 data used.*
Source: PSIFIs, IFSB; IFSB Secretariat Workings

Chart 3.2.5.2 Islamic Banking Average Capital Adequacy Ratios (ex-Iran)



** 2Q2016 data for Sudan not available; 1Q2016 data used.*

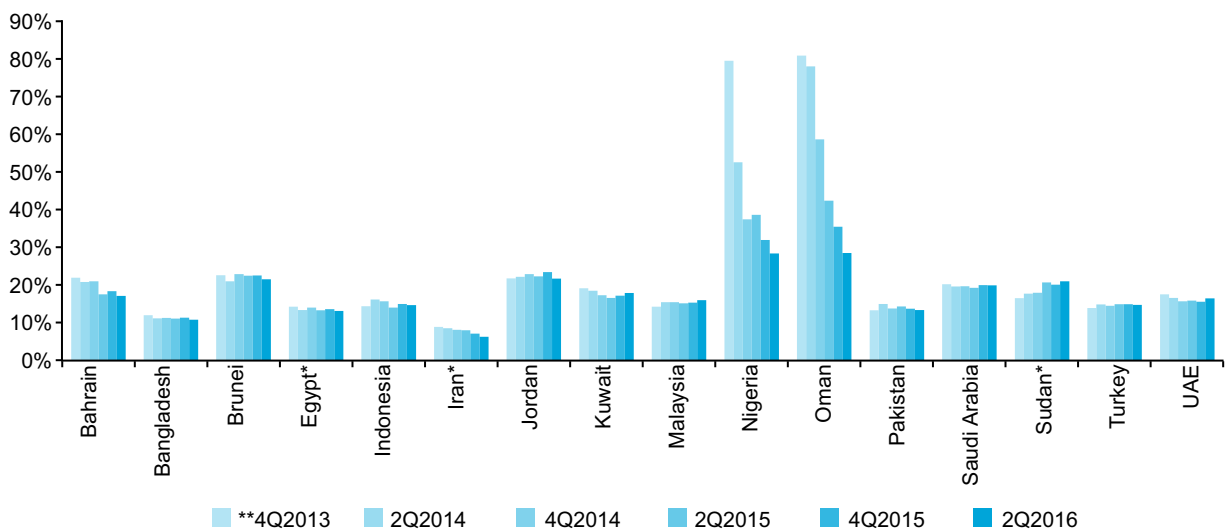
Source: PSIFIs, IFSB; IFSB Secretariat Workings

Omani Islamic banks were highly capitalised at inception, with an average CAR of 81% in 2013. Similarly, the only Nigerian Islamic bank had a 79.7% CAR as at 2013 year-end. Consistent growth in deposits and funding allowed Omani and Nigerian Islamic banks to mobilise funds and enhance their financing capacity, leading to a significant reduction in their CARs. As at 2Q2016, total CARs for Nigerian and Omani Islamic banks stood at 28.4% and 28.6%, respectively.

Jordan (21.8%) and Brunei (21.6%) registered the highest levels of capital adequacy, after Nigeria and Oman, as at 2Q2016. Sudan's capital adequacy has been on the rise, reaching 21.1%, up from 16.6% in 2013. Saudi Arabian Islamic banks had, on average, 20% capital adequacy, sustaining a high level that hasn't dropped below 19.4% throughout the analysis period. Other GCC countries had comparable levels of capitalisation, all between 18% and 16.5%. With the increasingly challenging operating environment for the banking industry resulting from macroeconomic risks and low oil prices, Islamic banks may face a challenge in maintaining high levels of capitalisation.

As at end-2015, total capital adequacy and Tier-1 capital adequacy ratios for Malaysian Islamic banks stood at 16.1% and 12.4% (See Charts 3.2.5.3 and 3.2.5.4), respectively, which is well above regulatory requirements and in line with conventional banks in the country, which registered a similar level of total capital adequacy (16.1%) but a slightly higher Tier-1 capital ratio (13.8%). In spite of that, Islamic banks still performed better than the overall banking sector's estimated 3% growth in deposits and customer investment accounts, according to RAM Ratings. The marginal decline in capital adequacy from 15.5% to 15.4% in 2015 can be attributed to the external capital outflows from Malaysia.

Chart 3.2.5.3 Islamic Banking Average Total Capital Adequacy Ratio by Country

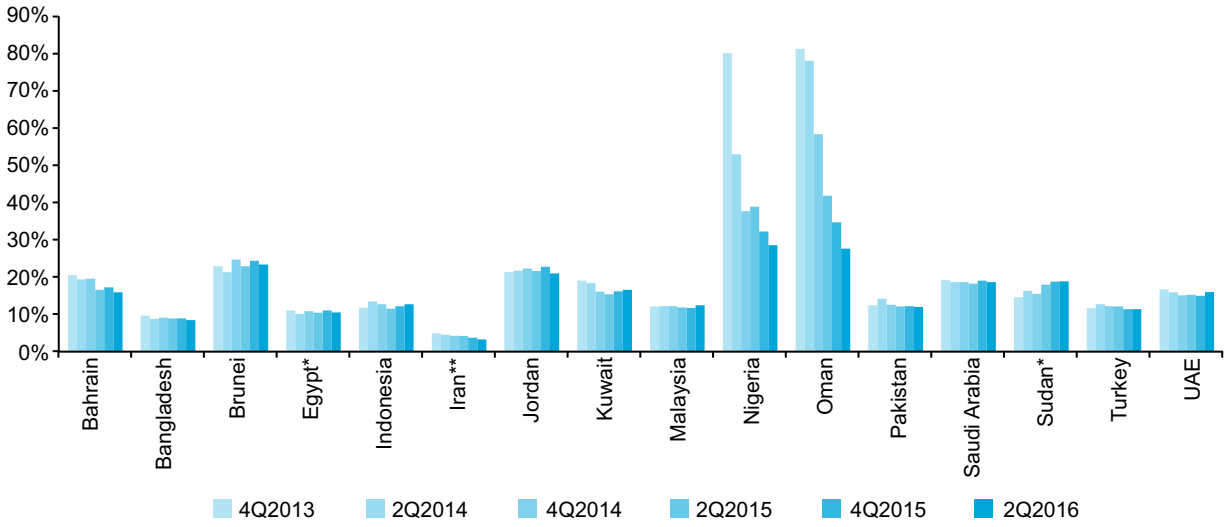


** 2Q2016 data for Egypt and Sudan not available; 1Q2016 data used.*
*** 4Q2013 data for Iran not available; 1Q2014 data used.*

Source: PSIFIs, IFSB

[139] Average CARs calculation is based on data from 17 jurisdictions contributing to the IFSB's PSIFIs database (excluding Afghanistan, Egypt, Kuwait and Pakistan, due to data limitations).

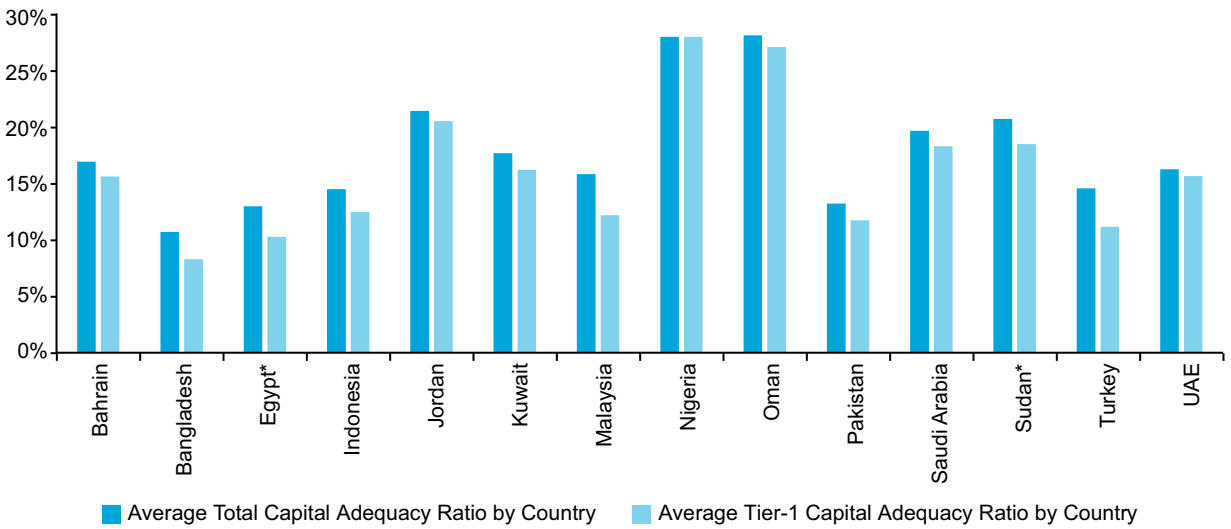
Chart 3.2.5.4 Islamic Banking Average Tier-1 Capital Adequacy Ratio by Country



** 2Q2016 data for Egypt and Sudan not available; 1Q2016 data used.*
*** 4Q2013 data for Iran not available; 1Q2014 data used.*

Source: PSIFIs, IFSB

Chart 3.2.5.5 Islamic Banking Average Total and Tier-1 Capital Adequacy Ratio by Country (2Q2016)



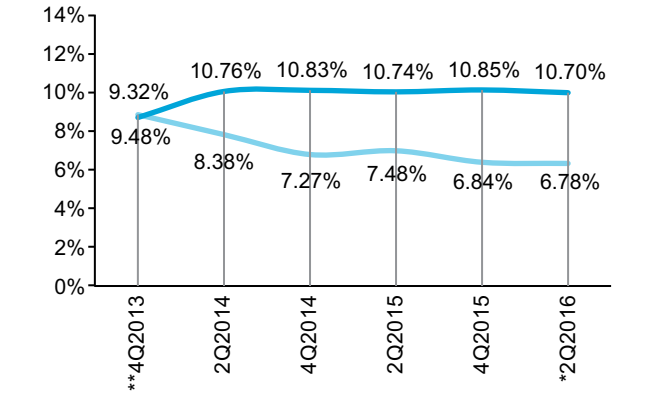
** 2Q2016 data for Egypt and Sudan not available; 1Q2016 data used.*

Source: PSIFIs, IFSB

3.2.6 Structure of Funding

Exposure to foreign currency funding may have an impact on the profitability levels of banks, both Islamic and conventional. Recent fluctuations in foreign currency exchange rates in several emerging countries posed elevated risks to banks with higher levels of foreign currency funding. The average Islamic banking share of foreign currency funding has been on a declining trend, averaging 6.8% in 2Q2016, down from 7.5% in 2Q2015 and 9.5% in 4Q2013, with Sudan and Kuwait having the highest rates, standing at 35.6% and 32.4%, respectively (See Chart 3.2.6.1). Both countries, along with Oman, witnessed increases in foreign currency funding shares from a year earlier.

Chart 3.2.6.1 Islamic Banking Average Foreign Currency Funding and Financing to Total Funding and Financing[140]



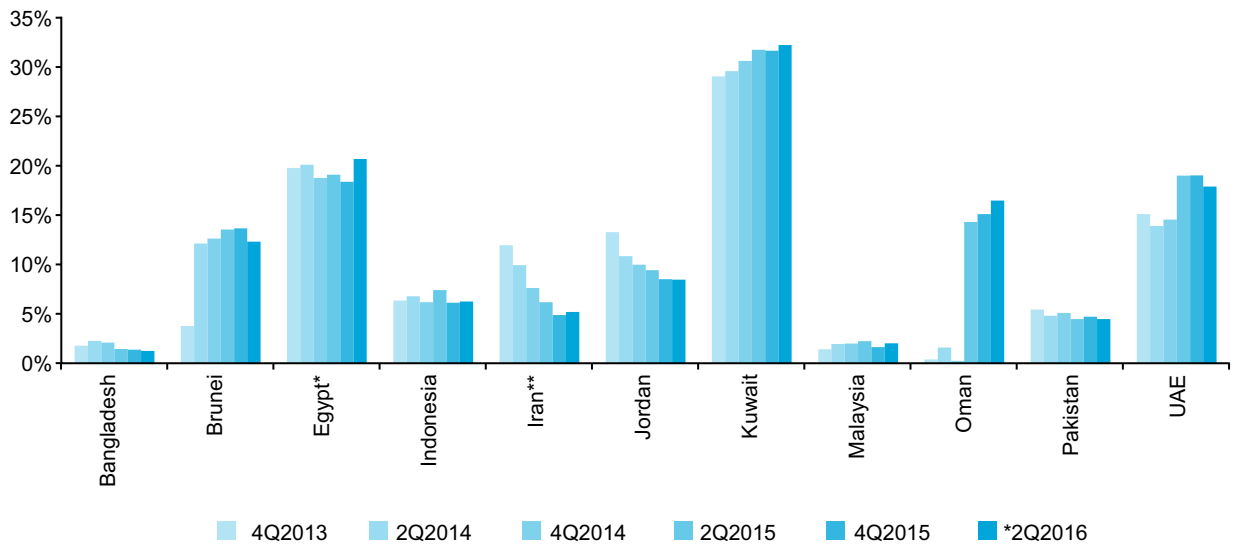
** 2Q2016 data for Afghanistan and Sudan not available; 1Q2016 data used.*

*** 4Q2013 data for Iran not available; 1Q2014 data used.*

Source: PSIFIs, IFSB; IFSB Secretariat Workings

Various Asian countries, including Bangladesh, Brunei, Indonesia, Malaysia and Pakistan, have experienced reduced rates of foreign currency funding (See Chart 3.2.6.2), possibly reflecting external cash outflows and exerting pressure on domestic currencies. The decline in foreign currency funding figures among Islamic banks is leading to a widening gap between foreign currency funding and financing figures (See Table 3.2.6.1). Islamic banks, especially in emerging markets, may therefore face increased foreign currency liquidity risks, particularly given the fluctuation in FOREX rates, and general depreciation in emerging markets exchange rates against the US Dollar in 2015. Foreign currency financing for Kuwaiti Islamic banks was at 29.76% as at 2015, reflecting a sustained trend over the previous 10 quarters and consistent with data from the overall Kuwaiti banking system, which registered 30% foreign currency lending, with around 60% of these loans made by subsidiaries and branches of Kuwaiti banks abroad. Impact of exposure to foreign currency risk of Kuwaiti Islamic banks appears to be rather limited; the Kuwaiti Dinar depreciated by 3.6% against the US Dollar, while appreciating against both the British Pound and the Euro (Central Bank of Kuwait, 2015). In addition, the availability of foreign currency funding in Kuwaiti Islamic banks at levels closely matching those of foreign currency financing would assist Islamic banks to effectively manage their foreign currency exposure (See Table 3.2.6.1). Similarly for Egypt and the UAE, high levels of foreign currency funding are matched with similar levels of foreign currency financing. Egypt has, in November 2016, floated its currency, the Egyptian Pound, against the US Dollar and soon after looked to the international capital market to finance its budget deficit. This may bolster the foreign-currency liquidity profile of Egyptian Islamic and conventional banks and enable a more effective management of foreign currency funding and obligations.[141]

Chart 3.2.6.2 Islamic Banking Average Foreign Currency Funding to Total Funding by Country



** 2Q2016 data for Egypt not available; 1Q2016 data used.*
*** 4Q2013 data for Iran not available; 1Q2014 data used.*

Source: PSIFIs, IFSB

[140] The calculation of average foreign currency funding and financing ratios is based on data from 17 jurisdictions contributing to the IFSB's PSIFIs database (excluding Bahrain, Egypt, Kuwait, Nigeria, Saudi Arabia and Turkey, due to data limitations).

[141] This, however, does not consider the local macroeconomic effects that the currency float will have on the Egyptian economy, including on inflation, consumer spending and, consequently, deposit and financing growth.

3.0 ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SYSTEM

Table 3.2.6.1 Foreign Currency Funding and Financing's Share of Total Funding and Financing

	4Q2013		2Q2014		4Q2014	
	Islamic banking foreign currency funding to total funding	Islamic banking foreign currency financing to total financing	Islamic banking foreign currency funding to total funding	Islamic banking foreign currency financing to total financing	Islamic banking foreign currency funding to total funding	Islamic banking foreign currency financing to total financing
Afghanistan	78.72%	55.88%	81.03%	82.53%	78.78%	80.63%
Bangladesh	1.78%	4.25%	2.24%	3.52%	2.08%	3.94%
Brunei	3.77%	11.91%	12.12%	12.28%	12.64%	12.78%
Egypt	19.80%	15.80%	20.12%	16.79%	18.79%	19.12%
Indonesia	6.34%	5.92%	6.78%	6.19%	6.18%	6.08%
Iran	11.97%**	12.16%**	9.95%	15.05%	7.64%	14.58%
Jordan	13.30%	7.86%	10.86%	8.46%	9.99%	5.76%
Kuwait	29.09%	30.06%	29.61%	39.72%	30.65%	30.67%
Malaysia	1.41%	2.12%	1.93%	2.11%	2.00%	2.69%
Oman	0.37%	2.57%	1.57%	2.00%	0.23%	2.24%
Pakistan	5.45%	5.23%	4.81%	4.26%	5.09%	5.88%
Sudan	29.29%	11.78%	26.10%	11.63%	28.82%	8.68%
UAE	15.12%	9.75%	13.92%	11.59%	14.56%	13.15%

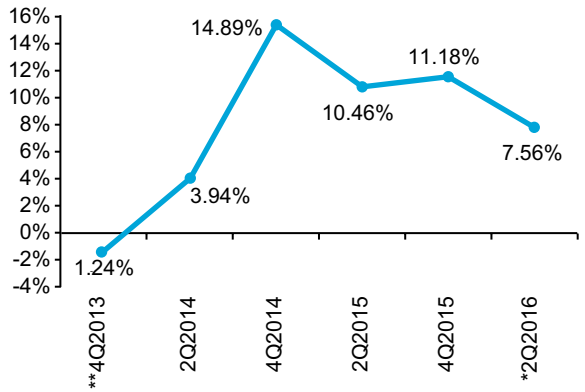
	2Q2015		4Q2015		2Q2016	
	Islamic banking foreign currency funding to total funding	Islamic banking foreign currency financing to total financing	Islamic banking foreign currency funding to total funding	Islamic banking foreign currency financing to total financing	Islamic banking foreign currency funding to total funding	Islamic banking foreign currency financing to total financing
Afghanistan	79.40%	81.05%	82.48%	86.01%	54.95%*	54.95%*
Bangladesh	1.43%	3.49%	1.36%	3.24%	1.24%	3.34%
Brunei	13.56%	12.55%	13.67%	10.66%	12.31%	10.46%
Egypt	19.12%	22.83%	18.40%	20.00%	20.70%*	20.20%*
Indonesia	7.41%	6.58%	6.14%	6.36%	6.26%	5.78%
Iran	6.18%	14.06%	4.87%	14.18%	5.19%	13.71%
Jordan	9.44%	5.02%	8.52%	6.70%	8.48%	6.21%
Kuwait	31.78%	31.06%	31.69%	29.76%	32.28%	30.70%
Malaysia	2.23%	3.39%	1.63%	3.39%	2.01%	3.01%
Oman	14.32%	1.27%	15.12%	4.68%	16.48%	7.44%
Pakistan	4.47%	3.70%	4.72%	2.75%	4.46%	4.61%
Sudan	22.95%	7.18%	34.96%	6.03%	35.61%*	5.88%*
UAE	19.03%	13.91%	19.04%	13.46%	17.90%	14.48%

** Period's data unavailable; latest available data used.*
*** Period's data unavailable; data from following period used.*

Source: PSIFIs, IFSB

The net foreign exchange open position to capital (NFEOPC) is a percentage of foreign exchange open position to regulatory capital. It is a measure that helps monitor foreign exchange risk arising from a country's business activities. NFEOPC exposure is generally assigned a capital charge to derive the market risk-weighted assets. Chart 3.2.6.3 shows the NFEOPC level derived from the PSIFIs database from 4Q2013 to 2Q2016. There was a general reduction in NFEOPC rates after 2014, reaching 7.6% in 2Q2016 – the second-lowest average since the third quarter of 2014 (the lowest being 1Q2016: 7.5%).

Chart 3.2.6.3 Islamic Banking Average Net Foreign Exchange Open Position to Capital[142]



** 2Q2016 data for Sudan not available; 1Q2016 data used.*
*** 4Q2013 data for Iran not available; 1Q2014 data used.*

Source: PSIFIs, IFSB; IFSB Secretariat Workings

As highlighted in the previous IFSI Stability Report, PSIAs' share of total deposits was on a declining trend. The average share of PSIAs slipped to a low of 35.7% of Islamic banking deposits[143] in 2Q2015. This was in large part due to a significant drop in PSIAs' share in Malaysia as a result of the Islamic Financial Services Act of 2013, which came into effect in 2015, prohibiting profit-smoothing practices by Islamic banks. Malaysian Islamic banks responded by shifting towards longer-term deposit-guaranteed products to meet market demand and manage their rate of return risk. The overall Islamic banking share of PSIAs rebounded after 2Q2015, reaching 40.3% as at 2Q2016, driven by a consistent PSIA growth in Iran – a country with over 68% of reported Islamic banking PSIAs in our sample, and a noticeable rebound in Malaysia's PSIA share, standing at 15.5% in 2Q2016.[144] In contrast, Turkey's domestic share of PSIAs declined, but remained high, at 55.7% in 2Q2016, down from 64.3% in 2013 (See Table 3.2.6.2).

Table 3.2.6.2 Average Profit-Sharing Investment Accounts Share to Total Deposit by Country

	4Q2013	2Q2014	4Q2014	2Q2015	4Q2015	2Q2016
Afghanistan	64.95%	70.34%	60.11%	65.81%	59.89%	68.64%*
Bangladesh	89.59%	89.58%	90.49%	90.37%	91.94%	90.93%
Indonesia	84.05%	86.02%	86.65%	85.30%	85.93%	85.32%
Iran	74.96%**	72.67%	76.10%	79.58%	81.95%	81.55%
Jordan	63.75%	64.19%	64.97%	65.55%	66.46%	66.44%
Malaysia	41.30%	38.15%	22.30%	11.17%	11.36%	15.45%
Nigeria	59.91%	63.20%	60.59%	63.09%	58.53%	59.47%
Oman	32.29%	55.09%	49.53%	48.47%	45.36%	43.14%
Qatar	83.88%	82.50%	84.33%	84.47%	85.59%	84.72%
Sudan	43.17%	47.02%	47.29%	48.22%	41.78%	40.72%*
Turkey	64.27%	63.77%	61.98%	58.53%	55.14%	55.65%

** Period's data unavailable; data from previous period used.*
*** Period's data unavailable; data from following period used.*

Source: PSIFIs, IFSB; IFSB Secretariat Workings

[142] The calculation of average foreign currency funding and financing ratios is based on data from 17 jurisdictions contributing to the IFSB's PSIFIs database (excluding Afghanistan, Bahrain, Nigeria and Pakistan, due to data limitations). Saudi Arabia's data were made available, and were included, from 2Q2015. Iran's data were available up to 2Q2015, and were excluded from the time series to facilitate comparison.

[143] Total Islamic banking deposits for the purposes of this calculation include unrestricted profit-sharing investment accounts, remunerative funding (*murābaḥah*, commodity *murābaḥah*) and non-remunerative funding (current accounts, *wadī`ah* accounts), and exclude interbank funding.

[144] The sample for PSIAs in Islamic banking consisted of data from Qatar and 17 jurisdictions in the IFSB PSIFIs database (excluding Bahrain, Brunei, Egypt and Kuwait, due to data limitations). It is worth noting that no PSIAs were reported in Saudi Arabia.

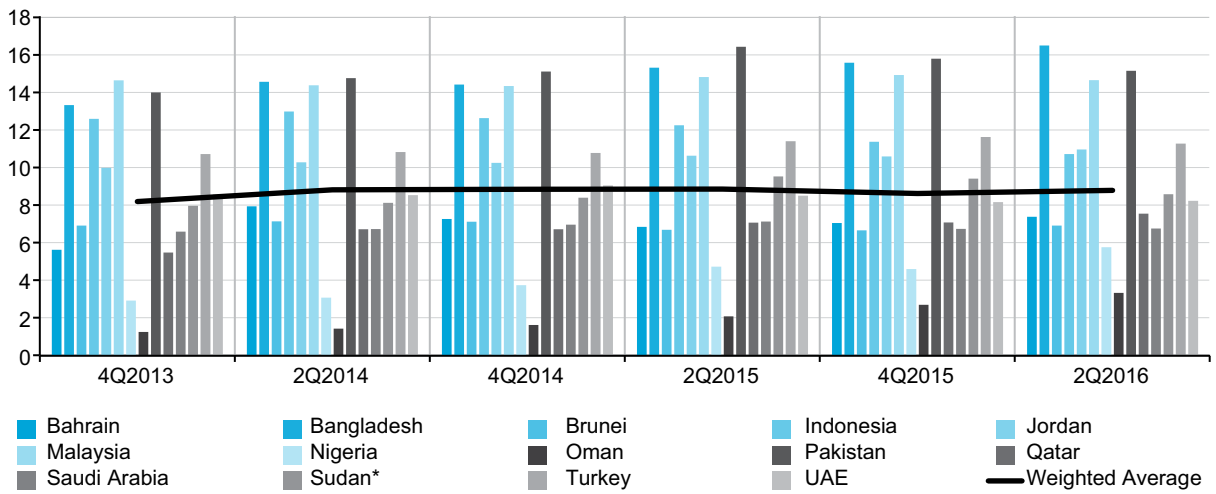
3.0 ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SYSTEM

3.2.7 Leverage

Measurement of debt levels, or leverage, is critical for the assessment and management of the financial health of public and private entities, including banks. The significance of, and attention given to, leverage was amplified after the financial crisis of 2007, which was characterised by excessive levels of leverage (on- and off-balance sheet). Financial leverage illustrates a bank's heavy reliance on debt, or non-equity funds, for the financing of its operations, while lower leverage could promote improved financial stability but reduce the efficiency of resource utilisation and limit asset growth.

The leverage multiple,[145] also known as the equity multiplier, of Islamic banks remained largely unchanged, on a weighted average basis, between 4Q2013 (8.17) and 2Q2016 (8.76) (See Chart 3.2.7.1).[147] As discussed earlier, Nigerian and Omani Islamic banks remain highly capitalised as they continue to build up their deposit base and grow their assets. As such, Islamic banks in both countries have, on average, the lowest level of leverage among sample jurisdictions, with their assets equalling 5.75 and 3.33 times their reported equity values, respectively, as at 2Q2016. Bangladeshi Islamic banks had the highest level of leverage exposure among sample jurisdictions (16.44), up from 15.25 in 2Q2015. High levels of deposits consequently led to excess liquidity due to the lack of Sharī'ah-compliant investment avenues. Islamic banks in Pakistan (15.10) and Malaysia (14.61) also relied heavily on a combination of unrestricted investment accounts,[147] customer deposits and other forms of liabilities for asset-funding purposes, while GCC Islamic banks displayed a more conservative approach, with Bahrain (7.36), Qatar (7.53), Saudi Arabia (6.74) and the UAE (8.21) maintaining moderate levels of leverage.

Chart 3.2.7.1 Islamic Banking Average and By-Country Leverage Multiples



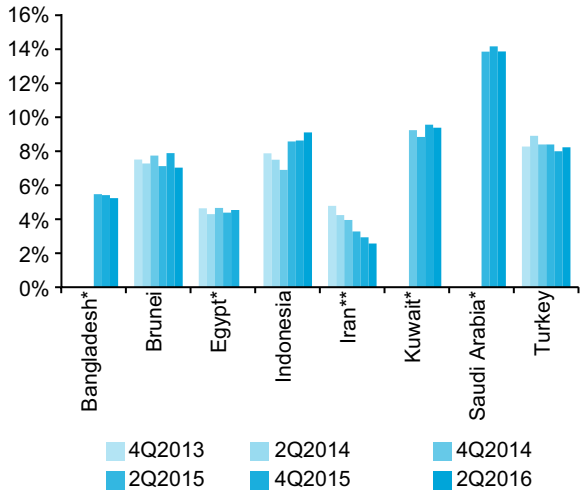
** 2Q2016 data for Sudan not available; 1Q2016 data used.*

Source: PSIFIs, IFSB; IFSB Secretariat Workings

Considering the regulatory definition, leverage ratio[148] is a measure that acts as a supplement to risk-based capital requirements in order to help restrict the build-up of leverage and prevent damage to the financial system, and economy, resulting from any occurring deleveraging process. As per IFSB-15 (IFSB, 2013), leverage ratio is applicable at the level of 3%. Seven PSIFIs-contributing jurisdictions reported regulatory leverage ratios and, with the exception of Iran, all indicated ratios above the 3% requirement (See Chart 3.2.7.2). Iran's leverage ratio is at 2.54%, consistent with its declining capital adequacy ratios.

[145] Leverage multiple = average total assets / average total equity. This measure is different from the leverage ratio defined by the BCBS and the IFSB.
[146] The sample for equity multiplier calculation consisted of data from Qatar and 17 jurisdictions in the IFSB PSIFIs database (excluding Afghanistan, Egypt, Iran and Kuwait, due to data limitations).
[147] Unrestricted profit-sharing investment accounts (UPSIAs) are treated as equity in the financial statements of Islamic banks in some jurisdictions, and as liabilities in others.
[148] Leverage ratio = Tier-1 capital / total exposure.

Chart 3.2.7.2 Islamic Banking Leverage Ratio by Country



** Bangladesh started reporting leverage ratio data from 2Q2015, whereas Kuwait and Saudi Arabia began in 4Q2014 and 1Q2015, respectively. Egypt's data are until 1Q2016.*

*** 4Q2013 data for Iran not available; 1Q2014 data used.*

Source: PSIFIs, IFSB

Overall, amid subdued trends, profitability and asset quality in the Islamic banking sector has remained generally resilient to the challenging economic environment, although several jurisdictions have suffered moderate declines in profitability and elevated NPFs. Short-term liquidity of Islamic banks also remains a concern, particularly in the GCC. Islamic banking assets continue to be concentrated within a few jurisdictions, and major credit-rating agencies have warned against the impact that prevailing macroeconomic conditions may have on the financial position and results of banks, both conventional and Islamic, in some countries where Islamic banking is regarded as systemically important. The outlook for the Islamic banking sector in 2017 is likely to be affected by emerging macroeconomic conditions, where lower government revenue and spending cuts may lead to a potential slowdown in GDP growth, with possible deterioration in asset quality, liquidity and increased cost of funding for Islamic banks. In addition, the need for Islamic banks to comply with the latest regulatory and accounting standards may increase their compliance cost and impact their profitability further.

Box 3.2.1 The Development of the Islamic Financial Sector in Indonesia

By: Bank Indonesia

During the first half of 2016, the Indonesia Islamic financial sector was able to maintain its performance in positive territory though in slower pace as a result of moderation in the domestic economy and of external pressure. Nevertheless, amid a lower performance of Islamic financial institutions than in previous periods, the Islamic capital market has shown its robustness, especially in the sovereign *ṣukūk* issuance.

In order to respond to the tougher challenges, the Indonesia Islamic banking industry continued to consolidate itself to arrive at stronger capacity in absorbing credit risk and liquidity risk. Furthermore, strong commitment by the industry has been demonstrated in setting more solid capital structure of the Islamic banks to withstand potential disturbance when the market alters. The support was shown by well-managed strategic business portfolio of bank holdings that have Islamic banking operations.

Islamic Financial Markets

The Islamic financial market in Indonesia continues to expand during the first half of 2016. *Ṣukūk* shows its dominance in the Islamic capital market and money market transactions in both primary and secondary markets which were growing on the back of expanding investor demand. Similar to *ṣukūk* market development, the Islamic stock market also offers alternative options in portfolio investment opportunities.

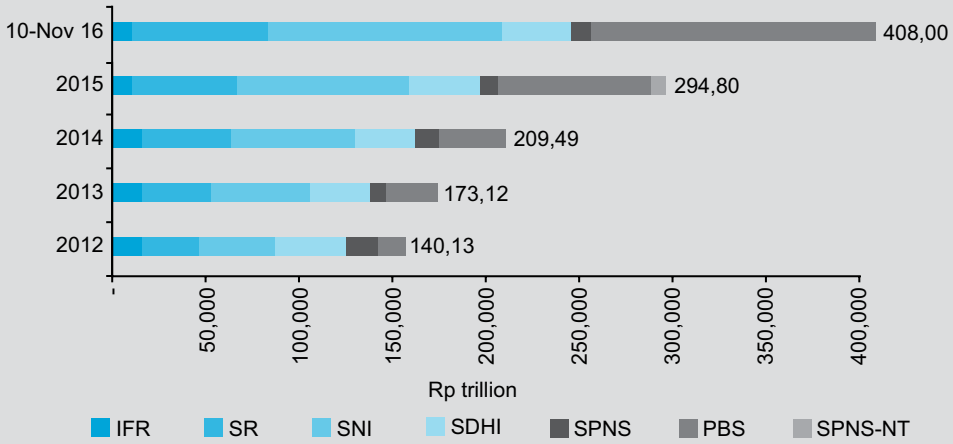
Ṣukūk Market Risk Profile

In 2006, the Capital Market and Financial Institution Supervisory Agency (Bapepam-LK) released regulation No. IX A.13 concerning Islamic Securities, followed by the SBSN Act for government Islamic securities (SBSN). Since then, the *ṣukūk* market has continued to develop, especially since the launching of sovereign *ṣukūk* (government Islamic securities (SBSN) or sovereign ṣukūk*)* both tradable and non-tradable. A number of SBSN series have been issued, consisting of Islamic Fixed Rate (IFR) Ṣukūk, Islamic Treasury Bills (SPNS), Project-Based Ṣukūk (PBS), Retail Ṣukūk (RS) and Hajj Fund Ṣukūk (SDHI). Not only denominated in Indonesia Rupiah, SBSNs are also issued in foreign currencies, when they are known as global ṣukūk (SNI) (Graph 1).

3.0 ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SYSTEM

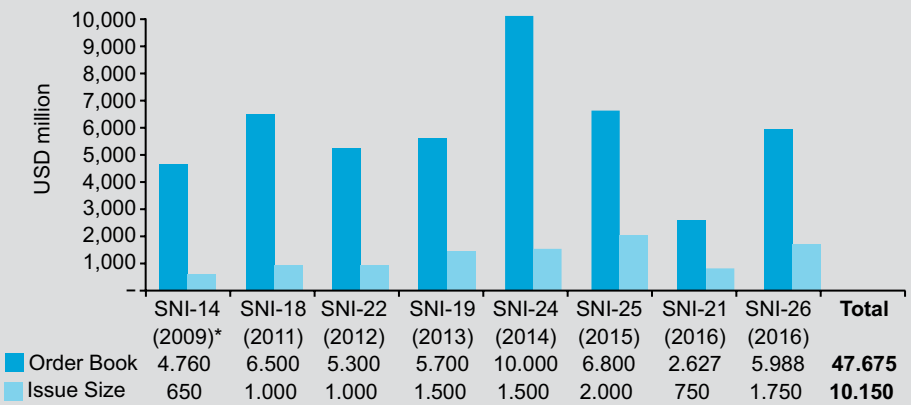
Box 3.2.1 The Development of the Islamic Financial Sector in Indonesia (Continued)

Graph 1 Total Sovereign *Ṣukūk* Issuances



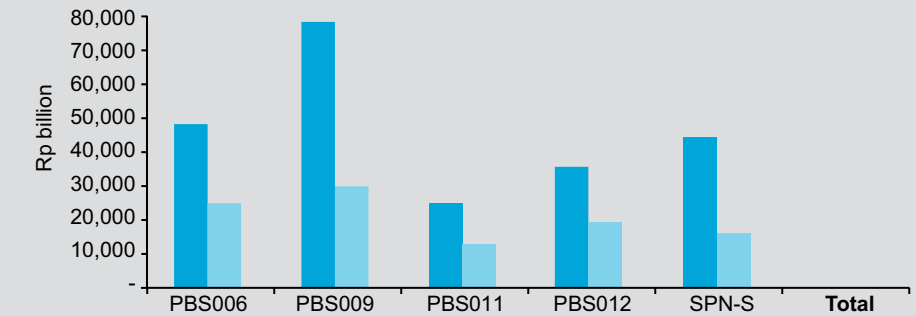
Regulator support was one of the keys to successful domestic *ṣukūk* market development. Regulator support has been given in terms of the regulatory framework of government *ṣukūk* as per Act No. 19 of 2008 issued by Otoritas Jasa Keuangan (OJK). Furthermore, Bank Indonesia developed an Islamic money market framework and the government provided *ṣukūk* as an alternative investment option for financial institutions. Foreign and domestic investor demand for SBSN on the primary market was strong, leading to oversubscribed SBSN auctions of global and sovereign *ṣukūk*. In 2016, total offerings of global *ṣukūk* were recorded at USD 2.63 billion, with USD 750 million absorbed. Furthermore, during 2009–2016, total sovereign *ṣukūk* issuance reached USD 10.15 billion. Meanwhile, Rp 226 trillion of sovereign *ṣukūk* were auctioned in 2016, with Rp 95 trillion absorbed (Graphs 2 and 3).

Graph 2 Issuances of Global *Ṣukūk*



	SNI-14 (2009)*	SNI-18 (2011)	SNI-22 (2012)	SNI-19 (2013)	SNI-24 (2014)	SNI-25 (2015)	SNI-21 (2016)	SNI-26 (2016)	**Total**
Order Book	4.760	6.500	5.300	5.700	10.000	6.800	2.627	5.988	**47.675**
Issue Size	650	1.000	1.000	1.500	1.500	2.000	750	1.750	**10.150**

Graph 3 Auctions of Sovereign *Ṣukūk* (2016)



	PBS006	PBS009	PBS011	PBS012	SPN-S	**Total**
Incoming Bid	46.921	79.171	23.492	33.619	43.450	**226.652**
Awarded	23.756	29.585	10.545	17.825	13.485	**95.196**

Box 3.2.1 The Development of the Islamic Financial Sector in Indonesia (Continued)

Islamic Stock Market

The Islamic stock market in Indonesia began with the Jakarta Islamic Index (JII) in 2000. As of the first half of 2016, 321 Sharī'ah-compatible stocks were traded on the Islamic stock market, with 307 issuers, four publicly listed companies, 10 unlisted companies and four initial public offerings (IPO). In comparison, 335 issuers were listed at the end of 2015 (Table 1). This slower growth is in accordance with the slower pace of real sector growth in the first half of 2016. Nevertheless, in the first semester of 2016, the Islamic stock market experienced lower volatility and stronger JII, reflecting lower risks (Graph 4). The stronger JII was supported by blue-chip stocks' performance. These upswings were also attributed to a successful public awareness programme by the IDX regarding the attractiveness of stock market investment.

Graph 4 Jakarta Islamic Index Volatility

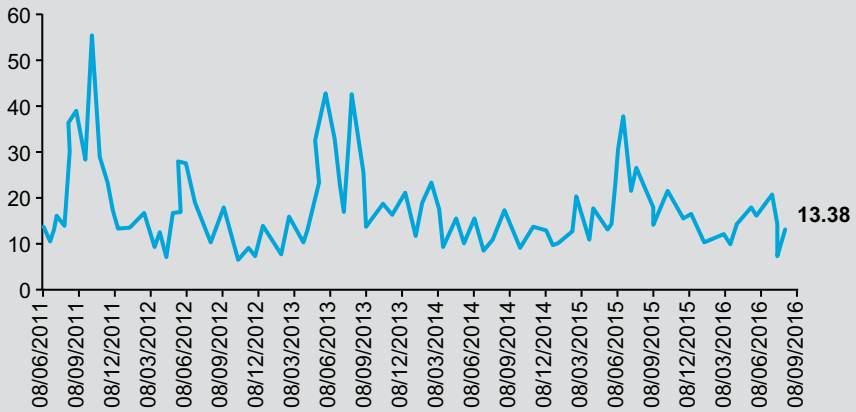


Table 1 Number of Sharī'ah-Compliant Issuers

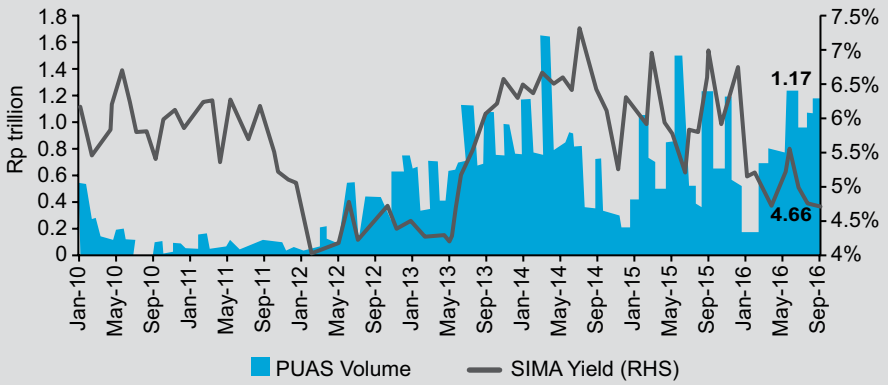
Year	Stocks					
	Issuers	Public Listed Companies	Unlisted Companies	IPO	Total Issuers	Growth (%)
2012 Periode I	280	5	9	10	304	
2012 Periode II	302	5	10	4	321	5.6%
2013 Periode I	288	5	9	8	310	-3.4%
2013 Periode II	313	5	10	8	336	8.4%
2014 Periode I	301	4	12	5	322	-4.2%
2014 Periode II	314	4	13	3	334	3.7%
2015 Periode I	313	4	13	4	334	0.0%
2015 Periode II	315	4	12	4	335	0.3%
2016 Periode I	307	4	10	0	321	-4.2%

Islamic Interbank Money Market

Risk on the Islamic interbank money market (PUAS) was well mitigated in semester II of 2015, reflecting a decline in transactions in the previous period. Meanwhile, the average return on Muḍārabah Investment Certificates (SIMA) as the dominant instrument was relatively stable, increasing slightly from 6.16% in semester I to 6.19% in semester II (Graph 5). The PUAS transaction volume declined, accompanied by lower SIMA yields, indicating no abnormal demand for liquidity among Islamic banks. In other words, Islamic banks successfully managed their own requirement for liquidity. However, a shift was observed in liquidity instruments to the shorter term, which was symptomatic of Islamic bank prudence. Such prudence was considered more profitable than longer-term investment instruments despite existing repo facilities.

Box 3.2.1 The Development of the Islamic Financial Sector in Indonesia (Continued)

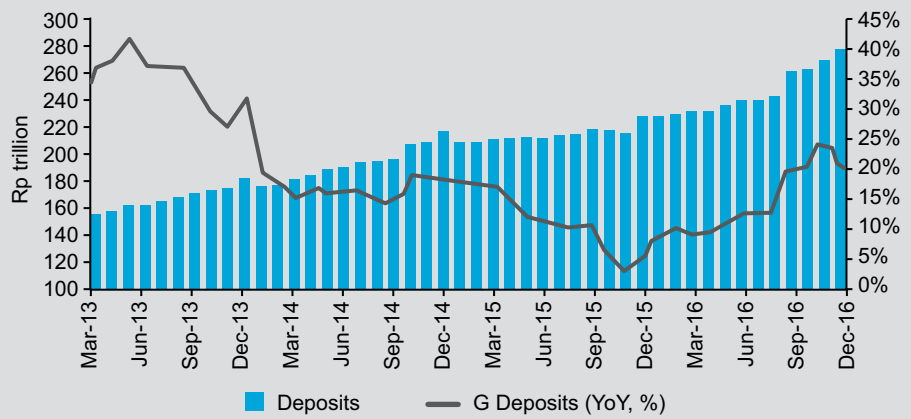
Graph 5 PUAS Transaction Volume and SIMA Yield



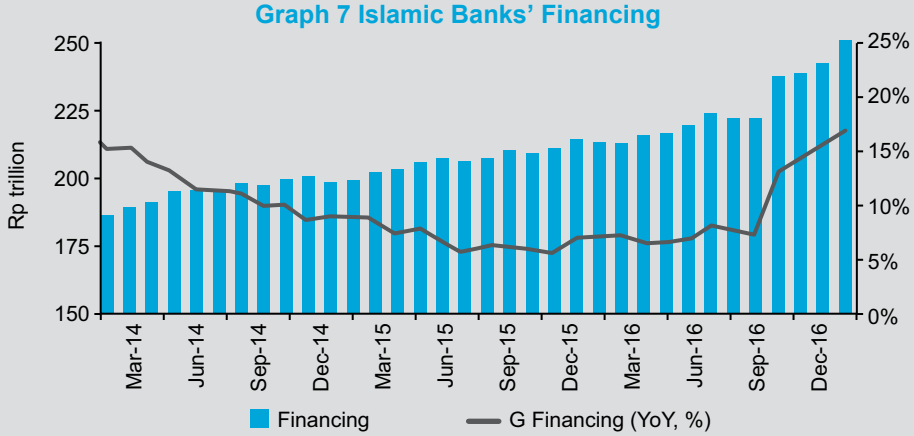
Islamic Banking Sector

At the end of the first semester of 2016, the total assets of the Islamic banking sector (Islamic banks and windows)[149] stood at Rp 332 trillion, with growth up 17.58% from the previous period. Islamic banking sector performance rebounded during the second half of 2015, after experiencing a slower growth over the previous two years. Capital injections towards the end of the first semester of 2015, efforts to educate the public and to build awareness, and several conversions in 2016 facilitated asset growth in the Islamic banking industry. Consequently, the share of the Islamic banking industry expanded to 5.13% of the total in September 2016. This condition stimulated deposits and financing growth (Graphs 6 and 7).

Graph 6 Islamic Banks' Deposits



Graph 7 Islamic Banks' Financing

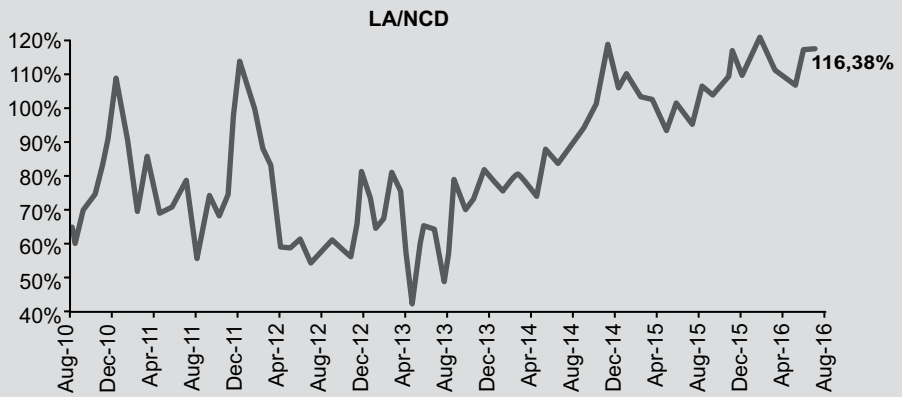


[149] The Islamic banking industry consists of 12 Islamic banks and 22 windows.

Box 3.2.1 The Development of the Islamic Financial Sector in Indonesia (Continued)

Liquidity risk in the Islamic banking industry was observed to subside during the second semester of 2015. Though the ratios of liquid assets to non-core deposits (NCD) and liquid assets to deposits declined to 18.82% at the end of semester I of 2016, recent developments show an upward trend (Graph 8). Credit risk at Islamic banks was also noted to ease in the second semester of 2015, indicated by declines in the gross NPF ratio at Islamic banks from 5.09% to 4.84% and at Sharī'ah business units from 3.76% to 3.03%. Lower NPF ratios were the result of consolidation in the Islamic banking industry along with restructuring, which successfully reversed the rate of NPF growth. In the first half of 2016, the NPF increased slightly to 4.94% and 3.13% for Islamic banks and Sharī'ah business units, respectively. Furthermore, Islamic bank capital remained solid, reflecting an increase in the capital adequacy ratio from 14.02% in semester I of 2015 to 15.02% in semester II of 2015, and slightly lower – to 14.87% – in semester I of 2016. These initial increases stemmed partially from capital injections, which reflect shareholder commitment to, and optimism about, developing the Islamic banking industry in Indonesia. The additional capital is expected to raise the level of competition at Islamic banks.

Graph 8 Islamic Banks' Liquidity



Policies Evaluation and New Regulations

To support growth and economic activities, Bank Indonesia went through policy evaluation and made some adjustments on existing regulation. One of them is the regulation of Financing to Value (FTV) ratio for real estate and automotive financing of Islamic banks. The adjustments that were released in August 2016 loosen the previous FTV regulation in June 2015. Furthermore, in August 2015 Bank Indonesia also made adjustments in the Reserves Requirement that is linked to the Loan to Funding Ratio (LFR). This macroprudential policy is intended to support banks' intermediary function by encouraging banks to seek source of funds other than deposits and to deepen the financial market and its Islamic counterparts.

Besides the aforementioned policy evaluation, there is also new regulation to further support the needs of customers, in particular on facing uncertainty from international transactions which include foreign exchange activities, trade financing and other transactions. Islamic bank involvement in international or foreign exchange transactions will increase exposure to currency risk due to a potential currency mismatch. Therefore, Sharī'ah-compliant economic players will need to hedge against such potential losses. In anticipation of such developments, on 24 February 2016, Bank Indonesia promulgated a regulation concerning Hedging Transactions based on Sharī'ah Principles (Islamic Hedging).

Indonesia Islamic Banking Development Road Map 2015-2019

By taking into consideration various extremely dynamic challenges and environmental changes that influence the national Islamic banking industry, OJK has established a strategic plan for development of the Indonesia Islamic banking industry for the year 2015 -2019. This new strategic plan provides guidelines that include detailed initiatives as well as specific objectives for the sharia banking industry to strive for. This strategic plan for the development of the national sharia banking industry is recognized as Roadmap of Indonesian Islamic Banking 2015 - 2019. Based on the Roadmap, the vision of Islamic banking development in Indonesia is: "To Establish an Islamic banking industry that provides significant contributions to sustainable economic growth, equitable development, financial system stability, and is highly competitive".

Box 3.2.1 The Development of the Islamic Financial Sector in Indonesia (Continued)

To fulfill this vision, OJK has determined seven policy directions that will elaborate the necessary steps to be taken in order to achieve an integrated sharia banking development:

1. Strengthening synergies between the authorities and government and other stakeholders in the context of policy development;
2. Strengthen capital and business scale as well as enhance efficiency;
3. Improve funding structure to support expansion in financing segment;
4. Improve service quality and product diversity;
5. Improvement in the quantity and quality of HR & IT as well as other infrastructures;
6. Enhancement of public literacy and preference;
7. Strengthening and harmonizing regulations and supervision.

OJK has already generated 72 priority work-programmes to implement the policy directions together with other stakeholders starting from 2015 to 2019. In general, the priority programmes can be grouped into four categories:

1. Priority programmes to strengthen synergies for policy development between banking authority with the Government and other stakeholders;
2. Priority programmes to enhance competitiveness of Islamic Banking;
3. Priority programmes to enhance public literacy and preference of Islamic banking as well as its products;
4. Priority programmes to improve the quality of regulation and supervision of Islamic banking.

In responding to the moderation of domestic economy, OJK has issued several policies that provide stimulus for Islamic banking. The policy is countercyclical to optimise Islamic banking intermediation function and economic growth. Countercyclical policies that have been issued by OJK in 2015 concerning products and activities of Islamic Full Fledged Banks and Islamic Windows to give more room for the Islamic Banking to broaden the business through licensing mechanisms of new products and activities that are easier to make the products of Islamic Banking more competitive.

3.3 ISLAMIC CAPITAL MARKET: ASSESSMENT OF RESILIENCE

3.3.1 *Ṣukūk* Market

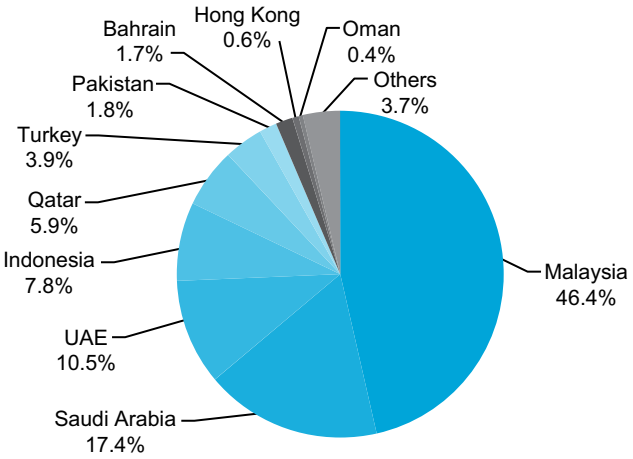
The global primary *ṣukūk* market has undergone a structural shift in the mean annual issuances volume; aggregate issuances of between USD 65 billion and USD 75 billion annually are expected to be the new normal market performance (in contrast to the nearly USD 100 billion average in 2010–2014).[150] Despite this decline, the global *ṣukūk* outstanding has experienced a more than 6% increase to close at almost USD 319 billion as at end-2016.[151] This increase is supported by an expansion in the *ṣukūk* tranches outstanding, which number 2,569 across 28 jurisdictions[152] as at end-2016 [2015: 2,310 *ṣukūk* tranches across 26 countries[153]].

Malaysia has sustained itself as the largest *ṣukūk* outstanding market in 2016, accounting for a 46.4% share of the total market [2015: 50.6%]; notably, however, this marks the first time Malaysia's share in global *ṣukūk* outstanding has dropped below 50% (see Chart 3.3.1.1), due mainly to a material depreciation in the country's exchange rate to the US Dollar which has led to lower outstanding values in US Dollar terms. The shares of Saudi Arabia (17.4%), the UAE (10.5%) and Qatar (5.9%) have remained almost consistent [2015: 17.7%, 10.6%, 5.2%] on the back of a fixed exchange rate regime in the GCC that has sustained outstanding values in US Dollar terms. Indonesia has experienced a slight improvement in market share at 7.8% [2015: 7.3%] on the back of its two key US Dollar *ṣukūk* issuances worth USD 2.5 billion in 2016. Overall, these five jurisdictions account for 88% of the global *ṣukūk* outstanding, while the remaining 12%, or USD 38.2 billion, is dispersed between 23 other jurisdictions.

Hong Kong is the only non-OIC member state that features in the top 10 global *ṣukūk* outstanding jurisdictions on the back of its two large USD 1 billion sovereign *ṣukūk* issuances in 2014 and 2015. Altogether, there are eight non-OIC member states with *ṣukūk* outstanding, including four from the European Union (France, Germany, Luxembourg and the United Kingdom); two in Asia (Singapore and Hong Kong); and one each in Africa (South Africa) and North America (the United States). Collectively, the eight non-OIC jurisdictions account for 2.09% of the global *ṣukūk* outstanding as at end-2016.

150 See the discussion in Chapter 1 on *ṣukūk* market developments for detailed coverage of the factors leading to this structural shift.
151 Primarily, the decline in annual issuances volume is due to the curtailment in a short-term liquidity management *ṣukūk* programme that quite often would mature within a calendar year, thus not having a direct impact in terms of *ṣukūk* outstanding year-on-year.
152 Based on domicile of the *ṣukūk* obligor.
153 The two new countries added in 2016 are Togo (2016 debutant) and Iran, whose information has recently been made available.

Chart 3.3.1.1 Top 10 Global *Ṣukūk* Outstanding Jurisdictions* (2016)



** Based on domicile of the ṣukūk obligor*

Source: IFSB Secretariat Workings

The demand for new *ṣukūk* issued in the primary market remained somewhat resolute, with most international *ṣukūk* issued in 2016 oversubscribed (see Table 3.3.1.1). However, in contrast to previous years, there has been a relative easing off in the momentum of exuberance, as measured by times oversubscription and the volume of order book generated. In terms of times oversubscription, Kuwait's Boubyan Bank Additional Tier-1 Ṣukūk (USD 250 million) attracted the most interest at 5.2 times – this contrasts with the more than 13 times oversubscription recorded for Dubai Investments Park Ṣukūk (USD 300 million) in 2014 and 7.2 times oversubscription for Sharjah Islamic Bank Ṣukūk (USD 500 million) in 2015. In terms of order book generated, the combined USD 2.5 billion 10-year and 30-year Indonesian sovereign *ṣukūk* tranches generated an order book of USD 8.6 billion (3.1 times oversubscription); in 2014, the USD 1.5 billion Indonesian sovereign *ṣukūk* generated an order book of USD 10.5 billion (six times oversubscription). There was also a trend where some prominent issuers favoured private placements as opposed to public listings of their *ṣukūk* programmes; the sovereign issuance of Oman and the debut Etihad Airways Ṣukūk are examples of privately placed *ṣukūk*.

Table 3.3.1.1 Demand Comparison for Selected* *Ṣukūk* Issued in 2016

Ṣukūk Name**	Issue Size (USD million)	Issuer Type***	Tenure (Years)	Rating	Oversubscription (Times)
Indonesia Sovereign Ṣukūk 3/26	1,750	Sovereign	10	BB+ (S&P)	**3.4**
DP World Ṣukūk 5/23 (UAE)	1,250	GRE	7	Baa3 (Moody's)	**2.0**
Emirates Islamic Bank 5/21	1,000	Corporate	5	A+ (Fitch)	**3.0**
Pakistan Sovereign Ṣukūk 10/21	1,000	Sovereign	5	B- (S&P)	**2.4**
Turkish Sovereign Ṣukūk 6/21	1,000	Sovereign	5	BBB- (Fitch)	**4.0**
Malaysia Sovereign Ṣukūk 4/26	1,000	Sovereign	10	A- (S&P)	**4.2**
Ezdan Ṣukūk 5/21 (Qatar)	500	GRE	5	Ba1 (Moody's)	**1.7**
Kuveyt Turk 11/21 (Turkey)	500	Corporate	5	BBB (Fitch)	**4.0**
Sharjah Islamic Bank 9/21 (UAE)	500	Corporate	5	A3 (Moody's)	**3.2**
Noor Tier 1 Ṣukūk (UAE)	500	GRE	Perp	A- (Fitch)	**2.1**
Boubyan Tier 1 Ṣukūk (Kuwait)	250	Corporate	Perp	Baa1 (Moody's)	**5.2**
Ahli United Tier 1 Ṣukūk (Kuwait)	200	Corporate	Perp	A2 (Moody's)	**3.0**

Perp = perpetual

** Ṣukūk were selected to ensure some diversity by types, ratings, issuance size and jurisdictions (of obligors).*

*** Numbers in "Ṣukūk Name" indicate maturity date mm/yy.*

**** For the purposes of this report, GREs refer to ṣukūk obligors with a shareholding structure representing more than two-thirds (66.67%) of government ownership either through ministries, authorities, etc. or including through other GREs such as sovereign wealth funds, etc.*

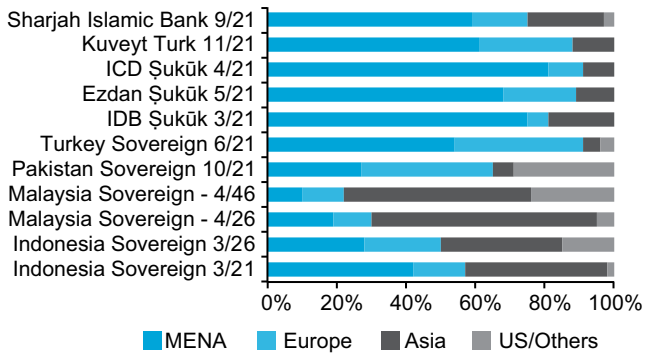
Source: Various references, IFSB

Another shift in trend was observed in the geographical distribution of new international *ṣukūk* subscriptions; the 2016 issuances illustrated a regional bias in investors' allocations (see Chart 3.3.1.2). For instance, *ṣukūk* issued in the Middle East region were mainly subscribed and allocated to investors within the region, while Asian investors were the main buyers of *ṣukūk* issued out of Asia. Investors from the US and other parts of the world were mainly active in the uptake of emerging market sovereign *ṣukūk*. This is in contrast to 2015, when the Middle East was an important source for *ṣukūk* subscriptions generally across the board and without any evident region-specific bias; for instance, Middle East investors' uptake of the Hong Kong sovereign *ṣukūk* was 42%, Indonesian sovereign *ṣukūk* 41% and the Garuda Indonesia aviation *ṣukūk* as high as 56% in 2015. Although reduced petrodollar surpluses have been suggested as a reason for this, it may actually be attributable to the investing style of regional investors; in general, Middle Eastern investors have a limited appetite for long-term *ṣukūk* with maturities of 10 years and beyond, as evidenced by the relative take-up patterns of the two Malaysian and two Indonesian *ṣukūk* shown in Chart 3.3.2; such *ṣukūk* were mainly issued by Asian issuers in 2016.

3.0 ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SYSTEM

The preference for private placements by some issuers of international *ṣukūk* has limited the public availability of information regarding the distribution of new *ṣukūk* issued by investor types. Given the readily available information (see Chart 3.3.1.3), investors appear to have made *ṣukūk* investment decisions closely aligned to their organisational mandates. For instance, central banks and sovereign wealth funds were the key buyers for the multilateral IDB Ṣukūk 3/21 – mainly due to the AAA-rating of the instrument as, in line with specific mandates of such institutions, they are inclined towards prime-rated international securities. On the other hand, the affiliate ICD Ṣukūk 4/21 rated AA was mainly bought by banks/private banks. In both these multilateral *ṣukūk*, fund managers had a very small share – possibly due to the lower returns these highly rated *ṣukūk* generate; however, in the Indonesian sovereign *ṣukūk*, which at a comparatively lower credit rating attracts higher yields, fund managers were key buyers.

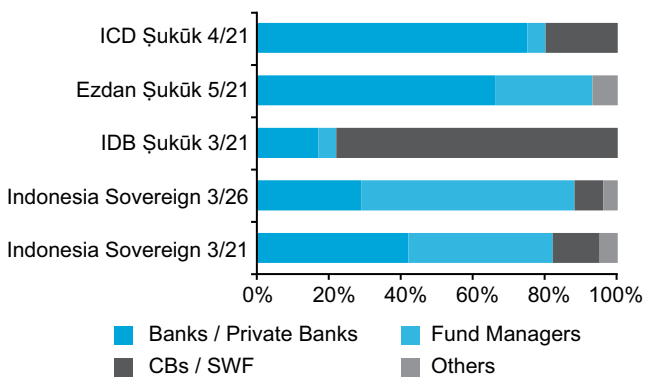
Chart 3.3.1.2 Geographical Distribution of Selected Ṣukūk Papers Issued in 2016



MENA = Middle East and North Africa; US = United States.
** Numbers in "Ṣukūk Name" indicate maturity date mm/yy.*

Source: Various references, IFSB

Chart 3.3.1.3 Investors' Breakdown of Selected *Ṣukūk* Papers Issued in 2016



CBs/SWF = Central Banks/Sovereign Wealth Funds;
Others = Pension Funds, Takāful/Insurance Funds, etc.

Source: Various references, IFSB

In an adverse development for the resilience of the *ṣukūk* market, two tranches of *ṣukūk* by an oil and gas-based issuer in Singapore defaulted in 2016, ending six years of a default-free record of the global *ṣukūk* market since the financial crisis. The Singapore-based issuer, wrangling with challenges of the global oil supply glut and depressed prices, failed to honour its obligations on its two *ṣukūk* outstanding as well as on its bonds outstanding. However, on the whole, the defaults have not seriously shifted the resilience of the industry; since the recorded inception of the global *ṣukūk* market, out of almost USD 1.2 trillion raised by *ṣukūk*, only USD 2 billion, or 0.17%, of the total issuances volume has defaulted as at end-2016 (see Table 3.3.1.2). In terms of the number of *ṣukūk* tranches issued to date, out of 12,606, 1 in every 100 has defaulted.

Table 3.3.1.2 Defaulted and Restructured *Ṣukūk* (1990–2016)

	No. of *Ṣukūk* Tranches	No. of Issuers	Total Volume (USD billion)
Total issued	12,606	693	1,199.26
Total defaulted	131	27	2.01

Source: Bloomberg, IFSB

Another downside is indicated by the continued premiums payable on pricing of new *ṣukūk* in contrast to conventional bonds that are comparable from a risk perspective; this translates as higher funding costs for issuers, possibly feeding as an additional factor in the limited uptake of *ṣukūk* by corporate issuers.[154] Taking a sample of domestically issued sovereign *ṣukūk* and bonds across jurisdictions in diverse regions (see Table 3.3.1.3), *ṣukūk* have generally been priced at higher rates of returns to investors. This is despite both instruments of identical tenor being issued by the same issuer in local currency and for the domestic market. The traditional understanding of such premiums on *ṣukūk* is basically to compensate investors for the comparative unfamiliarity and illiquidity of *ṣukūk* vis-à-vis bonds. However, in 2016, an exception was the jurisdiction of Pakistan, where *ṣukūk* attracted lower rates of return in contrast to conventional bonds; the sample Pakistan Ijārah Ṣukūk issued in March 2016 for a period of three years was priced at a return of 5.60%, while an identical Pakistan Investment Bond issued in April 2016 for three years was priced at a much higher 7%. Furthermore, Qatar is a jurisdiction in the sample where it appears parity has been achieved between bond and *ṣukūk* instruments, as returns on both were equally priced.

[154] See the discussion in Chapter 1 on *ṣukuk* market developments for detailed coverage of the decline in issuances by corporate issuers over the last few years.

Table 3.3.1.3 Pricing of Selected Sovereign *Ṣukūk* and Bonds Issued in 2016 (Domestic Market)

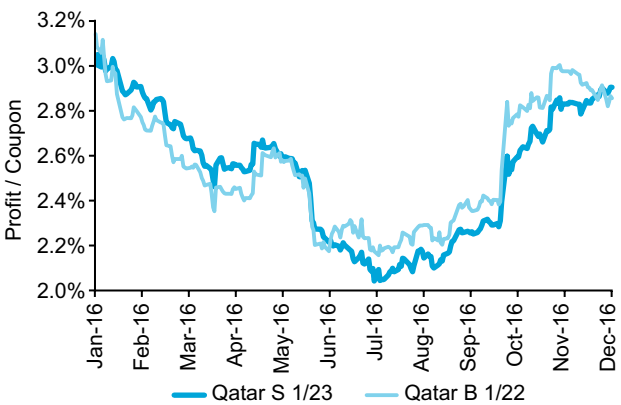
Jurisdiction and Instrument Maturity*	*Ṣukūk* Profit Rate (%)	Bond Coupon Rate (%)
Malaysia (Ṣukūk 8/21 and Bond 5/21)	3.74	3.62
Malaysia (Ṣukūk 9/26 and Bond 11/26)	4.07	3.90
Indonesia (Ṣukūk 3/26 and Bond 6/26)	4.55	4.05
Ivory Coast (Ṣukūk 9/23 and Bond 4/23)	5.75	5.25
Pakistan (Ṣukūk 3/19 and Bond 4/19)	5.60	7.00
Qatar (Ṣukūk 10/21 and Bond 10/21)	2.75	2.75
Turkey (Ṣukūk 9/18 and Bond 7/18)	8.80	8.70
Turkey (Ṣukūk 7/21 and Bond 9/21)	9.40	9.20

** Maturity of the sample underlying sukūk and the bond instrument indicated by mm/yy. The sample instruments were selected to ensure that both had identical tenors; however, each may be issued on different dates within the year. Percentages in red (green) indicate higher (lower) of the two, while those in black indicate equality.*

Source: Bloomberg, IFSB

The analysis of investors' expected yields in the secondary market further queries the present applicability of the traditional view which suggested that *ṣukūk* needed to be priced at a premium to conventional bonds. Taking a sample of identical domestically issued *ṣukūk* and bonds outstanding in four jurisdictions (see Charts 3.3.1.4(a), 3.3.1.4(b), 3.3.1.4(c) and 3.3.1.4(d)), there is no consistent pattern to indicate that *ṣukūk* investors have demanded higher yields to identical bonds; on the contrary, *ṣukūk* have often traded at lower yields in contrast to bonds. This is particularly observable in Qatar (see Chart 3.3.1.4(a)), where investors are frequently trading *ṣukūk* due Jan-2023 at lower yields compared to a bond due Jan-2022, despite the latter benefiting from an earlier redemption by a full year. In the case of Pakistan (see Chart 3.3.1.4(b)), investors appear to perceive both *ṣukūk* and bond as identical instruments from a risk perspective, and the required yields move together over time. The *ṣukūk* outstanding in the Malaysian sample, however, for most of the sample time period, appears to trade at a higher rate in contrast to the bond (see Chart 3.3.1.4(d)).

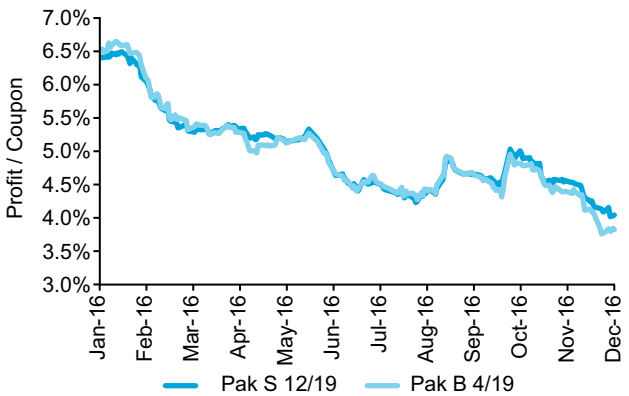
Chart 3.3.1.4(a) Ṣukūk and Bond Pricing Comparison in Qatari Secondary Market (2016)



** Numbers in name indicate maturity date mm/yy.*
S = Ṣukūk; B = Bond

Source: Bloomberg, IFSB

Chart 3.3.1.4(b) Ṣukūk and Bond Pricing Comparison in Pakistani Secondary Market (2016)



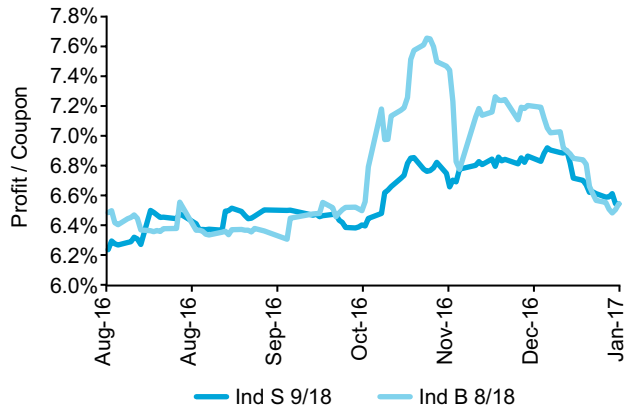
** Numbers in name indicate maturity date mm/yy.*
S = Ṣukūk; B = Bond

Source: Bloomberg, IFSB

Overall, a definitive inference cannot be made at this stage, although indications from the sample markets suggest diversity in jurisdictions. In some jurisdictions, the traditional view favouring premium returns for *ṣukūk* appear valid; in others, the opposite holds true where discounted returns are being practised. There are also instances where investors perceive *ṣukūk* and bonds as complements with equal pricing and returns while for one jurisdiction, based on sample instruments, the volatilities in returns of the two instruments do not appear to be strongly correlated (see Chart 3.3.1.4(c)). Each of these situations bears important implications for the *ṣukūk* market, since pricing is a factor fundamental in assessing the viability of *ṣukūk* instruments; and the behaviour of investors in the secondary market could potentially provide some guidance to issuers when pricing new *ṣukūk* issues.

3.0 ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SYSTEM

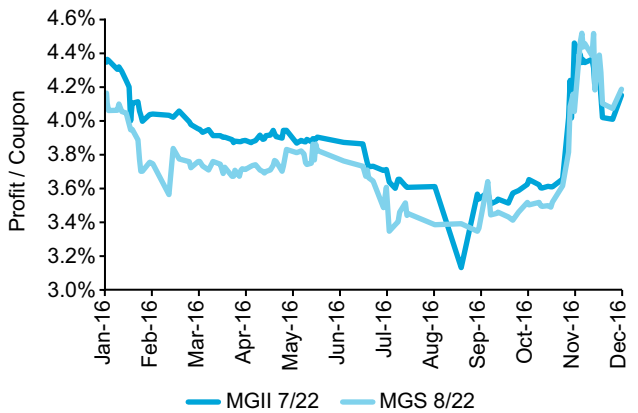
Chart 3.3.1.4(c) *Ṣukūk* and Bond Pricing Comparison in Indonesian Secondary Market (2016)



** Numbers in name indicate maturity date mm/yy.*
S = Ṣukūk; B = Bond

Source: Bloomberg, IFSB

Chart 3.3.1.4(d) *Ṣukūk* and Bond Pricing Comparison in Malaysian Secondary Market (2016)

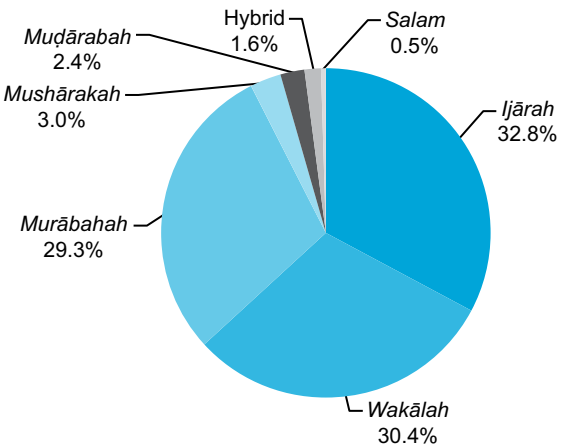


** Numbers in name indicate maturity date mm/yy.*
MGII = Malaysian Government Investment Issue Ṣukūk*; MGS = Malaysian Government Security Bond*

Source: Bloomberg, IFSB

Finally, the market has completely moved away from the use of those contracts (e.g. *bay' al-īnah*) whose Sharī'ah compliance is most disputed as the bases of *ṣukūk* structures. Instead, the widely accepted contracts of *ijārah* and *wakālah* are the most prominent, accounting for nearly two-thirds of all funds raised in the primary market in 2016 (see Chart 3.3.1.5). *Murābaḥah* was also a prominent contract, accounting for more than 29% of all issuances by volume in 2016; however, notably nearly all (except three private placements[155] in Saudi Arabia and one in Jordan) Murābahah Ṣukūk were issued in a single jurisdiction, Malaysia.[156] Mushārakah and muḍārabah contracts were used mainly by financial institutions to issue regulatory-compliant *ṣukūk*.[157]

Chart 3.3.1.5 Global New *Ṣukūk* Issuances by Structure (2016)



Source: IFSB Secretariat Workings

Summary and Challenges

In summary, the *ṣukūk* market is undergoing structural shifts, partly in response to the prevailing global economic and financial conditions, and also, importantly, due to a gradual movement out of "sectoral-infancy" as stakeholders get more accustomed to *ṣukūk* over time. However, there appears to be some heterogeneity in shifts between jurisdictions, which suggests that harmonisation of *ṣukūk* market fundamentals is still a distant reality. A number of indicators observed in 2016 support this assertion.

From a pricing perspective, while the majority of jurisdictions continue to observe premium pricing of *ṣukūk* in contrast to bonds, issuers in some jurisdictions are now either equally pricing, or (at least in one sampled jurisdiction) in fact pricing *ṣukūk* at a discount in contrast to identical bonds. The investors in the secondary market also appear divided, as a sample analysis on four jurisdictions depicted four different conditions: (1) premium yields on *ṣukūk* traded vis-à-vis identical bonds; (2) discounted yields; (3) equality in yields; and (4) no strong correlation between the volatilities of the two yields. While a definitive conclusion cannot be made at this stage, what is certain is that the traditional view favouring a persistent premium return payable on *sukūk* over identical bonds is now arguable.

---

155 Private placement of these *Murābaḥah Ṣukūk* in the Middle East suggests the lack of an intention by the contracting parties to trade these instruments; the aim may therefore be to achieve a financial transaction outcome similar to syndicated financing from a banking sector perspective.

156 The contract of *murābaḥah* is popular among issuers in Malaysia, whereas *wakālah* and *ijārah* are popular among the rest of the world issuers. The difference in preference reflects the respective Sharī'ah interpretations in these markets; for instance, the Murābaḥah Ṣukūk is generally not perceived to be permissible to be traded at values other than par by the Sharī'ah scholars in the GCC; whereas in Malaysia, the Sharī'ah Advisory Council of Bank Negara Malaysia permits sukūk structured on 100% debt receivables to be traded at values other than par – see discussion on BAI` DAYN in Bank Negara Malaysia (October 2010), Sharī`ah Resolutions in Islamic Finance, 2nd edition.

157 IFSB-15 outlines details on regulatory-compliant banking ṣukūk and its appropriate regulatory and Sharī'ah parameters.

Another aspect is that of *ṣukūk* structures and corresponding Sharī'ah opinions. While all jurisdictions have moved away from the utilisation of controversial Sharī'ah contracts (e.g. bay' al-inah), murābahah *ṣukūk* has become the preferred choice for issuers in the Malaysian domestic market, while *ijārah* and *wakālah* have become the preferred choice for other issuers, mainly in the GCC. This diversity in preference corresponds to the differing Sharī'ah opinions of the scholars in these markets. However, this does not create an obstacle for international *ṣukūk* issued in these jurisdictions, as usually these will be structured to ensure wider acceptability (e.g. the Malaysian sovereign *ṣukūk* were structured on the *wakālah* contract to enable international investors, subscribing to other Sharī'ah opinions, to participate).

There are also noticeable differences between jurisdictions in terms of maturity profile of *ṣukūk* issued and subscribed. For instance, capital market activities are usually limited in the Middle East and the banking channel continues to be the main source of funding. This has a direct impact, as the Middle East lacks regular *ṣukūk* issuances in the longer-term maturity bracket of 10 years and above[158] (excluding perpetual *ṣukūk*). This restricts *ṣukūk* from becoming an instrument that contributes towards long-term developmental expenditures in the region. In contrast, capital market activities are comparatively flourishing in Asia, and issuers in key *ṣukūk* markets of Malaysia and Indonesia actively tap the longer-term development finance liquidity by issuing *ṣukūk* spanning as long as 40 years of maturity.[159]

The above also has profound implications in terms of establishing a *ṣukūk* yield curve spanning a wide range of tenors, including short-, medium- and long-term maturities. This is important to serve as initial price guidance for prospective issuers. The trend of *ṣukūk* being issued as private placements, mainly in the GCC, is another obstacle that will restrict the development of secondary markets with active trading of *ṣukūk* outstanding in the region.

From a demand perspective, while most international *ṣukūk* continue to be oversubscribed, there was an easing in exuberance of oversubscriptions as measured by times oversubscribed and by volume of order book generated. Middle Eastern investors, which have previously been an important source of liquidity for *ṣukūk* issued globally, displayed limited appetite for long-term *ṣukūk* spanning maturities of 10 years and beyond; in contrast, US and European accounts were active buyers in this maturity bracket.

On a different note, as discussed in Chapter 1, major international rating agencies[160] highlight that, despite improvements in both time and cost, it is still more time consuming and complex to tap the *ṣukūk* market given the need for specialised lawyers who are well-versed in Sharī'ah law to draft the contracts; the need to take a Sharī'ah opinion on the programme from a Sharī'ah advisor/board; the need to identify appropriate underlying assets that can support the structure of the *ṣukūk* being issued; and, above all, the risk of the *ṣukūk* proposal being rejected by a competent authority (e.g. a centralised Sharī'ah Supervisory Board at the regulatory authority), thus requiring a repeat of the process to correct the issues raised. Apart from time considerations, the costs of the above process are often material in deterring corporate issuers, particularly if the planned issuance programme is lower than around USD 500 million – the implication being a higher proportionate funding cost per dollar (lower-scale economies).

In general, the stability and resilience of the *ṣukūk* market will continue to be tested with ongoing developments in the global economic and financial architecture. For instance, depressed oil prices were the defining factor 2016's *ṣukūk* default of the oil and gas-based issuer. An important development to look into in 2017 will be the effect of the US Federal Reserve's federal funds rate hike in December 2016, with expectations of further increases in 2017. This will likely translate into higher funding costs globally, which may impact the issuances activity in the fixed-income markets, including *ṣukūk*. This will also drive up the required yields in the secondary markets, thus exerting some pressure on the returns generated in the fixed-income markets in 2017.

Other concerns raised by capital market stakeholders[161] in general relate to corporate bond market liquidity; risk associated with use of collateral in financial transactions; harmful conduct in relation to retail financial products and services; and cyber threats. Particularly in relation to corporate bond liquidity, there is some concern about whether the secondary market structure will be able to withstand periods of market stress going forward. On this note, concerns are related to use of bonds as collateral in financing transactions which, during periods of stress, could perform below investors' expectations – this factor is also of significant relevance for the *ṣukūk* market. The issue of collateral has been addressed at least in the banking sector through the introduction of high-quality liquid asset (HQLA) requirements by Basel III and IFSB-15. Nonetheless, this puts pressure on demand for highly rated *ṣukūk* instruments which are likely to be held by IIFS until maturity.

Overall, despite subdued expectations at the start of the year, the *ṣukūk* market experienced positive growth in both the primary and secondary markets and was not tested in severity in 2016; the two defaulting tranches, although symbolically ending a six-year default-free record, did not alter the statistics much and only 0.17% in volume of all *ṣukūk* issued to date has defaulted. The demand for *ṣukūk* will also persist going forward, as there is a critical need to hold these instruments by institutional investors, including: (a) Islamic banks for capital and liquidity management purposes; (b) *takāful* operators for steady Sharī'ah-compliant returns on portfolios; (c) fund managers for offering Sharī'ah -compliant fixed-income funds to clients; and (d) others, including sovereign wealth funds, pension funds, conventional financial institutions and other investors, attracted by the possibility of higher returns on *ṣukūk* (in markets where premiums exist), as well as by the opportunity to diversify investments. Hence, *ṣukūk* is an integral instrument supporting the continuity and stability of the broader Islamic financial services industry.

---

158 See the discussion in Chapter 1 on *ṣukūk* market developments for detailed coverage of the maturity profile of *ṣukūk* issuances.
159 See Chart 1.3.1.8 in Chapter 1 and its related discussions on this aspect.
160 For instance, see S&P Global Ratings (2017), "Will *Ṣukūk* Issuances Volume Beat Forecasts This Year?"
161 IOSCO, Securities Market Risk Outlook 2016.

3.3.2 Islamic Equity and Funds Market

In contrast to a banking model and the bond market – where transactions are generally debt-based,[162] creating legally binding obligations in a risk-transferring mechanism – the equity and funds market is based on an investment model where risks of underlying assets/instruments are borne by the investors, and where prevailing global economic and financial conditions have a profound impact on the performance of the instruments. Hence, this market is risk-absorbing by the investors – unless an event of negligence, fraud and/or misconduct can be proven against the responsible counterparty[163] to the investors.

The global equity markets (and, consequentially, funds market) had endured a difficult 2015 on the back of several challenges ranging from prolonged low energy prices and downwardly revised economic growth outlook, to geopolitical conflicts, exchange rate depreciations and an assets sell-off spree in emerging markets. Hence, most of the performance indicators, including asset values and returns, were in the negative in 2015.[164]

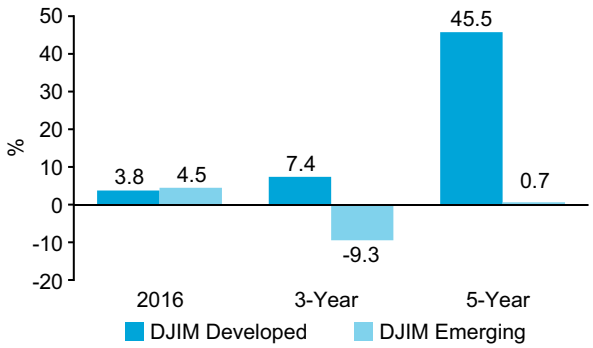
The following year, 2016, began no differently, with a number of volatility-inducing challenges throughout the year ranging from geopolitical uncertainties from (at that time) an impending Brexit vote in the UK and election-year politics in the US; lingering anxiety on persistent slow global growth rates and stability in key economies such as China; continued volatility in commodity prices, including depressed oil prices at the start of the year; and expectations on interest changes based on policy measures by the US Federal Reserve.

However, a surprise outcome in the November 2016 US election led to a late surge in the global equity markets, particularly in the US, as investors perceived the incoming administration to be business-friendly. This, combined with another monumental deal in December between OPEC and major non-OPEC members to see a cut in global oil supply by almost 2%, led to an upward shift in global oil prices and generally more positive economic sentiments moving into 2017 as compared to the start of the previous year. Hence, 2016 has ended on a positive note for the global stock markets, leading to a consequential positive performance by the equity funds in general.

Accordingly, Sharī'ah-compliant stocks, being subsets of the broader global stock market securities,[165] have also generated positive returns in 2016. In contrast to –13.3% and –0.7%, respectively, in 2015, the sampled DJIM Emerging Markets Index and DJIM Developed Markets Index returned 4.5% and 3.8%, respectively, in 2016 (see Chart 3.3.2.1). Notably, and consistent with the analysis highlighted in Chapter 1, the benchmark Islamic equity indices have generated lower returns in 2016 compared to identical conventional equity indices (see Table 3.3.2.1); the conventional DJ Emerging Markets Index returned 7.56%, while the DJ Developed Markets Index returned 4.99% in 2016.

The emerging markets, in particular, were propelled by a turnaround in commodity and energy products prices in 2016; however, on a three-year and five-year basis, the emerging market returns are worse-off in comparison to developed markets, reeling from the heightened funds outflows and currency depreciation challenges in the previous years on account of tapering and curtailment of a post-financial crisis quantitative easing programme by the US Federal Reserve. The developed markets were pushed forward by improved returns in the US markets while at the same time being moderated by challenges in the European region following Brexit and other fiscal and growth challenges in a number of Eurozone countries. This is further confirmed by an analysis of the regional equity indices.

Chart 3.3.2.1 Price Returns of DJIM Developed Markets and DJIM Emerging Markets Indices (2016)



Source: Bloomberg, IFSB

Table 3.3.2.1 Price Returns of Dow Jones Emerging and Developed Markets Index – Islamic versus Conventional (2016)

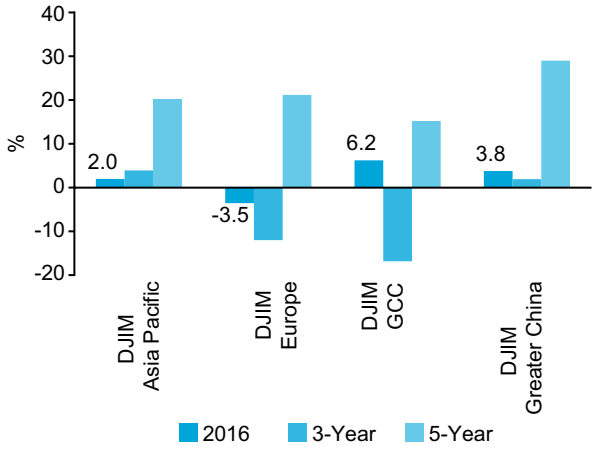
	DJ Islamic	DJ Conventional
Emerging Markets	4.5%	7.56%
Developed Markets	3.8%	5.0%

Source: Bloomberg, IFSB

The regional equity indices (see Chart 3.3.2.2) experienced a strong rebound in the GCC region, which yielded a 6.2% return for 2016 in the DJIM GCC Index (2015: –18.3%); a rebound was also witnessed for the Chinese market at 3.8% (2015: –1.3%) along with a small improvement in the Asia-Pacific region at 2% (2015: 0.1%). DJIM Europe, however, continued its negative returns trend and also fared slightly worse in 2016, yielding –3.5% (2015: –1.5%).

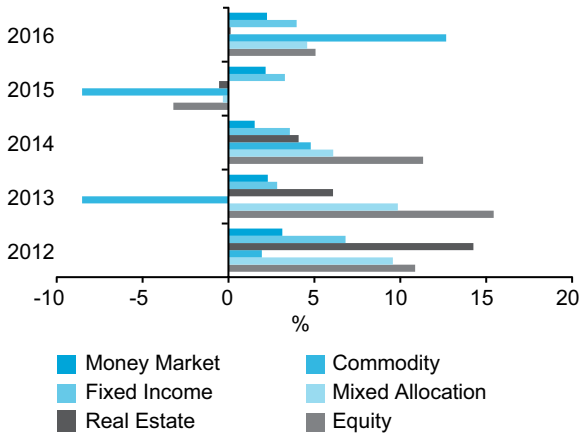
[162] Some Islamic transactions based on sale or leasing contracts also create a debt obligation.
[163] This may include instrument obligors, fund managers, asset managers, intermediaries, etc. depending upon the nature of the responsibilities of the contracting parties and the necessary laws and regulatory guidelines.
[164] Detailed coverage of the Islamic equity and funds market for 2015 is available in IFSI Stability Report 2016.
[165] As discussed in Chapter 1.

Chart 3.3.2.2 Price Returns of DJIM Equity Indices by Region (2016)



Source: Bloomberg, IFSB

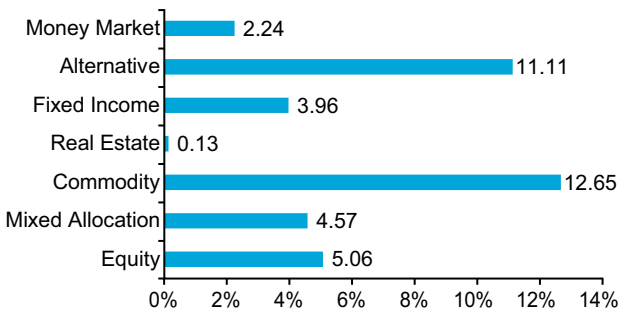
Chart 3.3.2.4 Historical Returns of Islamic Funds by Asset Type



Source: Bloomberg, IFSB

The positive returns generated by the equity markets, in turn, led to a strong performance by the Islamic funds.[166] In 2016, all types of Islamic fund asset classes generated positive returns (see Chart 3.3.2.3); in contrast, nearly all asset classes (except money market and fixed income) generated negative returns in the previous year (see Chart 3.3.2.4).

Chart 3.3.2.3 Returns of Islamic Funds by Asset Type* (2016)



Note: There may be some similarities, or even possibly overlaps, between the asset classes to the extent that a fund is qualified to be listed in more than one category (e.g. funds that invest in actual commodities vis-à-vis funds that invest in equities of the commodities sector). For the purposes of this report, the funds are categorised by asset class based on classifications as provided by Bloomberg.

Source: Bloomberg, IFSB

The best performer in 2016 was the commodities asset class (which includes the oil and gas sector, as well as funds invested in commodities trading), which experienced a sharp turnaround to post an average return of 12.7% (2015: –8.5%); a similar strong rebound in returns was also experienced in the asset class of alternative investments (which includes investments in funds involved in natural resources, gold and others),[167] which posted an average annual return of 11.1% (2015: –7.8%). The equities funds and mixed allocations funds also returned to positive territory to post 5.1% and 4.6% returns, respectively, in 2016 (2015: –3.2% and –0.3%). On the other hand, there were near-consistent performances by the fixed-income and money market asset classes at 4% and 2.2%, respectively (2015: 3.3% and 2.2%, respectively). The real estate asset class, the once key performing asset class in the Islamic funds industry (see Chart 3.3.2.4), has remained a poor performer with a 0.1% return in 2016 (2015: –0.5%).

In terms of returns by geographical focus of funds' investments, four emerging markets were the best performers, along with the United States as the fifth (see Chart 3.3.2.5); Pakistan (15.1%), South Africa (14.8%), Indonesia (9.4%) and Turkey (8.7%) yielded the best returns for Islamic funds, while funds with a US geo-focus yielded 7.7% in 2016. Of the previous year's negative performers, GCC yielded 2.3% (2015: –6.6%), while global-focused funds returned 6.6% (2015: –0.7%). The returns were negative for funds with a Malaysia focus at –0.7% (2015: 3.3%), while positive for funds with a Saudi Arabian focus at 3% (2015: –6.6%).[168]

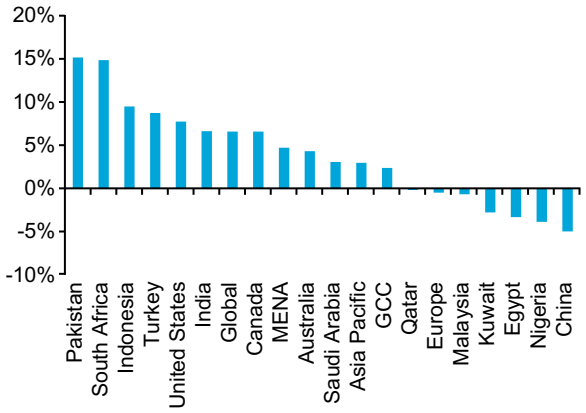
[166] Due to a change in external database sources, numbers reported for 2016 may not be directly comparable to previous years. Hence, the numbers reported for 2016 and its resulting comparisons to previous years should be interpreted with caution.

[167] There may be some similarities, or even possibly overlaps, between the asset classes of commodities and alternative investments to the extent that a fund is qualified to be listed in either category – for the purposes of this report, the funds are categorised by asset class based on classifications as provided by Bloomberg.

[168] Recall from Chapter 1 that global-focused investments are now the largest category, accounting for 34% of the total Islamic funds AuM in 2016; Malaysian-focused investments are the second-largest, accounting for 25% of the total AuM; and Saudi Arabia-focused investments are the third-largest, accounting for 21% of the total AuM.

3.0 ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SYSTEM

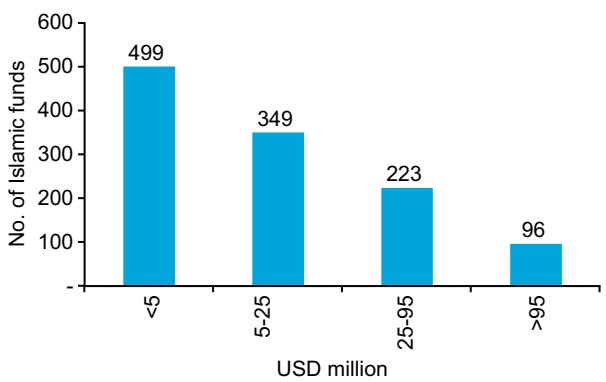
Chart 3.3.2.5 Returns of Islamic Funds by Geographical Focus (2016)



Source: Bloomberg, IFSB

Finally, on the long-standing issue of scale and size of Islamic funds, the industry appears to have taken a step back (see Chart 3.3.2.6); in 2016, the number of funds with less than USD 5 million AuM has expanded to 499, representing 43% of the total number of funds (2015: 460, or 38%). For the larger fund size ranges, the proportion has declined across all: for the AuM range of USD 5–25 million (2016: 30% versus 2015: 33%); USD 25–95 million (2016: 19% versus 2015: 20%); and, finally, more than USD 95 million (2016: 8% versus 2015: 10%). This has profound implications for the stability and resilience of the industry, as Islamic funds risk being less competitive than conventional funds by way of missing out on scale economies. As of 2016, 73% (or 848) Islamic funds have an AuM of less than USD 25 million; comparatively and as highlighted in Chapter 1, statistics from 2014 indicate that the average AuM of conventional funds was USD 394 million.

Chart 3.3.2.6 Number of Islamic Funds by Asset Size (2016)



Source: Bloomberg, IFSB

Summary and Challenges

In summary, the Islamic equity and funds market is also directly affected by global economic and financial developments; and in an era of considerable volatilities and uncertainties, the role of fund managers and other market intermediaries (e.g. financial advisors) in making investment calls (using investors' funds) is even more challenging. The above concern arises when, for the first time in many years, the Islamic equity indices have yielded lower returns compared to identical conventional equity indices; this reverses a traditional claim by many commentators that Islamic equities generally outperform conventional instruments. Nonetheless, from a resilience perspective, and factoring in returns since the pre-financial crisis years (2006–2016), Islamic equities did outperform conventional ones.

The Islamic market also has an added layer of processes related to Sharīʿah compliance of underlying securities and business operations, with players in the Islamic funds industry having an additional set of transparency and disclosure requirements[169] to comply with (e.g. when dealing with purification of tainted income, change in Sharīʿah compliance status of invested securities, and the overall Sharīʿah screening methodology used by the fund manager). While this aspect has been known to increase costs and complexity in the *ṣukūk* market,[170] it remains unknown whether costs of such monitoring and compliance are material enough to exert margin pressures in the Islamic funds market. This concern is particularly amplified since most funds in the Islamic capital market lack sufficient scale; hence, the Islamic funds industry is in critical need of amassing greater scale in order to remain competitive and spread relevant compliance costs over a larger volume.

In a broader industry-wide context, emerging challenges emanate from new realities such as changing client demographics and preferences for modern and digitised distribution methods. The global asset management industry is being pushed to embrace new online investment platforms in order to meet the needs of an evolving client base that favours new distribution channels (mobile devices); poses unique sales challenges (given their preference for low-cost, passive strategies); and demands transparency (information is a given, not an option). Failure to keep up with these changing structural dynamics can put the Islamic funds industry at an even more competitive disadvantage.

[169] In this regard, the IFSB has recently released IFSB-19: Guiding Principles for Disclosure Requirements for Islamic Capital Market Products.
[170] See related discussions in the *ṣukūk* subsections of Chapters 1 and 3.

Some initiatives have already been undertaken in the Sharī'ah-compliant financial technology ("FinTech") realm; there are now a few Sharī'ah-compliant venture capital and crowdfunding platforms online. However, these are operating in a relatively untested environment and a number of key questions arise in relation to their operations, including on appropriate regulations; Sharī'ah governance issues; rights of contracting parties; enforceability of contracts in the legal sphere; taxation issues (if any); prevention of moral hazard by fund-raising parties; audit requirements of underlying businesses, etc. Hence, this structural evolution brings with it a new set of challenges for the Islamic capital market requiring careful policy responses by the relevant stakeholders.[171]

Overall, as highlighted in Chapter 1, the market penetration of Islamic funds remains concentrated in only a few countries; while Islamic funds are domiciled in 37 jurisdictions, funds of two jurisdictions account for 67% of the total industry's AuM. Islamic funds in the other 35 jurisdictions are still a niche segment, including in many key Islamic finance jurisdictions with deep-rooted Islamic banking sectors (e.g. the UAE, Pakistan, Indonesia, Kuwait, Qatar, etc.). It remains to be seen whether the advent of new online and mobile-based platforms will be a game-changer (e.g. through an ease in making investment placements) for capital market activities in these jurisdictions, encouraging an expansion in, and development of, the funds industry in general.

3.4 *TAKĀFUL:* ASSESSMENT OF ITS RESILIENCE

In 2016, the global insurance market reported steady growth rates, supported largely by emerging markets. However, financial market volatility was a recurring theme in 2016, particularly following political risks in advanced economies, such as the Brexit vote. Instability in financial markets may adversely affect the investment returns of insurance/*takāful* operators through lower returns on *ṣukūk*, equity and real estate.

The *takāful* sector sustained its double-digit growth, registering 12% growth in 2015[172] despite varying global market conditions. The sector forms a critical role in supporting economic activity, as a robust *takāful* market is necessary to support risk management in Islamic finance, particularly for the Islamic banking sector. For example, Sharī'ah-compliant home financing usually involves the asset being protected under a *takāful* scheme – without *Takāful*, the Islamic bank would have to rely on conventional insurance and, thus, could not guarantee full Sharī'ah compliance for its financial products. For the broader economy, the availability of comprehensive *takāful* products enables businesses and households to manage risks, while providing investment opportunities as many family and medical *takāful* products now offer an investment-linked component.

The growth and resilience of the *takāful* sector is driven by key developments in the global economy and financial markets, as well as by domestic developments. As highlighted in the analyses of Islamic banking and *Ṣukūk* markets, global economic growth remained moderate in 2015, against a backdrop of reduced capital flows[173] into emerging economies. In addition, the slowdown and rebalancing of the Chinese economy and lower commodity prices created a strain on key *takāful* markets[174] in the Middle East, parts of Africa and South-East Asia. Subdued economic growth affects the *takāful* sector through weaker consumer spending on durables such as housing and cars, as well as private health care. Meanwhile, the outlook of continued weakness in commodity prices and slower capital inflows into key *takāful* markets in the Middle East and Asia has led to more cautious business spending and investment, which are also key drivers of *takāful* growth. Apart from its primary role of providing protection and risk management functions, the *takāful* market also invests in *ṣukūk*, mutual funds, and to some extent in real estate. The current environment of accommodative interest rates – both in advanced and emerging markets – creates a challenge for *takāful* companies to generate sizeable returns on investments.

Developments in domestic policies will also likely impact the business growth of the *takāful* market moving forward. Of importance, policymakers in selected GCC countries have recently pushed for mandatory medical coverage requirements, thus supporting the uptake and premiums of medical *takāful* in the region. Policymakers in Saudi Arabia, Qatar and Dubai have recently announced mandatory medical coverage requirements. The health-care market in GCC nations is forecasted to expand by 11–13% annually from 2015 to 2020,[175] spurred by the rise in lifestyle-related health concerns that require specialised care, such as diabetes, heart disease, cancer and respiratory ailments. To date, health-care spending is heavily funded by governments (accounting for 65–85% share[176]) and this is expected to change as governments undertake steps to support a more robust private health-care sector. These changes are likely to support the growth of *takāful* operators specialising in health-care products. In the motor segment, under new rules announced in September 2016, motorists in the UAE

---

171 See Chapter 4 of this report, which highlights the innovations related to financial technology (FinTech) and a corresponding set of challenges it raises for the financial markets in general, and Islamic finance in particular.

172 The financial performance of the global *takāful* industry remains a challenge as information concerning *takāful* operations is mostly irregular and scant for most operators. The analysis excludes Iran (which has a sizeable *takāful* sector) due to limited information from individual *takāful* operators. Due to data constraints, the report focuses on developments in 2015 instead of 2016.

173 IMF World Economic Outlook (October 2015).

174 IMF World Economic Outlook (April 2016).

175 Alpen Capital estimates (February 2016).

176 "Investment big bets: Health care and life sciences in the GCC", Ernst & Young calculations based on BMI database (January 2016)

3.0 ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SYSTEM

will face higher coverage needs as the regulations extend liability coverage to spouses, children and parents; while the maximum sum insured has been increased significantly for damage inflicted on third-party properties in a motor accident.

Meanwhile, Malaysia's central bank released the road map for tariff liberalisation in motor and fire tariffs in June 2016. Over the next few years, the phased liberalisation plan is expected to give insurance and *takāful* operators more flexibility in pricing, thus supporting innovation in products and profitability of operators.

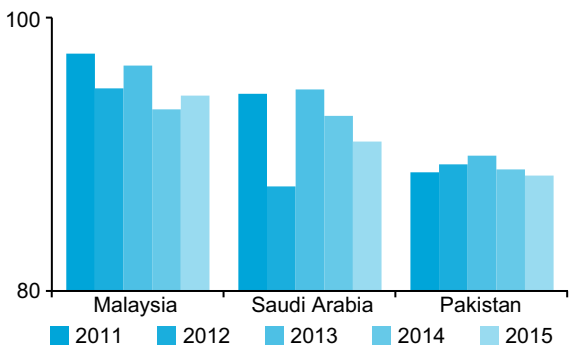
In most Islamic finance domiciles, the *takāful* market continues to operate in direct competition with conventional insurance. Notably, large multinational insurance companies have over the years formed *Takāful* companies in key domiciles in Asia and the Middle East. Thus, the resilience and growth of the *takāful* market continues to be intricately linked to recent trends in the global and regional insurance sectors. Overall, the growth of the global insurance sector moderated in 2015 compared to 2014 amidst challenging economic and financial conditions (see Chapter 1.4). Global non-life premiums expanded at a slower pace, while growth in life insurance remained steady. Investment returns also moderated in light of lower returns from fixed-income securities and corporate bonds, while equities remained volatile throughout the year. Other notable developments related to *takāful* include slower commercial insurance renewal rates in the Asia-Pacific property market, and the benefit insurers in the MENA region have experienced from higher motor premiums and strong growth in the health-care segment.

Malaysia and the GCC remain as key markets for *takāful*; thus, analysis within this chapter will closely focus on these two important market drivers, in addition to other emerging *takāful* markets, including Pakistan and Indonesia. Iran is also a key player in the *takāful* market. However, due to the unavailability of consistent company data, this section omits Iran from the analysis. Malaysian *takāful* companies remain dominated by family *takāful*, which accounted for a 71.2% share in gross contributions in 2015. Conversely, the GCC markets mainly catered to general *takāful* needs, with the exception of Saudi Arabia. In Saudi Arabia, health insurance, which includes both compulsory and non-compulsory lines of business, remained the largest line of business in 2015, accounting for 52% of its total gross premiums.[177] These trends are broadly unchanged in the past five years. Despite regulatory developments such as compulsory health insurance in Dubai,[178] as well as the gradual rise of motor premiums in Malaysia,[179] the share of family versus general *takāful* contributions in these regions is likely to remain broadly similar in the next few years.

Based on a sample[180] of *takāful* operators, key ratios were examined to review the resilience of the industry on an annual basis. This section's analysis is focuses on several countries due to data availability and their locations in different regions.

When compared across business lines, operators with a greater share of family *takāful* would have a higher risk retention ratio (see Chart 3.4.1), due in part to the fact that in many policies a large proportion of premiums goes for investment rather than risk protection, and in part to the higher predictability of the risks covered, which allows *takāful* operators to retain a high portion of this risk. Similarly, within general *takāful*, highly specialised and higher-volatility segments such as marine or aviation *takāful* would have a lower risk retention ratio. Given the high-risk nature of these segments, *takāful* operators are more reliant on re*takāful* services to manage these risks. Both Malaysia and Saudi Arabia reported high risk retention ratios[181] in the family *takāful* sector, compared to Qatar and Pakistan. Similar trends were reported in the general *takāful* segment (see Chart 3.4.2). Within Malaysia and Saudi Arabia, there was some variation in risk retention rates across companies in the sample. Other things being equal (e.g. as between companies undertaking similar business), higher risk retention ratios reflect that the operator is better able to manage underwriting risks and does not rely greatly on re*takāful* or reinsurance. If the value is low, it implies a high level of dependence on financial security from partners in re*takāful*. Between 2014 and 2015, there were marginal changes in risk retention ratios within countries, with some showing an increase and some declines. In Saudi Arabia, the retention ratio increased due to the high retention ratio of motor and health insurance, which collectively account for around 81.6% of total gross premiums. In 2015, the retention ratios for motor and health insurance were 92% and 96%, respectively.[182]

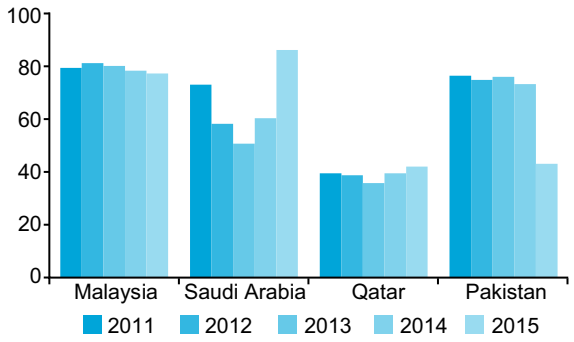
Chart 3.4.1 Risk Retention Ratios (Family *Takāful*) (2011–2015)



Source: Annual reports of selected takāful operators

177 Saudi Arabian Monetary Agency (2015), The Saudi Insurance Market Report.
178 Announced in December 2013. Implementation is ongoing.
179 Implemented from 2013 to 2015.
180 The sample includes data from Saudi Arabia, Qatar, Malaysia and Pakistan. Other key *takāful* domiciles were explored, but were then excluded due to lack of comprehensive data over the period 2011–2015. The overall sample includes 18 *takāful* operators across the four countries, of which one-third are *takāful* windows.
181 The risk retention ratio depends on the type of risk, which is specific for each line of business, as such retention ratio it is evaluated separately for the general and family segments in the sample.
182 Saudi Arabian Monetary Agency (2015), The Saudi Insurance Market Report..

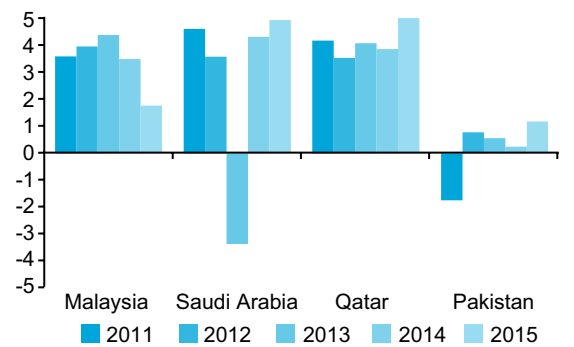
Chart 3.4.2 Risk Retention Ratios (General *Takāful*) (2011–2015)



Source: Annual reports of selected takāful operators

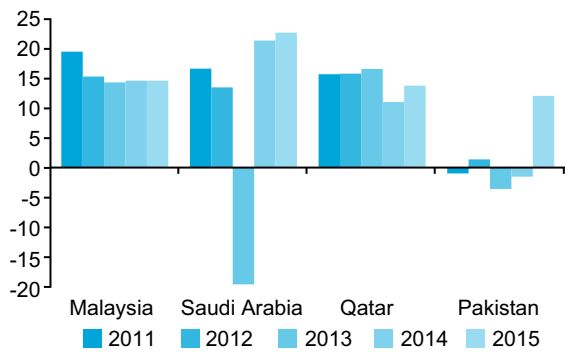
Despite pressures from economic headwinds – in particular, lower oil price – profitability in the GCC region, such as in Saudi Arabia and Qatar, as measured by ROA and ROE (see Charts 3.4.3 and 3.4.4), improved in 2015 compared to 2014. On the demand side, GCC *takāful* operators will be supported by increasing uptake of medical *takāful* products, as well as continued growth in vehicle sales. Meanwhile, the ROA in Malaysia saw a small decline, attributable to losses in two out of eight companies in the sample.

Chart 3.4.3 Return on Assets (2011–2015)



Source: Annual reports of selected takāful operators

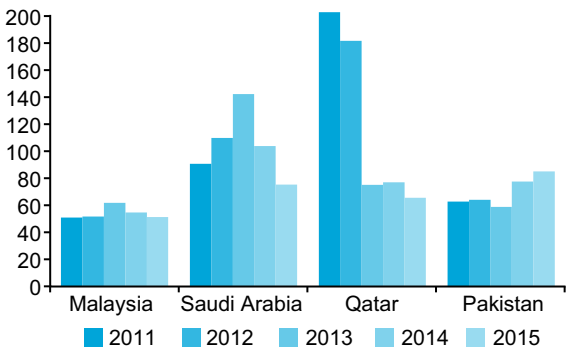
Chart 3.4.4 Return on Equity (2011–2015)



Source: Annual reports of selected takāful operators

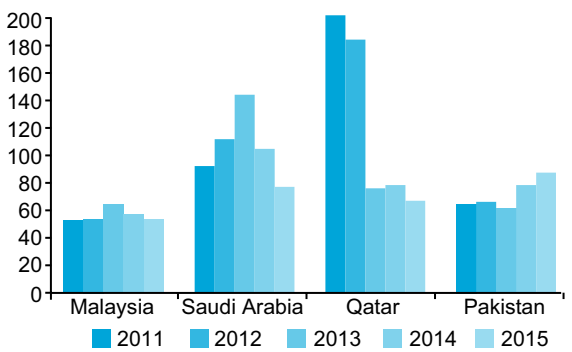
The improved performance in terms of ROA and ROE of the *takāful* operators in the two GCC countries covered by our sample is also attributable to better claims management, as reflected in the declining claims ratio in both general and family *takāful* (see 3.4.5 and 3.4.6). In terms of claims, the trends in Malaysia's *takāful* market differed from the conventional insurance industry. Insurers reported an increase in claims attributed to higher medical and death claims, while disability payouts declined.[183] Nevertheless, both Saudi Arabia and Qatar reported a slight increase in the expense ratio. Meanwhile, the decline in the expense ratio in Pakistan is attributable in part to a change in the sample countries this year.

Chart 3.4.5 Claims Ratio, General *Takāful* (2011–2015)



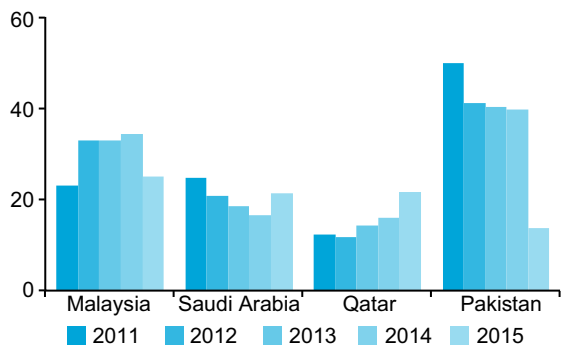
Source: Annual reports of selected takāful operators

Chart 3.4.6 Claims Ratio, Family *Takāful* (2011–2015)



Source: Annual reports of selected takāful operators

Chart 3.4.7 Expense Ratio (2011–2015)



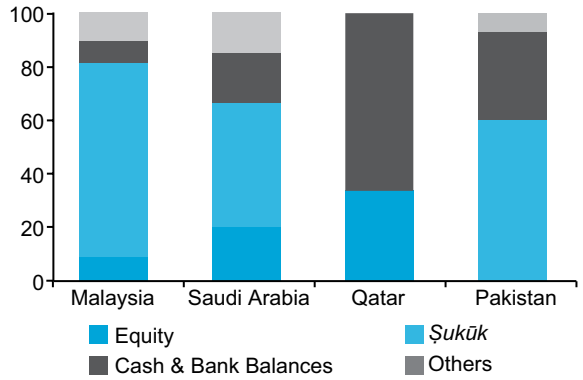
Source: Annual reports of selected takāful operators

[183] "Life insurance industry sees single digit growth in 2016", The Star, February 2016.

3.0 ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SYSTEM

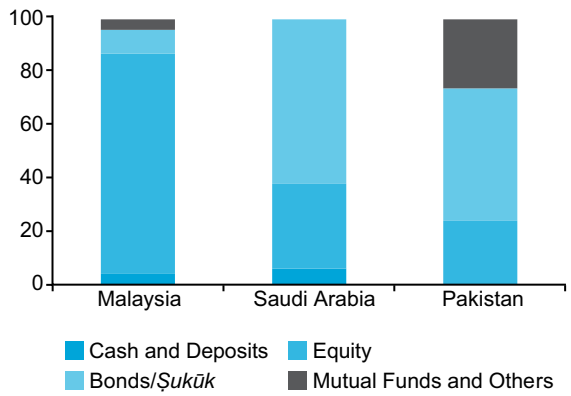
Overall, *ṣukūk* remained as the most popular investment instrument among GCC and Asian *takāful* operators, particularly in Malaysia and Qatar. Deposits also accounted for a sizeable share of investment of aggregate shareholder funds.[184] Pakistan reported a higher share of investments in mutual funds compared to other domiciles.

Chart 3.4.8 Investment Composition for the Aggregate Shareholders' Funds (2015)[185]



Source: Annual reports of selected takāful operators

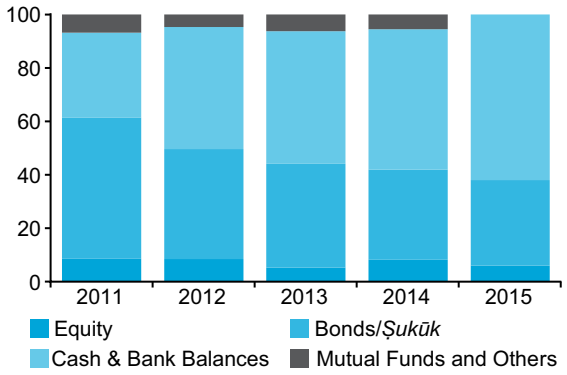
Chart 3.4.9 Investment Composition for General *Takāful* Funds (2015)*



** Shareholders' funds*

Source: Annual reports of selected takāful operators

Chart 3.4.10 Evolution of Investment Portfolio of General *Takāful* Funds in Saudi Arabia (2011–2015)*

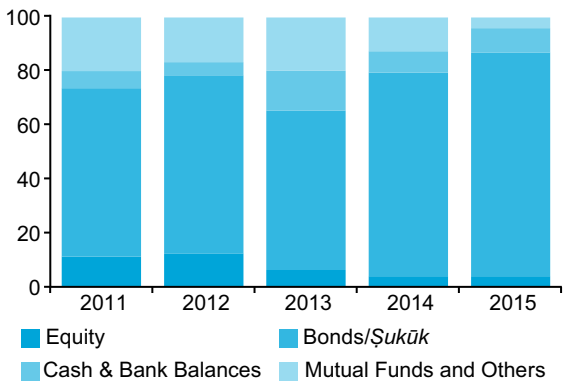


** Shareholders' funds*

Source: Annual reports of selected takāful operators

Over the past five years, general *takāful* operators in Saudi Arabia have increased cash holdings and deposits, possibly a buffer against the current environment of heightened uncertainty in the financial markets. Meanwhile, Malaysian general *takāful* operators have steadily increased holdings of *ṣukūk* since 2013.

Chart 3.4.11 Evolution of Investment Portfolio of General *Takāful* Funds in Malaysia (2011–2015)*



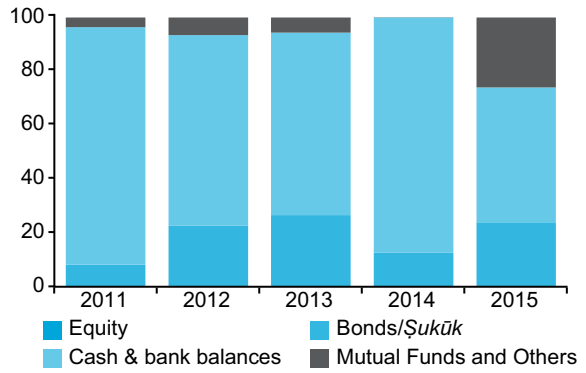
** Shareholders' funds*

Source: Annual reports of selected takāful operators

[184] "Shareholders' funds" refers to funds from the *takāful* operators and its shareholders, which includes its paid-up capital. Returns from this fund are channelled to shareholders only. The fund is separate from participants' funds, which comprises premiums paid by policyholders which are utilised to pay claims and generate investment returns for policyholders.

[185] The chart gives a consolidated picture of the investment composition for the aggregate shareholders' funds, as availability of the data didn't allow us to examine the expense ratio separately for the family and general *takāful*.

Chart 3.4.12 Evolution of Investment Portfolio of General *Takāful* Funds in Pakistan (2011–2015)*

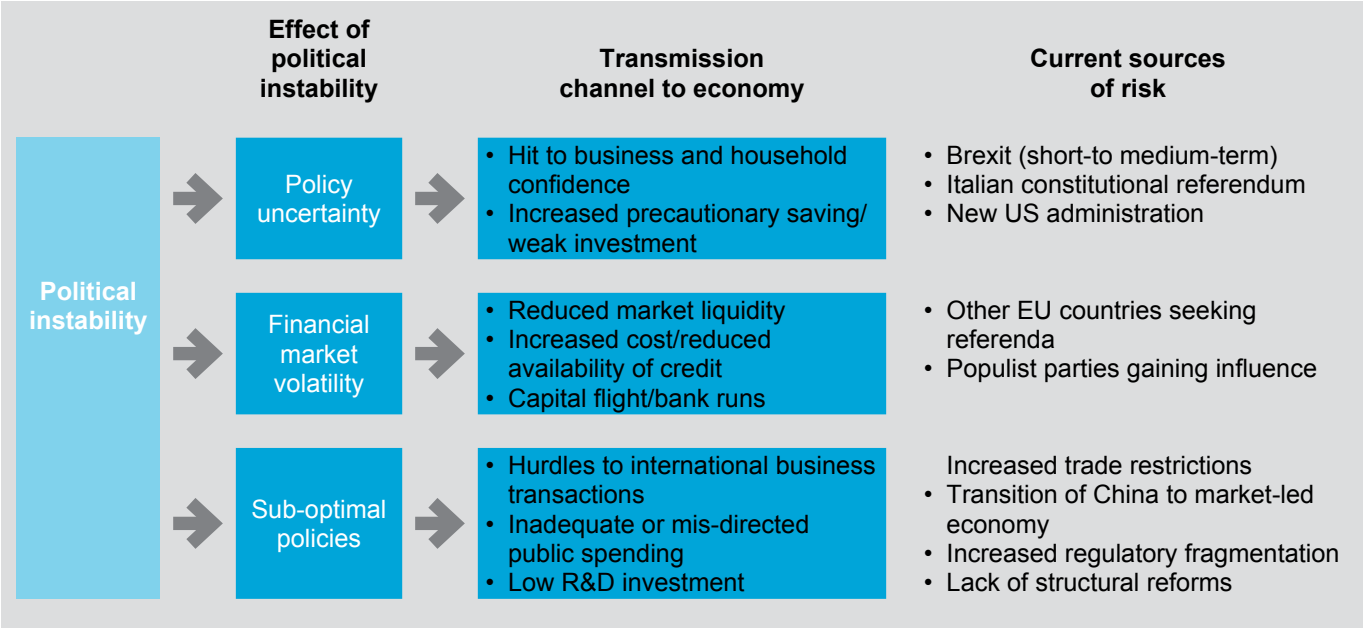


** Shareholders' funds*

Source: Annual reports of selected takāful operators

Looking ahead, there will be challenging conditions for the global financial system as a whole; in particular, further consolidation is expected in the insurance sector. In the global landscape, 2016 also saw a number of political developments that will further shape the global political risk environment. Should the Brexit vote, geo-political tensions and the withdrawal of the US from the Trans-Pacific Partnership agreement, among other developments, result in slow trade growth and greater volatility, this can be expected also to impact the insurance growth trend in the years ahead. Swiss Re, in its Global Insurance Review 2016 and 2017/2018 Outlook reports, identifies three main transmission channels through which the political environment can adversely influence the economic outlook: heightened policy uncertainty; increased financial market volatility; and suboptimal economic policies (see Chart 3.4.13).

Figure 3.4.13 Channels by which Political Instability is Transmitted to Economic Activity



Source: Global Insurance Review 2016 and 2017/2018 Outlook, Swiss Re Economic Research & Consulting

The global *takāful* industry, despite recording double-digit growth trends, may also be affected by economic slowdown, financial market volatility and heightened competition with the conventional insurance market. Nevertheless, developments in domestic policies such as better fiscal policy management in Pakistan, mandatory health coverage in Saudi Arabia, Qatar and Dubai, and the liberalisation of motor and fire tariffs in Malaysia will likely lend support to the growth and resilience of *takāful* operators. *takāful* operators must be able to provide products and services to support the real economy and improve business scale for operational efficiency.

3.5 OVERALL SUMMARY

The global IFSI has weathered another year of depressed growth conditions amid considerable downside risks and new challenges emerging from the political sphere. While there are no major untoward failures, there are some signs of weakening across the three sectors of the IFSI.

3.0 ASSESSMENT OF THE RESILIENCE OF THE ISLAMIC FINANCIAL SYSTEM

Islamic Banking

The Islamic banking sector has generally sustained its return on assets and equities as a whole in the past two years; however there are considerable heterogeneities on a jurisdictional level, as some markets (e.g. Indonesia, Nigeria, Malaysia and Oman) have witnessed a persistent decline in returns. A similar observation is in terms of asset quality where, while the broader industry NPF has remained contained, some jurisdictions (e.g. Bahrain and Iran) exhibit persistent high-level NPF rates. The capitalisation in the industry at a Tier-1 level indicates a 9.71% ratio in 1H2016, which, while declining over time, is still above the Basel III/ IFSB-15 minimum regulatory requirements of 6%. An area of continued concern is the short-term liquidity health of Islamic banks; the liquid assets to short-term liabilities ratio has generally tightened across the sample with indications of a build-up of considerable pressure in some markets (e.g. Turkey, Oman, Nigeria and Indonesia). Exposures to the real estate sector, which was largely responsible for the build-up of impaired financing in the financial books during the financial crisis years, appears still to be a cause for concern in some jurisdictions (e.g. Bahrain, Brunei, Indonesia and Jordan).

Overall, conditions vary significantly between countries, and each jurisdiction is exposed to its unique set of domestic conditions. Some of the pressures in 2016 and beyond will emanate from fiscal deficits that are likely to contain spending by some governments; this will exert liquidity pressure on Islamic banks that are mainly dependent on public-sector deposits. Challenges will also emanate from weaker economic growth prospects, which will feed into the financing growth fundamentals of the Islamic banking sector; this, in turn, may also affect profitability and returns of the Islamic banking sector. Some risks may also persist in terms of asset quality and non-performance of accounts, particularly in jurisdictions where subsidies are cut, causing a reduction in disposable incomes available to individuals.

Islamic Capital Markets

In contrast to previous years, there was a noticeable decline in demand exuberance for new *ṣukūk* issued in 2016 as measured by times oversubscription and by the volume of order book generated. This is potentially reflecting a new reality in the financial markets where availability of liquidity for investments is possibly contained. The stretch of a six-year default-free record of the global *sukūk* market also came to an end, as two tranches of *ṣukūk* by an oil and gas-based issuer in Singapore defaulted in 2016. From a pricing perspective, primary market issuances largely indicated a continued practice of premiums payable on pricing of new *ṣukūk* in contrast to conventional bonds; however, when analysing yields on *ṣukūk* traded in the secondary market, based on a sample of domestic *ṣukūk* in four jurisdictions, there is no consistent pattern to indicate that *ṣukūk* investors have demanded higher yields to identical bonds. On a positive note, the market has completely moved away from the use of those contracts (e.g. *bayʿ al-īnah*) whose Sharīʾah compliance is most disputed as the bases of *ṣukūk* structures.

In the Sharīʾah-compliant listed equities and Islamic funds market, the returns were generally positive in 2016 on the back of a late rally following the outcome of the US election results (which investors perceived as heralding a business-friendly US political administration) and also due to a deal between OPEC and major non-OPEC members to see a cut in global oil supply, leading to an upward shift in global oil prices and generally more positive economic sentiments. The commodities asset class (which includes the oil and gas sector, as well as funds invested in commodities trading) was the best-performing Islamic fund in 2016. On the downside, however, the benchmark Islamic equity indices generated lower returns in 2016 compared to the identical conventional equity indices. Furthermore, on an efficiency and scale perspective, the Islamic funds market was worse-off in 2016 as the number of funds with less than USD 5 million AuM expanded to 499, representing 43% of the total number of funds (2015: 460, or 38%), while the proportion of funds in the larger size ranges has declined. As of 2016, 73% (or 848) Islamic funds have an AuM of less than USD 25 million; comparative statistics from 2014 indicate that the average AuM of conventional funds was USD 394 million.

Takāful

The growth and resilience of the *takāful* sector is driven by key developments in the global economy and financial markets and, in an era of depressed conditions, the *takāful* operators face considerable challenges in generating viable returns on portfolios while also increasing market penetration with more clientele. However, despite these conditions, *takāful* operators were able to sustain profitability and returns in 2015, particularly in the GCC region. Based on available indicators and data, the GCC *takāful* operators appear to have benefited from a declining claims ratio in both general and family *takāful* to sustain their returns and profitability. On the downside from a stability perspective, two key *takāful* markets, Malaysia and Saudi Arabia, report high risk retention ratios. From a risk management perspective, this implies that the *takāful* undertakings retain risk that could have been dispersed via re*takāful*.

In general, the global insurance (and *takāful*) industry will be influenced by the developing political environment on account of three main transmission channels: heightened policy uncertainty, increased financial market volatility, and suboptimal economic policies. In particular, financial market volatility will have an impact on the returns being generated by the *takāful* portfolios. Some insurance business lines with deep correlations to economic growth and international trade, such as marine and transportation, will also be affected by the global slowdown. On the positive side, advances in solvency regulation in key markets, especially in the GCC and East Asian regions, and also market creation by way of compulsory insurance requirements in areas such as motor and health, will improve the fundamentals of the *takāful* sector. Nonetheless, a pressing concern remains the small size of many *takāful* undertakings, and it is likely that improved regulations will push for consolidation and M&A activity in the sector.

In summary, the global IFSI needs to build long-term resilience during an era of weak growth and uncertainties; the double-digit growth rates with very high institutional capitalisations of the past are no longer a reality. The three main sectors of the IFSI have illustrated some signs of weakening, requiring measured efforts by the national authorities to address emerging risks.

4.0 EMERGING ISSUES IN ISLAMIC FINANCE

4.1 STRESS TESTING ISLAMIC BANKS: ESSENTIAL PERSPECTIVES AND PRELIMINARY EMPIRICAL INSIGHTS

Key Highlights

- Unemployment is the most important macroeconomic shock factor, bearing profound implications in stress testing of Islamic banks. A 2% increase in unemployment can lead to an increase in Islamic banking NPF by 9.02%.
- Interest rates[186] have unique and profound implications for Islamic banks and influence customers' expectations of returns on deposits leading to displaced commercial risks (DCRs). A 2% increase in the benchmark interest rate can lead to a decrease in Islamic banking financing by 12.06% – signalling rate-sensitivity of borrowers – and also to a decrease in Islamic banking deposits by 10.82% – signalling DCR of depositors/investment account holders (IAHs).
- Oil prices do not have any direct impact on Islamic banks; rather, the oil price effects are transformed through other macroeconomic variables – for example, unemployment – hence, the impact is indirect.
- Real estate prices continue to have prominent sensitivities for Islamic banks. A 10% decrease in real estate prices can lead to an increase in Islamic banking NPF by 9.8%.
- Inflation is another macroeconomic determinant having important implications for Islamic banking performance. A 2% increase in inflation can lead to a decrease in Islamic banking financing of 4.46%.

4.1.1 Introduction

In an era of increased volatility in the global economic and financial system, policymakers have a profound interest in better understanding financial-sector vulnerabilities and measures to mitigate crisis events. The post-Bretton Woods period has been associated with a number of banking and financial crises in diverse regions globally, including, for instance, the Latin American debt crisis (early 1980s), Mexico (1994), the Asian Financial Crisis (1997–1998), Russia (1998), Argentina (1998–2002) and the recent Global Financial Crisis (2007–2009). One of the key techniques for pre-emptively identifying financial-sector vulnerabilities is stress testing.

Stress tests in the financial sector are conducted to quantify the impact of any extreme-yet-plausible economic shock scenarios on the viability and going-concern of the financial institutions and/or the entire financial system. The exercises require mobilisation of competent human capital and technical efforts to design such shock scenarios involving extreme adversities in key macroeconomic variables, and then establishing macrofinancial linkages between these variables and financial indicators in an institution and/or system. The goal is to assess the resilience of the financial sector, by way of numerical simulations for the near future (usually the forthcoming three years), to withstand any potential economic and financial distress and to undertake appropriate remedial action (initiated either by the responsible authorities or troubled institutions themselves) should stress test results identify any weaknesses.

Stress testing was brought to the forefront of financial stability modelling following the initiation of the Financial Sector Assessment Programmes (FSAPs) by the IMF and the World Bank in 1999 as a comprehensive and in-depth analysis of a country's financial sector. One of the two goals of FSAPs is to assess the stability of the member country's financial sector through conducting stress tests and analysis on systemic risks.[187] The international standard-setting body for the banking sector, the Basel Committee on Banking Supervision, followed on by introducing regulatory and supervisory stress test requirements from banks in its Basel II framework under Pillar 1 Minimum Capital Requirements and also as part of Pillar 2's Supervisory Review Process.[188]

Since then, stress testing has become an integral function of dedicated financial stability departments within most regulatory and supervisory authorities. The RSAs conduct stress tests as part of their macrofinancial surveillance mandate to assess vulnerabilities facing individual financial institutions, and financial systems as a whole, with a view to identifying the impact of shocks on financial-sector stability. Stress testing is also increasingly an integral part of individual financial institutions' internal risk management policy, partly due to local regulatory requirements and also to better serve their internal risk-based decision making.

---

[186] While theoretical foundations of Islamic finance strictly do not allow for interest rates in any capacity, recent literature has in fact demonstrated that Islamic banking performance has a correlation with interest rates as it is a widely used pricing benchmark for Islamic financial transactions – for example, see Chong and Liu (2009). Some dual-banking system jurisdictions have attempted to move away from this by introducing Islamic benchmark rates – for example, the Kuala Lumpur Islamic Reference Rate (KLIIR). However, principles of financial arbitrage ensure that rates in the conventional and Islamic markets remain closely aligned.

[187] For more details on FSAPs, see the IMF's Factsheet on FSAP available at: https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/16/14/Financial-Sector-Assessment-Program.

[188] *See Basel II: International Convergence of Capital Measurement and Capital Standards: A Revised Framework – Comprehensive Version,* June 2006, available at www.bis.org/publ/bcbs128.pdf.

The GFC of 2007–2009 has further underscored the importance of robust and well-constructed stress tests. The harrowing experience faced by many RSAs in advanced economies in dealing with a distressed financial sector (e.g. declining capital ratios, plummeting equity prices, government takeovers of failing financial institutions, etc.) has generated important lessons for the industry's stakeholders, particularly on the significance of systemic risk and a macroprudential approach towards financial-sector surveillance and stress tests.[189] RSAs since then have worked towards developing a range of stress-testing models that incorporate macroprudential aspects with a view to identifying and correcting systemic risk build-ups in the financial sector.

4.1.2 Stress Tests in the IFSI

Stress testing, as part of the broader macroprudential surveillance and integrated financial stability analysis, is also of utmost importance in the Islamic financial sector. The joint IFSB, Islamic Research and Training Institute (IRTI) and Islamic Development Bank High Level Task Force on Islamic Finance and Global Financial Stability, headed by H.E. Dr. Zeti Akhtar Aziz (then Governor, Bank Negara Malaysia) identified the development of an appropriate macroprudential surveillance framework as one of the eight critical building blocks aimed at further strengthening the Islamic financial infrastructure at the national and international levels to promote a resilient and efficient Islamic financial system.[190] The Task Force further acknowledged the challenge of implementing this macroprudential framework given the limited availability of indicators specific to Islamic finance that would provide a basis for the assessment of financial soundness and risk to vulnerabilities in the Islamic financial system as a whole and among its components.

Stress testing is also an essential supervisory toolkit as part of the key elements in the supervisory review process for authorities supervising Islamic banks, as highlighted in IFSB-16: *Revised Guidance on Key Elements in the Supervisory Review Process* (which complements Basel II's Pillar 2). IFSB-16 highlights the supervisors' role in examining an Islamic bank's stress-testing results to review both its internal capital assessment and its liquidity risk management. Stress testing is also referred to in a number of Core Principles for the regulation and supervision of the IFSI, in IFSB-17: *Core Principles for Islamic Finance Regulation (Banking Segment)*.

An earlier IFSB survey,[191] conducted in 2010 on a sample of 100 Islamic banks, indicated that 60% of the responding Islamic banks indicated that stress testing was a supervisory requirement in their respective jurisdiction, but that there was no specific or detailed regulatory guidance for stress testing Islamic banks and no prescriptive stress scenarios given by the supervisory authority. In fact, some of the supervisory authorities required Islamic banks to perform stress testing under a conventional risk management framework, but the market players indicated that specific guidance provided to Islamic banks would be more relevant. Hence, these respondents referred to the need to develop an approach that specifically targets Islamic banks' operations. The same survey further identified that 57% of respondents felt that "availability of models and modelling expertise" was the biggest challenge they encounter when implementing stress testing in their institutions. The "quality of the data" was perceived as the second-biggest challenge.

A second survey from the same project sampled 14 supervisory authorities. Seventy-one per cent (10 out of 14) of the respondents indicated that they required Islamic banks to conduct stress testing, but only 43% (6 out of 14) indicated that they had provided guidance to Islamic banks on conducting stress testing. Furthermore, only 43% (6 out of 14) of the respondents indicated that they made regular and comprehensive assessments of Islamic banks' stress-testing programmes. An even lower number –29% (4 out of 14) of the respondents – specified that they asked Islamic banks to use specific scenarios considering specific characteristics of IFSI., An overwhelming majority – 93% (13 out of 14) – indicated that they consider "asset quality" among the most important factors for assessing capital adequacy – a factor empirically studied in later sections of this chapter.

The IFSB, in line with its mandate as the global standard setter for Islamic finance, has responded on three fronts on the issue of stress testing Islamic banks: (1) IFSB-13 (March 2012): *Guiding Principles on Stress Testing for Institutions offering Islamic Financial Services;* (2) TN-2 (December 2016): *Technical Note on Stress Testing for Institutions offering Islamic Financial Services; and (3) Database on Prudential and Structural Islamic Financial Indicators.*

IFSB-13: Guiding Principles on Stress Testing for Institutions offering Islamic Financial Services[192]

IFSB-13 complements two seminal documents on stress testing that were published in response to the GFC: (1) BCBS (May 2009), Principles for Sound Stress Testing Practices and Supervision;[193] and (2) Committee of European Banking Supervisors (CEBS) (August 2010), CEBS Guidelines on Stress Testing.[194] IFSB-13's *Guiding Principles* stated that it is important for Islamic banks to recognise and take account of the implications for risk management arising from the differences between their operations and balance sheet structures and those of the conventional banks in their stress-testing programmes. This implies an approach to stress testing (including various specific scenarios) that differs in some respects from that applicable to conventional institutions.

---

189 The objective of this article is to provide some preliminary empirical insights on macrofinancial linkages for stress testing the Islamic banking sector; hence, the discussion on recent developments in stress testing is not elaborated. However, interested readers may refer to BCBS Working Paper 29 (2015): "Making supervisory stress tests more macroprudential: Considering liquidity and solvency interactions and systemic risk", available at www.bis.org/bcbs/publ/wp29.pdf.

190 See IFSB-IRTI-IDB, "Islamic Finance and Global Financial Stability" (April 2010), available at www.ifsb.org/docs/IFSB-IRTI-IDB2010.pdf.

191 As part of due process in the preparation of IFSB-13.

192 Available at: www.ifsb.org/standard/eng_IFSB13%20Guiding%20Principles%20on%20Stress%20Testing%20 (Mar2012).pdf.

193 Available at www.bis.org/publ/bcbs155.pdf.

194 Available at https://www.eba.europa.eu/documents/10180/16094/ST_Guidelines.pdf.

The specific factors include special attention to the position of the investment account holders and its implications for risk management. In addition, Sharī'ah-compliant risk mitigation techniques, Sharī'ah-compliant securitisation, real estate investment, and issues related to commodity *Murābaḥah* transactions need to be taken into account while designing and conducting stress-testing exercises. The specific risk factors that will be critical to incorporate in stress-testing scenarios and in Islamic banking-wide stress testing as a whole include credit risk, market risk, liquidity risk, rate of return risk, displaced commercial risk, investment risk for *muḍārabah* and *mushārakah*, and operational risks, which include qualitative risk factors such as Sharī'ah non-compliance risk.

IFSB-13 further highlighted the gaps and challenges with regards to stress-testing simulations for Islamic banks which, among others, were:

(a) Islamic banks' proactivity in adopting stress testing but the lack of specific regulatory guidelines;

(b) a relatively weak disclosure regime on stress-testing practices in the IFSI;

(c) the availability of robust stress test models and modelling expertise; and

(d) quality of data, which is critical in ensuring a successful stress test simulation and its results.

TN-2: Technical Note on Stress Testing for Institutions offering Islamic Financial Services[195]

In response to some of the gaps and challenges highlighted in IFSB-13, TN-2 was issued by the IFSB which operationalises IFSB-13 and provides technical guidance to both RSAs and Islamic banks in developing, conducting and assessing stress tests. There are five stress test templates in TN-2 which incorporate risk specificities of Sharī'ah-compliant contracts and address multiple types of risk, including credit risk within financing portfolios, equity risk in equity investment portfolios, market risk on assets held, foreign exchange risk, liquidity risk, rate of return risk, and discussions on aspects of Sharī'ah non-compliance risk. The templates provide the flexibility of having stress test results analysed and assessed across three levels: at a portfolio level, at an institution-level, and at the aggregate industry-wide level – and duly take into account the role of loss-absorbing unrestricted PSIAs (including adjustments for the IFSB regulatory alpha factor). The industry-wide stress tests are introduced in TN-2 as an exercise on aggregated values of the Islamic banking sector that enable RSAs to identify any weaknesses or potential vulnerabilities to plausible extreme shocks in the Islamic banking system.

Prudential and Structural Islamic Financial Indicators (PSIFIs)[196]

Finally, the IFSB's PSIFIs project was created as a parallel system to the IMF Financial Soundness Indicators (FSIs) with appropriate adaptations for Islamic finance. The project includes two types of indicators, called Prudential Islamic Financial Indicators and Structural Islamic Financial Indicators. The database currently provides quarterly Islamic banking and windows data for 17 countries starting end-2013. The availability of this data facilitates macroprudential analysis, stress-testing exercises, and an assessment of the structure and state of development of the IFSI. The aggregated data are compiled by the banking RSAs for Islamic banks in different jurisdictions and disseminated by the IFSB.

The three IFSB projects highlighted above complement each other and support wider implementation of stress tests well-suited to capture the risk specificities of Islamic banks. In recent times, stress testing has increasingly become a regulatory and supervisory requirement for banks (including Islamic banks) in most jurisdictions that implement, at a minimum, Basel II and its complementary IFSB standards. As the global Islamic banking industry is now worth nearly USD 1.5 trillion in assets and has achieved domestic systemic importance in 12 countries,[197] it is hoped that the IFSB's two standards (IFSB-13 and TN-2) will address some of the expertise and technical guidance requirements of the industry's stakeholders.

4.1.3 Stress Determinants in the Islamic Banking Industry

Despite its importance, stress testing Islamic banks has generally not been a well-published topic. An extensive literature review identifies a series of papers[198] in recent years that have focused on, and empirically tested, risk exposures, risk management, and performance and efficiency aspects of Islamic banks, including some theoretical studies on stress testing. However, an empirical analysis on Islamic banks from a stress-testing perspective is generally lacking, possibly due to insufficient data availability as well as the technical nature of this subject matter. In the same spirit, this article attempts a preliminary empirical study on the macroeconomic stress determinants of the Islamic banking industry's financial indicators. The study, in the absence of granular Islamic banking financial statements data, focuses on broader industry-wide stress determinants and vulnerabilities. It is hoped that this empirical analysis will encourage more work in future to better understand this subject matter. The subsection is divided into two stages: (1) establishing macrofinancial linkages in the Islamic banking industry; and (2) understanding Islamic banking stress factors and their resulting performance implications.

---

195 TN-2 and its stress-testing templates are available for download at http://ifsb.org/published.php#TN. Readers may also refer to subsection 2.2.1.2 of this stability report, which provides a detailed summary of the key coverage of TN-2 and its stress-testing templates.

196 Available at www.ifsb.org/psifi_03.php. Readers may also refer to Box 1.2.1 in Chapter 1 of this stability report, which provides a detailed overview of the IFSB PSIFI database.

197 As noted in subsection 1.1 of this stability report.

198 For instance, see Samad (2004); Shubber and Alzafari (2008); Furqani and Mulyani (2009); Hasan and Dridi (2010); Cihak and Hesse (2010); Tafri et al. (2011); Beck et al. (2013); Abedifar et al. (2013); Chatta and Archer (2016); and others. Full bibliographical details are available in the references list at the end of the report.

4.1.3.1 Macrofinancial Linkages

An important component of meaningful stress-testing exercises is the identification of macroeconomic determinants of financial-sector performance – that is, establishing the macrofinancial linkages between banking-sector financial indicators and macroeconomic indicators. In literature, a number of studies[199] have attempted to identify and discuss the appropriate set of variables (indicators) that should be used in establishing this relationship. The most commonly employed macroeconomic determinants are: GDP growth, interest rate, inflation, unemployment, exchange rate, stock price index, exports, balance of payments, foreign direct investment (FDI) and measures of broad money supply, among others. For the banking-sector financial indicators, the most studied indicator is non-performing loans (NPL) followed by total assets, credit/loans growth, liabilities/funding structure, non-interest expense, operating profit before taxation, and net interest income, among others.[200]

Based on the above, this study considers the following list of macroeconomic variables: GDP growth, interest rate, inflation rate, unemployment rate, exchange rate, stock price index, plus two additional variables – real estate prices and oil price – as it is widely understood that the Islamic banking sector in some markets, particularly in the GCC, has strong exposures to these two economic subsectors. From the Islamic banking financial indicators perspective, the variables under investigation are non-performing financing (NPF), total assets, total financing and total deposits (including PSIA).

Annual data for the macroeconomic variables have been extracted from the World Bank's World Development Indicators (WDI) database, and any missing data points from this source were filled with data extracted from the Bloomberg Terminal. The Islamic banking-sector annual data are based on a sample of 57 full-fledged Islamic banks[201] (including subsidiaries with their own separate financial statements) across 10 countries and have been extracted from the annual financial statements. The choice of the Islamic banks included in the sample was mainly driven by data availability throughout the sample period, while the countries included were purposely selected to represent the 10 largest domiciles (excluding Iran) for Islamic banking assets in US Dollar terms.

The sample period of the study, based on annual macroeconomic and Islamic banking-sector data availability, is 2008–2015. As the dataset is cross-sectional in nature, panel regression analysis is conducted following model specifications and estimation methods as commonly used in literature identified earlier. In the remainder of this article, econometric analysis is carried out to examine how macroeconomic conditions affect NPFs, financing, deposits and overall assets in the Islamic banking industry. Table 4.1.3.1.1 provides a detailed summary of the panel data statistics and methodology.

Table 4.1.3.1.1 Summary Panel Data Statistics and Methodology

Purpose of Analysis	Examine how macroeconomic conditions affect NPFs, financing, deposits and assets in the Islamic banking industry.
Sample Banks	57 full-fledged Islamic banks (including subsidiaries).
Sample Countries	10 (Bahrain, Bangladesh, Indonesia, Kuwait, Malaysia, Qatar, Pakistan, Saudi Arabia, Turkey and United Arab Emirates).
Period of Study	2008–2015 (annual data)

[199] For instance, see Gizycki (2001); Clair (2004); Gerlach et al. (2005); Festic and Beko (2008); Bohachova (2008); Costeiu and Neagu (2013); Morley (2016); and others. Full bibliographical details are available in the references list at the end of this report.

[200] A number of studies also include bank-specific variables such as asset size and sectoral concentration in financing in the panel regression model. This is to capture bank-specific interactions between macroeconomic factors and financial variables. However, the objective of this article is to provide some preliminary empirical insights into the interactions between macroeconomic variables with the broader aggregated Islamic banking sector performance. Hence, bank-specific variables were not included in the model and the modelling was done on aggregated Islamic banking data on a country-basis. Accordingly, results should be interpreted in this section.

[201] See Appendix for a list of Islamic banks included in the sample.

4.0 EMERGING ISSUES IN ISLAMIC FINANCE

Macroeconomic Variables	1. Annual GDP Growth (nominal terms) 2. Interest Rates (3-month interbank rates) 3. Inflation (broad CPI) 4. Unemployment (as % of total labour force) 5. Exchange Rate (local currency versus the US Dollar) 6. Stock Price Index (main jurisdictional exchange index – used as a proxy measure of a change in asset prices) 7. Oil Prices (international markets in US Dollars) 8. Real Estate Prices (where available, country's house price index; however, an alternate proxy used was country's stock market's real estate sub-index provided by the local exchange or international financial services providers – for example, S&P). *Source: World Bank WDI and Bloomberg*
Islamic Banking Variables	1. NPFs (ratio of NPF to total financing) 2. Total Assets 3. Total Financing 4. Total Deposits (including PSIA) *Source: Annual Financial Statements* *Note: As the dataset is based on reporting in financial statements across different countries, it cannot be claimed with certainty that the classifications of each of these variables across the sample were constructed using a uniform methodology.*
Econometric Methodology	Panel regression analysis using STATA 13 was conducted using either a fixed-effects model or a random-effects model based on results from the Hausman test. For brevity and in line with the scope of this report, full methodological aspects from an econometrics perspective are not discussed. However, interested readers are referred to: Hsiao, C. (2007), "Panel data analysis – advantages and challenges", available at **http://link.springer.com/article/10.1007/s11749-007-0046-x.** Reyna, O. (2007), "Panel Data Analysis: Fixed and Random Effects using Stata", available at **https://www.princeton.edu/~otorres/Panel101.pdf.** *Note: Although, in this study's case, the time-series dimension is not very small relative to the cross-sectional dimension, it is often proposed that a generalised method of moments (GMM) procedure is more efficient in cases in which the number of periods (T) is small relative to the number of cross-sectional observations (N). In future work with more detailed data, it is intended to explore the GMM procedure and other estimation techniques to derive the most efficient results.*
Financial Model Specifications	In line with similar studies in literature in this area, the financial models were specified as follows: $y_{i,t} = f(x_{i,t}) + error_{i,t}$ where *i* denotes the Islamic banking-sector variable of a particular sample country and *t* denotes the time period (e.g. 2008). The list of *x* independent variables in this model includes the macroeconomic determinants of each dependent variable y – that is the Islamic banking-sector variables. Overall, the dataset was a balanced panel. *Note: Where applicable, log transformations were conducted on data to enable percentage elasticity analysis based on regression results.*

(a) Islamic Banking Asset Quality

The results for macroeconomic determinants of NPF across the overall Islamic banking sample are presented in Table 4.1.3.1.2. Four macroeconomic variables have an inverse relationship with NPF: GDP, inflation, stock prices and real estate prices. That is, a 1% decrease in GDP, inflation, stock prices and real estate prices causes NPF to rise by 2.48%, 3.15%, 0.65% and 0.98%, respectively, in the Islamic banking industry. This observation is consistent with economic theory for GDP and stock prices, a decrease in which is likely to reduce disposable incomes and wealth of individuals in the population, hence causing an increase in banking-sector NPF rates. The inverse relationship of real estate prices with banking NPF is also economically sound and this trend was largely witnessed in the period 2008–2010, particularly in the GCC Islamic banks where a crash in real estate prices had substantially increased the NPF rates. A finding of inverse relationship for inflation – for example, higher inflation leading to lower NPF/NPL – is also consistent with past studies (e.g. see Gerlach et al., 2005) and is explained as an improvement in borrowers' ability to meet obligations by eroding the real value of the debt burden.

On the other hand, positive relationships were identified for unemployment and exchange rate, where a 1% increase in each of these causes NPF to increase by 4.51% and 0.69%, respectively. This is once again a plausible finding, as economic intuition would suggest that an increase in unemployment is likely to increase non-payments on banks loans while an exchange rate depreciation in an economy is also likely to have negative implications, particularly if financing was undertaken in foreign currency (e.g. for trade financing).

The most intriguing finding, however, was no apparent statistically significant relationship between interest rates and oil prices and that of Islamic banking-sector NPFs. While a theoretical temptation is to applaud the result of no relationship between interest rates and NPF, hence absolving the Islamic banking industry from correlations to interest rates, it is, however, a result requiring deeper investigations. Intuitively, one possible reason is the sample period of 2008–2015, which has witnessed persistent record-low global interest rates in an era of unconventional monetary policies – hence, interest rates are not the most likely reason for non-payments. The finding of no statistically significant relationship between oil prices and Islamic banking NPFs also has important implications as it suggests that Islamic banks do not have substantial exposures to the oil sector. This assertion is partly supported by a breakdown of the Islamic banking sector's financing by sectoral composition which does not indicate Islamic banks as having any material direct exposures to the oil sector.[202] However, a further plausible explanation is the fact that the oil sector is largely government-owned in many Islamic banking jurisdictions – hence, NPF of governments and GRE is very rare.

Table 4.1.3.1.2 Determinants of NPFs across the Islamic Banking Industry

$NPF_{i,t}$	Coeff.	Std Err.
$GDP_{i,t}$	–2.48**	(1.26)
$IR_{i,t}$	1.08	(2.37)
$IF_{i,t}$	–3.15*	(1.85)
$UE_{i,t}$	4.51***	(1.73)
$ER_{i,t}$	0.69***	(0.05)
$SP_{i,t}$	–0.65***	(0.14)
$OL_{i,t}$	0.04	(0.34)
$RE_{i,t}$	–0.98**	(0.47)
Overall R^2	0.88	

*Note: *, ** and *** indicate that variables are significant at the 10%, 5% and 1% levels, respectively. The specified model above was able to explain 88% of the variations in the dependent variable "NPF" as indicated by the overall R2.*

IR = Interest Rate; IF = Inflation; UE = Unemployment; ER = Exchange Rate; SP = Stock Price Index; OL = Oil Price; RE = Real Estate Price

(b) Islamic Banking Financing Growth

The results for macroeconomic determinants of financing growth across the overall Islamic banking sample are presented in Table 4.1.3.1.3. In this model, four macroeconomic variables have an inverse relationship with financing growth: interest rates, inflation, unemployment and stock prices. It is particularly intriguing to note that interest rates have an important effect on financing, as a 1% change affects financing growth inversely by 6.03%; hence, Islamic banking customers are rate-sensitive. Similarly, financing growth also has a sizeable elasticity of 5.75% to 1% change in unemployment. Inflation and stock prices are also inversely related, a 1% shift causing inverse changes of 2.23% and 0.21%, respectively. The results are consistent with economic theory – a rise in interest rates and inflation translates as higher prices and is likely to put off some spending by corporates and consumers alike; hence, there is a reduction in borrowing activity. An increase in stock prices is likely to improve disposable incomes and wealth, hence also causing a reduction in borrowing activity.

On the other hand, positive relationships were identified for exchange rate and real estate prices where a 1% increase in each of these causes financing to increase by 0.74% and 0.58%, respectively. The nature of these relationships is small in terms of elasticity (less than 1%) and the positive sign is likely due to a need for increased borrowings to fund overseas expenditure (e.g. on imports) or a higher financing requirement for real estate purchases activity given that Islamic banks have active material exposures in the real estate sector. There was no statistically significant relationship between GDP and oil prices and that of Islamic banking-sector financing growth.

[202] See Chart 3.2.3.1, "Islamic Banking Sectoral Composition of Financing by Country (2Q2016)", in Chapter 3 of this report.

Table 4.1.3.1.3 Determinants of Financing Growth across the Islamic Banking Industry

$FIN_{i,t}$	Coeff.	Std. Err.
$GDP_{i,t}$	0.22	(0.71)
$IR_{i,t}$	–6.03***	(1.34)
$IF_{i,t}$	–2.23**	(1.04)
$UE_{i,t}$	–5.75***	(0.98)
$ER_{i,t}$	0.74***	(0.03)
$SP_{i,t}$	–0.21***	(0.08)
$OL_{i,t}$	–0.29	(0.19)
$RE_{i,t}$	0.58***	(0.18)
Overall R^2	0.96	

*Note: *, ** and *** indicate that variables are significant at the 10%, 5% and 1% levels, respectively. The specified model above was able to explain 96% of the variations in the dependent variable "FIN" as indicated by the overall R2.*

IR = Interest Rate; IF = Inflation; UE = Unemployment; ER = Exchange Rate; SP = Stock Price Index; OL = Oil Price; RE = Real Estate Price

(c) Islamic Banking Deposit Growth

Deposits (including PSIA) are very important from a liquidity risk management perspective in the Islamic banking industry. The results for macroeconomic determinants of deposits growth across the overall Islamic banking sample are presented in Table 4.1.3.1.4. Just like the financing growth model, this model also has the same four macroeconomic variables with an inverse relationship with deposit growth: interest rates, inflation, unemployment and stock prices. The latter three with sensitivities of –2.12%, –5.31% and –0.22% are economically sound and indicate that, during price and unemployment increases in an economy, deposits go down on account of withdrawals to compensate for the higher price/consumption expenditure. A decrease in stock prices is likely to reduce disposable incomes and wealth, hence leading to a decline in deposits growth.

The most intriguing result is the negative sign on the interest rates variable and which is statistically significant at the 1% level; this indicates that a 1% increase in interest rate is associated with a 5.41% decline in Islamic banking deposits (including PSIA). This finding, although surprising from a traditional economics and banking model point of view, corresponds with the argument that unless returns on Islamic banks' deposits and PSIA match those of conventional returns, they are at risk of withdrawals if conventional interest rates rise. Thus, while Islamic banking deposit and PSIA structures are governed by principles of Sharī'ah, and returns payable on PSIA are, in theory, subject to terms and conditions of the underlying Sharī'ah contracts and based on the underlying assets they represent, Islamic banks are exposed to displaced commercial risk (DCR) as they face commercial pressure to match conventional returns and to absorb a portion of losses that normally would have been borne by investment account holders in order to prevent withdrawals of funds.

Meanwhile, positive relationships were identified for exchange rate and real estate prices, where a 1% increase in each of these causes deposits to increase by 0.76% and 0.56%, respectively. The nature of these relationships is small in terms of elasticity (less than 1%) and the positive sign is likely due to extra cash in local currency terms (e.g. foreign currency deposits or from higher export earnings). There was no statistically significant relationship between GDP and oil prices and that of Islamic banking-sector deposits growth.

Table 4.1.3.1.4 Determinants of Deposit Growth across the Islamic Banking Industry

$DEP_{i,t}$	Coeff.	Std Err.
$GDP_{i,t}$	–0.08	(0.54)
$IR_{i,t}$	–5.41***	(1.01)
$IF_{i,t}$	–2.12***	(0.79)
$UE_{i,t}$	–5.31***	(0.74)
$ER_{i,t}$	0.76***	(0.02)
$SP_{i,t}$	–0.22***	(0.06)
$OL_{i,t}$	–0.21	(0.15)
$RE_{i,t}$	0.56***	(0.14)
Overall R^2	0.98	

*Note: *, ** and *** indicate that variables are significant at the 10%, 5% and 1% levels, respectively. The specified model above was able to explain 98% of the variations in the dependent variable "DEP" as indicated by the overall R2.*

IR = Interest Rate; IF = Inflation; UE = Unemployment; ER = Exchange Rate; SP = Stock Price Index; OL = Oil Price; RE = Real Estate Price

(d) Islamic Banking Assets Growth

The results for macroeconomic determinants of assets growth across the overall Islamic banking sample are presented in Table 4.1.3.1.5. The relationship of Islamic banking NPFs, financing and deposits (including PSIA) with macroeconomic variables weigh in on the overall macro-linkages of the Islamic banking assets. Interest rates are a key factor affecting assets growth, bearing an inverse elasticity; hence, a 1% increase in interest rates reduces Islamic banking assets by 5.72%. Unemployment is another key factor with an inverse relationship; a 1% increase in unemployment reduces Islamic banking assets by 4.72%. Inflation and stock prices are the other two variables with inverse elasticities – 2.04% and 0.19%, respectively – although stock prices have a very small estimated coefficient. Small positive coefficients were estimated for exchange rate and real estate prices, where a 1% increase in each of these causes Islamic banking assets to increase by 0.75% and 0.53%, respectively. As with the financing and deposits growth models, there was no statistically significant relationship between GDP and oil prices and that of Islamic banking-sector assets growth.

Table 4.1.3.1.5 Determinants of Assets' Growth across the Islamic Banking Industry

ASTi,t	Coeff.	Std Err.
$GDP_{i,t}$	–0.04	(0.57)
$IR_{i,t}$	–5.72***	(1.08)
$IF_{i,t}$	–2.04**	(0.84)
$UE_{i,t}$	–4.72***	(0.79)
$ER_{i,t}$	0.75***	(0.03)
$SP_{i,t}$	–0.19***	(0.06)
$OL_{i,t}$	–0.26	(0.16)
$RE_{i,t}$	0.53***	(0.15)
Overall R^2	0.97	

*Note: *, ** and *** indicate that variables are significant at the 10%, 5% and 1% levels, respectively. The specified model above was able to explain 97% of the variations in the dependent variable "AST" as indicated by the overall R2.*

IR = Interest Rate; IF = Inflation; UE = Unemployment; ER = Exchange Rate; SP = Stock Price Index; OL = Oil Price; RE = Real Estate Price

4.1.3.2 Stress Factors and Performance Implications

The estimations on macrofinancial linkages[203] in the previous subsection provide useful insights on the key macroeconomic factors that bear profound implications for the stable and resilient performance of the Islamic banking industry. These insights enable stress testers to gauge the impact from their extreme-yet-plausible macroeconomic shock scenarios on the financial indicators of Islamic bank(s) and/or aggregate sector under study. They also enable policymakers to make informed decisions regarding the potential impact from any proposed macroeconomic changes on the financial sector's stability and performance. Some of the key stress factors identified from the earlier analysis and their resulting performance implications for the Islamic banking industry are discussed below.

(a) Unemployment is the Most Important Macroeconomic Shock Factor

The Islamic banking industry is particularly susceptible to unemployment rates and this is mainly due to a sectoral exposure largely towards household/personal and retail segments in many of the key Islamic banking markets.[204] A 1% shift in unemployment (and with all other factors remaining constant) causes very elastic changes (at least 4% and more) across all the Islamic banking indicators under study: NPF, assets, financing and deposits.

Stress Example: A macroeconomic shock that entails a 2% increase in unemployment will lead to:

- an increase in Islamic banking NPF of 9.02%;
- a decrease in Islamic banking financing of 11.50%;
- a decrease in Islamic banking deposits of 10.62%; and
- a decrease in Islamic banking assets of 9.44%.

(b) Interest Rates Have Unique and Profound Implications and Lead to DCRs

The Islamic banking industry is uniquely exposed to interest rates as it grapples between theoretical underpinnings that ban interest and practical realities that usually lead to interest rates serving as pricing benchmarks for Islamic financial transactions. Importantly, the findings here give credence to the presence of DCR in the Islamic banking funding structure. A 1% shift in interest rates causes very elastic changes (at least 5% and more) across three Islamic banking indicators under study: assets, financing and deposits. NPF, however, does not appear to vary with a shift in interest rates and this is plausibly due to the record-low interest rates environment in the prolonged unconventional monetary policies period – thus ensuring that borrowing costs are low and not necessarily being a factor to cause non-payments by borrowers.

Stress Example: A macroeconomic shock that entails a 2% increase in benchmark interest rates will lead to:

- no statistically significant shift in NPF;
- a decrease in Islamic banking financing of 12.06%, signalling rate-sensitivity of borrowers;
- a decrease in Islamic banking deposits of 10.82%, signalling DCR of depositors/IAHs; and
- a decrease in Islamic banking assets of 11.44%.

(c) Oil Price Does Not Have Any Direct Influence; Rather, Impact is Through Indirect Means

The findings in this study indicate that oil prices do not directly have an effect on Islamic banking financial indicators; rather, the oil price effects are transformed through other macroeconomic variables, such as unemployment; hence, the impact is indirect. This is mainly due to a lack of material direct financing exposure concentration by Islamic banks into the oil and gas sector.

Stress Example: A macroeconomic shock that entails a 50% decrease in crude oil prices will lead to:[205]

- no statistically significant shift in NPF;
- no statistically significant shift in Islamic banking financing;
- no statistically significant shift in Islamic banking deposits; and
- no statistically significant shift in Islamic banking assets.

[203] The estimations in this article are based on sensitivity analysis which captures interactions between the dependent variable and a particular independent variable, assuming other variables in the model remain constant.

[204] See Chart 3.2.3.1, "Islamic Banking Sectoral Composition of Financing by Country (2Q2016)", in Chapter 3 of this report.

[205] That is, if the oil price varies but all other inputs remain constant (including, for example, unemployment rate, interest rates and real estate prices), then there will be no effect on NPF, financing, etc.

(d) Real Estate Prices Still Have a Prominent Effect on Islamic Banking

Since the GFC, Islamic banks are generally considered to have improved risk management by way of reducing their assets concentration in the real estate sector. The Islamic banking sector's sensitivity to real estate prices is relatively lower than it is to some other macroeconomic variables in this study – for example, a 1% shift in real estate prices causes inelastic changes (1% and less) across all Islamic banking indicators under study: NPF, assets, financing and deposits. However, despite this, real estate prices have tendency to drop sharply in crisis periods; hence, based on this elasticity, real estate prices are still prominent macroeconomic shock factors for Islamic banks.

Stress Example: A macroeconomic shock that entails a 10% decrease in real estate prices will lead to:

- an increase in Islamic banking NPF of 9.8%;
- a decrease in Islamic banking financing of 5.8%;
- a decrease in Islamic banking deposits of 5.6%; and
- a decrease in Islamic banking assets of 5.3%.

(e) Inflation Shocks Also Have Significant Implications for Islamic Banks

The Islamic banking industry is also exposed to inflationary shocks, and this relates with the earlier discussion on sectoral exposure largely towards household/personal and retail segments where higher prices have the effect of reducing disposable incomes and spending. A 1% shift in inflation causes elastic changes (at least 2% and more) across all Islamic banking indicators under study: NPF, assets, financing and deposits. While the indicated signs of movement in financing, deposits and assets are as under normal economic expectations, the sign on the NPF is also inverse, entailing that an increase in inflation causes a decrease in NPF. However, this finding is consistent and has been discussed in past literature and is explained as an improvement in borrowers' ability to meet obligations by eroding the real value of the debt burden.

Stress Example: A macroeconomic shock that entails a 2% increase in inflation will lead to:

- a decrease in Islamic banking NPF of 6.30%;
- a decrease in Islamic banking financing of 4.46%;
- a decrease in Islamic banking deposits of 4.24%; and
- a decrease in Islamic banking assets of 4.08%.

(f) GDP Impact Is Limited to NPF; Does Not Significantly Influence Other Indicators of Islamic Banks

The findings in this study indicate that GDP does not have a statistically significant impact on any of the other Islamic banking indicators under study except NPF. A possible explanation for this is the fact that Islamic banks are still small compared to the conventional banks in many sample countries, and hence do not have substantial exposures to industrial sectors that have a high propensity to fluctuate with economic growth performance. Rather, the exposure is mainly towards household/personal and retail segments – hence, the impact from a GDP decline is on NPF. A 1% shift in GDP causes a 2.48% change in Islamic banking NPF.

Stress Example: A macroeconomic shock that entails a 2% decline in GDP will lead to:

- an increase in Islamic banking NPF by 4.96%;
- no statistically significant shift in Islamic banking financing;
- no statistically significant shift in Islamic banking deposits; and
- no statistically significant shift in Islamic banking assets.

(g) The Impact of Exchange Rate Depreciations is Also Contained

The findings in this study indicate that the impact of exchange rate depreciations is also contained in the Islamic banking industry, although admittedly, there is possibly some strong influence from a number of sample countries that practise a pegged-exchange rates regime. The findings are also explainable on account of limited foreign exchange exposures in the balance sheets of Islamic banks in most of the sample countries involved in this study;[206] hence, a 1% shift in the exchange rate causes inelastic changes (1% and less) across all the Islamic banking indicators under study: NPF, assets, financing and deposits.

Stress Example: A macroeconomic shock that entails a 2% depreciation in exchange rate will lead to:

- an increase in Islamic banking NPF of 1.38%;
- an increase in Islamic banking financing of 1.48%;
- an increase in Islamic banking deposits of 1.52%; and
- an increase in Islamic banking assets of 1.50%.

4.1.4 Conclusion and Limitations of Research

Stress-testing exercises are one of the core toolkits at the disposal of RSAs and financial institutions to identify any build-ups of financial-sector vulnerabilities. It has become a key regulatory requirement, at both the supervisor's level as well as at an institution level, in most countries that implement Basel II Standards and above. It is also of utmost importance for the IFSI and is a key requirement in a number of IFSB Standards, including IFSB-12, IFSB-15, IFSB-16 and IFSB-17, among others. The IFSB has issued two dedicated documents on stress testing of Islamic banks – namely, IFSB-13 and TN-2. These are in direct response to the IFSI stakeholders' request for better guidance on stress testing of Islamic banks.

[206] See Table 3.2.6.1, "Foreign Currency Funding and Financing's Share of Total Funding and Financing", in Chapter 3 of this report for more details.

The global Islamic banking industry is now worth nearly USD 1.5 trillion in assets and has achieved domestic systemic importance in 12 countries. Using sample data from 57 Islamic banks (see Appendix for a list of Islamic banks included in the sample) across 10 countries and during the period 2008–2015, this article has conducted an empirical study on the macrofinancial linkages of Islamic banking financial indicators to key macroeconomic variables. The results have provided valuable insights for not only stress-testing teams, but also for policymakers and other stakeholders.

The study finds unemployment as the most important macroeconomic determinant of Islamic banking assets, financing, deposits (including PSIA) and NPF – a finding plausible given the greater proportionate exposure of Islamic banks to the household/personal and retail segments. However, the study also finds that benchmark conventional interest rates have profound implications for the assets, financing and deposits (including PSIA) of Islamic banks. Most notably, the results indicate a strong presence of displaced commercial risks on the funding side of Islamic banks. This finding confirms a plethora of studies that have suggested that correlations between interest rates and Islamic banking performance are a reality, even though the theoretical underpinnings of Islamic banks may suggest otherwise.

Intriguingly, two especially added macroeconomic variables, oil prices and real estate prices, provided useful understanding about their impact on Islamic banks. First, oil prices did not have any direct influence on Islamic banking financial indicators; rather, the impact was indirect through other macroeconomic variables such as unemployment. And second, it appears that, despite Islamic banks having undertaken a robust balance-sheet clean-up exercise after the financial crisis, real estate prices are still prominent macroeconomic shock factors for Islamic banks, although to a relatively less extent. Among other macroeconomic determinants, inflation was also a key shock variable; the effects from others, including exchange rate depreciations, were contained.

Overall, the results should be interpreted with caution as, like any research study, this study has some limitations. The most notable is a sampling bias in all the results obtained – since the study was performed on a sample of Islamic banks, the results are influenced by these banks and any generalisations to the whole of the Islamic banking industry should be done with that fact in mind. A second important limitation arises from the choice of proxies for certain macroeconomic variables, particularly real estate prices, where, for example, the stock market's real estate sub-index is not the best measure for real estate prices but is the best-available proxy in the absence of a regulator/ministry-led national house price index. A similar third limitation is each bank's reporting of indicators in its financial statements. It cannot be claimed with certainty that the classifications of each banking-sector variable across the sample (e.g. NPF reporting by Bank A in Country A versus Bank B in Country B) were constructed using a uniform methodology. A further limitation relates to the econometric technique employed; this study used a panel regression fixed-effects or random-effects model based on Hausman's diagnostic test results. Some studies suggest that a generalised method of moments (GMM) procedure is more efficient in cases in which the number of periods (T) is small relative to the number of cross-sectional observations (N). In future work with more detailed data, it is intended to explore the GMM procedure and other estimation techniques to derive the most efficient results.

Finally, it is hoped that this empirical analysis will encourage more work in future to improve understanding of this subject matter. Future studies may also wish to incorporate country effects and illustrate how the macrofinancial linkages vary between different countries while also providing a comparison to conventional banks' linkages in each of the jurisdictions under study.

Box 4.1.1 Bank Stress Testing at the IMF: Evolving Practices and Moving Frontiers[207]

By: International Monetary Fund

The practice of stress testing financial institutions – especially banks – is over two decades old. Financial firms use it for portfolio risk management, internal risk control, and to meet prudential and regulatory purposes. Stress tests are increasingly used by the official sector for prudential purposes, and now progressively in formulating financial stability and macroprudential policies.

The IMF was one of the first to launch regular stress testing exercises to assess financial system risks and vulnerabilities in its Financial Sector Assessment Program[208]. Since 1999, more than 300 risk assessments including stress tests have been conducted by IMF staff across 170 jurisdictions covering advanced economies, emerging market economies and low-income countries.

[207] Prepared by a team led by Liliana Schumacher and comprising Udaibir Das, Dale Gray, Fabian Lipinsky, Mindaugas Leika, Miguel Segoviano, Laura Valderrama and TengTeng Xu (all from Monetary and Capital Markets Department, IMF). The views expressed in this paper are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board or IMF management.

[208] For details, see https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/16/14/Financial-Sector-Assessment-Program.

Box 4.1.1 Bank Stress Testing at the IMF: Evolving Practices and Moving Frontiers[207] (Continued)

Initially, the IMF methodology focused on solvency and simple sensitivity analysis-based liquidity stress tests of individual banks. However, the 2008 Global Financial Crisis (GFC) made it evident that these approaches did not fully capture the interactions between the financial sector and the real economy and underestimated the severity of losses. Also, at a *system-wide level,* the risk to financial stability was not just the sum of individual bank losses as typically calibrated in FSAP stress tests. Instead, there are amplification mechanisms that give rise to multiple rounds of losses that are not reflected at the individual institution level. The GFC also highlighted the underestimation by the industry stakeholders in general concerning the impact on the banking system from a fall in sovereign asset prices, as well as the relevance of nonbank financial intermediaries as channels of systemic risk transmission.

These developments made it imperative to map and stress test the broader financial network. Work is thus underway to make several methodological improvements and adopt stress test approaches that could better account for the experience of the GFC. Exhibit 1 summarises the current work agenda and the direction in which the stress testing – and broader financial stability analysis – is headed at the IMF.

Enhancements have been made in three areas: (i) extensions to the IMF's traditional individual bank solvency and liquidity stress testing framework; (ii) extensions to nonbanks relevant from a financial stability perspective; and (iii) clearer focus on systemic risk through the assessment of contagion, interconnectedness, and potential amplification effects. In addition, given the pervasive use of stress tests, the IMF is also placing emphasis on governance and integrity aspects of stress testing.

Exhibit 1. Overview of Stress Testing Methodologies

Traditional IMF Staff Stress Testing Modules	Bank Solvency Stress Tests	Bank Liquidity Stress Tests (sensitivity analysis)
Improvements after the Global Financial Crisis	**Enhancements to Traditional IMF Staff Stress Testing Modules** - Incorporation of sovereign and bank funding risks in solvency tests - Liquidity stress tests triggered by concerns about bank solvency **Stress Tests of Nonbanks** - Money market funds - Bottom up stress tests of insurance companies **Focus on Systemic Risk** - Interconnectedness Based on Balance Sheet Data • Among financial intermediaries • Cross-border intermediation - Market-Based Analysis of Systemic Risk • Use of external methodologies (e.g., CoVaR and Diebold and Yilmaz) • Use of in-house methodologies such as the Consistent Information Multivariate • Density Optimizing (CIMDO) and the Systemic Contingent Claims Analysis (CCA) **Enhanced Governance and Accountability Frameworks for Stress Tests** - Use of guidance documents on stress test principles and methodologies	
Work in Progress	- Top-down stress testing tool for insurance companies - Incorporation of financial institution reaction functions in the stress testing framework - To capture linkages between the real economy and the financial sector - Tools to quantify systemic risk based on a combination of balance sheet data and market-based measures of distress	

Box 4.1.1 Bank Stress Testing at the IMF: Evolving Practices and Moving Frontiers[207] (Continued)

(i) Bank solvency and liquidity

The basic IMF staff stress testing framework has been enhanced along the following lines:

- Estimates of losses due to sovereign and bank funding risks are now part of the FSAP. In most cases, staff adopts an economic value approach and sovereign assets are marked-to-market; in this way, funding costs are assessed from the perspective of the investor who typically focuses on the economic value and disregards accounting standards. The calibration of stressed funding costs has also been enhanced. Bank-specific stressed spreads have been included and are informed by the structure of a bank's liabilities and its risk-based capital buffers, and also by incorporating contagion effects from rising funding costs in peer banks. Bank specific spreads have also been derived using market based estimates or contingent claims analysis (CCA) model where default probabilities for banks are linked to macro factors and projected for various scenarios. This provides information on spreads as well as the credit rating corresponding to the default probability.

- Liquidity stress testing now includes the assessment of cash-flows under stress and shocks to the counterbalancing capacity over a range of maturity buckets up to one-year stress horizon (i.e., considerably beyond the Basel Committee's 30-day Liquidity Coverage Ratio horizon). In some cases, the calibration of the liquidity stress test draws on the assumptions built in the solvency stress test. *First*, stressed haircuts reflect the combined impact of market and funding stress assumed under the solvency scenario. *Second*, default probabilities shifts for credit claims (level 2 assets) under stressed conditions are embedded into the credit risk migration to estimate the dry-up of liquidity. *Third*, the results of the solvency stress test feed into market reaction towards banks' ability to issue wholesale funding over the one-year liquidity test.

(ii) Non-banks

- Stress tests are now extended to insurance companies (conducted by the institutions themselves) and asset management companies.[209] Risks from nontraditional products offered by insurance companies are also assessed. Stress tests also evaluate risks posed by mutual funds when their activities could be of systemic importance. These stress tests focus on redemption risks with the analysis geared to measuring whether funds have sufficient liquidity buffers to face redemptions and if not, whether asset markets would be able to absorb severe redemption pressures.

(iii) Contagion and interconnectedness using balance sheet data and market-based measures of distress

Where bilateral claims data are available, the traditional solvency stress test is augmented to cover other channels of risk transmission. These include solvency effects from (1) a negative liquidity gap in banks facing funding pressures; (2) potential for a default cascade, triggered by an insolvent firm on its creditors; and (3) induced losses (on account of funding risks) to banks that borrowed from a defaulting bank, or in sourcing new funding, or liquidating assets at distressed prices.

On cross-border channels, exposure data at entity level are typically not collected or not easily accessible. Aggregate cross-border exposure data is therefore used for interconnectedness and spillover analysis. The Espinoza-Vega and Sole (2010) network, for example, uses aggregate BIS bank exposure information. This provides insights on the resilience or vulnerability of a country's banking system in relation to other banking systems and captures the outward and inward spillovers and the subsequent impact on banking sector capital. The same approach has also been applied to examine the interconnectedness in the interbank markets using supervisory claims data.

Quantification of interconnectedness and contagion risks is difficult because data are incomplete or unavailable. Supervisory data might also not capture various exposures, e.g., off-balance sheet and complex relationships through markets, and the changing nature of these when volatility is high. Hence, it is useful to complement stress tests based on balance sheet information with risk analysis based on market-based measures of distress.

- The CoVaR methodology (Adrian and Brunnermeier (2016)) is often used to assess these channels of risks.[210] Delta CoVar is the change in the value at risk (VaR) of the financial system conditional on an institution being under distress relative to its median state. This approach helps assess contagion under balance sheet deleveraging, which is a critical regulatory concern. The CoVaR has been generalised by IMF staff to accommodate non-linear asymmetric patterns of systemic risk contribution across the leverage cycle, to include a Generalised Autoregressive Conditional Heteroscedasticity (GARCH) approach to model VaR dynamics and to test a range of regulatory confidence intervals and time horizons [211].

[209] Jobst et al. (2014).
[210] Adrian and Brunnermeier (2016).
[211] Lopez-Espinoza et al. (2012), and Lopez-Espinoza et al. (2015).

Box 4.1.1 Bank Stress Testing at the IMF: Evolving Practices and Moving Frontiers[207] (Continued)

- The Diebold and Yilmaz (D&Y) methodology is also used. The D&Y methodology is a framework for conceptualising and empirically measuring interconnectedness at a variety of levels; for example, between two banks, or between a bank and the rest of the financial system. Further, these measures of connectedness can be static (for the full sample period) or dynamic (the nature of the relationship can evolve through time).

- The Systemic Risk Indicators (SyRIN) framework (based on the Consistent Information Multivariate Density Optimising (CIMDO) methodology)[212] is an in-house system to characterise systemic risk and various measures of financial stability including interconnectedness across banks and non-banks. This allows [inference of] the distress dependence structure across the entities in the system. Since market data are updated at high frequency and embed perceptions of risks, the method allows to incorporate in a timely manner updates (that can reflect non-linear increases in periods of high volatility) in systems' distress dependence structures that incorporate market perceptions of direct and indirect contagion across financial entities.

- The Systemic Contingent Claims Analysis (CCA) developed by Gray and Jobst (2013) uses advanced contingent claims analysis to generate aggregate estimates of the joint default risk of multiple institutions as a conditional tail expectation using multivariate extreme value theory (EVT). The framework also helps quantify the individual contributions to systemic risk and contingent liabilities of the financial sector during times of stress.

(iv) Governance and accountability

A topic that is sometimes overlooked in the use of stress tests is the governance and integrity of the framework. While an essential tool, stress test results remain hypothetical statements and carry inherent technical and data limitations. Having proper prerequisites and safeguards in place helps overcome the limitations, enhancing the reliability of stress test results. These in turn enhance the ability to provide recommendations and the FSAP traction with the authorities. Good governance also helps recognise the shortcomings of a stress test framework and provides a better basis for the interpretation of results.

A governance framework requires a clear ex ante understanding of the stress tests' objectives, knowledge of the key individual financial institutions in the system, their business models, principal sources of risk, and main channels of risk transmission; stress testing frameworks should also include the use of other complementary assessment tools.

Going Forward

The following initiatives are in the pipeline:

- *A "Workbox" for solvency stress testing:* The existing IMF "Workbox" will be updated. A toolkit for the top-down stress testing of insurance companies is expected to be ready during 2017, in order to provide a common framework for top-down stress tests.

- *Incorporation of reaction functions in the balance sheet stress testing framework.* Most stress tests are based on static balance sheets and financial agents' reactions to risk are not recognised. A stylised structural agent-based model is being developed to project banks' capital ratios under stress, using dynamic balance sheets, incorporating solvency-liquidity interactions, endogenising fire sales, and modelling feedback effects between the financial sector (i.e., banks and nonbanks) and the macroeconomy. This will be useful for designing internally-coherent scenarios for stress testing, quantifying the impact of adverse conditions on financial stability, and calibrating macroprudential policies.

- *Specific tools to capture linkages between the real economy and the financial sector.* This will include a tool focusing on the integration of macro-financial feedback loops through the credit channel as well as the development of a dynamic stochastic general equilibrium (DSGE) model with a bank-by-bank module that captures bank-specific solvency and liquidity dynamics.

- Systemic risk amplification: an extension to the SyRIN framework will allow quantifying the effect of "systemic risk amplification" (SRA) in stress tests by combining balance sheet stress testing with the CIMDO methodology; this approach will capture the initial triggers of distress under given macrofinancial scenarios (as provided by the balance sheet approach); and in addition to assessing losses incurred by individual entities, it would allow to quantify losses due to contagion across the entities in the system.

While relevant for the risk management of all financial products, the use of stress testing is of particular interest to Islamic finance products because of their large dependence on the evolution of commodity and other market prices. Because of its forward-looking nature, a stress test is better prepared than typical financial soundness indicators to assess risks to institutions in particular in countries in which Islamic finance has become systemically important. This, in turn, places considerable importance on the right choice of scenarios (i.e. featuring adequate market volatility) and on the risk amplification mechanism, in particular linkages between the real economy and the financial sector, which is one of the areas in which IMF staff is currently focusing its research efforts.

212 CIMDO is a statistical methodology that uses market-based measures of distress.

4.2 FINTECH IN ISLAMIC FINANCE: SHARĪ'AH AND REGULATORY ASPECTS

This section will identify some of the leading elements of FinTech and assess their Sharī'ah compatibility and application to Islamic finance, financial inclusion and regulatory issues.

4.2.1 Drivers of the FinTech Challenge

Since the Global Financial Crisis of 2007–2008, the environment for the finance industry and particularly for banking is changing fundamentally in several dimensions. The most important can be summarised as customer experience, regulatory framework and technical innovation.[213]

The customers' trust in banks has eroded significantly on the back of perceptions that the greed of bankers was a key factor in the global financial crisis. Global systemically important banks were charged with various types of illegal practices – from money laundering and tax evasion to LIBOR manipulations and massive mis-selling – and had to pay fines in unprecedented amounts. While interest rates for savings and investments stayed at an all-time low, the high fees charged for investment products such as funds became more visible and added to customers' dissatisfaction. Furthermore, the squeezed interest spreads caused many banks to introduce or increase fees for basic services such as the administration of current accounts. Against this background, disappointed bank customers became increasingly willing to use alternative service providers for more convenient and cheaper products – from money transfer to funding platforms and financial advice.

The regulations for banks have been tightened since the crisis to enhance financial stability and consumer protection. This tightening implied additional costs for many banks (which are paid by the customers) due to, among other things, tighter documentation requirements and more internal controls against mis-selling of products. The new consumer protection regulations have required restructurings of front-office procedures, including the proper identification of the needs of customers, an assessment of their financial capabilities, the selection of the most suitable products, and the restructuring of incentives for the sales staff of the bank.

The alternatives for customers have grown rapidly over the last few years due to technological advancements. The communication infrastructure has improved and mobile communication devices have become smarter. This has led to the expansion of online banking in most Western countries, but also in a considerable number of emerging economies.[214] The introduction of online banking facilities prepared the ground for the provision of more financial services through online channels, and the dissatisfaction with traditional banks created appetite for new providers. This gave strong support for the emergence and growth of FinTech – that is, new companies that use advanced information and communication technologies (including machine learning and artificial intelligence) to realise innovative business models, products and processes in the financial sector. Technology start-ups offer more convenient user experiences (e.g. better user interfaces for the mobile management of personal finance), but also lower prices and better quality (e.g. faster speed) for traditional products such as payment services (e.g. international remittances or small payments within peer groups) and investment advice (e.g. by robo-advisors).[215] The innovations were facilitated by the technological advantage of start-ups over incumbent banks, based particularly on recent software developments and large volumes of data that had become available from all kinds of transactions through the internet (in particular, e-commerce, online banking and social media).

Due to limited space, this chapter covers only two areas where FinTech has become an important component in conventional finance, while Islamic finance is still at an incipient stage. These two areas are: (1) distributed ledger technology, which is at the core of cryptocurrencies and smart contracts; and (2) multi-sided platforms, which are the basis of crowdfunding. Although Islamic FinTech is still very limited in number, scope and size, it may grow rapidly into disruptive technology, especially in the growing number of jurisdictions where Islamic banking has achieved systemic importance.

4.2.2 Blockchain and Distributed Ledger Technology

Among the technological innovations of recent years, distributed ledger technology (DLT) is often seen as the innovation with the greatest potential disruptive power for traditional banking and beyond. "A distributed ledger is essentially an asset database that can be shared across a network of multiple sites, geographies or institutions. All participants within a network can have their own identical copy of the ledger. Any changes to the ledger are reflected in all copies in minutes, or in some cases, seconds. The assets can be financial, legal, physical, or electronic. The security and accuracy of the assets stored in the ledger are maintained cryptographically by 'keys' and signatures to control who can do what within the shared ledger. Entries can also be updated by one, some or all of the participants, according to rules agreed by the network."[216] DLT emerged from the blockchain concept published by Satoshi

[213] See, for example, Sironi (2016), Chishti and Barberis (2016).

[214] Similar progress can be observed in developing countries for phone banking, which does not require smartphones (and a corresponding infrastructure) but only cheaper phones with text messaging capabilities.

[215] It should be noted that FinTech is also seen as a facilitator for financial inclusion and sustainable development; see, for example, United Nations Environment Programme (2016), Global Partnership for Financial Inclusion (2016), and World Bank blogs (https://blogs.worldbank.org/taxonomy/term/14745).

[216] UK Government Chief Scientific Adviser (2016), 5; see also IOSCO (2017), Chapter 5.

4.0 EMERGING ISSUES IN ISLAMIC FINANCE

Nakamoto in 2008 and was applied to create the first global cryptocurrency, Bitcoin. In parallel to the implementation of Bitcoin[217] (and a variety of other cryptocurrencies),[218] FinTech start-ups, as well as established global consultancies, law firms and government agencies, explored the possibilities of applications of the blockchain concept not only in the financial sector (banking, money transfer and payments, stock trading, insurance) but also, among others, in the legal business and public services sectors.[219] The dominant applications of "blockchain 1.0" – cryptocurrencies – and "blockchain 2.0" – smart contracts – will be outlined in the following with respect to possible Sharī'ah issues and regulatory implications.

Cryptocurrencies

Existing cryptocurrencies illustrate how private money could be structured. The currency could either aim to become a substitute for fiat money issued by a state, meaning that it should be widely or even generally accepted as a universal medium of exchange (to buy all kinds of goods and services and to settle all forms of debt, including taxes) without being legal tender. Alternatively, the currency could focus on a particular clientele and offer "coins" with specific features appealing to this clientele. The criterion for the definition of the clientele could be people who, for example, share certain values (such as promoting renewable energy) or live in a particular region (and accept a local currency). If groups of Muslims intend to create their own cryptocurrency or start using an existing one such as Bitcoin, they have to consider a few issues from a Sharī'ah perspective.

A first question is, what constitutes a currency? If (1) only a small number of people own particular cryptocoins and even fewer people use them regularly for transactions, and (2) if the number of merchants who accept these coins is very limited, then it is doubtful whether this is a currency although it may have in principle, but not in sufficient scale, all the features of a currency. The question is whether there is a minimum size for a coin system to be considered a currency (and who defines this minimum size). The answer is relevant in so far as Islamic law requires the observance of more restrictive rules for currency transactions compared to other exchange transactions.[220] If a cryptocoin is not considered to be currency, but a token representing the ownership of an "informational commodity", then the use of this token for payments is in substance not a financial transaction but a kind of barter trade.

Most cryptocurrencies have clear rules on how to create ("mine") new coins, and on how to put them into circulation, as well as rules regulating the maximum number of coins that can be mined. When the maximum is approached (for Bitcoin, in approximately 15 years) or the growth rate of coins is consistently lower than the growth rate of the real economy, the price level of all goods and services in the respective cryptocurrency will decrease and the purchasing power of coins will increase. This makes hoarding of money attractive, which is not in line with the injunction to keep money in circulation. This may not necessarily imply that Muslims should not join such a cryptocurrency system (or, specifically, Bitcoin), but the issue should be addressed by advocates of cryptocurrency of the Bitcoin type as an "Islamic" alternative to the conventional fiat money system.

Sharī'ah scholars have criticised Bitcoin for the very high volatility of its exchange rate against conventional currencies due to widespread speculation. Volatility and speculation do exist, but they are not necessarily inherent flaws of the concept and thus unavoidable. Much of the volatility can be explained by the early development stage of the market, and a more mature market (where Bitcoins are more widely used as a medium of exchange) should be much less volatile.[221] Another debate is on whether currencies must have an "inherent value" and, if so, whether cryptocurrencies have it.

Although the legal opinions of Sharī'ah scholars on the cryptocurrencies are still far apart, it may be possible and worthwhile to initiate a discussion process with the final aim of a collective *fatwā* on cryptocurrencies. There is a recent precedent that initially contradictory opinions can converge and finally allow a collective fatwa – namely, the AAOIFI Sharī'ah standard 57 on gold and its trading.[222]

The Bitcoin system is based on a permissionless blockchain that can be used by everybody. Financial institutions have not only realised the disruptive potential for some of their lucrative businesses such as money transfer and payments, but also the opportunities for efficiency enhancements (reduced operation costs, faster transactions) and improved consumer experiences (e.g. smartphone banking) when they adopt the blockchain technology themselves. What the incumbent financial institutions disliked about the Bitcoin architecture was the extreme decentralisation and openness which leads to a lack of control. Therefore, financial institutions formed several alliances and teamed up with FinTech firms[223] to develop their own controlled permissioned blockchain infrastructure.

---

217 See Nakamoto (n.d. [2008]); for an introduction to the "mechanics" of Bitcoin and cryptocurrencies, see Antonopoulos (2015) and Narayanan (2016).

218 See Franco (2015), Chapter 11. The website https://coinmarketcap.com/ lists 649 cryptocurrencies and their market capitalisation. On 18 February 2017, the total market capitalisation stood at USD 20 billion; only three cryptocurrencies had a market cap of at least USD 200 mn, of which Bitcoin with USD 17.1 bn is by far the largest, followed by Ethereum (USD 1.1 bn), and Ripple (USD 0.22 bn); close to USD 200 mn were Litecoin (USD 0.19 bn) and Monero (USD 0.19 bn). The daily trading volume of Bitcoin was USD 136 mn, the monthly volume USD 3.7 bn.

219 Further applications of blockchain technology are under development for, among others, online music, car leasing, ride sharing/hailing (possible disruptors such as Uber), real estate, health care, fraud prevention and energy management (as an example from the realm of the internet of things).

220 The first Sharī'ah standard issued by AAOIFI in 2000 was on trading in currencies.

221 Volatility, bubbles and speculation are also problems of gold, which some Sharī'ah scholars and Islamic economists prefer as the basis of an Islamic currency ("Gold Dinar").

222 See AAOIFI (2017). Several controversies relating to gold were about similar issues as in the debates on cryptocurrencies. The World Gold Council, the "market development organisation for the gold industry" (www.gold.org/about-us), has actively supported the work on the AAOIFI standard; see also Bakar (2016). Maybe an organisation promoting Bitcoin could support a similar initiative?

223 For a survey, see Life.SREDA VC (2016), pp. 268–278.

Smart Contracts

The success of Bitcoin has triggered a discussion about the limited capacity and speed of the specific DLT applied for Bitcoin, but also about the huge electricity consumption for no other purpose than Bitcoin mining. This evoked the development of alternative decentralised open platforms based on DLT and cryptography. A conceptually most promising alternative to Bitcoin was launched in 2015: Ethereum. This is a system that uses digital tokens ("Ether") not only as a cryptocurrency but also, and particularly, as the carrier of smart contracts.[224] Ethereum is not only a platform for single smart contracts but also the language for the programming of complex decentralised autonomous organisations (DAOs) built on bundles of interlinked smart contracts.

(1) Single Smart Contracts. The term "smart contract" was not coined by lawyers but by computer technologists to describe computer programs that automatically execute particular actions – for example, the rather straightforward transfer of money, or the more complex management and sale of household-produced electric energy at an energy exchange, as soon as predefined conditions are met. "By using a smart contract, parties commit themselves to be bound by the rules and determinations of the underlying code. Doing so in principle removes the potential for parties to have a dispute: both parties are held to whatever outcome the smart contract determines."[225] Many processes and procedures in the financial industry could be "automated" by smart contracts – for example, the documentation, invoicing and payments in trade financing, the trading and settlement of derivatives and syndicated loans, the origination of mortgages, automated claim processing in insurance, or insurance for the sharing economy.[226] The term "smart contract" suggests that the computer code itself has the legal quality of a contract, but that is challenged by lawyers.[227] Their view is that a computer code cannot be legally binding. What can be legally binding is the agreement to apply the technical code for a specific purpose or an intended outcome. Such an agreement is necessary to "legalise" the results of the execution of the code, such as automatic (micro)payments for the use of services or the automatic transfer of ownership and creation of a debt after an ordered object has been manufactured and shipped.

When parties agree to use a smart contract, its language would be computer code that is probably not understood by all the contracting parties. Hence, it may be necessary to write down the will of the parties in human language so that, in case of a dispute, a third party can check whether the will was accurately reflected by the computer code and executed accordingly.

Whether smart contracts are legally binding and enforceable is certainly a major legal issue that is also relevant when smart contracts shall be applied in an Islamic context. The assessment of the legal quality may not be fundamentally different from a secular and an Islamic law perspective. However, from an Islamic law perspective, single smart contracts that create, for example, automatic financial claims and liabilities indicate that there might be a tension between (1) the principle that in *fiqh al-muʿāmalāt* innovations are allowed unless they fall under an explicit prohibition, and (2) the rather detailed requirements of Islamic law for the validity of exchange contracts. To support the application of smart contracts in the Islamic finance realm, Sharīʿah experts should clarify what formal requirements are indispensable and where creative leeway exists. For example, individual sellers of household-produced solar energy may agree with an energy exchange on the rules of the infeed and the pricing mechanism, but neither the transacted quantities nor the respective prices will be known in advance for the whole contracting period. This implies a contractual uncertainty. Islamic banks often conclude framework agreements (such as a master *Murābaḥah* contract) with their clients, but for each single transaction under this agreement an explicit offer and acceptance is required (even if it is in the most reduced form of "pushing a button"). This implies that by not accepting an offer, the sequence of transactions can be stopped. It would be against the idea of a self-executing smart contract to incorporate a mechanism that requires a confirmation or allows for an interruption after each transaction during the term of the smart contract. From a Sharīʿah perspective it should be clarified whether a smart contract of the outlined type is either a permissible contractual innovation although it does not meet all the formal requirements of classic contracts and actual practices in Islamic banking, or it has to be modified to include a stop mechanism (which would eliminate much of its "smartness").

(2) Interlinked Smart Contracts. While Sharīʿah issues might be only of minor importance regarding a single smart contract, they could assume a different quality and much higher relevance for the use of an elaborate system of smart contracts in a DAO. DAOs are "sophisticated arrangements of rights and powers encoded through smart contracts that emulate the attributes and activities of business entities or regulated financial contracts, including insurance, futures, options, etc.".[228] The most ambitious project to date was the launching of a DAO with the name "The DAO" on the Ethereum blockchain in April 2016. The aim of The DAO was to emulate a kind of investor-directed equity crowdfunding or venture capital scheme. Some of the outstanding features were[229] its open source architecture, its financing by the largest crowdfunding campaign to date (attracting 11,000

[224] See Jagers (2016). "Bitcoin and Ethereum differ in purpose. While Bitcoin is created as an alternative to regular money and is thus a medium of payment transaction and store of value, Ethereum is developed as a platform which facilitates peer-to-peer contracts and applications via its own currency vehicle. While Bitcoin and Ether are both digital currencies, the primary purpose of Ether is not to establish itself as a payment alternative (unlike Bitcoin) but to facilitate and monetize the working of Ethereum to enable developers to build and run distributed applications" (Bajpai (2016)).

[225] Shadab (2014).

[226] See Capgemini Consulting (2016).

[227] See Howlett (2016) And Raskin (2016).

[228] Hinkes (2016).

[229] See Waters (2016) and Bramanathan (2016).

investors and a capital of approximately USD 120 million) in May 2016, and the fact that The DAO is not a corporation. It has no legal personality and is not registered or licensed anywhere (although it operates in the regulated finance industry). Its governance system has no managers or board of directors but only shareholders; investment decisions are based on their direct majority voting.[230] A group of "curators" prepares the decision by "whitelisting" investment projects – that is, by the verification of the identity of fund seekers and the legality of proposed projects.[231]

In a stylised form, a DAO as a collective investment venture consists of the following elements: (1) a moderator who communicates the idea of the scheme with some information on the envisaged types of investment projects; and (2) participants who (a) install an (open source) software that establishes the investors' network and facilitates the project presentation and selection by majority voting, and (b) contribute to the capital of the investment pool. The participants may not know each other and the individual capital contributions of the other members, and they do not have any contracts among themselves. They also do not have an explicit contract with the moderator who provided the open source software and organises the presentation of investment projects. The investment projects could be, in principle, of any conceivable type, including complex high-risk financial contracts. DAOs of this type would pose major challenges to regulators and Sharī'ah scholars.

A first challenge is that a DAO is not registered anywhere, does not have a legal personality, and may be composed of members in a variety of jurisdictions. This makes it extremely difficult for national authorities to regulate DAOs if they see a need to do so, because DAOs may attract tech-savvy individuals with little or no investment experience. These retail investors could be exposed to extremely high risks – even beyond a total loss of their initial capital if, by majority voting, speculative derivatives based on contracts for difference (CFDs) were selected.[232] Hence, a DAO can have the essential features of an unregistered partnership with unlimited liability of its members, which is certainly not the right investment vehicle for retail investors.

From an Islamic law perspective, a DAO resembles a *Mushārakah* partnership, but with some peculiarities. The partners do not know each other. They neither have explicit contracts with each other nor do they know at the time when they join the group the assets that will be purchased by the joint capital. The rights to act on behalf of the partnership with binding consequences for the other partners are extremely reduced or non-existent, and the liability of the partners (even if they were outvoted) are, in principle, unlimited (unless the applied software excludes investments in high-risk speculative items). It might be useful to get a clarification of the rights and obligations of partners in a "*Mushārakah*-like" DAO by a Sharī'ah authority.

Another challenge (particularly from an Islamic law perspective) is the investment decisions by majority voting. The joint capital of all DAO members will be invested in those assets or projects that have been chosen by a majority vote. This implies that there is no individual exit option. Majority voting and the risk of being outvoted are in contrast to the ideal of consensus-based decisions in a *mushārakah* partnership.

A further issue is the possibility of a "mission drift": the initial agenda of a DAO presents the scheme as "Islamic" by Sharī'ah-compliant equity and venture capital financings, but after a while it may turn out that the majority of the DAO members have a rather vague or lax understanding of Sharī'ah compliance that does not satisfy the stricter requirements of a minority. In the worst case, investments selected by the majority may be deemed Sharī'ah non-compliant by the minority. Without explicit contracts between the DAO members and with no management that may have breached a contract, the outvoted members will be in a very uncomfortable situation, as their capital is stuck when the majority decision is executed automatically and the respective investments are made.

Finally, suppose a DAO-like structure leaves investment decisions to an algorithm after it has been initially calibrated by majority voting of the members. The peculiarity of the algorithm is that it incorporates machine learning qualities: it may use, for example, data mining and data analytics to make data-driven predictions and decisions. Therefore, it is not known in advance what investment will finally be selected by the algorithm. The "algorithmic DAO" is only one example of a wider class of investment vehicles that feature elements that look similar to, but may in substance be distinct from, elements prohibited by Sharī'ah, such as gharar or gambling. Again, a clarification of the demarcation lines between permissible and prohibited features of complex transaction models by a recognised Sharī'ah authority could facilitate the adoption of innovative FinTech solutions in Islamic finance.

---

230 "Investors in The DAO have voting rights that permit them to collectively determine whether projects are funded. Each investor has a voting share that is proportional to the amount of tokens the investor DAO held. The voting investor has the ability to irrevocably vote once per proposal, and a vote freezes that investor's DAO tokens. However, for The DAO to engage in any investment activity, at least 20% of its DaoToken holders must vote for the project" (Hinkes (2016)).

231 Before it even really started, The DAO imploded in June 2016 after a hacker leaked about one-third of its funds for investments (approximately USD 150 mn) to a subsidiary account where the money was frozen; that is, nobody had access to it under the existing code. The remarkable point is that the hacker did not manipulate the code but used a specific routine (a splitting function) embedded in the code in a way quite different from what the programmers had intended; for more details, see Greenspan (2016). In other words, the code worked exactly as prescribed, but it produced results different from what was intended. "The issue … was a divergence of software developers' complex intent, having a specific use in mind for the splitting function, and the de-facto result of the software implementation" (Buterin (2016)).

232 The sale of CFDs to retail clients is restricted or prohibited in a growing number of jurisdictions, but often only since the last quarter of 2016. A DOA could become a channel for the sale of otherwise restricted CFDs to retail customers that could only be controlled by a transnational (or even global) cooperation of regulators.

An organisation with no management, but only with providers of funds and holders of voting rights (who are not even shareholders in the usual understanding), is quite different from all forms of partnerships developed or adopted by Islamic law. However, companies with limited liability were also alien to the traditional Islamic law and are now accepted. Whether this will also apply to the creation of a DAO by participation in a decentralised network with a unique non-ownership structure should be clarified by a Sharīʿah authority. This should not be done in isolation, but in coordination with secular legislators and regulators who have to answer very similar questions, such as: who is contracting with whom, what type of contract is concluded, shall a DAO get a legal personality, and should outvoted minorities be protected?

4.2.3 Crowdfunding

While the future of DAOs (as a kind of [virtual] self-driving car in investing) is blurry after the implosion of The DAO and in anticipation of the actions of legislators and regulators, another FinTech area has found wide acceptance and has become an established segment of modern finance: crowdfunding.

The underlying technology – matchmaking peer-to-peer (P2P) internet platforms – had previously been successfully applied outside the financial sector in the sharing economy.[233] "P2P" denotes the direct interaction of two parties (mostly facilitated by a platform via the internet) without a central intermediary.[234] A pioneer of P2P e-commerce was the auctioning platform Ebay,[235] and today's "stars" are Uber and Airbnb.[236] The basic technology of internet platforms is relatively simple compared to blockchain applications, and the economics of matchmaking platforms is a special sub-discipline of network economics that was developed even before the internet (with the telephone or computer operating systems as frequently studied examples).[237] Crowdfunding brings this technology to the financial industry where platforms connect fund seekers and fund providers without the intermediation of a bank. It "can be seen as one part of the broader universe of the technological innovations with potentially transformative implications for the financial system, its intermediaries and users ('FinTech')".[238]

Crowdfunding in Non-Muslim Countries

Crowdfunding is a generic term for various forms of P2P finance that differ with respect to the recipients of funding (consumers or businesses), the primary motivation of the fund providers (financial return or non-financial reward), and the form of the financing (equity or loan). In Europe the taxonomy of the Cambridge Centre of Alternative Finance[239] (see Table 4.2.3.1) has become a *de facto* standard.[240] A major difference between the EU/UK and US terminology is that loan-based models are usually called "marketplace lending"[241] in the US, while "crowdfunding" is reserved for equity- and reward- or donation-based funding, sometimes also including real estate funding.[242] The different terminology indicates a different character of the fund-providing peers in P2P lending: while in the UK the fund providers are predominantly retail investors, the fund providers in the US are mainly institutional investors (various types of funds, but also banks).[243]

---

233 Stephany (2015) and Sundararajan (2016).

234 A platform as a facilitator or matchmaker brings parties together and provides the technology for their interaction, but it does not participate in the interaction itself. However, the platform operator controls access to the matchmaking scheme, and this may require for crowdfunding platforms, for example, an assessment of the creditworthiness of the fund seeker, a risk classification and – in some forms of P2P lending – the setting of a risk-equivalent interest rate.

235 EBAY started in 1995 (under the name of Auction Web) as a consumer-to-consumer (C2C) platform and later morphed into a business-to-consumer (B2C) platform; for details, see Cohen (2002).

236 For an outline of the business models and a critical assessment of Airbnb and Uber, see Slee (2015).

237 On network economics, see Shapiro and Varian (1999) or (more formal) Shy (2001); on the economics of P2P platforms, see Evans and Schmalensee (2016).

238 European Commission (2016), pp. 3–4.

239 See Baeck, Collins and Zhang (2014) and Zhang et al. (2016).

240 It has been adopted by regulators and policymakers in the UK and the EU; see Financial Conduct Authority (2013, 2014) and European Commission (2016).

241 The term "'marketplace lender' is used broadly to describe non-bank institutions which offer online lending to consumers and small businesses. This includes both lenders which fund loans onto their own balance sheet as well as marketplace platforms which connect borrowers with investors, regardless of whether the institution is the true lender" PwC (2016), p. 2, fn 1.

242 See, for example, Morgan Stanley (2015), PwC (2015), Deloitte (2016) and, as a kind of reconciliation of the European and American taxonomy, Wardrop et al. (2016), p. 30.

243 The share of institutional investors over the period 2013–2015 was 53% in consumer lending, 72% in business lending, 73% in real estate lending, and 83% in invoice trading; Wardrop et al. (2016), p. 47.

4.0 EMERGING ISSUES IN ISLAMIC FINANCE

Table 4.2.3.1 gives an estimation of the market size and structure of crowdfunding in the UK, the EU and North America (which is factually the US[243]). High growth rates of 100% and more since 2012 imply a much higher size for 2016, but also some changes in the structure, as not all crowdfunding segments grew at the same rate. Nevertheless, a few observations remain valid:

Table 4.2.3.1 Alternative Finance in the UK, the EU and North America (NA), 2015 [in million]

Country/ region	Loan-based crowdfunding				Investment-based crowdfunding			Prepayment or reward based crowd funding	Donation based crowd funding	Total
	P2P business lending	P2P business lending (real estate)	P2P consumer lending	Invoice trading	Equity based crowd funding	Equity based crowd funding (real estate)	Debt based securities			
UK [GBP]	£881	£609	£909	£325	£245	£87	£6	£42	£12	£3,116
	28%	20%	29%	10%	8%	3%	0%	1%	0%	100%
EU [EUR]	€1,182		€1,330	€349	€422		€103	€97	€25	€3,508
	34%		38%	10%	12%		3%	3%	1%	100%
NA [USD]	$2,620	$783	$25,750	$33	$598	$484		$658	$216	$31,132
	8%	3%	83%	0%	2%	2%		2%	1%	100%

Not included: community shares (£61 mm, €7 mn), pension-led funding (£23 mn), microloans (€5 mn).

Source: Data for UK excerpted from Zhang et al. (2016), p. 13, for EU European Commission (2016), p. 10; for NA (= North America), Wardrop et al. (2016), p. 30. The NA figures in this table do not include balance sheet consumer and business lending.

- The North American crowdfunding sector is much larger than its European counterpart. The US and UK are the two Western countries with the largest crowdfunding sectors.[245]

- Crowdfunding is dominated by loan-based models. P2P lending accounts for 72% in the EU, 77% in the UK and even 94% in the US.

- Start-ups and existing SMEs benefit much more from crowdfunding in Europe than in North America, where consumer lending absorbs more than 80% of the total funding.

The table also shows that figures from different sources are not fully comparable and consistent.[246] This could be due to different meanings of crucial terms. For example, a figure for P2P lending can have at least three different meanings: "the end-period stock of loans outstanding, the gross amount of lending during the period before loan repayment and the net amount of lending after deducting loan repayments".[247] But whatever measure is used for a calculation of the overall market share of P2P lending, the resulting numbers are tiny in relation to the size of the total lending market: for example, "on a stock basis P2P at end 2015 was less than one-half of 1% of the total stock of UK lending of more than £500 billion in the loan markets where P2P platforms are active."[248] However, crowdfunding platforms do not address the overall market but focus on more specific target groups, particularly SMEs. Here the importance is considerably higher, with market shares in small business lending in the 12–13% range.[249] The urgency of a new approach for SME financing is illustrated by figures from Dubai, where "SMEs represent nearly 95% of all establishments in the Emirate accounting for 42% of the workforce and contributing around 40% to the total value of Dubai's economy. [However,] approximately 70% of SMEs have had their applications for funding from conventional banks rejected and loans to SMEs account for just 4% of outstanding bank credit in the UAE."[250]

244 North America USD 36,377 mn (including balance sheet consumer and business lending) of which the US USD 36,170 (= 99.4%), Canada USD 207 (= 0.6%); Wardrop et al. (2016), p. 25.

245 P2P lending in China is globally the largest crowdlending business with more than 2,500 platforms and a transaction volume of around USD 150 bn in 2015; see Xinhua (2016) and Kynge (2016). Due to relative short payback periods the amount of outstanding loans was less than half of the transaction volume (approx. USD 70 bn). However, the soundness of the figures is questionable because more than one-third of the contributing platforms have been classified as "problem platforms", meaning that they stopped repayments to investors and are under police investigation for suspicion of fraud. A Ponzi scheme of unprecedented size was discovered in 2015 involving over 900,000 investors and USD 7.6 bn (which is more than double the size of the whole crowdfunding sector in the UK). For observers, China's P2P lending scene was like the Wild West for years until finally the regulator stepped in and filled a regulatory vacuum in 2016; see Chorzempa (2016a, 2016b) and Lockett (2016). Developing countries that wish to transform state-run banking systems into a market-driven industry with a flourishing crowdfunding sector can learn from China what can go wrong and why regulation is a precondition for success.

246 For example, a conversion of EU figures from EUR to GBP with an average or year-end exchange rate for 2015 gives amounts that are smaller than the respective figures for the UK – which is inconsistent because the UK is part of the EU.

247 Milne and Parboteeah (2016), p. 9.

248 Milne and Parboteeah (2016), p. 9.

249 Milne and Parboteeah (2016), pp. 10–11, and Zhang et al. (2016), p. 19.

250 DFSA (2017a), p. 5.

Islamic Crowdfunding

Many of the Sharīʿah questions raised in the following are not based on concrete cases but are abstract. Although Islamic jurists prefer to discuss issues only when they have become concrete cases, it should be useful to look somewhat ahead. Uncertainties about the Sharīʿah compliance of instruments or techniques that spread rapidly in conventional finance may become effective obstacles for a catching-up of Islamic finance in many areas where FinTech has been disrupting traditional practices and have driven conventional finance to higher efficiency and consumer satisfaction.

Islam-oriented Crowdfunding Platforms in OIC Member States

To identify relevant crowdfunding platforms with a focus on equity- and loan-based platforms located in the Muslim world, the database of Crowdsurfer was consulted.[251] It lists in 32 of the 57 member states of the Organisation of Islamic Cooperation (OIC) a total of 108 crowdfunding platforms.[252] However, due to double counting of some platforms, the number of distinct crowdfunding platforms with a primary location in an OIC member state is only 80.[253] Most of these are donation- or reward-based platforms. After some further corrections and adjustments,[254] the Crowdsurfer database identifies 14 equity-based and 13 commercial loan-based crowdfunding platforms with an "active" status.[255]

From the profiles of the platforms in the Crowdsurfer database, one can sift out only four active "Islamic" crowdfunding platforms with a primary location in an OIC member state and one classified as "pre launch".[256] Three of the active platforms are donation-based charities[257] and only one is an equity-based platform.[258] To explore whether more active platforms with financial rewards for investors could be considered as Islam-oriented although they were not explicitly classified as such, the websites of all 26[259] identified equity- and loan-based platforms in OIC member states have been consulted. The findings were somewhat surprising:

- The platform that was characterised in its Crowdsurfer profile as a "Sharīʿah-compliant equity platform for SMEs and start-ups in Malaysia" (AtaPlus) did not mention the Sharīʿah compliance on its website. The only hint of Sharīʿah compliance was the list of activities in which a fund-seeking entrepreneur must not be involved.[260]
- Only one loan-based crowdfunding platform – Liwwa (Lebanon) – outlines the importance of Sharīʿah compliance and gives a brief explanation of its business model (based primarily on *murābaḥah*) in the FAQ section of its website.[261]
- A loan-based platform in the UAE – Beehive – applies a dual approach: it offers both conventional as well as Sharīʿah-compliant lending techniques. The Islamic option is explained in a rather detailed manner on the website.
- One of the oldest equity crowdfunding platforms in Egypt – Shekra – quotes several previous Islamic awards on its website. It does not explain how it assures Sharīʿah compliance, but the founders have propagated their approach in journals and conference papers.[262] The platform operates as a "closed investors network", which is quite unusual for a crowdfunding platform.[263]
- Finally, an Indonesian platform for student loans – Danadidik – applies a profit- (or income-) sharing model to calculate the returns for investors. Although this is vaguely reminiscent of Islamic financing techniques and the platform claims to adhere to Islamic principles, the Sharīʿah compliance is uncertain.

---

251 Accessed on 16 December 2016. The Crowdsurfer database was also a reference point for the European Commission (2016).

252 The number of covered platforms globally stood at more than 2,500. However, it is doubtful whether they all are "true" crowdfunding platforms because several "simple" online lenders who finance loans from their own balance sheets and not via crowdsourcing may have also been listed.

253 When the database is searched country by country and the numbers of crowdfunding platforms are added up, the sum is 108. But this is not the number of different crowdfunding platforms in these countries. Each platform should have exactly one "primary location", and it should be listed only in that country. However, in several cases platforms have also been listed in other countries – in one case (Zoomaal) in a total of 19.

254 These corrections and adjustments are: (1) the omission of one platform because its primary location is China; (2) the omission of a platform with a "pre-launch" status (and the correction of its primary location from Ukraine to Malaysia); (3) the omission of two platforms with an "inactive" status; (4) the omission of a platform with a minimum loan request of EUR 500,000 (which addresses a very special clientele); (5) the omission of one platform that has its office in the United States and whose website does not show any recognisable link with the UAE, which was given as its primary location; (6) the omission of a company that is a kind of online payday lender (with a service fee of 1% per day!) and not a platform (because there is no crowdfunding); (7) the omission of a platform that presents predominantly donation-based projects for which the fund seekers may also request some additional loan financing (as a social loan with no financial return); and (8) the correction of the primary location of one platform (Zoomaal) from Algeria to Lebanon.

255 Active equity-based crowdfunding platforms (ECF) are listed for Algeria (1), Egypt (3), Malaysia (6), Morocco (1), Nigeria (2) and the UAE (4); loan/financing-based platforms for Cameroon (1), Indonesia (8), Malaysia (6), Jordan (1), Lebanon (1) and the UAE (2).

256 The further platform – Blossom Finance (Indonesia) – is in a pre-launch status and shall offer fund providers financial returns. Finally, another Islamic platform has recently been licensed in Malaysia but is not yet operational: EthisKapital; see Alois (2016). This platform will be a merger of Ethis Crowd and KapitalBoost (see www.ethiskapital.com/). It was not yet listed in the Crowdsurfer database on 16 December 2016.

257 Akhuwat (Pakistan), SeedOut (Pakistan) and Waqaf Crowd (= WaqfWorld) (Malaysia).

258 AtaPlus (Malaysia).

259 One platform in the UAE is classified as equity-based as well as loan-based.

260 **http://ata-plus.com/entrepreneur-faqs/;** "not significantly" is vaguely defined as "less than 33% source of revenue".

261 "Is Liwwa sharia-compliant? Providing a sharia-compliant product is crucial in the region we serve. Thus, we've consulted Islamic legal advisors to develop a Murabaha product based on Islamic financing principles. We only fund assets and not cash" **(https://www.liwwa.com/help/faq)**. Liwwa is also sketched in World Bank, Islamic Development Bank and Islamic Research and Training Institute (2015), pp. 54–55.

262 See, for example, Asutay and Marzban (2012), and Marzban, Asutay and Boseli (2014); Shekra is also covered by World Bank, Islamic Development Bank and Islamic Research and Training Institute (2015), p. 57.

263 World Bank, Islamic Development Bank and Islamic Research and Training Institute (2015), p. 59, explains: "Since crowdfunding is public fundraising, it cannot be considered as a private placement. Thus without specific regulation, it is considered a public offering governed by highly complex processes similar to IPOs. To overcome this, some platforms, such as Shekra Crowdfunding, operate as a closed network of investors. This limits growth and prevents the utilisation of social media and other public marketing to increase outreach." Shekra's website is more cryptic: "Since crowd funding is a new concept in Africa and the MENA region, a closed investor network is crucial to ensure the seriousness and reliability of the investors" **(http://shekra.com/en/howitworks.php#ShekraNetwork).**

The number of platforms in OIC member states that explicitly refer to Islamic finance or Sharī'ah and offer investors financial returns is very small.[264] There are two more Islam-oriented active platforms of this type outside the OIC:[265] Ethis Crowd (Singapore) for real estate, and KapitalBoost (Singapore) for SME financing.[266]

None of the visited websites give the full details of their contracts, admission criteria and measures to ensure Sharī'ah compliance.[267] Thus, it is impossible for an observer (who does not register as a potential investor with the platforms) to verify in depth the Sharī'ah-related claims of the platforms and to understand their solutions or workarounds for the problems outlined in the following.

Structuring Sharī'ah-compliant P2P Contracts

Islamic crowdfunding platforms follow a business model that was developed in the "alternative finance" sector of the conventional finance industry. It can benefit from experiences and best practice examples there, but it also must ensure that the contracts do not violate Sharī'ah law. As shown in the following, this could make procedures more complicated and cumbersome, but sometimes solutions from other FinTech areas such as blockchain and smart contracts may help to improve operational efficiency. A confirming statement on the permissibility by Sharī'ah authorities would support innovative approaches in several cases.

(a) From Project to Class or Product Selection in P2P Lending

The first generation of P2P lending models was quite straightforward: The platform operator presented a number of different fund-seeking projects and the (prospective) lenders chose from that menu those projects they were willing to fund according to their preferences.[268] The platforms encouraged lenders to diversify their portfolio and spread their investment over a number of projects to reduce risks, but the selection and composition of the portfolio had to be done by the lenders themselves. This implies, among other things, that the lenders should be qualified to make meaningful risk assessments of projects, but that was often not the case. As a consequence, P2P lending procedures of the second generation have changed from the first generation in several respects.[269]

P2P lending platforms evaluate requests for funding and classify or rate them according to their risk and return characteristics. Most platforms apply similar techniques as banks for this evaluation and classification,[270] but some have also tested new approaches based on Big Data analytics (with mixed results).[271] Platforms usually target the most creditworthy fund seekers and turn down the vast majority of requests.[272] Islamic P2P platforms could apply similar techniques, but they should also look at the projects from a Sharī'ah compliance perspective. Projects with similar risk/return characteristics are usually bundled by the platform operator into "project classes" or "products" for which the operator sets the lending and borrowing rates. In contrast to first-generation models, investors/lenders do not select specific projects but a project class or a product structured by the platform operator. The platform then splits the amount the lender wants to invest into smaller portions and allocates them within the selected project class or product to several different available funding requests (= individual projects). This "automatic" diversification is a risk management service for the investor provided by the platform operator. Lenders know the risk/return characteristics of their selected project classes or products (including historic and projected aggregate default rates of borrowers), but they may not know the details of the actual composition of their loan portfolios – that is, who is using how much of their funds for which project.[273]

With the change of the selection and allocation procedure, the character of the platform operator has changed. If all project selections are done by the lenders themselves (and rates are determined by a reverse auction model), the platform operator is primarily a technical service provider (a matchmaker). However, the setting of lending and borrowing rates and the structuring of project portfolios makes the operator a financial intermediary. While mere matchmakers may not fall under financial sector regulations,[274] this should be the case for platforms of the second generation. It is important for regulatory authorities (in particular, capital market regulators) to develop a sufficient capacity to fully understand the technical details and the legal and financial implications not only of crowdfunding but of a continuously widening range of increasingly complex FinTech operations. As regulations for platforms (or other FinTech firms) that hold themselves out to be Islamic usually require an involvement of a Sharī'ah expert, the need of capacity building regarding FinTech technicalities also applies to Sharī'ah advisors and scholars.[275]

---

264 There are a few more reward- and donation-based platforms outside the OIC, but they are beyond the scope of this chapter that focuses on platforms with financial rewards only. The website of one more platform for crowdfunding with financial reward in real estate – HalalSky (USA) – looks dead: it shows only four objects with crowdfunding periods that expired in August and October 2016, all with 0 pledges.

265 See the table in Munshi (2016).

266 EthisCrowd and Kapital Boost will jointly form Ethis Kapital; see www.ethiskapital.com/.

267 However, sometimes the names of individual or institutional Sharī'ah advisors are given, but without further information on their roles

268 The lending and borrowing interest rates were often determined by reverse auctions. In view of the under-pricing of risks by inexperienced investors and other problems, this model was given up by most (if not all) platforms; on theoretical aspects, see Chen, Ghosh and Lambert (2014).

269 For a stylised summary of the recent practice, see Oxera (2016), Chapter 2.

270 Regulations may even require specific vetting measures, such as the checking of the credit history with external credit agencies; see the proposed regulations of the DFSA (2017c), para. 11.3.6.

271 For brief summaries of the different approaches of various start-ups, see Life.SERDA VC (2016), pp. 143–149.

272 For 2013–2015, P2P lending platforms in the UK accepted only 23% or all business loan applications and 16% of consumer loan applications; see Oxera (2016), pp. 37, 39.

273 Some platforms offer lenders the option to select either individual projects and a project class or product; for both options the platform sets the rates..

274 Operators of crowdfunding platforms are always a bit more than mere technical matchmakers because they check the creditworthiness of fund seekers and decide on the admission of projects to their platforms. Therefore, they will be subject to some form of regulation regarding disclosure and due diligence.

275 It seems that some of the ongoing controversies among Sharī'ah experts on FinTech issues (such as the permissibility and desirability of cryptocurrencies) result from different understandings of the underlying technicalities. Unless there is a common technical understanding of the phenomena that have to be assessed, one cannot expect the emergence of a legal consensus that would support the dissemination and wider application of beneficial financial innovations.

The performance of the recent P2P lending models is generally better for all parties compared to the models of the first generation. Nevertheless, Islamic P2P platforms may need to operate on the basis of first-generation models with project selection. While an assessment of the Sharī'ah qualities of available projects by the platform should be appreciated,[276] the allocation of investors' funds to specific projects by the platform operator (or a computer software) instead of by the investor may be debatable from a Sharī'ah perspective. In the project selection model, the lenders deal with borrowers whom they know (or could know) before funding is provided to them. In the class or product selection model, the lenders deal with borrowers whom they do not know before, and maybe not even after, funding is provided to them. If the lender does not know the borrower, it becomes doubtful whether these parties can conclude a contract that conforms to Sharī'ah principles.[277] Exchange contracts (including financing contracts) require an explicit offer and acceptance by contracting parties. A lender's expressed willingness to finance, at a specified profit markup, any project up to a maximum amount that falls into a particular risk/reward category may not be an offer but only an invitation to treat. But even if it is an offer, it may be defective in so far as it specifies only the markup (= price) but neither the object of the exchange (= the project[s] receiving funding) nor the exact quantity (but only a maximum amount per project). Although the fund provider and the fund seekers are the contracting parties of the funding contract, the fund seeker may not know all the fund providers who have contributed to the amount transferred to him by the platform. Hence, the borrower cannot declare the acceptance of the offer to the lenders.[278]

Obviously, there are not only contracts between the borrower and the lender but also between them and the platform operator. The Sharī'ah quality of these contracts and of the platform operator must be clarified, as the role of the operators goes far beyond that of a matchmaker. If lenders pay money to the platform, the platform allocates the funds to various borrowers without detailed knowledge of the lenders, and the platform collects and pays out periodic financial rewards to the lenders (plus the principal amount at maturity), this looks much like *ribā* even if the borrowing is done as commodity *murābaḥah* or *tawarruq*.

It may well be that Sharī'ah concerns such as these have thus far deterred Islamic P2P platforms from adopting the project class or product selection approach of conventional platforms. The "conservative" (first-generation) project selection approach in combination with a clearly identifiable *murābaḥah* or commodity *murābaḥah* funding contract avoids such Sharī'ah issues.

(b) Scalable Assets and Commodity *Murābaḥah*

On conventional P2P lending platforms, fund seekers receive individual loans from a large number of lenders that add up to the required amount. The Sharī'ah-compliant functional equivalent would be a number of commodity *murābahah* or *tawarruq* transactions between the members of the funding crowd and the fund seeker. The platform requires highly liquid commodities that can be bought and sold in homogenous qualities and in any desired quantity and are traded on an electronic exchange with high turnovers. The Islamic P2P lending platform acts as a three-party matchmaker: (1) it identifies Sharī'ah-compliant businesses looking for finance; (2) it communicates the details to Islamic investors; and (3) it brings together the investors and commodity traders from whom each investor can buy any quantity of a commodity required for a commodity *murābaḥah* transaction.[279] This approach has been put into practice by Beehive in the UAE, where the necessary electronic commodity trading infrastructure is in place. According to Beehive's website, "[a]ll businesses applying for finance are meticulously checked to ensure that the business activity and use of funds comply with the principles of Sharī'ah. If the business activity and use of funds comply, Beehive identifies the request as 'Sharī'ah Processing' and Islamic investors are able to place bids on the marketplace." Beehive processes all "Sharī'ah Processing" finance requests through the UAE-based award-winning "DMCC Tradeflow Commodity *murabaḥah*" platform. Most developing Muslim countries do not have access to such an advanced infrastructure, but Bahrain and Malaysia are two other countries where a similar model could be implemented.

(c) *Murābaḥah* Contracts and Indivisible Assets

In countries where the required infrastructure is lacking, a "true" *murābaḥah* sale with deferred payment would be an alternative approach.[280] The main difference from the fund seeker's perspective is that lenders will not provide a highly liquid commodity that immediately can be converted into cash but commodities or assets that are "in kind" needed for the trading business or production activities of the fund seeker. The main difference from the fund providers' perspective is that they have to purchase an illiquid item before they can sell it on to the fund seeker. The acquisition of the item may take some time, and it may have to be manufactured to specifications of the fund seeker. To minimise the risk that the fund seeker will later refuse to purchase the item from the fund providers, they may ask the fund seeker for a promise to purchase the item before they start its acquisition (as is the usual practice in Islamic banking).

---

276 This project assessment should include the Sharī'ah quality of the intended use of borrowed funds (in consumer and business lending) and of the borrower (in business lending). Private crowdfunding investors are typically laypersons in matters of Sharī'ah compliance, while operators of an Islamic P2P platform either have Sharī'ah expertise by themselves or can get it from external advisors.

277 On conditions for a valid contract according to Islamic law, see Rahman (2010), Haqqi (2009) and Chapter 2.2.3.1 of this report.

278 An analogous argument could be made for the fund providers: they cannot address fund seekers individually and make each one a specific offer. However, this seems to be less critical as it is generally accepted that the use of vending machines is a permissible technique for concluding (and executing) sale contracts.

279 To complete the commodity *murābaḥah* transaction, the businesses that have bought the commodities from the lenders (the "borrowers") will sell them for immediate cash in the spot market. Although the platform could also match "borrowers" and commodity traders, it should refrain from this service because otherwise it would look and feel like a prohibited organised tawarruq. However, blockchain technology and smart contracts could reduce costs and frictions of "unorganised" tawarruq substantially. Critical observers may note that this is an example of a FinTech application that brings Islamic finance (or incumbent Islamic banks, if they apply this technology) even closer to conventional finance instead of giving it more authenticity through true risk-sharing modes of finance.

280 This seems to be the approach of Liwwa in Lebanon.

The model works well as long as the commodities or assets are divisible or small enough so that each lender can finance one full unit, or multiple units, of the required commodity/asset. Difficulties arise when the cost of a full unit exceeds the funding amount of each single lender – that is, when the assets are not fully scalable and indivisible below a certain level. As the seller must own an asset before it is sold on in a *murābaḥah* financing, and as the costs of a large indivisible asset require the pooling of the resources of several lenders, these lenders must somehow become the joint owners of the asset although they have not concluded an explicit contract among themselves. A possible solution could be a temporary single-purpose joint ownership structure that emerges automatically and without any further action by the lenders because the user contracts that they had concluded with the platform include a clause to this effect.

There may be other solutions, but obviously none will be simple and all will require in-depth Sharīʿah expertise that cannot be expected from Islamic FinTech start-ups. Since non-scalable and indivisible assets will probably not be rare exceptions in Islamic P2P lending, but may even be the rule, it could be a great help for platforms if Sharīʿah authorities issue templates or master agreements for the Sharīʿah-compliant structuring of *murābaḥah* contracts for non-scalable and indivisible assets. Such templates or master agreements would clarify for all stages of the execution of the *murābaḥah* who has what rights and obligations against whom, and could also specify the role that the platform operators have to play. As each lender does not know the other prospective lenders with whom a temporary joint ownership will be established, the platform operator must become active and combine individual lenders in joint ownership groups, and may also act as an agent for this group in relation to the provider (e.g. a merchant or producer) of the asset which shall be jointly owned and sold on to the fund seeker. Transparency of rights, obligations and roles is also of great help for dispute settlement and for the consumer protection efforts of regulators.

All required steps of a *murābaḥah* transaction follow a clear logic and sequence so that they could be represented in a self-executing smart contract. The challenge would not be the coding of such a contract but the assurance that it is considered Sharīʿah-compliant. For example, the payment of the pledged amounts by all fund providers could start an unstoppable process to which all parties have agreed when they joined the crowdfunding platform. Once it has been confirmed that all funds are paid in, the equivalent to a promise to purchase by the fund seeker could be generated automatically,[281] which then initiates the purchase of the asset by the fund providers from the producer/dealer and the subsequent mark-up sale with a deferred payment clause from the fund providers to the fund seeker (which is debt creating). From a Sharīʿah perspective, it may be debatable whether it is permissible to generate an irrevocable "promise" and an irrevocable debt automatically based on the prior consent to the procedural rules of the P2P platform which legitimises the use of a smart contract. An authoritative clarification could invigorate the design and use of smart contracts in Islamic finance.

Verification of Sharīʿah Compliance over the Lending or Investment Period

The core business of multi-sided platforms is the matching of fund seekers and fund providers. A platform that claims to be Islamic should verify that a fund-seeking business meets the usual Sharīʿah compliance criteria such as the observance of the ban of prohibited items and of limitations for interest-bearing transactions and financings (in an analogy to the criteria applied for stock screening).[282] But funding contracts are concluded for a period of time (with a fixed termination date or open ended), and it is important for an Islamic investor that a funded enterprise remains Sharīʿah-compliant during the whole term of the contract. Sharīʿah compliance could be violated for many different reasons – from commencing non-compliant activities to too much conventional debt financing. This raises the question of whether an Islamic platform has the obligation to continuously monitor the Sharīʿah compliance of funded enterprises, or whether this is the responsibility of each investor. If the platform is not involved, investors need relevant information[283] and sufficient expertise to assess Sharīʿah compliance.[284] Several follow-up questions from the Islamic, as well as from the conventional law, perspective arise when the responsibility for monitoring is with the platform.

- How can a platform that is a start-up by itself assure the Sharīʿah compliance of businesses? Should there be any formalised involvement of an internal or external Sharīʿah advisor?
- A fund-raiser may promise to observe threshold levels for interest-bearing financing, but later breach this promise. By whom and how fast can this be detected? Should the funding contract incorporate a Sharīʿah compliance clause? If so, who confirms the Sharīʿah compliance? Are there any dispute settlement mechanisms (conventional or Islamic)?

[281] This means that there is no more separate declaration of intent, and hence there is no possibility of the fund seeker abstaining from giving or revoking the promise (for whatever reason).

[282] Financial ratios for crowdfunded Islamic start-ups and SMEs have not been discussed explicitly so far. For stock screening criteria, see, for example, Derigs and Marzban (2009), and Ho (2015).

[283] In equity-based crowdfunding, investors may have information rights as shareholders. Investors in P2P lending schemes lack such rights unless a specific information clause is inserted into the funding contracts or those rights spring from general legal or regulatory provisions for P2P lending.

[284] If retail investors do not have the capability to assess Sharīʿah compliance by themselves, then they may seek Sharīʿah advice from an expert, who might be the platform operator.

- When a breach of a Sharī'ah compliance promise or clause is noted, the investors hold a Sharī'ah non-compliant (financial) asset that is most probably illiquid. Is there (legally and factually) any emergency exit provision for such an asset? Shares of start-ups are unlikely to be traded on any recognised exchange, and lenders may not be able to find a buyer for their debt title at par (as any discount would imply *ribā*) so that the Islamic investors have to keep their Sharī'ah defective assets and relinquish the non-compliant income until maturity. Could they claim a compensation for any loss from the platform operator or the funded enterprise? This is a question that has to be addressed by both the financial regulator (who might answer to the affirmative) and the Sharī'ah experts (who might invalidate any claim, as that may result in *ribā*).

If it becomes apparent that an initially Sharī'ah-compliant investment has become incompliant, Islamic investors should exit from this investment. An exit could be possible if another investor steps in and takes over the shares of the exiting investor. This, however, is already difficult under "normal" circumstances, and it may become virtually impossible if large numbers of Islamic investors (who are all affected in the same way) try to liquidate their non-readily realisable securities[285] at the same time. If they (have to) keep the asset, they will suffer losses when they dispose of tainted income. Conventional investors would not have this problem, as they do not have to liquidate their shares. Such a situation could be avoided or mitigated if fund-raisers that use an Islamic platform were either legally obliged or contractually bound to maintain the Sharī'ah compliance, and the Sharī'ah advisor of the platform were mandated to check periodically the Sharī'ah status of the funded enterprise. If compliance is lost, the Islamic investor could have a claim against the fund-raiser and/or the platform.

If the crowdfunding platform would be obliged by law or regulation to provide protection against losses due to Sharī'ah non-compliance if the funded enterprise is unable to compensate, this would imply a significant risk and a potential financial burden which does not exist for conventional crowdfunding platforms. To mitigate this risk, an Islamic platform needs either a capital buffer or liability insurance, both increasing its costs compared to conventional competitors. Furthermore, the character of an Islamic platform with monitoring obligations and as a de facto guarantor against losses caused by Sharī'ah non-compliance would change from a matchmaker and facilitator to a financial institution subject to tighter regulations than conventional competitors. An alternative that maintains a level playing field for Islamic and conventional platforms would shift more responsibilities to the Islamic retail investors, which then would be exposed to a higher risk than conventional investors.

4.2.4 Regulation in Dual Systems

Banking is a business with inherent systemic stability risks that emanate from credit intermediation with maturity and liquidity mismatches, potentially amplified by high leverage. Prudential banking regulation aims to contain the resulting systemic risks.[286] FinTech that emulate regulated banking activities should be subject to proportionate regulations analogous to those of banks. Otherwise the consistency of the regulatory system would be compromised and regulatory arbitrage could threaten the systemic stability. But even regulated FinTech could disrupt the safety and soundness of incumbent banks,[287] including systemically important banks or Islamic banks, and set in motion uncharted macroeconomic and macrofinancial dynamics.[288] For example, herding behaviour, financial volatility and pro-cyclicality could be amplified by robo-advisors (initially developed by FinTech, but increasingly adopted by large financial firms).[289] Furthermore, FinTech activities themselves "could become systemic because they provide new critical economic functions or market infrastructure (for example if certain digital wallets become dominant) and potentially merit higher standards of operational risk oversight".[290] Although, for the time being, disruptive FinTech activities are still too small to be of overall quantitative systemic relevance, prudential regulators have started to study possible new value chains, intra- and intersectoral linkages and possible feedback loops in macrodynamic models.[291]

Cryptocurrencies, smart contracts and crowdfunding are phenomena that have emerged only in recent years. While smart contracts are still in a more experimental stage, Bitcoin has become an established cryptocurrency and crowdfunding has found its market niche and is growing at a fast rate. Legislators and regulators have started only recently to create a framework for cryptocurrencies and crowdfunding.[292]

---

285 The term "non-readily realisable securities" was introduced by Financial Conduct Authority (2014), Chapter 4.

286 In addition, conduct regulation of FinTech by banking as well as capital market regulators aims at consumer protection.

287 This issue has been raised repeatedly by central bank governors, e.g. Carney (2017) and Weidmann (2017).

288 "FinTech's true promise springs from its potential to unbundle banking into its core functions of: settling payments, performing maturity transformation, sharing risk and allocating capital. … In this process, systemic risks will evolve. Changes to customer loyalties could influence the stability of bank funding. New underwriting models could impact credit quality and even macroeconomic dynamics. New investing and risk management paradigms could affect market functioning. A host of applications and new infrastructure could reduce costs, probably improve capital efficiency and possibly create new critical economic functions" Carney (2017), p. 3.

289 See Weidmann (2017), p. 4.

290 Carney (2017), p. 9.

291 Stability issues of FinTech have also attracted the attention of supranational bodies such as the FSB. Joint FSB and BCBS working groups have studied selected FinTech topics such as financial stability implications of (1) the DLT and (2) P2P lending; see Andresen (2016). Results have not yet been published.

292 For a summary of risks of P2P lending and equity crowdfunding platforms and a compilation of regulatory responses in several jurisdictions (including the EU, UK, US, Canada and Australia), see IOSCO (2017).

4.0 EMERGING ISSUES IN ISLAMIC FINANCE

Faced with a variety of promising FinTech products, and convinced that they have the potential to enhance the quality of financial services, the FCA of the UK was the first to create a "regulatory sandbox that is a 'safe space' in which businesses can test innovative products, services, business models and delivery mechanisms without immediately incurring all the normal regulatory consequences of engaging in the activity in question".[293] The aim of the sandbox is the promotion of genuine innovation with a good prospect of identifiable consumer benefit. After the UK, Malaysia was the first Muslim-majority country where a regulatory sandbox was launched in October 2016,[294] followed by Abu Dhabi[295] in November and Indonesia[296] in December 2016.

Cryptocurrencies

A main concern of regulators is the misuse of cryptocurrencies for illegal purposes. It is very difficult, if not impossible, to trace the flow of money in a decentralised crypto-system. Therefore, regulation and control of the entry points – that is, the marketplaces where national currencies are exchanged against cryptocurrency – is of major importance. Regulators can require a registration and licensing of these marketplaces and impose KYC and AML regulations on them. It remains to be seen how effective this can be, as cryptocurrencies are global, and it may not be possible to regulate all entry points worldwide. If capital mobility is not restricted, players who want to use large amounts of cryptocurrencies for illegal purposes may find entry points in locations where regulations are less restrictive or not effectively imposed. Apart from this, cryptocurrencies are a challenge for central banks whose mandate is the control and management of the money supply of a country. The appraisal of Bitcoin varies considerably among different jurisdictions.[297] For example, it is reported that Jordan has prohibited the use of Bitcoin,[298] while it is allowed but unregulated in Indonesia, Malaysia and Turkey. The regulators have issued public risk warnings.[299]

The use of DLT in networks under the control of regulated entities such as banks or payment service providers does not (yet?) pose particular challenges for prudential regulation. On the contrary, the FCA sees DLT (probably not in its Bitcoin version, but in a permissioned format) as a potential help for firms to meet their KYC and AML obligations.[300]

Smart Contracts

Smart contracts are still in an early and experimental stage. For the time being, they are more a legal than a regulatory challenge. From the opposite direction, existing prudential and conduct-of-business regulations are seemingly not a major obstacle to the development of smart contracts.[301]

Crowdfunding

It is widely accepted that crowdfunding can close a financing gap for start-ups and SMEs. Equity crowdfunding and P2P lending are techniques that apply basically known and regulated concepts (the issuance of shares and debentures, and the provision of loans). The issuance of shares and debentures is regulated by capital market authorities. A major requirement is the publication of a detailed prospectus in a specific format and with legally binding effects. For start-ups and SMEs that want to raise equity but do not intend to be listed on a stock exchange, a prospectus in the regulated format seems to be "oversized" in terms of content and cost. This has been recognised in many jurisdictions, and special regulations with prospectus exemptions for start-ups and SMEs have been implemented.[302]

Crowdfunding regulations should address, in particular, the following risks:[303]

- The lenders or investors may not fully understand the risks to which they are exposed and they are usually disadvantaged by information asymmetries (i.e. they know less about a loan or an investment on offer).
- The lenders and investors are exposed to the risk of a default, fraud or firm failure of the lender or issuer which may lead to a loss of their capital. A high-quality due diligence can mitigate the risk, but retail clients with limited expertise can only rely on the platform operator.
- Investors may face the risk of dilution of their equity position through subsequent rounds of capital raising.

---

293 See Financial Conduct Authority (2015) and Woolard (2016).
294 The regulatory framework was issued on 18 October 2016; see Bank Negara Malaysia (2016). In Asia, regulatory sandboxes have also been launched in Singapore [16 November 2016; see MAS (2016)], Australia [15 December 2016; see ASIC (2015)], Hong Kong [6 September 2016; see Weinland (2016)] and Thailand [expected 2017Q1; see Hobey (2016)]; see also Baker McKenzie (2016), and Mesropyan (2016).
295 See Shubber (2016).
296 See Amirio (2016), Wirayani (2017), and OJK (2016).
297 For a survey of the regulation of Bitcoin in 43 jurisdictions, see Global Legal Research Directorate Staff (2014).
298 See **https://en.wikipedia.org/wiki/Legality_of_bitcoin_by_country**.
299 See Global Legal Research Directorate Staff (2014) and **www.loc.gov/law/help/bitcoin-survey/.**
300 Woolard (2016). "[T]he development of DLT will be an iterative process. Our current thinking around what it can do will undoubtedly adapt and change as research and experimentation continues. So we will continue to monitor development of this technology, while remaining alive to any future risks it may pose."
301 The profiles of the firms that were granted some regulatory relief in the FCA sandbox do not men tion work on smart contracts; see Financial Conduct Authority (2016c).
302 The threshold for exemptions is usually defined by the amount that shall be raised through crowdfunding.
303 See DFSA (2017a, 2017b), and IOSCO (2017).

- Investors in start-ups should be aware that their funds are locked in for a long (and undetermined) period without a return for a number of years. Lenders commit their funds for a set period only, so the lock-in effect is less critical for them. But investors and lenders face the same problem of a lack of an exit route, as there is no secondary market for their financial assets.

- Without an easy exit, a "voice" option could be exercised only if the investors (and lenders) receive ongoing information on the activities of the financed business, including information relevant for the assessment of the Sharī'ah compliance.

In the following, Malaysia's regulation is taken as the main reference since it contains special rules for Sharī'ah-compliant crowdfunding.[304] The DFSA has issued two consultation papers in early 2017, as part of the process of preparing regulations for SME financing through loan-based and investment-based crowdfunding.[305] Crowdfunding regulations have also been implemented in Indonesia[306] and are expected soon in Turkey.[307] References to regulations in non-Muslim countries[308] are inserted where appropriate.

Regulations Regarding the Platform Operator

Operators of equity crowdfunding and P2P lending platforms are treated as financial service providers. They are classified by the Securities Commission Malaysia as "recognised market operators" for whom special guidelines apply. DFSA has also proposed to create a new financial service, "operating a crowdfunding platform", with specific regulations.

(1) Investment-based crowdfunding. The crowdfunding platform operator must, among other things, carry out a due diligence exercise on prospective issuers, including a verification of the business proposition of the issuer. The operator has to verify the issuers' disclosure documents for accuracy and make them accessible to investors, and inform investors of any errors or omissions discovered later, and of any material change or development in the circumstances relating to the offering of the issuer. The platform operator must monitor AML requirements. It is obliged to publish a general risk warning and to provide investor education material as well as information on its own procedures – that is, on how it facilitates the funder's investment, on communication channels, and on information rights and complaint handling or dispute resolution procedures. All fees, charges and other expenses that have to be borne by the investors must be disclosed. Finally, the operator must provide information on processes and contingency arrangements in case of a termination of the platform. The DFSA proposes also a rather detailed disclosure of actual and expected failure rates of issuers.

The Malaysian Guidelines do not require a minimum capital for the ECF platform. Other jurisdictions have set (relatively moderate) minimum capital amounts which may serve as a buffer for a smooth winding-up in case a platform withdraws from business and as a source of funds for claims of investors against the platform for misconduct or breach of contract.[309] This is of particular relevance where the platform not only offers shares (as in Malaysia) but also a wider range of instruments with variable return and high default risks (such as profit participation loans or subordinated loans in Germany, or units of unregulated collective investment schemes in the UK) so that the platform operator should act as an investment advisor.

In contrast, the DFSA proposes to limit the securities offered on an investment-based platform to shares and debentures[310] and to exclude instruments of a complex or unusual nature (such as derivatives or structured products). It remains to be seen whether this will also restrict the use of genuinely risk-sharing instruments that are based on *muḍārabah* or *mushārakah* contracts. It may be that the regulatory framework for this type of instrument is more conducive in a non-Muslim jurisdiction such as Germany. There, the law grants an exemption from the prospectus requirements for subordinated loans and profit participation loans issued by SMEs and offered on investment-based crowdfunding platforms (up to EUR 2.5 million per issuer per year).[311] Common features of profit participation loans and *muḍārabah*/*mushārakah* instruments are: (1) the profit-linked return for the capital provider, and (2) a set maturity date. The difference is that profit participation loans are debt instruments that give the capital provider the right of a full repayment of the provided funds (even if the financed business makes a loss), while the Islamic instruments are temporary equity-like structures that require the capital provider to bear a proportionate portion of an eventual loss. However, the equity-like structures might be converted into debt-like instruments if they are supplemented by a third-party capital guarantee.[312] Such a "hybrid" instrument would

304 The regulations for equity crowdfunding were issued in December 2015 and those for P2P lending in April 2016; see Securities Commission Malaysia (2016).

305 See DFSA (2017a, 2017b, 2017c). The proposed regulations are inspired by practices in the UK, New Zealand, Isle of Man, France, Netherlands and Spain. DFSA regulations only apply to financial service providers operating in the DIFC. No specific crowdfunding regulations exist for service providers in the UAE outside the DIFC; see Braun (2016).

306 See OJK (2017).

307 See Sirt (2016).

308 A tabular overview of the regulatory frameworks of investment-based crowdfunding in eight EU member states, and for lending-based crowdfunding in four states, is provided by European Commission (2016), annex 2; on UK regulations, see Financial Conduct Authority (2013, 2014, 2016a). [303]

309 Some jurisdictions require a liability insurance instead of minimum capital. The DFSA proposes professional indemnity insurance and a base capital requirement of USD 10,000. This is increased to USD 140,000 if the crowdfunding platform holds client assets.

310 The definition of "debenture" will automatically include *ṣukūk* based on debt-creating contracts, and the DFSA is likely to apply it also to other contracts with a similar pattern of risks and returns.

311 See BaFin's webpage on crowdinvesting: **https://www.bafin.de/EN/Aufsicht/FinTech/Crowdfunding/Crowdinvesting/crowdinvesting_node_en.html.**

312 This combination may be debatable from a Sharī'ah perspective, but precedents could be found in some *ṣukūk* structures.

certainly have a complex legal nature, but its economic substance is not too complicated. Nevertheless, it should be noted that the German crowd-investing regulations include two specific consumer protection elements. First, a product information sheet (of maximal three pages) with specified disclosures shall be made available to investors, and has to be submitted to the regulator for a completeness check (but not for a check of the correctness of the information given). Second, the platform operator must be licensed for investment advice and ensure that the investment is suitable for the respective investor.[313]

Despite a detailed list of required information for the product information sheet and the obligation of platform operators to verify the suitability of an investment for a particular investor (which requires specific information), the major problem in the beginning was the inadequate quality of the documents submitted – in particular, the product information sheets.[314] The situation improved over time due to the active guidance by the regulator. But suppose a jurisdiction has no detailed list of mandatory disclosures, no obligatory suitability requirement check, and no active guidance by the regulator. Market forces alone will not enforce better transparency and reliable business projections by platforms or issuers. There are websites and blogs reporting on missing and misleading information in initial crowdfunding pitches and progress reports (e.g. in the UK) and on failures of crowdfunded businesses globally.[315] Obviously, information asymmetries are huge and make investment-based crowdfunding in general, and equity-based crowdfunding in particular, a high-risk venture. When it comes to information about Sharī'ah compliance, the asymmetries will be even worse. Neither do retail investors have sufficient expertise to appraise Sharī'ah compliance, nor have regulators or Sharī'ah experts come forward with lists of specific information that must be disclosed to allow for an assessment of the Sharī'ah compliance of products and firms before and after investing. A concerted initiative would give relief to individual Sharī'ah experts entrusted with compliance checks and endorsements for crowdfunding investments. It could also reduce disadvantages in the competition between Islamic and conventional crowdfunding ventures.[316]

(2) P2P lending. The requirements for P2P lending platforms in Malaysia are very similar to those for equity crowdfunding platforms. A major difference is the requirement of an efficient and transparent risk scoring system. "All issues, offers or invitations to subscribe or purchase investment note or Islamic investment note must be rated by the P2P operator.The P2P operator is accountable for the risk scoring mechanism and methodology employed." [317] The risk scores must be available to the investors. The platform operator must have in place processes or policies to manage any default by issuers, including using its best endeavours to recover amounts outstanding to investors.[318] Another major difference is that for P2P, the guidelines requires a minimum paid-up capital of MYR 5 million from the operator. The DFSA proposes a rather detailed disclosure of actual and expected default rates of borrowers.

To mitigate the illiquidity and exit problems, the DFSA proposes to allow loan-based and investment-based platform operators to create a facility for the transfer (sale) of loans or securities to other lenders or investors who are already clients of the platform. This facility must be used neither for active trading nor as a source of income for the platform operator. These restrictions shall prevent the facility straying into other regulated financial services for which no licence has been granted.

Regulations Regarding the Fund Seekers/Issuers

The disclosure requirements include the submission of information on key characteristics of the company, the purpose of the fund-raising, information relating to the business plan, and audited or certified financial statements (or financial information by the issuer's management). Only locally incorporated private limited companies are allowed to raise funds through equity crowdfunding platforms. Investment funds, financial institutions, and public-listed companies and their subsidiaries are explicitly not permitted. Funds can be raised only from one equity platform at a time[319] up to a limit of RM 3 million (approximately USD 640,000)[320] within 12 months and a maximum of RM 5 million (approximately USD 1.125 million).[321]

The P2P lending platform can host funding requests by locally registered sole proprietorships, partnerships, incorporated limited liability partnerships, and private limited and unlisted public companies. The explicitly excluded entities are the same as for equity platforms. The disclosure requirements are basically the same as those for issuers on equity platforms.

313 The platform operator has also to ensure that the investment amount is within the permissible limits of the investor – that is, twice the monthly net income up to a maximum of EUR 10,000.
314 See Ebenrett (2016).
315 For example, **www.altfi.com/news/crowdfunding, https://www.cbinsights.com/blog/, http://fantasyequitycrowdfunding.blogspot.de/.**
316 The disadvantages are: (1) additional costs for Sharī'ah compliance appraisals, and (2) the extra risk dimension of Sharī'ah non-compliance.
317 Securities Commission Malaysia (2016), paras 13.24–13.25.
318 This is a strong emphasis on the rights of the lender/investor. A slightly different approach is taken in the UK, where the FCA looks at P2P lending more from a consumer protection perspective and emphasises the fair treatment of borrowers in arrears and appropriate forbearance; see Financial Conduct Authority (2016b).
319 A concurrent listing on an equity platform and P2P lending platform is permitted.
320 Exchange rate as of 26 February 2017.
321 The maximum amount up to which the prospectus exemption applies in the different EU jurisdictions is somewhat arbitrary. It varies between EUR 300,000 and EUR 5 mn.

Regulations Regarding Funders/Investors

To limit their risk exposure (and to protect them "against themselves"), retail investors can invest on equity crowdfunding platforms only a maximum of RM 5,000 (approximately USD 1,125) per issuer and a total amount up to RM 50,000 (approximately USD 11,250) within a 12-month period. Accredited angel investors[322] are limited to RM 500,000 (approximately USD 112,500) per 12-month period, while no restrictions apply to sophisticated investors.[323]

While most jurisdictions follow this approach, and have set fixed amounts, the UK took a different route. The FCA looks at crowdfunding as a special technique for the sale of securities, and all firms selling securities should be, in principle, subject to the same regulations irrespective of their distribution channels. These regulations include, for example, an "assessment of appropriateness", meaning that a platform operator "should ensure that clients are assessed as having the knowledge or experience to understand the risks involved before they can invest". [324] Based on this, the FCA restricts offers of unlisted shares (and debt securities) to retail clients who are sophisticated investors or high-net-worth investors or will receive regulated investment advice or certify that they will not invest more than 10% of their net investible portfolio in unlisted shares and unlisted debt securities. The aim of these restrictions is to ensure that only those clients can invest that fully understand the risks. P2P lending is considered less risky than equity financing. Therefore, Malaysia allows higher maximum amounts for investments of retail investors than in equity crowdfunding (RM 50,000 at any period of time), and there are no limits for angel and sophisticated investors.

While the UK is more restrictive than Malaysia regarding retail clients' access to products of equity platforms, it is less restrictive regarding access to lending platforms: There are no appropriateness tests and no ceilings for investment amounts.[325] The DFSA has proposed a limit of USD 50,000 per investment-based and loan-based platform per year for retail investors, and a limit of USD 5,000 per loan.

Regulations Regarding Sharīʿah Compliance

A special feature of the Malaysian regulation is a separate chapter on the offering of Islamic capital market products by equity crowdfunding and P2P lending platforms. It makes the appointment of a Sharīʿah advisor (and the disclosure of the name) by the platform operator mandatory when an Islamic capital market product is offered.[326] The role and responsibility of the Sharīʿah advisor is rather comprehensive and includes:[327]

- "Providing Sharīʿah expertise and guidance on all matters, particularly in documentation, structuring and investment instruments;
- Ensuring that the applicable Sharīʿah rulings, principles and concepts endorsed by the Sharīʿah Advisory Council[328] are complied with;
- Applying *ijtihad* (intellectual reasoning) to ensure that all aspects relating to the offering of Islamic capital market product [sic] are in compliance with Sharīʿah, in the absence of any rulings, principles and concepts endorsed by the Sharīʿah Advisory Council; and
- Where applicable, issue a Sharīʿah pronouncement, which must include (i) the basis and rationale for the pronouncement; (ii) the structure and mechanism of the Islamic capital market product; and (iii) the applicable Sharīʿah rulings, principles and concepts used in the Islamic capital market product."

The platform does not have to disclose all findings of the Sharīʿah advisor but only the "information relating to the structure of the Islamic capital market product".[329] The structure of a capital market product – for example, an equity share – will not change over its lifetime, and if the structure is considered Sharīʿah-compliant at the beginning, it will remain so until exit. The same, however, does not apply to the substance of the company financed by that structure. The business may have been Sharīʿah-compliant at the beginning, but over time incompliant elements may have grown and the Sharīʿah quality may have deteriorated. Unless the company itself reports to this effect, this

---

322 An angel investor is a high-net-worth individual (total wealth or net personal assets of RM 3 million and above or its equivalent in foreign currencies) or a high-income earner (gross total annual income of not less than RM 180,000 in the preceding 12 months; or RM 250,000 jointly with one's spouse) accredited by the Malaysian Business Angels Network; see http://mban.com.my/.

323 This category includes venture capital firms and private equity corporations.

324 Financial Conduct Authority (2013), p. 38.

325 The regulation includes "conduct of business rules (in particular, around disclosure and promotions), minimum capital requirements, client money protection rules, dispute resolution rules and a requirement for firms to take reasonable steps to ensure existing loans continue to be administered if the firm goes out of business" (Financial Conduct Authority (2013), p. 7).

326 The advisor could not only be a person or an advisory firm but also an Islamic bank or a conventional bank approved to carry on Islamic banking business.

327 Securities Commission Malaysia (2016), para. 11.03.

328 Sharīʿah Advisory Councils have been installed at the Securities Commission Malaysia and the central bank (Bank Negara Malaysia); they are the national standard setters for Islamic finance. Their Sharīʿah standards are binding in Malaysia (while Sharīʿah standards of AAOIFI are only recommendations).

329 This arrangement comes close to, but does not exactly meet, the stronger claim of the World Bank and IDB report on Islamic finance for SMEs that the "platform must be governed by a Shari'ah board or Shari'ah advisory" (World Bank, Islamic Development Bank and Islamic Research and Training Institute (2015), p. 55). It bypasses their claims that "Investments must be socially responsible" and that start-ups must "not generate income from sources that are not Sharīʿah-compliant". The Sharīʿah Advisory Council (SAC) of the Securities Commission Malaysia had decided (already in 1996) that companies "with a certain degree of prohibited elements which do not exceed the benchmark set by the SAC, can be included in the List of Shariah-compliant Securities" (Securities Commission Malaysia (2006), p. 150).

deterioration may go unnoticed by the investors,[330] since neither the Sharī'ah advisor nor the platform operator is mandated to monitor continuously, or at least periodically, the business of the funded companies with respect to their Sharī'ah compliance. It should be clarified whether an erosion of the Sharī'ah quality (e.g. a gradually increasing conventional debt financing[331]) would fall under "material change" or "development that has to be reported to the investors" by the platform operator. If this is not so, then there seems to be a regulatory gap (or just an ambiguous terminology) that should be addressed in the future.

Compared to the Malaysian rules, the draft of the DFSA is still rather vague. In principle, a platform that wishes to be Sharī'ah-compliant would need an Islamic endorsement (by the DFSA) and have to comply with the Islamic Finance Rules (IFR) which specify the Sharī'ah governance arrangements required for different types of Islamic financial services, usually including the appointment of a Sharī'ah Supervisory Board. However, it is conceded that this could be problematic for operators of investment-based crowdfunding platforms, "for example due to the cost of appointing a Board".[332] The DFSA invites market participants to make suggestions for alternative measures.

Box 4.2.1 Financial Inclusion and FinTech

By: The World Bank

Access to finance is the first step toward broader financial inclusion and is considered as a key element to reduce poverty and enable inclusive growth. Financial access has an important role in helping people build a better life as it facilitates individuals and businesses to use financial services in everything from day-to-day living to long-term plans as well as unexpected shocks and emergencies (World Bank, 2016a).

A major indicator of the progress of financial inclusion is having an account either at a financial institution or through a mobile money provider. According to the Global Findex Report 2014, while 94 percent of adults in high-income OECD economies have an account, the share is only 54 percent in developing economies. Furthermore, 700 million adults worldwide became account holders between 2011 and 2014, and the number of adults without an account dropped by 20 percent. During the same time, the percentage of adults having an account has risen from 51 percent to 62 percent, globally. One of the major reasons for the increase in account ownership is technology advances, especially the rapid growth in mobile devices and digital financial services. (Demirguc-Kunt et al., 2015).

There are substantial variations in account ownership among regions (Figure 1). Account penetration is the highest in East Asia and the Pacific with 69 percent, and lowest in the Middle East with just 14 percent. From 2011 to 2014 account ownership has increased in all regions. A strong increase of more than 10 percent in account penetration was reported in East Asia and the Pacific, South Asia, and Latin America and the Caribbean. While the increase was concentrated in financial institutions in most regions, interestingly, in Sub-Saharan Africa alone mobile money accounts drove the growth in overall account ownership from 24 percent in 2011 to 34 percent in 2014. Mobile money accounts increased overall account penetration by 5 percentage points to 34 percent while the share of adults with an account at a financial institution stayed at 29 percent, indicating the positive effect of the evolution of new technologies contributing and removing barriers to financial inclusion.

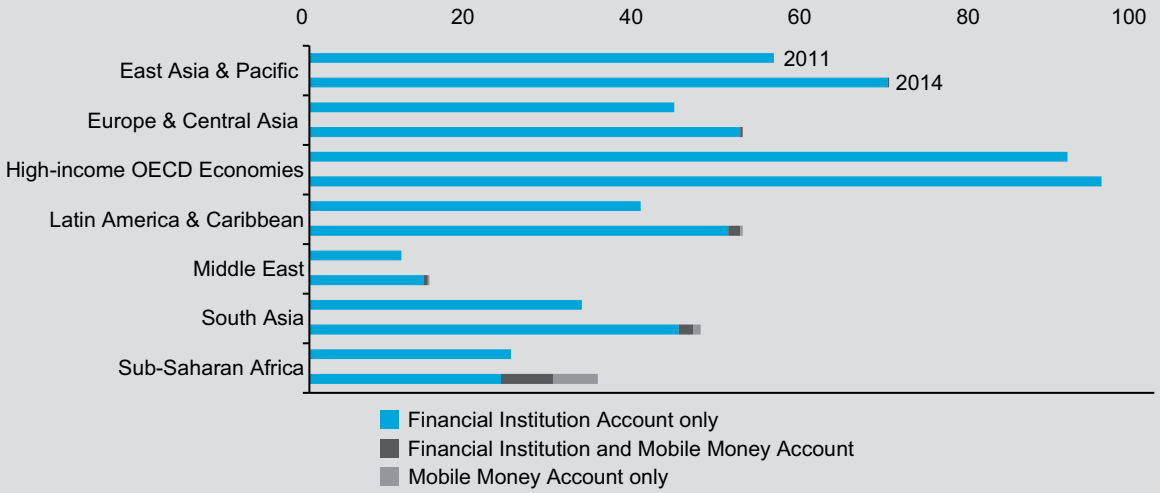
330 It can be reasonably assumed that retail investors lack the expertise and capacity to monitor and assess the Sharī'ah quality of the funded business by themselves, even if the company would provide some information.

331 The World Bank and IDB report on SMEs outlines a rather plausible scenario for a deterioration of the Sharī'ah quality: "Due to the fact that the crowdfunding service provider (if compensated through equity) and the backed investors collectively represent a significant equity ownership in the start-up, clear legal restrictions must be defined to ensure that the start-up does not raise interest-based debt, deposit cash, invest in noncompliant instruments, or extend the product and service portfolio to include noncompliant activities in the future". It is debatable whether legal restrictions (prohibitions) or contract clauses would be the better solution, but the existence of a serious problem cannot be denied.

332 DFSA (2017c), p. 13.

Box 4.2.1 Financial Inclusion and FinTech (Continued)

Figure 1: Account Penetration, Adults with an account (%), 2011 and 2014



Source: Global Findex Database, (Demirguc-Kunt et al., 2015)

Despite the improvements, 2 billion adults worldwide still remain unbanked, i.e. they do not have traditional bank accounts or access to banking services. Policy makers, including multilateral development organisations such as the World Bank Group have taken new approaches to overcome this major issue. In October 2013, as a response to ensure that the mentioned 2 billion people gain access to an account, the World Bank Group President Jim Kim announced the goal of achieving Universal Financial Access (UFA) by 2020. The UFA goal envisions that by 2020, adults that are currently not part of the formal financial system, have access to a transaction account or an electronic instrument to store money, send and receive payments in order to manage their financial lives and help to manage risks and escape poverty.

To achieve this goal, 25 focus countries which represent 73 percent of the world's unbanked adult population were identified. The World Bank and International Finance Corporation (IFC) have set a target to enable 1 billion people to gain access to a transaction account through targeted interventions. The World Bank has committed to enabling 400 million adults to be reached through knowledge, technical and financial support, while IFC has set a target to reach 600 million new accountholders through investment and advisory services.

The approach of the World Bank focuses on introducing transaction accounts, expanding access points, improving financial literacy, and driving scale and viability through high-volume government programs, such as social transfers, into those transaction accounts.

The UFA goal has a strong link with the World Bank twin goals; reducing extreme poverty and promoting shared prosperity. It enables increase in productive investment, savings and credit, average income and employment as a result of access to an account and branch expansion. The UFA goal is also an important step contributing to accomplish other development goals as it helps manage income shocks, improves food security, enables a more efficient and better targeted social transfer to the poor, and improves access to services.

To accomplish the UFA goal and catalyse private sector investment in financial inclusion the World Bank Group has increased engagement with key partners. The 30 UFA financial sector partners made concrete commitments to reach financially excluded people and achieve Universal Financial Access by 2020. Commitments made by these partners include banks, credit unions and savings banks, card companies, microfinance institutions and alliances, telecommunication companies, FinTech and financial institutions (World Bank, 2016b).

4.0 EMERGING ISSUES IN ISLAMIC FINANCE

Box 4.2.1 Financial Inclusion and FinTech (Continued)

The World Bank Group is also working with countries to achieve the UFA goal by strengthening political and stakeholder commitment, enabling a legal and regulatory environment, and bolstering payment systems and information communication technology infrastructure.

Reaching universal financial access will open doors to other financial services and will make a positive change on people's lives. People will be able to save money more securely and conveniently, poor people will be able to receive government benefits more easily and safely, entrepreneurs that need to build small businesses could get access to financial services, inexperienced customers that face physical and social barriers can be more empowered to use formal financial services with financial awareness and education as well as consumer protection, and people in remote areas could use financial services through a mobile device (Grandolini, 2015).

The action framework for the UFA goal includes expanding digital payment instruments to reach the unbanked adults. There is a huge potential to be reached that are currently unserved by financial institutions. Using innovative technologies has proven to be successful in Sub-Saharan Africa; while only 2 percent of adults worldwide have a mobile money account, in Sub-Saharan Africa 12 percent do.

Technology has disrupted many industries as well as finance. Digital financial technology, or "FinTech", has shown an impressive growth; the industry grew by around 400 percent between 2013 and 2014, from $3 billion to more than $12 billion (FinTech Finance, 2016). Whereas FinTech is a broad term, segments of FinTech focusing on mobile banking and digital platforms are directly relevant to inclusion agenda. Financial inclusion strategies have gained their share from this momentum, and together with the wide global spread of mobile phone users FinTech has enabled the provision of financial services, in some instances at a lower transaction cost and credit risk, to the people and businesses that are unserved by banks. FinTech companies have a large user base and have increased the percentage of account ownership in their regions as they are aware of the challenges that the unserved market faces.

FinTech companies have been reshaping the world's current financial markets by changing the way individuals and businesses utilise financial services, including banking, loans and credit to individuals or small businesses, and payments. The main difference between FinTech companies and traditional banks comes from the technology based approach they use, which brings several advantages that can help overcome costs and barriers to financial inclusion.

One major feature of FinTech is disintermediation, which enables lending without an intermediary and provides products and services directly to end users, mostly through online and mobile channels. Especially after the 2008 financial crisis, as banks have reduced their lending, peer-to-peer lending has increased rapidly. It is estimated that the opportunity in the global peer-to-peer market will be worth $897.85 billion by 2024, from $26.16 billion in 2015, at a growth rate of 48.2 percent (Bajpai, 2016). These lenders provide a solution to individuals and businesses that have difficulty in securing a loan from a bank through a peer-to-peer lending platform and as a result avoid the costly services of banks.

An important advantage of FinTech is that it can help mitigate risks and deal with asymmetric information at a lower cost than traditional banks. While banks are limited to passive information provided by the borrowers and have to go through a lengthy process to assess their creditworthiness, peer-to-peer lenders use innovative and dynamic credit evaluation models thanks to the availability of big data. In the big data era, lenders can obtain a very detailed profile of the borrower from multiple sources. Borrowers with a computer or smartphone generate data by anything they do, including ecommerce purchases, the number of connections on social media, internet surfing behaviour, and their business ratings on online platforms. The information that is gathered is more objective and difficult to manipulate, allowing the lenders to assess credit risk of borrowers more efficiently than a bank, thus increasing transparency and reducing information asymmetry (Yan et al., 2015). This holds a huge potential for small and medium sized enterprises (SMEs) that are crucial for economic growth but face obstacles in accessing bank loans. Innovative FinTech solutions can assist SMEs by providing them with improved access to more diverse funding options that can better suit their needs. For instance, Kabbage is one of the many online lending platforms, which provide working capital to small online merchants and sellers on marketplaces such as eBay, Etsy, and Amazon. Kabbage goes through a wide range of data sources to evaluate the creditworthiness of a small business applying for a loan. These sources include sales and credit history, prices and inventory, customer reviews and ratings of the business. This data-driven approach helps Kabbage to reduce risks and mitigate asymmetric information that is a problem faced by lenders offering loans to small businesses (Markovich, 2016).

Box 4.2.1 Financial Inclusion and FinTech (Continued)

The most important advantage of FinTech is enabling financial inclusion. As mobile phones are widely used in developing economies, millions of people have gained access to the formal financial system for the first time. With the greater availability of data, mobile-based financial service providers can design products that suit the needs of unbanked adults. For example, Zidisha is a crowdfunding platform that allows ordinary web users to lend directly to individual borrowers in developing countries without an intermediary. To keep the costs low, Zidisha does not employ any loan officers or staff in borrower countries, instead, all services are provided online. Borrowers post their project proposal, photos and their short life story on Zidisha's website and anyone with a credit card can make a loan to one of the projects. Lending platforms like Zidisha are an effective solution in developing economies, where microfinance has infrastructure and distribution challenges and high costs. Eliminating the local intermediary and reducing the costs makes the loans more effective to overcome the cycle of poverty as the borrowers keep the profits instead of paying interest (Allison, 2016).

Despite the many advantages that FinTech has, it faces regulatory challenges as the industry is relatively new and is developing rapidly. While FinTech requires an enabling legal and regulatory environment, the regulation process is critical as it should enable and not stifle innovation. Regulators should review existing framework of robust consumer protection around the principles of transparency, responsible pricing, fair treatment, privacy of client data, and mechanisms for resolving customer issues in light of changing nature of transactions and modes of transaction due to changing financial technologies. Furthermore, it is important that regulators develop clear and consistent standards to improve efficiency and safety of digital financial services and empower consumers. As many FinTech services have gone beyond national borders, international coordination and collaboration is required to limit regulatory arbitrage through harmonisation of regulations and standards.

Different approaches are taken by regulators to ensure an enabling regulatory framework and thus a sustainable growth of FinTech. For instance, some countries such as Australia, Singapore and the United Kingdom have created the concept of "regulatory sandbox". A regulatory sandbox enables businesses to test innovative products, services, business models and delivery mechanisms in a live environment for a certain period of time; if the product succeeds, the regulatory requirements become applicable. This approach helps regulators to understand in a controlled environment the risks a product might pose if it is used widely and helps to speed up innovations by allowing a wide range of financial products to be developed, which would normally happen through a long process (FCA, 2016).

The rapidly developing industry, FinTech, has proven to have several advantages over traditional banks, the most important being enabling financial inclusion. If regulators create the right incentives and develop a robust regulatory framework while the industry is still small, FinTech can continue to create a positive impact on people's lives.

Out of 73 percent of the world's unbanked, 22.2 percent are Muslim countries, and a significant amount of adults cite religion as a barrier to access finance. By utilising FinTech, Islamic finance can offer a solution for individuals and small businesses to overcome current access to finance problems. Information asymmetry and monitoring costs are reduced through technology—thus promoting financial products and services based on asset-based and risk sharing finance can be developed. With the development of sophisticated digital platforms new forms of Islamic financial intermediation through peer-to-peer lending, crowdfunding, and secured trade financing could emerge to alleviate inclusion issues.

Even though there are now a few Islamic FinTech platforms, such as the Islamic crowdfunding platform Liwwa.com and micro lending platform Kiva Zip that does not carry an Islamic label but is Islamic both in form and spirit, it is important to mention the potential of mobile banking technologies by Islamic banks. One example is "Senin Bankan (Your Bank)", which is the world's first interest-free digital branchless banking platform by Kuveyt Turk Participation Bank in Turkey. The platform provides banking services to customers without the need to go to a branch and offers a wide range of services from applying for a credit card to financing or life insurance. Technological trends promoting financing mechanisms such as peer-to-peer lending, crowdfunding and mobile banking could become catalyst for Islamic finance especially for financial inclusion, which could spur inclusive growth and development by reaching the financially excluded population.

Source: World Bank Global Islamic Finance Development Center (Markovich, 2016).

5.0 CONCLUSION

2016 was another year of depressed growth conditions amid considerable downside risks and new challenges emerging from the political sphere. The overall performance of Islamic finance has been satisfactory, but there are some signs of weakening. IIFS are still growing and gaining market shares in their home countries, but the era of double-digit growth rate of the global IFSI has come to an end since 2015. The global financial environment has changed again during the last weeks of 2016 and in early 2017 - in the US, interest rates started to rise, and a roll back of tightened regulations for financial institutions has become conceivable. On the other hand, oil and other commodity prices have not risen to levels that would allow balanced budgets in many jurisdictions that are key for the IFSI.

Fiscal deficits will contain the spending by governments (unless they liquidate reserves) which will likely have an adverse impact on Islamic banks: reduced public sector deposits may cause liquidity pressure, and a constrained private sector income respectively may cause a slowdown in GDP growth deteriorating banks' asset quality, decreased transaction volumes, and reducing profitability. Governments may consider the issuance of *ṣukūk* to compensate for a fiscal deficit. However, the issuance of *ṣukūk* may have become more expensive than in the past if liquidity in the Islamic banking sector has dried up and international investors find again more attractive conventional investment opportunities. First signs of less favourable conditions for issuers of *ṣukūk* in 2016 were significant decreases in the times oversubscriptions and of order book volumes.

The indications persist for IFSI of rather strong dependencies on governments: one third of all Islamic banking assets are located in a country which Islamised its financial system in the 1980s and runs a predominantly state-owned banking system (Iran). The governments of some jurisdictions with mixed systems have explicitly formulated quantitative targets for market shares of IIFS. Other governments have not set such targets but factually support Islamic finance, for example through disproportionately large public sector deposits with Islamic banks. The supply side of the *ṣukūk* market is dominated by the public sector with 79% of all 2016 issuances. A large share of the remaining 21% were *ṣukūk* issued by Islamic banks in order to comply with regulatory capital requirements (which were set by the government). The boost of the *takāful* sector in some large markets was due to the political decision to make special types of insurance (medical, health, motor) compulsory. The political decision to establish (or not to establish) an obligatory pension system is a key determinant of the market potential of family *takāful*.

Overall, the economic environment has become less favourable for Islamic finance, and systemic risks tend to rise. For the time being, macroeconomic, political, and cross-sectoral links are only known in principle but not in their quantitative strength. The development of a rigorous data-based model of a dual financial system with a significant but not dominant Islamic finance sector would fill a knowledge gap. Such a model could support national authorities in their efforts to address emerging risks and to build long-term resilience in a volatile world.

BIBLIOGRAPHY AND REFERENCES

AAOIFI [Accounting and Auditing Organization for Islamic Financial Institutions] (2015). *Shari'ah Standards: Full Text of Shari'ah Standards for Islamic Financial Institutions as at Safar 1437 A.H. – December 2015 A.D*. (Manama: AAOIFI).

AAOIFI [Accounting and Auditing Organization for Islamic Financial Institutions] (2017). *Shari'ah Standard No. 57: Gold and Its Trading Parameters in Shari'ah,* AAOIFI. Retrieved from http://aaoifi.com/wp-content/uploads/2017/01/AAOIFI-Shariah-Standard-No57_English.pdf

Abedifar, P., Molyneux, P. and Tarazi, A. (2013). *"Risk in Islamic banking", Review of Finance*, Vol. 17, No. 6, pp. 2035–2096.

Adrian, T. and Brunnermeier, M.K. (2016). "CoVaR", *American Economic Review*, Vol. 106, pp. 1705–1741.

Allison, I. (2016). "How FinTech and microfinance remove intermediaries and loan costs", *International Business Times UK*, Retrieved from www.ibtimes.co.uk/how-FinTech-microfinance-remove-intermediaries-loan-costs-1572760

Alois, J. (2016), "Ethiskapital claims 'world's first' licensed Islamic P2P/crowdfunding platform", *Crowdfund Insider*, 3 November. Retrieved from www.crowdfundinsider.com/2016/11/92018-ethiskapital-claims-worlds-first-licensed-islamic-p2pcrowdfunding-platform/.

Amirio, D. (2016). "BI's new 'FinTech Office' to ensure both innovation, security", *The Jakarta Post*, 15 November. Retrieved from www.thejakartapost.com/news/2016/11/15/bis-new-FinTech-office-to-ensure-both-innovation-security.html

Andresen, S. (2016). "Global Regulatory Developments and their Industry Impact", Chatham House Banking Revolution Conference, 3 November. Retrieved from www.fsb.org/wp-content/uploads/Chatham-House-The-Banking-Revolution-Conference.pdf

Antonopoulos, A.M. (2015). *Mastering Bitcoin: Unlocking Digital Cryptocurrencies* (Sebastopol, CA: O'Reilly).

Asutay, M. and Marzban, S. (2012). "Standing out with the crowd: Comment", *The Banker*, November. Retrieved from https://www.researchgate.net/profile/Shehab_Marzban/publication/280949351_Standing_Out_With_the_Crowd/links/55ce79a808aee19936fc5c2a.pdf

Aziz, Z.A. (2016). "Launch of the Investment Account Platform in Malaysia", Keynote address at the Launch of the Investment Account Platform, Kuala Lumpur, 17 February. Retrieved from www.bis.org/review/r160217h.pdf

Baeck, P., Collins, L. and Zhang, B. (2014). *Understanding Alternative Finance: The UK Alternative Finance Industry Report 2014* (London: Nesta). Retrieved from https://www.nesta.org.uk/sites/default/files/understanding-alternative-finance-2014.pdf

Bajpai, P. (2016). "Bitcoin vs Ethereum: Driven by Different Purposes", 14 March. Retrieved from www.investopedia.com/articles/investing/031416/bitcoin-vs-ethereum-driven-differentpurposes.asp

Bakar, M.D. (2016). "Gold in Islamic Finance", Paper presented at AAOIFI–World Bank 11th Annual Islamic Banking and Finance Conference, Manama, Bahrain, 6–7 November. Retrieved from http://aaoifi.com/wp-content/uploads/2016/11/Sh.Dr.-Daud-Baker-GOLD-IN-ISLAMIC-FINANCE-Paper-for-AAOIFI-WB-Conf-2016.pdf

Baker McKenzie (2016). *"Bank Negara Malaysia Issues FinTech Regulatory Sandbox Paper"*, Baker McKenzie, 26 October. Retrieved from www.bakermckenzie.com/en/insight/publications/2016/10/bank-negara-malaysia-issues-FinTech/

Bank Negara Malaysia (2016). *Financial Technology Regulatory Sandbox Framework* [BNM/RH/PD 030-1] (Kuala Lumpur: BNM). Retrieved from www.bnm.gov.my/index.php?ch=57&pg=137&ac=533&bb=file

Basel Committee on Banking Supervision (2001). *Working Paper on the Regulatory Treatment of Operational Risk* [Online]. Retrieved on 8 November 2016 from www.bis.org/publ/bcbs_wp8.pdf

Basel Committee on Banking Supervision (2003). *Sound Practices for the Management and Supervision of Operational Risk* [Online]. Retrieved on 8 November 2016 from www.bis.org/publ/bcbs96.pdf

Basel Committee on Banking Supervision (2005). *International Convergence of Capital Measurement and Capital Standards:* A Revised Framework – Comprehensive Version [Online]. Retrieved on 8 November 2016 from www.bis.org/publ/bcbs118.pdf

Basel Committee on Banking Supervision (2010). *Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems* [Online]. Retrieved on 8 November 2016 from www.bis.org/publ/bcbs189.pdf

Basel Committee on Banking Supervision (2011). *Principles for the Sound Management of Operational Risk [Online]*. Retrieved on 8 November 2016 from www.bis.org/publ/bcbs195.pdf

Basel Committee on Banking Supervision (2014). *Operational Risk: Revisions to the Simpler Approaches, Consultative Paper* [Online]. Retrieved on 8 November 2016 from www.bis.org/publ/bcbs291.pdf

Basel Committee on Banking Supervision (2015). "Making Supervisory Stress Tests More Macroprudential: Considering Liquidity and Solvency Interactions and Systemic Risk", Basel Committee on Banking Supervision WP 29, pp. 49–58.

Basel Committee on Banking Supervision (2016). *Standardised Measurement Approach for Operational Risk* [Online]. Retrieved on 8 November 2016 from www.bis.org/bcbs/publ/d355.pdf

Basel Committee on Banking Supervision (2016). *Basel III Monitoring Report September 2016* [Online]. Retrieved on 8 November 2016 from https://www.bis.org/bcbs/publ/d378.pdf

Basel Committee on Banking Supervision (2016). *Consultative Document – Standardised Measurement Approach for Operational Risk* [Online]. Retrieved on 8 November 2016 from https://www.bis.org/bcbs/publ/d355.pdf.

Basel Committee on Banking Supervision (2016). *Consultative Document – Pillar 3 Disclosure Requirements – Consolidated and Enhanced Framework* [Online]. Retrieved on 8 November 2016 from https://www.bis.org/bcbs/publ/d356.pdf

Basel Committee on Banking Supervision (2016). *Consultative Document – Revisions to the Basel III Leverage Ratio Framework* [Online]. Retrieved on 8 November 2016 from https://www.bis.org/bcbs/publ/d365.pdf

Basel Committee on Banking Supervision (2016). *Criteria for Identifying Simple, Transparent and Comparable Securitisations* [Online]. Retrieved on 8 November 2016 from https://www.bis.org/bcbs/publ/d332.pdf

Basel Committee on Banking Supervision (2016), *Discussion Paper – Regulatory Treatment of Accounting Provisions* [Online]. Retrieved on 8 November 2016 from https://www.bis.org/bcbs/publ/d385.pdf

Basel Committee on Banking Supervision (2016). *Guidance on the Application of the Core Principles for Effective Supervision to the Regulation and Supervision of Institutions Relevant to Financial Inclusion* [Online]. Retrieved on 8 November 2016 from https://www.bis.org/bcbs/publ/d383.pdf

Basel Committee on Banking Supervision (2016). Minimum Capital Requirements for Market Risk [Online]. Retrieved on 8 November 2016 from https://www.bis.org/bcbs/publ/d352.pdf

Basel Committee on Banking Supervision (2016). *Regulatory Treatment of Accounting Provisions – Interim Approach and Transitional Arrangements* [Online]. Retrieved on 8 November 2016 from https://www.bis.org/bcbs/publ/d386.pdf

Basel Committee on Banking Supervision (2016), *Revisions to the Securitisation Framework* [Online]. Retrieved on 8 November 2016 from https://www.bis.org/bcbs/publ/d374.pdf

Basel Committee on Banking Supervision (2016). *Standard – Interest Rate Risk in the Banking Book* [Online]. Retrieved on 8 November 2016 from https://www.bis.org/bcbs/publ/d368.pdf

Beck, T., Demirgüç-Kunt, A. and Merrouche, O. (2013). "Islamic vs. conventional banking: Business model, efficiency and stability", *Journal of Banking & Finance,* Vol. 37, No. 2, pp. 433–447.

Bohachova, O. (2008). "The Impact of Macroeconomic Factors on Risks in the Banking Sector: A Cross-Country Empirical Assessment", Discussion Paper 44, Institute for Applied Economic Research (IAW), Germany.

Bramanathan, R. (2016). "Blockchains, smart contracts and the law ... Unravelling the legal issues surrounding the DAO", *Medium*, 24 June. Retrieved from https://medium.com/the-coinbase-blog/blockchains-smart-contracts-and-the-law-709c5b4a9895#.hf6dooz84

Braun, E. (2017). *Crowdfunding Platforms in the UAE, Al Tamimi & Co.* Retrieved from www.tamimi.com/en/magazine/law-update/section-14/jun-jul/crowdfunding-platforms-in-theuae.html

BIBLIOGRAPHY AND REFERENCES

Buterin, V. (2016). "Why cryptoeconomics and x-risk researchers should listen to each other more", Medium, 5 July. Retrieved from https://medium.com/@VitalikButerin/why-cryptoeconomics-and-x-risk-researchers-should-listen-to-each-other-more-a2db72b3e86b#.2jqvz1hnt

Capgemini Consulting (2016). *Smart Contracts in Financial Services: Getting from Hype to Reality: Capgemini*. Retrieved from https://www.capgemini-consulting.com/sites/default/files/resource/pdf/smart-contracts.pdf

Carney, M. (2017). "The Promise of FinTech – Something New under the Sun?", G20 Digitising Finance, Financial Inclusion and Financial Literacy Conference, Wiesbaden, 25 January. Retrieved from www.bankofengland.co.uk/publications/Documents/speeches/2017/speech956.pdf

Chattha, J. and Archer, S. (2016). "Solvency stress testing of Islamic commercial banks: Assessing the stability and resilience", *Journal of Islamic Accounting and Business Research*, Vol. 7, No. 2, pp.112–147

Chen, N., Ghosh, A. and Lambert, N.S. (2014). "Auctions for Social Lending: A Theoretical Analysis", *Games and Economic Behavior,* Vol. 86, No. 7, pp. 367–391.

Chishti, S. and Barberis, J. (eds) (2016). *The FinTech* Book (Hoboken, NJ: Wiley).

Chong, B. and Liu, M. (2009). "Islamic banking: Interest-free or interest-based?", *Pacific-Basin Finance Journal,* Vol. 17, No. 1, pp. 125–144.

Chorzempa, M. (2016a). "P2P Series Part 1: Peering into China's growing peer-to-peer lending market", China Economic Watch, Peterson Institute for International Economics, 27 June. Retrieved from https://piie.com/blogs/china-economic-watch/p2p-series-part-1-peering-chinas-growing-peer-peer-lending-market

Chorzempa, M. (2016b):" P2P Series Part 2: Regulating China's plethora of P2P players", China Economic Watch, Peterson Institute for International Economics, 15 July. Retrieved from https://piie.com/blogs/china-economic-watch/p2p-series-part-2-regulating-chinas-plethora-p2p-players

Cihak, M. and Hesse, H. (2010). "Islamic banks and financial stability: An empirical analysis", *Journal of Financial Services Research,* Vol. 38, No. 2, pp. 95–113.

Clair, R. (2004). "Macroeconomic Determinants of Banking Financial Performance and Resilience in Singapore", MAS Staff Paper No. 38, Monetary Authority of Singapore.

Cohen, A. (2002). *The Perfect Store: Inside Ebay* (London: Piatkus).

Congress of the United States of America (2010). Dodd-Frank Wall Street Reform and Consumer Protection Act. Retrieved from https://www.sec.gov/about/laws/wallstreetreform-cpa.pdf

Costeiu, A. and Neagu, F. (2013). "Bridging the Banking Sector with the Real Economy: A Financial Stability Perspective", Working Paper Series No. 1592, European Central Bank.

Dale F.G. and Jobst, A.A. (2013). "Systemic Contingent Claims Analysis – Estimating Market-implied Systemic Risk", IMF Working Paper No. 13/54, Washington, DC: International Monetary Fund.

Deloitte (2016). *A Temporary Phenomenon*? *Marketplace Lending: An Analysis of the UK Market,* London: Deloitte. Retrieved from https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/financial-services/deloitte-uk-fs-marketplace-lending.pdf

Demirguc-Kunt, A., Klapper, L., Singer, D. and Van Oudheusden, P. (2015). "The Global Findex Database 2014: Measuring Financial Inclusion around the World", Policy Research Working Paper, No. 7255, Washington, DC.: World Bank. Retrieved from https://openknowledge.worldbank.org/handle/10986/21865 License: CC BY 3.0 IGO

Derigs, U. and Marzban, S. (2009). "New strategies and a new paradigm for Shariah-compliant portfolio optimization", *Journal of Banking & Finance*, Vol. 33, No. 6, pp. 1166–1176.

DFSA [Dubai Financial Services Authority] (2017a). "Crowdfunding: SME Financing through Lending", Consultation Paper No. 109, DFSA, Dubai. Retrieved from http://dfsa.complinet.com/net_file_store/new_rulebooks/2/0/20170130__loan-based_CF_CP.pdf

DFSA [Dubai Financial Services Authority] (2017b). "Crowdfunding: SME Financing through Investing", Consultation Paper No. 111, DFSA, Dubai. Retrieved from http://dfsa.complinet.com/net_file_store/new_rulebooks/c/p/CP_111_InvestmentbasedCF.pdf

DFSA [Dubai Financial Services Authority] (2017c). "Crowdfunding: SME Financing through Investing – Appendix 2: The DFSA Rulebook, Conduct of Business Module (COB)", Consultation Paper No. 111, DFSA, Dubai. Retrieved from http://dfsa.complinet.com/net_file_store/new_rulebooks/i/n/Investment_Crowdfunding_Appendix2_COB.pdf

Diebold, F.X. and Yılmaz, K. (2014), "On the network topology of variance decompositions: Measuring the connectedness of financial firms", *Journal of Econometrics*, Vol. 182, No. 1, pp. 119–134.

Ebenrett, F. (2016). "Crowdinvesting: The Prospectus Requirement Exemption One Year on – an Overview", BaFin, 15 September. Retrieved from https://www.bafin.de/SharedDocs/Veroeffentlichungen/EN/Fachartikel/2016/fa_bj_1609_schwarmfinanzierung_en.html

Espinosa-Vega, M.A. and Solé, J.A. (2010). "Cross-border Financial Surveillance: A Network Perspective", IMF Working Paper No. 10/105, IMF, Washington, DC.

European Commission (2016). "Crowdfunding in the EU Capital Markets Union" (Commission Staff Working Document) [SWD(2016) 154 final], European Commission, Brussels. Retrieved from http://ec.europa.eu/finance/general-policy/docs/crowdfunding/160428-crowdfunding-study_en.pdf

Evans, D.S. and Schmalensee, R. (2016). *Matchmakers: The New Economics of Platform Businesses: How One of the Oldest Business Models on Earth Powers the Most Incredible Companies in the World (*Boston, MA: Harvard Business Review Press).

Festic, M. and Beko, J. (2008). "The Banking Sector and Macroeconomic Indicators: Some Evidence for Hungary and Poland", Strokovni članki – Professional papers No. 5–6, pp. 118–125.

Financial Conduct Authority (2013). "The FCA's Regulatory Approach to Crowdfunding (and Similar Activities)", October [Consultation Paper CP13/13], FCA, London. Retrieved from https://www.fca.org.uk/your-fca/documents/consultation-papers/cp13-13

Financial Conduct Authority (2014). "The FCA's Regulatory Approach to Crowdfunding over the Internet, and the Promotion of Non-Readily Realisable Securities by Other Media: Feedback to Cp13/13 and Final Rules", March [Policy Statement PS14/4], FCA, London. Retrieved from https://www.fca.org.uk/publication/policy/ps14-04.pdf

Financial Conduct Authority (2015). "Regulatory Sandbox", November, FCA. London. Retrieved from https://www.fca.org.uk/publication/research/regulatory-sandbox.pdf

Financial Conduct Authority (2016a). "Call for Input to the Post-Implementation Review of the FCA's Crowdfunding Rules", July, FCA, London. Retrieved from https://www.fca.org.uk/sites/default/files/publications/call-for-input/call-input-crowdfunding-rules.pdf

Financial Conduct Authority (2016b). "Early Arrears Management in Unsecured Lending" [Thematic Review TR16/10], FCA, London. Retrieved from https://www.fca.org.uk/publication/thematic-reviews/tr16-10.pdf

Financial Conduct Authority (2016c). "Financial Conduct Authority Unveils Successful Sandbox Firms on the Second Anniversary of Project Innovate", FCA Press Release, 7 November. Retrieved from https://www.fca.org.uk/print/news/press-releases/financial-conduct-authority-unveils-successful-sandbox-firms-second-anniversary

Financial Conduct Authority (2016d). "Regulatory Sandbox". Retrieved from https://www.fca.org.uk/firms/project-innovate-innovation-hub/regulatory-sandbox

Financial Stability Board (2011). "Key Attributes of Effective Resolution Regimes for Financial Institutions", October.

Financial Stability Board (2016). "Elements of Effective Macro-prudential Policies" [Online]. Retrieved on 8 November 2016 from www.fsb.org/wp-content/uploads/Elements-of-Effective-Macroprudential-Policies1/

Financial Stability Board (2016). "Key Attributes Assessment Methodology for the Banking Sector" [Online]. Retrieved on 8 November 2016 from www.fsb.org/2016/10/key-attributes-assessment-methodology-for-the-banking-sector/

BIBLIOGRAPHY AND REFERENCES

Financial Stability Board (2016). "Report on Implementation and Effects of Reforms" [Online]. Retrieved on 8 November 2016 from www.fsb.org/wp-content/uploads/Report-on-implementation-and-effects-of-reforms/

Financial Stability Board (2016). "Second Thematic Review on Resolution Regimes" [Online]. Retrieved on 8 November 2016 from www.fsb.org/2016/03/second-thematic-review-on-resolution-regimes/

Financial Stability Board (2016). "Thematic Peer Review on Corporate Governance Summary Terms of Reference" [Online]. Retrieved on 8 November 2016 from www.fsb.org/2016/08/thematic-peer-review-on-corporate-governance-summary-terms-of-reference/

FinTech Finance (2016). "The State of FinTech Industry as We Know It Infographic". Retrieved from www.FinTech.finance/01-news/the-state-of-FinTech-industry-as-we-know-it-infographic/.

Franco, P. (2015). *Understanding Bitcoin: Cryptography, Engineering and Economics* [The Wiley Finance Series] (Hoboken, NJ: Wiley).

Furqani, H. and Mulyani, R. (2009). "Islamic banking and economic growth: Empirical evidence from Malaysia", *Journal of Economic Cooperation and Development,* Vol. 30, No. 2, pp. 59–74.

Gerlach, S., Peng, W. and Shu, C. (2005). "Macroeconomic Conditions and Banking Performance in Hong Kong SAR: A Panel Data Study", BIS Papers No. 22, Bank for International Settlements.

Gizycki, M. (2001). "The Effect of Macroeconomic Conditions on Banks' Risk and Profitability", Research Discussion Paper 2001-06, System Stability Department, Reserve Bank of Australia

Global Legal Research Directorate Staff (2014). "Regulation of Bitcoin in Selected Jurisdictions", January, The Law Library of Congress. Retrieved from https://www.loc.gov/law/help/bitcoin-survey/regulation-of-bitcoin.pdf; updates and additions: https://www.loc.gov/law/help/bitcoin-survey/

Global Partnership for Financial Inclusion (GPFI) (2016). "G20 High-Level Principles for Digital Financial Inclusion". Retrieved from https://www.gpfi.org/sites/default/files/G20%20High%20Level%20Principles%20for%20.Digital%20Financial%20Inclusion.pdf

Grandolini, G. (2015). "5 Ways Universal Financial Access Can Help People Build a Better Life", World Bank. Retrieved from http://blogs.worldbank.org/voices/5-ways-universal-financial-access-can-help-people-build-better-life

Greenspan, G. (2016). "Smart contracts and the DAO implosion: The tragic combination of inevitable bugs and immutable code", *MultiChain*, 22 June. Retrieved from www.multichain.com/blog/2016/06/smart-contracts-the-dao-implosion/

Haqqi, A.R.A (2009). *The Philosophy of Islamic Law of Transactions* (Kuala Lumpur: CERT).

Hasan, M. and Dridi, J. (2010). "The Effects of the Global Crisis on Islamic and Conventional Banks: A Comparative Study", IMF Working Paper No. 10/201, International Monetary Fund.

Hinkes, A. (2016). "The law of the DAO", *CoinDesk*, 19 May. Retrieved from www.coindesk.com/the-law-of-the-dao/

Ho, C.S.F. (2015). "International comparison of *Sharī'ah* compliance screening standards", *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 8, No. 2, pp. 222–245.

Hobey, E. (2016). "Brief: Thailand finally pursues FinTech, preps regulatory sandbox", *Crowdfund* Insider, 22 September. Retrieved from https://www.crowdfundinsider.com/2016/09/90443-brief-thailand-finally-pursues-FinTech-preps-regulatory-sandbox/

IMF [International Monetary Fund] (2016). *Global Financial Stability Report.*

IOSCO [International Organization of Securities Commissions] (2017). "IOSCO Research Report on Financial Technologies (FinTech)". Retrieved from https://www.iosco.org/library/pubdocs/pdf/IOSCOPD554.pdf

Islamic Financial Services Board (2005). *IFSB-1: Guiding Principles on Risk Management for Institutions (other than Insurance Institutions) offering only Islamic Financial Services (IIFS)* [Online]. Retrieved on 8 November 2016 from http://ifsb.org/standard/ifsb1.pdf

Islamic Financial Services Board (2005). *IFSB-2: Capital Adequacy Standard for Institutions (other than Insurance Institutions) offering only Islamic Financial Services* (IIFS) [Online]. Retrieved on 8 November 2016 from http://ifsb.org/standard/ifsb2.pdf

Islamic Financial Services Board (2007). *IFSB-4: Disclosures to Promote Transparency and Market Discipline for Institutions offering Islamic Financial Services (Excluding Islamic Insurance (Takāful) Institutions and Islamic Mutual Funds)* [Online]. Retrieved on 8 November 2016 from http://ifsb.org/standard/ifsb4.pdf

Islamic Financial Services Board (2013). I*FSB-15: Revised Capital Adequacy Standard for Institutions offering Islamic Financial Services [Excluding Islamic Insurance (Takāful) Institutions and Islamic Collective Investment Schemes]* [Online]. Retrieved on 8 November 2016 from http://ifsb.org

Islamic Financial Services Board (2014). IFSB-16: *Revised Guidance on Key Elements in the Supervisory Review Process of Institutions offering Islamic Financial Services (Excluding Islamic Insurance (Takāful) Institutions and Islamic Collective Investment Schemes)* [Online]. Retrieved on 8 November 2016 from http://ifsb.org

Jagers, C. (2016). "What is Ethereum?", *Investopedia*, 25 February. Retrieved from www.investopedia.com/articles/investing/022516/what-ethereum.asp

Jobst, A.A., Sugimoto, N. and Broszeit, T. (2014), "Macroprudential Stress Testing of the Insurance Sector", IMF Working Paper No. 14/133, IMF, Washington, DC.

Kynge, J. (2016). "China's P2P lending risks ripple through the economy", *Financial Times*, 20 December. Retrieved from https://www.ft.com/content/6b286c06-c912-11e5-a8ef-ea66e967dd44

Lockett, H. (2016). "Chinese banking regulator lays out new P2P loan restrictions", *Financial Times*, 24 August. Retrieved from https://www.ft.com/content/c97c841f-7646-3b1f-86e2-ef31e52b9a60

Lopez-Espinosa, G., Moreno, A., Rubia, A. and Valderrama, L. (2012). "Short-term wholesale funding and systemic risk: A global CoVaR approach", *Journal of Banking and Finance,* Vol. 36, pp. 3150–3162.

Lopez-Espinosa G., Moreno A., Rubia A., Valderrama L. (2015). "Systemic risk and asymmetric responses in the financial industry", *Journal of Banking and Finance,* Vol. 58, pp. 471–485.

Markovich, S. (2016). "Creative destruction in banking", *Banking Perspectives*, Vol. 1, pp. 39–45.

Marzban, S., Asutay, M. and Boseli, A. (2014). "Shariahcompliant Crowd Funding: An Efficient Framework for Entrepreneurship Development in Islamic Countries", Paper presented at Harvard Islamic Finance Forum, 2014. Retrieved from https://www.researchgate.net/profile/Shehab_Marzban/publication/280612061_Shariah-compliant_Crowd_Funding_An_Efficient_Framework_for_Entrepreneurship_Development_in_Islamic_Countries/links/55be948b08ae9289a099d92d.pdf

Mesropyan, E. (2016). "International FinTech Regulatory Sandboxes Launched by Forward-Thinking Financial Authorities", LTP – *Let's Talk Payments*, 3 November. Retrieved from https://letstalkpayments.com/international-FinTech-regulatory-sandboxes-launched-by-forward-thinking-financial-authorities/

Milne, A.and Parboteeah, P. (2016). "The Business Models and Economics of Peer-to-Peer Lending" [Research Report 17, May 2016], European Credit Research Institute, Brussels. Retrieved from https://www.ceps.eu/system/files/ECRI%20RR17%20P2P%20Lending.pdf

Morgan Stanley (2015). "Global Marketplace Lending: Disruptive Innovation in Financials" [Morgan Stanley Blue Paper (19 May 2015)], Morgan Stanley, New York. Retrieved from http://bebeez.it/wp-content/blogs.dir/5825/files/2015/06/GlobalMarketplaceLending.pdf

Morley, J. (2016). *"Macro-finance linkages", Journal of Economic Surveys,* Vol. 30, No. 4, pp. 698–711.

Munshi, U. (2016). "Global Islamic Crowdfunding: A Perspective from Singapore", *Crowdfund Insider*, 2 December. Retrieved from www.crowdfundinsider.com/2015/12/78122-global-islamic-crowdfunding-a-perspective-from-singapore/

BIBLIOGRAPHY AND REFERENCES

Nakamoto, S. (n.d. [2008]). "Bitcoin: A Peer-to-Peer Electronic Cash System". Retrieved from https://bitcoin.org/bitcoin.pdf

OJK [Otoritas Jasa Keuangan] (2016). "OJK Drafts Regulations on FinTech Development", Press Release, 6 October. Retrieved from www.ojk.go.id/en/berita-dan-kegiatan/siaran-pers/Documents/Pages/Press-Release-OJK-Drafts-Regulations-on-FinTech-Development1/SIARAN%20PERS%20FINTECH-ENGLISH.pdf

Oxera (2016). "The Economics of Peer-to-Peer Lending" (Prepared for the Peer-to-Peer Finance Association), Oxera, Oxford. Retrieved from www.oxera.com/getmedia/9c0f3f09-80d9-4a82-9e3f-3f3fefe450b2/The-economics-of-P2P-lending_30Sep_.pdf.aspx?ext=.pdf

PwC (2015). "Peer Pressure: How Peer-to-Peer Lending Platforms Are Transforming the Consumer Lending Industry". Retrieved from www.pwc.com/us/en/consumer-finance/publications/assets/peer-to-peer-lending.pdf

PwC (2016). "Marketplace Lending Comes of Age: Navigating the New Regulatory and Risk Environment in Online Marketplace Lending". Retrieved from www.pwc.com/us/en/consumer-finance/publications/assets/pwc-marketplace-lending-comes-of-age-navigating-the-new-regulatory-risk-environment-in-online-mpl.pdf

Rahman, Z.A. (2010). *Contracts and Products of Islamic Banking* (Kuala Lumpur: CERT).

Samad, A. (2004). "Performance of interest-free Islamic banks vis-a-vis interest-based conventional banks of Bahrain", *IIUM Journal of Economics and Management*, Vol. 12, No. 2, pp. 1–15.

Securities Commission Malaysia (2006). *Resolutions of the Securities Commission Shariah Advisory Council*, 2nd ed. (Kuala Lumpur: Securities Commission Malaysia). Retrieved from www.sc.com.my/eng/html/icm/Resolutions_SAC_2ndedition.pdf

Securities Commission Malaysia (2016). *Guidelines on Recognized Markets* – Sc-Gl/6-2015 (R1-2016), revised (13 April 2016) ed. (Kuala Lumpur: Securities Commission Malaysia). Retrieved from https://www.sc.com.my/wp-content/uploads/eng/html/resources/guidelines/recognizedmkt/guidelines_recognizedMarket_160413.pdf

Segoviano, M.A. (2006). "Consistent Information Multivariate Density Optimizing Methodology", London School of Economics Financial Markets Group DP, p. 557.

Segoviano M.A and C. Goodhart (2009). "Banking stability measures", IMF Working Paper No. 09/4.

Shadab, H. (2014). "What are smart contracts, and what can we do with them?", *Coin Center*, 15 December. Retrieved from https://coincenter.org/entry/what-are-smart-contracts-and-what-can-we-do-with-them.

Shapiro, C. and Varian, H.R. (1999). Information Rules: A Strategic Guide to the Network Economy (Boston, MA: Harvard Business School Press).

Shubber, K. (2016). "Abu Dhabi and Dubai put FinTech first", *Financial Times,* 6 October. Retrieved from https://www.ft.com/content/87d48142-53e5-11e6-9664-e0bdc13c3bef

Shubber, K. and Alzafiri E. (2008). "Cost of capital of Islamic banking institutions: An empirical study of a special case", *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 1, No. 1, pp. 10–19.

Shy, O. (2001). *The Economics of Network Industries* (Cambridge, UK: Cambridge University Press).

Sironi, P. (2016). *Financial Innovation: From Robo-Advisors to Goals-Based Investing* (Chichester, UK: Wiley).

Sirt, T. (2016). "New law on crowdfunding to fuel Turkish entrepreneurs' growth", Daily Sabah, 30 December. Retrieved from https://www.dailysabah.com/life/2016/12/31/new-law-on-crowdfunding-to-fuel-turkish-entrepreneurs-growth

Slee, T. (2015). *What's Yours Is Mine against the Sharing Economy* (New York; London: OR Books).

Stephany, A. (2015). *The Business of Sharing: Making It in the New Sharing Economy* (Basingstoke, UK: Palgrave Macmillan).

Sundararajan, A. (2016). *The Sharing Economy*: *The End of Employment and the Rise of Crowd-Based Capitalism* (Cambridge, MA: The MIT Press).

Tafri, F., Rahman, R. and Omar, N. (2011). "Empirical evidence on the risk management tools practised in Islamic and conventional banks", *Qualitative Research in Financial Markets*, Vol. 3, No. 2, pp. 86–104.

UK Government Chief Scientific Adviser (2016). *Distributed Ledger Technology: Beyond Block Chain – a Report by the UK Government Chief Scientific Adviser* (London: Government Office for Science). Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/492972/gs-16-1-distributed-ledger-technology.pdf

United Nations Environment Programme (UNEP) (2016). *FinTech and Sustainable Development: Assessing the Implications* (Geneva: UNEP). Retrieved from http://unepinquiry.org/wp-content/uploads/2016/12/FinTech_and_Sustainable_Development_Assessing_the_Implications.pdf

Wardrop, R., Rosenberg, R., Zhang, B., Ziegler, T., Squire, R., Burton, J., Hernadez, E. Jr and Garvey, K. (2016). Breaking New Ground: The Americas Alternative Finance Benchmarking Report (Cambridge, UK: University of Cambridge Judge Business School). Retrieved from https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2016-americas-alternative-finance-benchmarking-report.pdf

Waters, R. (2016). "Automated company raises equivalent of $120m in digital currency", *Financial Times*, 17 May. Retrieved from https://www.ft.com/content/600e137a-1ba6-11e6-b286-cddde55ca122

Weidmann, J. (2017). "Digital Finance – Reaping the Benefits without Neglecting the Risks", G20 "Digitising Finance, Financial Inclusion and Financial Literacy" Conference, Wiesbaden, 25 January. Retrieved from www.bis.org/review/r170125d.pdf

Weinland, D. (2016). "Hong Kong to create FinTech 'sandbox' allowing bank experiments", *Financial Times*, 6 September. Retrieved from https://www.ft.com/content/38a662ee-740f-11e6-bf48-b372cdb1043a

Woolard, C. (2016). "The FCA's Role in Promoting Innovation", Paper presented at BBA FinTech Banking Conference, London, 22 September. Retrieved from https://www.fca.org.uk/news/speeches/our-role-promoting-innovation

World Bank (2016a). "Universal Financial Access 2020 Overview: Universal Financial Access by 2020". Retrieved from www.worldbank.org/en/topic/financialinclusion/brief/achieving-universal-financial-access-by-2020

World Bank (2016b). "Universal Financial Access 2020: Building a Coalition of Partners". Retrieved from www.worldbank.org/en/topic/financialinclusion/brief/ufa2020-building-coalition-of-partners

World Bank, Islamic Development Bank, and Islamic Research and Training Institute (2015). *Leveraging Islamic Finance for Small and Medium Enterprises (SMEs)* (Washington: World Bank). Retrieved from www.irti.org/English/News/Documents/Islamic%20SMEs%20Finance%20Report%20on%20Leveraging%20Islamic%20Finance%20for%20SMEs.pdf

Xinhua (2016). "China's online P2P lending almost quadrupled in 2015: Report", English/news/cn, 2 January. Retrieved from http://news.xinhuanet.com/english/2016-01/02/c_134970571.htm

Yan, J., Yu, W. and Zhao, J. (2015). "How signaling and search costs affect information asymmetry in P2P lending: The economics of big data", *Financial Innovation,* Vol. 1, No. 19. Retrieved from http://dx.doi.org/10.1186/s40854-015-0018-1

Zhang, B., Baeck, P., Ziegler, T., Bone, J. and Garvey, K. (2016). *Pushing Boundaries: The 2015 UK Alternative Finance Industry Report* (London: Nesta). Retrieved from www.nesta.org.uk/sites/default/files/pushing_boundaries_0.pdf

APPENDIX

List of Islamic Banks Selected for the Stress Testing Sample

The total assets of these Islamic banks represent approximately 71% of the total global Islamic banking assets (excluding Iran) in 2015.

Bahrain	
ABC Islamic Bank	KFH Bahrain
Al Baraka Islamic Bank	Khaleeji Commercial Bank
Al Salam Islamic Bank	Ithmaar Bank
Bahrain Islamic Bank	
Bangladesh	
Al-Arafah Islami Bank	Islami Bank Bangladesh
First Security Islami Bank	Shahjalal Islami Bank
Indonesia	
Bank BRI Syariah	Bank Syariah Mandiri
Bank Muamalat Indonesia	Bank Syariah Mega Indonesia
Bank Syariah Bukopin	
Kuwait	
Ahli United Bank	Kuwait Finance House
Boubyan Bank	Kuwait International Bank
Malaysia	
Affin Islamic Bank	Hong Leong Islamic Bank
Alliance Islamic Bank	HSBC Amanah Malaysia
AmIslamic Bank	KFH Malaysia
Asian Finance Bank	Maybank Islamic Bank
Al Rajhi Bank (Malaysia)	OCBC Al-Amin
Bank Islam	Public Islamic Bank
Bank Muamalat	RHB Islamic Bank
CIMB Islamic Bank	Standard Chartered Saadiq
Pakistan	
Al Baraka Bank (Pakistan)	Dubai Islamic Bank (Pakistan)
Bank Islami	Meezan Bank
Qatar	
Barwa Bank	Qatar Islamic Bank
Masraf Al Rayan	Qatar International Islamic Bank
Saudi Arabia	
Alinma Bank	Bank AlBilad
Al Rajhi Bank	Bank AlJazira
Turkey	
Al Baraka Turk Participation Bank	Kuveyt Turk Participation Bank
Bank Asya Participation Bank	Turkiye Finans Participation Bank
United Arab Emirates	
Abu Dhabi Islamic Bank	Emirates Islamic Bank
Ajman Bank	Sharjah Islamic Bank
Dubai Islamic Bank	

This page has been intentionally left blank

ISBN 9789675687587

http://www.ifsb.org