IFSB WORKING PAPER SERIES

WP-23/12/2021

ASSESSING THE EFFECTIVENESS OF COVID-19 POLICY RESPONSES IN THE ISLAMIC BANKING INDUSTRY

December 2021

IFSB WORKING PAPER SERIES

Technical and Research Department

WP-23/12/2021

ASSESSING THE EFFECTIVENESS OF COVID-19 POLICY RESPONSES IN THE ISLAMIC BANKING INDUSTRY

Abideen Adeyemi Adewale

December 2021

Correspondence email: research@ifsb.org

The author would like to thank the members of the IFSB Technical Committee which reviewed and approved the paper. The author is also grateful to Muhamad Nur Faaiz Fatha Achsani and Md. Alamgir Hossain for providing research assistance. Thanks to the Technical and Research Department of the IFSB Secretariat for providing support in the drafting and publishing of the paper. Finally, the author is grateful to the regulatory and supervisory authorities, multilateral bodies, and institutions offering Islamic financial services that are members of the IFSB for providing useful comments on the draft paper during members' consultation.

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; research@ifsb.org

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, or stored in any retrieval system of any nature without prior written permission, except for permitted fair dealing under the Copyright, Designs and Patents Act 1988, or in accordance with the terms of a licence issued by the Copyright, Designs and Patents Act 1988, or by the Copyright Licensing Agency in respect of photocopying and/or reprographic reproduction.

Application for permission for other use of copyright material, including permission to reproduce extracts in other published works, shall be made to the publisher(s). Full acknowledgement of the author, publisher(s) and source must be given.

© 2021 Islamic Financial Services Board

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 involves, 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**.

ABBREVIATIONS

BCBS	Basel Committee on Banking Supervision
CAR	Capital adequacy ratio
CCyB	Countercyclical capital buffer
CEPR	Centre for Economic Policy Research
CTI	Cost-to-income
D-SIBs	Domestic systemically important banks
ECL	Expected credit loss
ELBs	Effective lower bounds
FSB	Financial Stability Board
GCC	Gulf Cooperation Council
GDP	Gross domestic product
GFC	Global Financial Crisis
GSIBs	Global systemically important banks
HQLA	High-quality liquid assets
IFRS	International Financial Reporting Standard
IFSB	Islamic Financial Services Board
IFSI	Islamic financial services industry
IMF	International Monetary Fund
ISLI	Islamic *Ṣukūk* Liquidity Instrument
ITERF	Islamic Temporary Economic Refinance Facility
LCR	Liquidity coverage ratio
MGII	Malaysian Government Investment Issues
MGS	Malaysian Government Securities
MSMEs	Micro, small and medium-sized enterprises
NIBs	Non-interest banks
NPF	Non-performing financing
NSFR	Net stable funding ratio
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary least squares
PRC	Policy rate cut
PRM	Policy rates measures
PSIFIs	Prudential and Structural Islamic Financial Indicators
ROE	Returns on equity
RR	Reserve Requirements
RSAs	Regulatory and supervisory authorities
RWAs	Risk-weighted assets
SAC	Sharī'ah Advisory Council
SAGs	Standards and guidelines
SBBA	Sale and buy-back agreements
SICR	Significant increase in credit risk
SMEs	Small and medium-sized enterprises
SRR	Statutory reserve requirement
TESS	Targeted Economic Support Scheme
USD	United States dollar
ZCF	Zero cost facility

GLOSSARY

Ijara	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. An *ijārah* contract is binding on both contracting parties.
Murabahah	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.
Sharīʿah	The practical divine law deduced from its legitimate sources: the Qur'ān, Sunnah, consensus (*ijmāʿ*), analogy (*qiyās*) and other approved sources of the Sharī'ah.
Sharī'ah Advisory Council	The Sharī'ah Advisory Council is made up of experts from various fields with the goal of ensuring that companies applying meet the criteria for Sharī'ah-compliance approval.
Sharī'ah compliance	The term "Sharī'ah-compliant" is used in Islamic finance to denote that a financial product/service/activity complies with the principles of Sharī'ah (Islamic law).
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.
Tawarruq or commodity *murābaḥah*	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.

ABSTRACT

This working paper empirically assesses the effectiveness of COVID-19 policy responses in the Islamic banking industry across IFSB member jurisdictions. Specifically, the paper aims to determine if the various monetary, financial and fiscal policy support measures used have resulted in the intended outcome of ensuring that Islamic banks remain resilient and complement the functioning of the economy by providing financing to the real economy during the ongoing pandemic. Moreover, the paper investigates whether Islamic banks have used the flexibility provided for in the IFSB standards and guidelines to adapt to the peculiarities of the COVID-19 pandemic shock, and whether there are potential Islamic banking sources of procyclicality arising especially from the macrofinancial policy measures. The analyses are based on data extracted from the IFSB Prudential and Structural Islamic Finance Indicators from 1Q19 to 4Q20 for 17 jurisdictions. Other data sources include various COVID-19 policy response indexes, IFSB surveys issued during the pandemic, and publications by the IFSB and other standard-setting bodies. Specifications of a number of panel regression analysis models are tested. Findings indicate that the various COVID-19 policy responses have been generally effective in ensuring that Islamic banks continue to perform their intermediation role of supporting the real economy during the pandemic. Finally, the paper identifies the financial stability implications of the findings and offers suggestions for scheduling the phasing out of policy support measures.

CONTENTS

SECTION 1: INTRODUCTION

The 2007–8 Global Financial Crisis (GFC) was reported to have had a mild impact on the Islamic banking sector.[1] Notwithstanding this, the Islamic Financial Services Board (IFSB) has issued numerous standards and guidelines (SAGs) since the GFC to complement the set of regulatory standards developed by the Basel Committee on Banking Supervision (BCBS). The SAGs are meant to address the specificities of the global Islamic banking industry to ensure its soundness and stability, enhance its resilience against shock and facilitate its recovery post-crisis.

The COVID-19 pandemic presents an extraordinary situation and poses the first significant test of the resilience of the global Islamic banking industry since the GFC. The pandemic-induced financial crisis is different in nature from the GFC in terms of its origination, propagation and, perhaps, its implications.[2] It has had, and continues to have, a profound effect in terms of reduced economic activity, with corporates facing liquidity contractions and losses and households being impacted by job losses and reduced wages. Moreover, the duration and full extent of the economic damage, as well as the span and form of future economic recovery, remain unclear.

There have been extensive emergency monetary, fiscal and financial policy responses by governments and central banks to support both economic and financial activities.[3] For now, the various COVID-19 policy measures implemented have generally proven to be effective. By attenuating the consequential stress witnessed in the financial markets at the outbreak of the pandemic, these measures have reduced the risk of a worst-case scenario economic crisis.

The International Monetary Fund's (IMF) growth projections indicate global economic recovery in 2021;[4] however, downside risks remain. The favourable economic recovery projection may be attenuated by a double-hit scenario of a prolonged and worsening pandemic, and a limited fiscal policy space across many jurisdictions in the developing and emerging economies – where Islamic banking is largely practised. In fact, many jurisdictions have only just started to exit another wave of the pandemic due to the Delta variant and other multiple variant strains, which has necessitated another round of lockdowns in these jurisdictions. The uneven distribution and slow roll-out of vaccines, especially in some jurisdictions where Islamic banking is practised, would also have implications for the pattern and duration of the pandemic.[5]

Buffered by gains from the implementation of the various SAGs post the GFC, the Islamic banks in most jurisdictions entered the COVID-19 pandemic crisis well-

[1] H. Derbel, T. Bouraoui and N. Dammak (2011). Can Islamic Finance Constitute a Solution to Crisis? *International Journal of Economics and Finance*, *3*(3), 75–83. https://www.ccsenet.org/journal/index.php/ijef/article/view/7918

[2] Basel Committee on Banking Supervision (BCBS) (2021). *Early Lessons from the Covid-19 Pandemic on the Basel Reforms* (bis.org).

[3] Based on jurisdictional peculiarities, regulatory and supervisory authorities (RSAs) have allowed banks to use the flexibility embedded within the international financial standards to support the real economy. This is in addition to persuading banks to use their capital and liquidity buffers, restrictions on payment of dividends and bonuses, share buy-backs, etc.

[4] The International Monetary Fund (IMF) *World Economic Outlook Update*, October 2021, projects the world's real GDP growth to be 5.9% in 2021 and 4.9% in 2022.

[5] Islamic Financial Services Board (IFSB) (2021). *Islamic Financial Services Industry Stability Report 2021.* https://www.ifsb.org/download.php?id=6106&lang=English&pg=/sec03.php

equipped to withstand its impact through being highly capitalised, profitable and liquid. Islamic banks have also been able to demonstrate resilience, to continue to provide financing to both households and corporates, to absorb higher credit risks and, generally, to complement various COVID-19 induced policy support measures across jurisdictions, thus supporting economic activity rather than aggravating the economic crisis.

Notwithstanding, there is evidence of hesitation by banks to dip into their regulatory buffers had it been necessary to do so during the ongoing pandemic.[6] This has raised questions about the usability of the flexibility provided by the Basel III framework, which the IFSB standards complement, and about the potential sources of procyclicality which may have been masked in the interim by the subsisting policy support measures.[7] Moreover, although the current limited usage of the regulatory buffers poses intertemporal trade-offs needed to cope with the aftermath of the COVID-19 shock,[8] it could also trigger Islamic financing disintermediation due to Islamic banks' deleveraging as the pandemic becomes more prolonged.[9]

Furthermore, continuing weaker household and corporate financing performance would increase credit risk, impair asset quality, impede financing growth and slow down economic recovery. The flexibility permitted by RSAs on recognition of expected credit losses (ECL) and the impact of provisions on regulatory capital make it difficult to evaluate the possible procyclicality of regulatory capital requirements arising from the accounting standards.[10]

Like their conventional counterparts, the Islamic banks are faced with a challenge of incorporating forward-looking information into the measurement of ECL given factors such as uncertainty, relief measures, generally slow economic recovery and the peculiarities of Islamic banks (e.g. varying stages of contracts, the treatment of profit and loss-sharing contract, etc.). This portends hidden vulnerability, as poor assets are expected to start manifesting when the moratorium facility granted by the RSAs to banks in the application of prudential standards and the treatment of potentially impaired financings is gradually lifted.[11]

As a sequel to the foregoing, this paper aims to answer a few pertinent questions: How effective have the various COVID-19 policy measures implemented been for the global Islamic banking sector? How has the sector responded and adapted to the exogenous

---

[6] Financial Stability Board (FSB) (2021). *Lessons Learnt from the COVID-19 Pandemic from a Financial Stability Perspective. Interim Report*. https://www.fsb.org/2021/07/lessons-learnt-from-the-covid-19-pandemic-from-a-financial-stability-perspective-interim-report/

[7] P. Hernández de Cos (2021). Evaluating the Effectiveness of Basel III during Covid-19 and Beyond (bis.org). Keynote address at the BCBS-Bundesbank-CEPR workshop on evaluating financial regulation. Bank for International Settlements, 20 April.

[8] Organisation for Economic Co-operation and Development (OECD) (2021). *The COVID-19 Crisis and Banking System Resilience: Simulation of Losses on Non-Performing Loans and Policy Implications*, Paris: OECD.

[9] FSB Interim Report (2021). https://www.fsb.org/2021/07/lessons-learnt-from-the-covid-19-pandemic-from-a-financial-stability-perspective-interim-report/

[10] BCBS (2021). *The Procyclicality of Loan Loss Provisions: A Literature Review*. https://www.bis.org/bcbs/publ/wp39.pdf

[11] Toronto Centre (2020). *Supervisory Responses to the Impact of COVID-19 on Credit Quality.* https://www.google.com/search?q=supervisory+response+to+covid+19%2Btoronto&rlz=1C1GCEU_enMY890MY890&oq=supervisory+response+to+covid+19%2Btor&aqs=chrome.1.69i57j33i160.16341j1j4&sourceid=chrome&ie=UTF-8#

shock of COVID-19 without infringing on its essential role of serving the real economy? What is the association between Islamic banks' capital levels, capital headroom, leverage and liquidity, on the one hand, and Sharī'ah-compliant financing on the other, during the COVID-19 pandemic?

The remainder of this working paper is structured as follows. Section 2 provides an overview of policy measures adopted across IFSB member jurisdictions. Section 3 provides a brief description of the methodology used in this paper, while Section 4 focuses on analyses of the effectiveness of the adopted policy measures. Section 5 presents the conclusion and recommendations.

SECTION 2: COVID-19 POLICY MEASURES ADOPTED BY SOME IFSB MEMBER JURISDICTIONS

While there exist numerous monetary policy tools that can be deployed during a financial shock such as that caused by the COVID-19 pandemic, the choice of which tool to use and its effectiveness will depend on a number of factors. For instance, the extent to which a policy rate cut can be stimulative depends on how close the rate is to its effective lower bounds (ELBs). Quantitative easing can also be used to ensure the yield curve remains flat, while credit easing can be used to target economic sectors that have been more susceptible to the effects of the pandemic.[12] The effectiveness of these tools in enhancing monetary policy transmission also depends on jurisdictional idiosyncrasies, such as whether the financial system is bank-based or market-based, as well as the prevalent levels of household and corporate indebtedness, etc.[13]

Due to its link to the real economy, the measures directed at maintaining the operational efficiency and functioning of the Islamic banking sector in response to the pandemic were basically meant to ensure that financing could continue to be provided to both households and corporates. Across jurisdictions, the RSAs provided the support needed to ensure liquidity in terms of a direct injection of funds for financing schemes and permissibility to use a liquidity buffer.[14]

Pressure to comply with regulatory capital requirements was also mitigated via a reduction in risk weights and in applicable capital buffer requirements.[15] Other measures aimed at helping to conserve capital include restricting dividend distribution, providing financing guarantees, and imposing moratoria on financing, especially to households and micro, small and medium-sized enterprises (MSMEs), etc., to boost aggregate demand, preserve businesses and maintain employment levels.

2.1 Liquidity Support Measures

At the outbreak of the ongoing pandemic, jurisdictions responded with a variety of liquidity support measures. The IFSB's GN-6[16] provides guidance on how regulators may address liquidity concerns on implementation of the net stable funding ratio (NSFR) and liquidity coverage ratio (LCR), on the inadequacy of Sharī'ah-compliant high-quality liquid assets (HQLA), and on easing the features of eligible collaterals. The IFSB's GN-7[17] also provides guidance on eligibility criteria for access to Sharī'ah-compliant lender-of-last-resort facilities, as well as on lowering collateral haircuts as the assets of institutions offering Islamic financial services deteriorate.

---

[12] C. Cantú, P. Cavallino, F. De Fiore and J. Yetman (2021). *A Global Database on Central Banks' Monetary Responses to COVID-19* (bis.org).

[13] G. Johnson, S. Kozicki, R. Priftis, L. Suchanek, J. Witmer and J. Yang (2020). Implementation and Effectiveness of Extended Monetary Policy Tools: Lessons from the Literature. *Discussion Papers* 2020–16, Bank of Canada.

[14] IFSB (2020). *Compendium of Financial Sector Regulatory Responses to COVID-19*. https://www.ifsb.org/download.php?id=5665&lang=English&pg=/page_covid19.php

[15] The IFSB, based on its various policy statements issued since the outbreak of the pandemic, also expects that regulators would utilise the flexibility offered in its related SAGs to address peculiarities of the specificities of Islamic banking in their respective jurisdictions.

[16] IFSB (2015). *Guidance Note on Quantitative Measures for Liquidity Risk Management in Institutions offering Islamic Financial Services (Excluding Islamic Insurance [Takaful] and Islamic Collective Investment Schemes)*. https://www.ifsb.org/download.php?id=4391&lang=English&pg=/published.php

[17] IFSB (2015). *Guidance Note on Shari'ah-Compliant Lender of Last Resort Facilities.* https://www.ifsb.org/download.php?id=5517&lang=English&pg=/published.php

A prominent liquidity support measure taken across jurisdictions was the reduction of policy rates to provide funding costs relief to Islamic banks. In Pakistan, the policy rate was reduced from 13.25% to 7%. In March 2020, the Saudi Central Bank (SAMA) also lowered both its repo and reverse repo rates by 125 basis points (bps) to 1.00% and 0.50%, respectively. In Bahrain, the Central Bank of Bahrain (CBB) implemented various policy rate cuts, including a reduction in the one-week deposit facility (by 125 bps to 1.0%), in the overnight deposit rate (by 125 bps to 0.75%), and in the overnight lending rate (by 155 bps to 2.45%). The CBB also reduced the cash reserve ratio for all retail banks by 2 percentage points to 3%.

In Turkey, the policy rate was cut by 375 bps, from 12% to 8.25%, during the first half of 2020. In June 2020 the Central Bank of the Republic of Turkey (CBRT) granted additional flexibility to banks in Turkey to provide more financing and also to benefit from reserve requirement incentives. The CBRT in this regard suspended the requirement to adjust annual financing growth to 15% if already above that threshold, until December 2020.

In March 2020, the CBRT lowered remuneration rates applied to required reserves in Turkish Lira (TL) from 10% to 8% for banks whose loan/financing growth complies with regulatory changes, and to 0% for banks whose credit growth fell short of the regulatory changes from August 2019. In February 2021, the remuneration rate applied to TL-denominated reserves was increased by 150 bps to 13.5%. The reserve remuneration when implemented in a jurisdiction helps banks to attenuate the negative effect on profitability from a reduction in policy rates.[18]

On 25 August 2020, for all banks fulfilling the real credit growth conditions, TL reserve requirement (RR) ratios were increased by 200 bps for all deposits/participation funds liabilities with a maturity up to six months and for other liabilities with a maturity up to one year, and by 150 bps for other liabilities with a maturity up to three years. After 25 December 2020, the CBRT decided to simplify the reserve requirement system to increase the effectiveness of the monetary transmission mechanism. As a result, RR ratios were simplified again. The reserve requirement practice that linked the RR ratios and remuneration rates to real loan growth rates was repealed, and TL and foreign exchange RR ratios were rearranged to be at the same level for all banks.[19]

In Malaysia, measures implemented included lowering of the statutory reserve requirements (SRR) ratio by 100 bps to 2%, as well as permission for principal dealers to use both Malaysian Government Securities (MGS) and Malaysian Government Investment Issues (MGII) of up to Malaysian Ringgit (RM) 1 billion for the purpose of meeting SRR requirements until 31 December 2020. Similarly, in Jordan, the Central Bank of Jordan (CBJ) slashed the cash reserve ratio by 200 bps to 5.0%, thus releasing Jordanian Dinar (JOD) 550 million, and redeemed its certificates of deposits with banks, releasing an additional JOD 500 million in liquidity in the process.

In Bangladesh, the cash reserve ratio was reduced by a cumulative 350 bps to 2.0% on a bi-weekly average basis, and to 1.5% on a daily basis. The repo rate was reduced by a cumulative 125 bps to 4.45%, while the reverse repo rate was reduced by 75 bps

[18] M. Boucinha and L. Burlon (2020). Negative Rates and the Transmission of Monetary Policy. *European Central Bank Economic Bulletin, 3.* https://www.ecb.europa.eu/pub/economic-bulletin/articles/2020/html/ecb.ebart202003_02~4768be84e7.en.html#toc1

[19] T. Hale and S. Webster (2020). Oxford COVID-19 Government Response Tracker. Available at: https://www.bsg.ox.ac.uk/research/research-projects/oxford-covid-19-government-response-tracker

to 4.00% during the period. The bank rate was also cut by 100 bps to 4.00%, while the investment deposit rate was extended by 2 percentage points to 92%.[20]

A number of jurisdictions took pre-emptive action to mitigate the concern that if the banks come under liquidity pressure, they might attempt to prevent the LCR falling below the 100% threshold. As such, banks across jurisdictions were allowed a temporary amendment or reduction of the LCR.

The Central Bank of Oman (CBO) permitted banks in the country to operate below the 100% threshold for LCR up to a minimum of 75% on a case-by-case basis if there was evidence of liquidity stress. In both Indonesia and Malaysia, in addition to relaxing the requirements for the LCR and the NSFR,[21] banks were allowed to draw down on liquidity buffers. Furthermore, Bank Negara Malaysia (BNM) also issued a policy statement on the flexibility embedded within the liquidity standard, and further provided clarity on the use of a liquidity buffer due to the pandemic.

In the United Arab Emirates (UAE), the Central Bank of the UAE (CBUAE), under its Targeted Economic Support Scheme (TESS), allowed those Islamic banks that were participating fully in the zero-cost facility (ZCF) to draw on up to 60% of their capital conservation buffers, while domestic systemically important banks (D-SIBs) are permitted to use up to 100% of their D-SIB buffers. Furthermore, the Islamic banks' LCR and NSFR requirements are allowed to fall to a minimum of 70% and 90%, respectively. In addition, in April 2020, the CBUAE announced that the reserves requirements for demand deposits for all banks should be halved from 14% to 7%, with an expected impact of liquidity injection to the banking system to the tune of about United Arab Emirates Dirham (AED) 61 billion. In October 2020, in order to facilitate short-term liquidity management, the reserve maintenance period for banks in the UAE was extended from 7 days to 14 days.

Quantitative easing and liquidity injection were used in some jurisdictions to support banking liquidity to ensure the capacity of the banks to provide financing to both corporates and households. For instance, in Bahrain, the CBB's lending facilities to banks were expanded by up to USD 10 billion. In Saudi Arabia, SAMA introduced the Private Sector Financing Support Program in March 2020, with an initial value of about Saudi Riyal (SAR) 50 billion, to support the growth of the private sector, and supporting the efforts of the government in combating the COVID-19 pandemic and mitigating its expected financial and economic impacts on the private sector, especially the small and medium-sized (SME) sector. SAMA also injected SAR 50 billion into the banking sector via deposit placements in June 2020 to boost liquidity and financing to the private sector.

Similarly, in Indonesia, there was quantitative easing via the injection of liquidity into the banking sector, which, as at December 2020, was worth Indonesian Rupiah (IDR) 694.87 trillion. Bank Indonesia, via the same mechanism, also lowered the rupiah RR ratios by 200 bps for conventional commercial banks and by 50 bps for Islamic banks/Islamic business units, effective 1 May 2020.

[20] https://www.bb.org.bd/pub/special/covid19_policymeasures.pdf

[21] In Indonesia, both the LCR and NSFR were reduced to 85%, while in Malaysia, the BNM reduced the LCR threshold below 100% and the NSFR to 80% until 30 September 2021.

In Jordan, the CBJ provided JOD 2.5 billion in liquidity support to enhance access to finance by individuals and SMEs at a minimal charge of 2% and payable over 10 years. Also, the household and personal financing sectors benefited from access to the JOD 500 million in supporting finance provided at a low rate and for an extended tenure by the CBJ through the banks.

Non-interest banks (NIBs) in Nigeria enjoyed a one-year moratorium on all repayments on the Central Bank of Nigeria's (CBN) intervention facilities, and the applicable rate was reduced by 300 bps to 4.5%. The CBN also injected Nigerian Naira (NGN) 3.6 trillion into the banking system as part of its accommodative policy stance to ensure the sector is liquid and able to support economic recovery.

In Pakistan, as part of its policy responses to COVID-19, an Islamic Temporary Economic Refinance Facility (ITERF) scheme was launched in March 2020 to provide concessionary Sharī'ah-compliant financing to stimulate investment in manufacturing activities with the exception of the power sector. The scheme, which is intended solely for the purchase of new imported or locally manufactured plant and machinery, offers financing at a capped markup rate of 5%, with the State Bank of Pakistan (SBP) providing refinancing to the Islamic banks at 1%, thus creating a 4% margin for the latter. The ITERF scheme was in addition to similar other schemes, such as the Islamic Refinance Facility for Combating COVID-19 and the Islamic Refinance Scheme for Payment of Wages and Salaries to the Workers and Employees of Business Concerns.

2.2 Asset Quality Support

In order to support businesses and households that have been affected by the economic consequences of the pandemic, RSAs across jurisdictions granted a payment moratorium for outstanding financing to be restructured or rescheduled. For instance, in Malaysia, the BNM granted a six-month blanket financing payment moratorium in 1Q20 which initially ran until end-3Q20. Thereafter, banks were directed to continue with a targeted rescheduling and restructuring of financing for viable and deserving customers who are still struggling to service their existing financing. Furthermore, for Islamic banks, the Sharī'ah Advisory Council (SAC) of the BNM ruled on the basis of the principle of *ihsan* (beneficence) that accrued profits on both restructured and rescheduled Sharī'ah-compliant financing extended to customers affected by the COVID-19 pandemic should not be capitalised by the country's Islamic banks.[22]

SAMA also introduced forbearance measures that permitted deferral of private-sector financing in Saudi Arabia mainly targeting the SMEs, initially for three months until 30 June 2020, and later extended them for another six months until December 2020.[23] Similarly, in the UAE, the TESS programme provides temporary relief to MSMEs by banks deferring payments until December 2021. Based on the support offered by the CBUAE's ZCF against eligible collateral in the form of certificates of deposit, Islamic

[22] https://www.bnm.gov.my/documents/20124/1085561/SAC+Statement+30th+SAC+Special+meeting+%28revised%29+ENG+16102020.pdf

[23] The deferred payment programme has been subsequently extended to December 2021, while the guaranteed financing programme is extended until March 2022.

banks in the UAE granted payment deferral relief to more than 177,000 customers in 2020, 90% of which were individual retail customers.[24]

In Bahrain, the CBB directed in March 2020 that any impacted borrower or credit card holder must be offered six months' deferral of instalments with no fee, and no increase in the percentage of profit rate unless the customer agreed to this for a short period. This deferral was later extended for a further four months until the end of 2020. Furthermore, to reduce short-term pressure on Islamic banks' asset quality, the CBB extended the Stage 2 days past due criteria to 74 days minus the deferrals, while the cooling-off period for restructured financing facilities was reduced to 90 days. The recognition of Stage 3 financing was later extended until the end of June 2021.

As part of the measures to offer assistance to individuals and corporates affected by the pandemic, the Brunei Darussalam Central Bank (BDCB) urged banks in Brunei to grant an exemption on fees and charges arising from the deferment and restructuring of existing financing obligations. Moreover, in agreement with the Brunei Association of Banks (BAB), online interbank transfer fees were waived for six months until 30 September 2020, which arrangement was later extended until March 2021.

The BDCB also permitted the deferment or restructuring of principal repayments on all types of financing, including property financing, where Islamic banks have the highest non-performing assets. Furthermore, both personal financing and hire purchase financing were granted up to 10 years' deferment, while any outstanding credit card balances were allowed to be converted to term financing of up to three years for individuals in the private sector affected by the economic consequences of the pandemic.

In Bangladesh, the Bangladesh Bank (BB) put in place measures, especially those relating to the moratorium facility provided to borrowers on financing, and increased provisioning against classified financing.[25] Specifically, the BB put existing financing classification on hold and allowed banks to reschedule or restructure financing facilities, as well as providing a one-time exit and write-off of classified financing until the end of 2020. Moreover, the BB directed banks to provide concessional agricultural financing, while it provided 5% profit as a subsidy.

In Pakistan, the SBP granted permission as well as regulatory relaxation to banks to consider the deferment, rescheduling or restructuring of financing upon request by borrowers until March 2021.[26] The effect of these measures on borrowers' credit history, and of an increase in the number of days past due after which the financing is considered as non-performing, was disregarded.

In Indonesia, the Otoritas Jasa Keuangan (OJK), the financial services authority, also directed local banks to allow restructuring and rescheduling of existing financing obligations. Similarly, in Jordan, the CBJ has allowed deferment of repayment of

[24] The CBUAE makes available Sharīʿah-compliant certificates of deposit based on commodity *murabahah*, and Islamic banks were advised to make use of this facility to support their drawings on the ZCF.
[25] Classified financing is that which, although not necessarily past due, has unpaid profit or rental as well as an outstanding principal, thus putting it at risk of default because an Islamic bank is not sure if it can recoup its financing.
[26] BPRD Circular No. 13 of 2020. https://www.sbp.org.pk/bprd/2020/CL13.htm

outstanding financing and also urged banks in Jordan to waive charging any commission or fees on deferred payment instalments. The profit rates for financing under the CBJ development programme were also reduced – from 1.75% to 1.00% for projects within the capital, Amman, and from 1.00% to 0.50% for projects in other governorates.

In Nigeria, the CBN's regulatory forbearances allowed banks to temporarily restructure or reschedule financing to businesses and households that are most affected by the COVID-19 pandemic. In Turkey, the Banking Regulation and Supervision Agency (BRSA) also permitted banks to extend the period of Stage 2 and non-performing financing (NPF) classification. Specifically, in March 2020, the BRSA increased the payment deferral period for NPFs from 90 days to 180 days until 31 December 2020. The period for the delayed payment of Stage 2 loans was also increased, from 30 days to 90 days.

At the outbreak of the pandemic, the Palestine Monetary Authority (PMA) intervened to suspend procedures on default classification for four months, and to reduce the number of cheque books granted to customers, especially to individuals. In 2Q20, the PMA also instructed banks to mitigate the economic effects of COVID-19 by allowing borrowers the possibility to postpone the payment of their obligations with multiple options (e.g. overdraft, restructuring, rescheduling, or a temporary *tawarruq* ceiling for Islamic banks).

2.3 Regulatory Capital Requirement Support

IFSB-15[27] provides details on prudential matters relating to components of capital, countercyclical buffer, capital conservation buffer, leverage ratio, treatment of liquidity facilities using sovereign *sukuk* for liquidity management purpose, and their utilisation in situations similar to COVID-19. Various measures introduced include, but are not limited to, reduction in regulatory requirements, reduced credit risk weights for SMEs – for instance, suspension of distribution of dividends, permission to use regulatory capital buffers, etc. – while ensuring the regulatory capital ratios do not decline below the regulatory minimum on account of the outbreak of the COVID-19 pandemic.[28]

In Afghanistan, the Da Afghanistan Bank (DAB) urged the suspension of dividend payments, rescheduling of credit facilities, and reclassifying and reweighting of loans collateralised by international aid agencies. These were parts of measures to ensure that depleted capital is rebuilt if the banks' capital gets eroded due to the pandemic. To bolster capital adequacy in both Bahrain and the UAE, the risk weights for financing to local SMEs were reduced from 75% to 25% in the former, and in the latter to a reduction in risk weights applicable to rated MSMEs to 75% and unrated MSMEs to 85%.

In Pakistan, the SBP introduced policy measures such as suspension of dividend declaration for the first two quarters of 2020, and a reduction of the capital conservation

[27] IFSB (2013). *Revised Capital Adequacy Standard for Institutions offering Islamic Financial Services (Excluding Islamic Insurance [Takaful] and Islamic Collective Investment Schemes).* https://www.ifsb.org/download.php?id=4371&lang=English&pg=/published.php

[28] Depleted buffers may slow the recovery or undermine the stability of Islamic banks during the later stages of the crisis, especially if it is prolonged. See M. Drehmann, M. Farag, N. Tarashev and K. Tsatsaronis (2020). Buffering COVID-19 Losses – the Role of Prudential Policy, *BIS Bulletin*, *9*. https://www.bis.org/publ/bisbull09.htm

buffer by 100 bps to 1.5%, to enhance the shock absorbance capacity of the Pakistani banks. Similarly, SAMA directed the banks in Saudi Arabia to make prudent dividends payment decisions to strengthen internal capital generation.

The CBO retained a countercyclical capital buffer (CCyB) of 0% on account of the relatively limited growth in credit. The capital conservation buffer was also reduced by 125 bps to 1.25%, or 2.5% of risk-weighted assets (RWAs), which granted the Omani Islamic banking sector relief from pressure regarding capital adequacy. In Indonesia, an Islamic bank classified in the Kelompok Bank berdasarkan Modal Inti (KBMI)[29] grouping is exempted from fulfilling the capital conservation buffer requirement of 2.5% of risk-weighted assets until 31 March 2022.

In Bangladesh, the BB permitted banks to recognise 50% of the required provisions made against rescheduled financing due to COVID-19 as general provisions, and as eligible capital from 19 March 2020. Moreover, in March 2020, banks in Bangladesh were instructed not to distribute cash dividends before 30 September 2020 so as to build their capital base.[30] In Jordan, the CBJ has directed banks to suspend payment of dividends in order to (among other considerations) bolster their capital base, enhance their capacity to mitigate against the impact of COVID-19, and provide the needed intermediation services to quicken economic recovery.

In Turkey, the BRSA announced in March 2020 that value losses in the portfolio of securities at fair value through other comprehensive income should not be included in the computation of the capital adequacy ratio (CAR) until after 31 December 2020. In April 2020, the BRSA also permitted banks to use a risk weight of 0% on foreign exchange obtained from the central government of Turkey when calculating their risk exposure. The purpose of this measure was to minimise the implications of exchange rate volatility on the CAR of Turkish banks.

2.4 Use of Regulatory Buffers

Islamic banks' regulatory capital remains well above both international and domestic thresholds, indicating substantial capital headroom. Similarly, liquidity-wise, both the LCR and the NSFR rebounded in 2Q20 with substantial headroom, from the initial liquidity pressure at the outbreak of the pandemic in 1Q20. There is evidence, though, that despite the flexibility granted within the regulatory framework, banks have either generally not needed to dip into their buffers or may have been hesitant to use the during the pandemic.[31]

The extant literature on the impact of capital buffers on lending is mixed. For instance, the capital buffer in excess of minimum capital requirements is found to be associated with increased lending, improved liquidity position, and survival during economic

[29] KBMI refers to a bank's grouping based on its core capital. There are four groups of KBMI as follows: KBMI 1 (core capital up to IDR 6 trillion or USD 422 million), KBMI 2 (core capital between IDR 6-14 trillion or USD 422- (84 million), KBMI 3 (core capital between IDR 14-70 trillion or USD 984-4,921 million), and KBMI 4 (core capital above IDR 70 trillion or USD 4,921 million). The conversion is based on Bank Indonesia exchange rate as of 28 December 2021, where IDR/USD = 14,225.

[30] This measure was later relaxed to allow for payment of dividends to individual investors.

[31] A. Abboud, E. Duncan, A. Horvath, et al. (2021). *COVID-19 as a Stress Test: Assessing the Bank Regulatory Framework*, Finance and Economics Discussion Series 2021-024. Washington: Board of Governors of the Federal Reserve System. https://doi.org/10.17016/FEDS.2021.024.

downturn.[32] However, having higher capital is also found to reduce lending volumes, as credit supply may be hampered[33] because risk-based capital regulation may be prone to an inherent trade-off between risk sensitivity and procyclicality.[34] A middle position to the contrasting findings is that the relationship between banks' capital and lending depends on the state of the economy.[35]

Experiences from previous financial crises and financial stress situations show that a vicious circle of asset quality deterioration is a recurrent consequential feature that worsens over time when combined with declining profitability, high leverage, constrained lending and challenging economic conditions.[36] Also, where it is allowed to be used, depleted liquidity and capital buffers are expected to slow the recovery or undermine the resilience of banks during the later stages of the crisis,[37] thus constraining their crucial role in ensuring credit intermediation and economic recovery.

[32] A. Thakor (2014). Bank Capital and Financial Stability: An economic Trade-off or a Faustian Bargain? *Annual Review of Financial Economics*, *6*, 185–223.
[33] C. Bui, H. Scheule and E. Wu (2017). The Value of Bank Capital Buffers in Maintaining Financial System Resilience, *Journal of Financial Stability,* 33(C), 23-40
[34] M. Behn, R. Haselmann and P. Wachtel (2016). Procyclical Capital Regulation and Lending, *Journal of Finance*, *71*(2), 919–56.
[35] M. Kosak, S. Li, I. Loncarski and M. Marinc (2015). Quality of Bank Capital and Bank Lending Behavior during the Global Financial Crisis, *International Review of Financial Analysis*, *37*, 168–83.
[36] OECD (2021). *The COVID-19 Crisis and Banking System Resilience: Simulation of Losses on Non-performing Loans and Policy Implications*. Paris: OECD.
[37] Drehmann et al. (2020).

SECTION 3: DATA AND METHODOLOGY

Notwithstanding different levels of Islamic banking development, with a few banks attaining systemic significance,[38] 17 jurisdictions[39] are included in the analysis. These are those jurisdictions whose quarterly data for both full-fledged Islamic banks and Islamic banking windows up to 4Q20 are available in the IFSB's Prudential and Structural Islamic Financial Indicators (PSIFIs) database and contain indicators of interest as at the time of writing this paper. Cumulatively, these countries accounted for about 75% of the global Islamic banking assets as at end-4Q20.

Given that the data used in this paper, which consist of macro-level prudential and structural data of Islamic banks in various jurisdictions, are calculated and compiled by the respective RSAs that submit it to the IFSB in an aggregate form, they have a high level of integrity. As such, the Islamic banking sector in a country is viewed in aggregate, rather than on an institution-by-institution basis. It is noteworthy that, across jurisdictions, there may be weaker Islamic banking institutions that may find it relatively more difficult to face the challenges arising from the pandemic due to pre-existing idiosyncratic vulnerabilities and exposures.

The PSIFIs data provide a backward-looking assessment of Islamic banking resilience and are not susceptible to changes in expected future profits. This is unlike market-based indicators, which are forward-looking and may discount the generally strong prudential position of the Islamic banks prior to the COVID-19 pandemic. This may create the possibility of the presence of noise in market-based indicators, especially due to the uncertainty in their estimation methodologies.

In addition, the market-based data may not reflect the stand-alone risk profile of the banking system, as market expectations may also reflect expectations of the effects of the various government fiscal, monetary and financial supports provided due to COVID-19.[40] Moreover, it is argued that the availability of market data is not a strong justification for using a market-based model because such a model may not provide early warning signals of a crisis, as "by the time they spiked, the market would have tanked already".[41]

Data from a Bank for International Settlements working paper on a global database of central banks' monetary responses to COVID-19 are also used where available.[42] Additional data on the COVID-19 economic stimulus index,[43] and the debt relief and stringency index,[44] are also included, as appropriate, in some specifications of multiple

[38] Systemic significance implies that the total Islamic banking assets in a country comprise more than 15% of its total domestic banking sector assets.
[39] These include Afghanistan, Bahrain, Bangladesh, Brunei Darussalam, Indonesia, Jordan, Kuwait, Malaysia, Nigeria, Oman, Pakistan, Palestine, Qatar, Saudi Arabia, Sudan, Turkey, and the United Arab Emirates.
[40] C. MacDonald and M. van Oordt (2017). Using Market-Based Indicators to Assess Banking System Resilience, *Bank of Canada Financial System Review.*
[41] Markose (2012), cited in A. Adewale and V. Nienhaus (2019). *Investigating Intersectoral Linkages in the Islamic Financial Services Industry*, WP-11/05/2019.
https://www.ifsb.org/download.php?id=5161&lang=English&pg=/sec03.php
[42] C. Cantú, P. Cavallino, F. De Fiore and J. Yetman (2021). *A Global Database on Central Banks' Monetary Responses to COVID-19* (bis.org).
[43] www.ceyhunelgin.com
[44] Hale and Webster (2020).

regression analysis conducted in the paper to assess the effectiveness of COVID-19 policy measures.

The analysis in the paper is based on two panel data regression equations, each with differing specifications. In the first regression equation, the analysis starts with a pooled-ordinary least squares (OLS), while the sensitivity of the results to estimation methods is assessed with a generalised least squares (GLS) regression to capture country effect (if any) via the fixed or random effect model. The variants of the first regression model are essentially static, rather than dynamic. This is because the focus is on drawing inferences, rather than forecasting. Moreover, the static panel model is often used to account for the economic shock being felt sooner and more strongly, such as in the case of COVID-19.[45]

The primary regression model can be summarised by the following equation:

$$\mathbf{lnSCF_{it} = \alpha + \beta_1 FPM_{it} + \beta_2 PRM_{it} + \beta_3 RRM_{it} + \beta_3 BRM_{it} + \beta_4 SI_{it} + \varepsilon_{it}} \quad \text{(reg. eqn. 1)}$$

where $lnSCF_{it}$ represents the Sharī'ah-compliant financing provided by the Islamic banks in country "i" and quarter "t" during the COVID-19 period expressed in natural log. FPM represents the fiscal policy measures expressed in terms of the gross domestic product (GDP),[46] while PRM represents the cut in average policy rates measures expressed as a percentage of the ongoing rate as at the beginning of a quarter. RRM represents the cuts in the reserve requirement rate in each quarter, while BRM measures macrofinancial packages, including borrower relief measures such as moratoria, fee waiver, etc., expressed as a percentage of the GDP.[47] SI represents the reported government stringency index used as a control variable. This section also includes relevant responses to IFSB surveys, and extracts from some internal workings of the IFSB based on PSIFIs data.

Another panel regression equation model is used to assess the association between Islamic banks' regulatory capital and liquidity ratios and Sharī'ah-compliant financing provided by them during the pandemic.[48] The model is based on the assumption that the resilience of Islamic banks could be reflected in their ability to respond to the policy interventions by being able to continuously provide financing to both households and corporate customers during the pandemic.

The second panel regression equation takes the following general form:

$$\mathbf{lnCFG_{i,Q1\ 2019} = \alpha + \beta * X_{i,t\text{-}Q1\ 2019} * D_{t\text{-}} + \mu * X_{i,t\text{-}1} * CVD_{t,} + \varepsilon_{i,t}} \quad \text{(reg. eqn. 2)}$$

where X represents the vector of all macrofinancial and macroeconomic variables; $_{i,t}$ implies country *i* at time *t*; β, μ and Ω are the standardised coefficients; and ε is the residual error term.

In equation 2 and its various model specifications, the logarithm of the cumulative growth rate of Shari'ah-compliant financing (CFG) is used as the dependent variable. The interaction term comprising regulatory ratios and time measured before the pandemic are used as the independent variables. Both 1Q19 and 4Q19 are used as

[45] OECD (2021).
[46] These also include the liquidity injections to support the term funding facility during the pandemic.
[47] These include the debt relief provided via forbearances, fee waivers, etc.
[48] BCBS (2021).

base quarters respectively in various sub-specifications of the model to allow for comparison of the investigated relationship before and during the pandemic. However, a limitation of this second panel regression equation is that a flurry of emergency prudential policy measures taken by the RSAs in respective jurisdictions could have attenuated the relationship between pre-pandemic levels of the various regulatory ratios and financing decisions of the Islamic banks during the pandemic, as per equation 1.

The macrofinancial indicators include: the capital adequacy ratio (CAR) measured by either of total capital or Tier-1 capital to RWA, leverage ratio (LEV) measured by Tier-1 capital to Exposure,[49] liquid assets to short-term liability ratio (LASLR),[50] and capital headroom (CHDRM) measured by the excess over the minimum regulatory capital requirements. A number of additional interaction terms to control for time-varying heterogeneity across countries, and three macroeconomic indicators – real GDP growth rate (RGDP),[51] a dummy for COVID-19 (CVD)[52] and another for systemic significance (SS) – are also included.

Finally, some other control variables are included: logarithm of total assets (lnTA) to measure the effect of size; non-performing financing (NPF) to measure asset quality; deposit-to-asset ratio (DTA) to measure funding structure; financing-to-asset ratio (FTA) to measure financing structure; and return on asset (ROA[53]) to capture the effect of profitability. All the values except for the dummy variables are winsorised at both the 5^{th} and 95^{th} percentiles to minimise the outlier effect.

All the panel regression analyses are conducted using the Gnu Regression, Econometrics and Time Series Library (GRETL), an open-source statistical package for econometrics analysis.

[49] For jurisdictions that have yet to adopt the Basel III leverage framework, Tier-1 capital to total assets is used.
[50] Only a few countries report the LCR.
[51] Extracted from the World Bank database: https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG
[52] This takes a value of 1 for 1Q20–4Q20, and a value of 0 for 1Q19–4Q19.
[53] The ROA is based on after-tax value.

SECTION 4: ANALYSIS AND RESULTS

Table 1 (in the appendix) shows the descriptive statistics for the dependent and independent variables in the regression equations. The distribution reflects the fact that the countries covered have adopted various COVID-19 policy measures based on their levels of economic development, fiscal and monetary policy spaces, etc.

4.1 Effectiveness of COVID-19 Policy Measures in the Islamic Banking Industry

Table 2 shows the results of the first panel regression analysis conducted in this paper, including the OLS, fixed effect and random effect models, as applicable. The following subsections present an analysis of the effectiveness of the COVID-19 policy measures adopted across the Islamic banking industry in IFSB member jurisdictions. The analysis is complemented with the trend observed in key prudential indicators, including regulatory capital and liquidity requirements,[54] utilisation of regulatory buffers, preservation of asset quality, and whether some issues of cyclicality arose therefrom.

Table 2: Effect of COVID-19 Policy Measures on Shari'ah-Compliant Financing of Islamic Banks

Dependent Variable	**Shari'ah-Compliant Financing (SCF)**				
	Spec 1	**Spec 2**	**Spec 3**	**Spec 4**	**Spec 5**
Policy Rate Cut (PRC)	0.0476 (0.0112)***	0.0340 (0.0156)**	0.0493 (0.0218)**	0.0488 (0.0220)**	0.0493 (0.0222)*
Reserve Requirements Cut (RRC)		0.0171 (0.0089)*	0.0261 (0.0068)***	0.0255 (0.0077)***	0.0233 (0.0087)**
Borrower Relief Measures (BRM)			-0.0662 (0.0360)*	-0.0493 (0.0391)	-0.0452 (0.0455)
Fiscal Policy Stimulus (FPS)				0.1122 (0.0439)**	0.1160 (0.0502)**
Stringency Index					0.0078 (0.0175)
Country Effect	YES	YES	YES	YES	YES
F-Test (Model)	19.2938***	10.2984***	10.8736***	11.5990***	14.0240***
Adj. R^2	0.3543	0.3629	0.4082	0.4354	0.4274
Observations	68	68	68	68	68

Statistical significance: *<0.10, **<0.05, and ***<0.01. Robust standard errors in parenthesis in all regressions. All regressions include a constant.

4.1.1 Policy Rate Measures

The first policy measure implemented by many RSAs across IFSB member jurisdictions, especially in Asia and Africa, was a cut in the policy rates[55] – in some cases, to historic minimums. The aim was to address financial market disruptions, ease liquidity constraints, and manage the market volatility experienced in the early days of the pandemic. As time went by, the policy rate cut was also intended to reduce funding costs for the banks, as they support economic activity by providing financing and by ensuring that the smooth functioning of the financial system is not infringed upon.

The swift monetary easing policy in the advanced economies, especially the United States, provided a calm global financial condition that made room for the emerging

[54] The FSB noted that most prudential measures taken relate to either capital or liquidity, or both.
[55] Islamic banking is more prominent in these regions, unlike in Eastern Europe and Latin America where the policy measures were proportionally more in foreign exchange operations. See Cantú et al. (2021).

economies, including those where Islamic banking is practised, to follow suit.[56] These economies leveraged on their favourable cyclical position to cut policy rates[57] without the atypical severe consequence of exchange rate depreciation that follows a policy rate cut due to capital outflow.

In spec 1 in Table 2, an assessment is made on the relationship between the policy rate cut regressed against the quarterly Sharīʿah-compliant financing provided by Islamic banks between 1Q20 and 4Q20. Controlling for the country effect, the result shows a statistically significant positive relationship between the two variables. A similar outcome is obtained across all the other regression model specifications in Table 2 to indicate the effectiveness of the policy rate cut measure. A lower, but nonetheless statistical, significance is observed when the stringency index is added to the model in spec 5 to control for the containment measures imposed on the real economy at about the same time the policy rate cut announcement was at a peak.

Although the policy rate cut has generally proven effective in jurisdictions, as indicated by the regression results, its use also has limitations. For instance, it cannot be lowered beyond the point where the cost of holding cash is lower than that of holding reserves. Moreover, in the event that the effect from the policy rate cut is not fully passed on to the funding cost, profitability may be impaired; this may also lead to a contraction in bank financing, thus attenuating or reversing the effectiveness of the monetary policy stimulus – reversal rate.[58] In such a situation, the banks' cost-to-income (CTI) ratio would worsen due to the negative duration gap on policy rates cut. For instance, although Islamic banks could also make capital gains on their *sukuk* holdings due to maturity mismatch, the pass-through from cuts on funding expenses will occur more slowly than on margin on financing provided, due to the longer maturity of the latter.

For the jurisdictions covered in this paper, the occurrence of a higher or lower reversal rate as the policy rate cuts are maintained was influenced by a number of factors noted in the extant related literature. For instance, the Islamic banking sectors that are highly capitalised in addition to holding large longer-term assets such as *sukuk*,[59] and with a lower deposit supply elasticity,[60] also experienced a lower reversal rate from continuous implementation of the policy rate cut. A similar outcome also played out in some jurisdictions with a high reliance on retail deposits. This is due to their maintenance of a relatively higher returns on equity (ROE) during the pandemic, despite high capitalisation, especially when compared to their conventional peers.

In most jurisdictions, due to the tightening liquidity early on at the outbreak of the pandemic, conventional banks were especially able to benefit from the adjusted rates on both repo and reverse repo facilities to secure wholesale funding. The Islamic banks in some jurisdictions also benefited, as indicated in Section 2. For Islamic banks in Malaysia, for instance, a variety of collaterals are eligible for repo under the sale and

[56] A few exceptions include the Brunei Darussalam Central Bank, Da Afghanistan Bank and the Central Bank of Sudan.
[57] Ibid.
[58] "The rate at which accommodative monetary policy reverses and becomes contractionary for lending. Its determinants are (i) banks' fixed-income holdings, (ii) the strictness of capital." See M. Brunnermeier, and Y. Koby (2018). *The Reversal Interest Rate*. National Bureau of Economic Research Working Paper No. 25406. https://www.nber.org/system/files/working_papers/w25406/w25406.pdf
[59] For example, Islamic banks in Malaysia, Nigeria, Pakistan, Qatar, Saudi Arabia, Turkey and the UAE.
[60] Islamic banks in the GCC generally have a more wholesale funding structure.

buy-back agreements (SBBA) with the BNM. Another notable example is the launch of the Islamic *Ṣukūk* Liquidity Instrument (ISLI) by the CBB in 2020 to provide further options for liquidity management. ISLI allows holders of the CBB-issued Dinar-denominated *ijara sukūk* to raise liquidity against the instrument for a week.

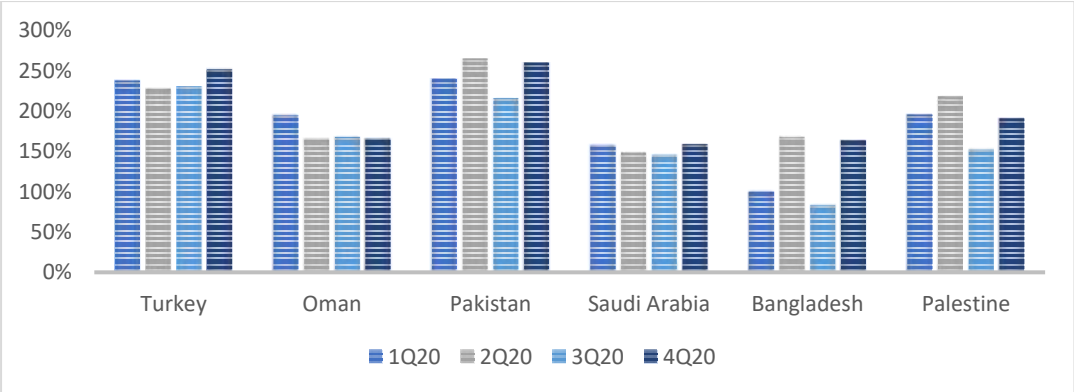
Conversely, Islamic banks in some other jurisdictions could not benefit from rate adjustments on both repo and reverse repo facilities, mainly due to the level of development of their money and repo markets[61] and to Sharī'ah-compliance issues. in Oman, for instance, the CBO reduced rates on repo facilities by 75 bps to 0.5% and their operational duration was extended to three months. These measures were reported to have created an additional USD 20.8 billion in the banking sector. However, the Islamic banks could not benefit given that there are no Islamic repo facilities with the CBO.

4.1.2 Reserve Requirement Measures

In addition to policy rate cuts, RSAs across jurisdictions where Islamic banking is practised also implemented cuts in reserve requirements with the aim of freeing up additional liquidity to the banks at the outbreak of the pandemic. In spec 2 of Table 2, cuts in both policy rates and the reserve requirements rate have a positive and statistically significant effect on the continuous provision of Sharī'ah-compliant financing by Islamic banks during the first four quarters of the pandemic. The statistical significance also improved with the addition of the fiscal policy effects. This is regardless of the intensity of the lockdown in the respective jurisdictions captured by the inclusion of the stringency index in spec 5.

Assessing the effectiveness of the reserve policy measure in terms of regulatory liquidity ratios, the IFSB PSIFIs data indicate that both the Islamic banks' LCR and NSFR are generally above the 100% threshold (see Charts 1 and 2). In general, the effectiveness of the liquidity policy measures could be hinged on the massive liquidity injection targeted at specific sectors of the economy and on the reduction in statutory reserve requirements which has released billions of dollars to the Islamic banking sectors in the various jurisdictions. This, in turn, has ensured the smooth functioning of Islamic banks in providing Sharī'ah-compliant financing to the real economy.

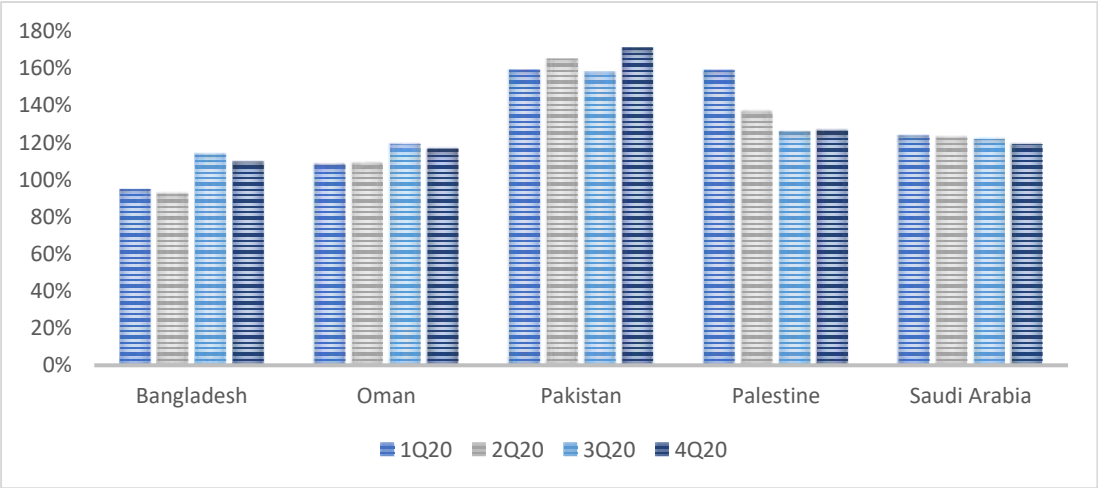
Chart 1: Liquidity Coverage Ratio for Stand-alone Islamic Banks by Country (1Q20–4Q20)



Source: PSIFIs

[61] Jordan is another example in this regard.

Chart 2: Net Stable Funding Ratio for Stand-alone Islamic Banks by Country (1Q20–4Q20)

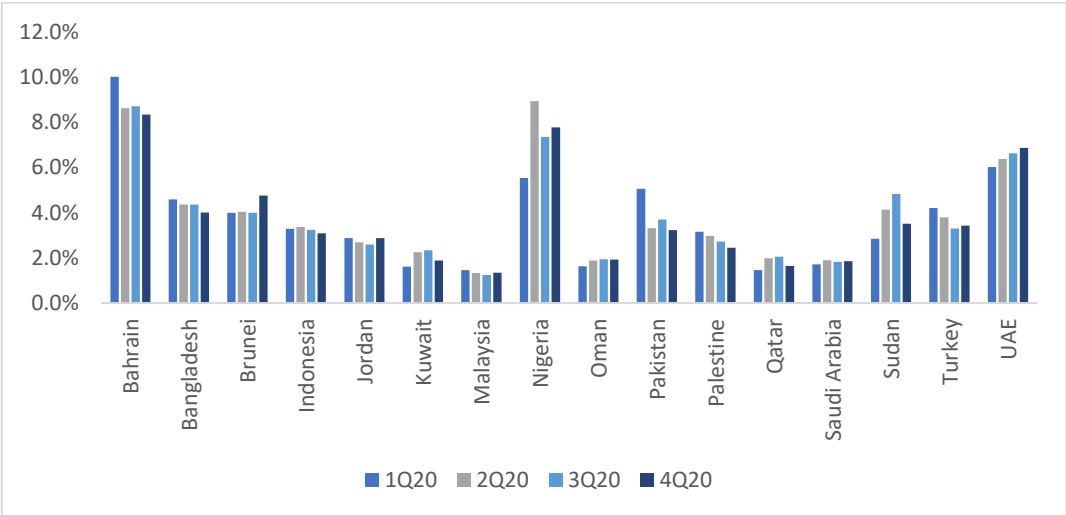


Source: PSIFIs

4.1.3 Borrower Relief Measures

In spec 3 of the regression model in Table 2, the other macrofinancial measures reflected in the forbearance measures and fee waivers were added to the equation. The result shows a negative and statistically significant relationship between the debt relief measures and Sharī'ah-compliant financing by the Islamic banks. The relationship remains negative but non-statistically significant when the fiscal policy measures and stringency index variables are added to the equation. This could perhaps be an indication that the Islamic banks have generally viewed with caution the forbearance measures for financing rescheduling, restructuring or payment moratoria allowed or extended in most of the jurisdictions, and are wary of the asset quality implications once the forbearances are suspended.

Chart 3: Islamic Banking Average Gross Non-Performing Financing to Total Financing by Country (1Q20–4Q20)



Source: PSIFIs

For now, the borrower relief policy measure seems effective vis-à-vis the intent of providing a financial breathing space to borrowers whose financing repayment capabilities could have been significantly weakened due to the pandemic. This is because the NPF measures have been kept at around their historical average in many jurisdictions (see Chart 3). That said, the short-term positive effect of the borrower relief measures should therefore be viewed alongside their likely long-term effect. The negative effect would only crystallise when the moratorium period is over and governments gradually withdraw stimulus packages. In such a situation, especially if the moratoria are prolonged, Islamic banks may be susceptible to a cliff effect manifesting in a sudden significant increase in NPFs.

As a sequel to the financing exposure of the Islamic banks to the real sector, especially the wholesale and trade, and household sectors, NPFs are expected to increase due to the impact of COVID-19 when the forbearance is suspended.[62] SMEs whose economic activities have either stopped or been restricted will struggle with maintaining operational resilience. Some may not make it back. Households that have experienced compulsory leave, pay cuts, job losses or constrained employment opportunities may also default. As such, the consequences of these factors in terms of the evolution of borrowers' creditworthiness in future will have significant implications for Islamic banks' asset quality, though the impact could also be moderated by increased provisioning recorded, especially in jurisdictions where such have been frontloaded.

4.1.4 Fiscal Policy Measures

As shown in Table 2, the effect of the fiscal policy stimulus remained positive in spec 4 when introduced into the model, and remained significant in spec 5 when the stringency index is included in the regression model. The emerging and developing economies covered in this paper also effectively utilised fiscal policy to complement the monetary policies, contrary to the expectation that they might not have been able to do so.[63]

The fiscal policy measures adopted across jurisdictions vary remarkably and include, but are not limited to, those channelled towards a term funding facility to specific sectors of the economy via a funding-for-lending programme, especially for the SMEs.[64] Other fiscal measures adopted across jurisdictions include: payroll tax relief to both households and corporates; workers' salary support; health insurance and health spending for public servants; postponement of social security contributions; cash transfer programme to poor households; etc.

The funding-for-lending measure, especially, is reported to be very effective in most of the jurisdictions covered, given that their economies are bank-based rather than market-based.[65] The extant literature provides evidence of the efficacy of such measures in economies that are mainly bank-based, where the banks have elevated

[62] IFSB (2021). *IFSI Stability Report 2021.*
[63] E. Benmelech and N. Tzur-Ilan (2020). *The Determinants of Fiscal and Monetary Policies during the COVID-19 Crisis*. NBER Working Paper Series. Working Paper 27461, http://www.nber.org/papers/w27461
[64] T. Beck, B.. Bruno and E. Carletti (2021). *When and How to Unwind COVID-19 Support Measures to the Banking System?* http://www.europarl.europa.eu/supporting-analyses
[65] C. Borio and P. Disyatat (2009). *Unconventional Monetary Policies: An Appraisal*, BIS Working Paper No. 292, November 2009 (bis.org).

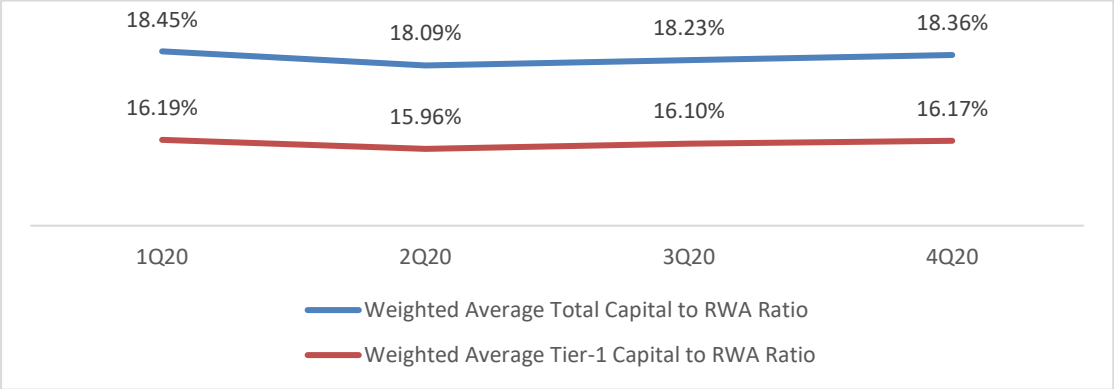
funding costs, and monetary policy transmission is intended without additional funding pressure on the banking system.[66]

The success or otherwise of such a funding-for-lending programme depends on the level of indebtedness of both the households and businesses, and whether they have more risk appetite to take on new financing, especially during periods of economic uncertainty. Given that more than two-thirds of the Sharīʻah-compliant financing of the global Islamic banking system is to SMEs, mainly in the manufacturing, retail and wholesale sector, the statistically significant positive effect of the fiscal policy measures in the regression model in Table 2 adds to the extant limited evidence on the effectiveness of funding-for-lending schemes.

4.1.5 Capital Relief Measures

Across jurisdictions, the RSAs have permitted Islamic banks to reduce their regulatory capital requirements and to use the buffers in excess of the minimum requirements. Prior to the pandemic, Islamic banks maintained regulatory capital ratios well in excess of the minimum; in most cases, they were higher than those of their conventional counterparts.[67] As shown in Chart 4, there was a slight drop in both the CAR and Tier-1 capital in 1Q20 when the pandemic broke out. However, no Islamic bank breached the threshold of 8.0% and 6.0% specified for both ratios, respectively, in the IFSB capital adequacy standard.[68] That said, the global weighted average CAR and Tier-1 capital rebounded in 2Q20 and have since remained close to their pre-pandemic levels. Charts 5 and 6 further attest to the fact that, across most jurisdictions, regulatory capital has rebounded.

Chart 4: Global Islamic Banking Average Capital Adequacy Ratios (1Q20–4Q20)[69]



Source: PSIFIs and IFSB Secretariat Workings

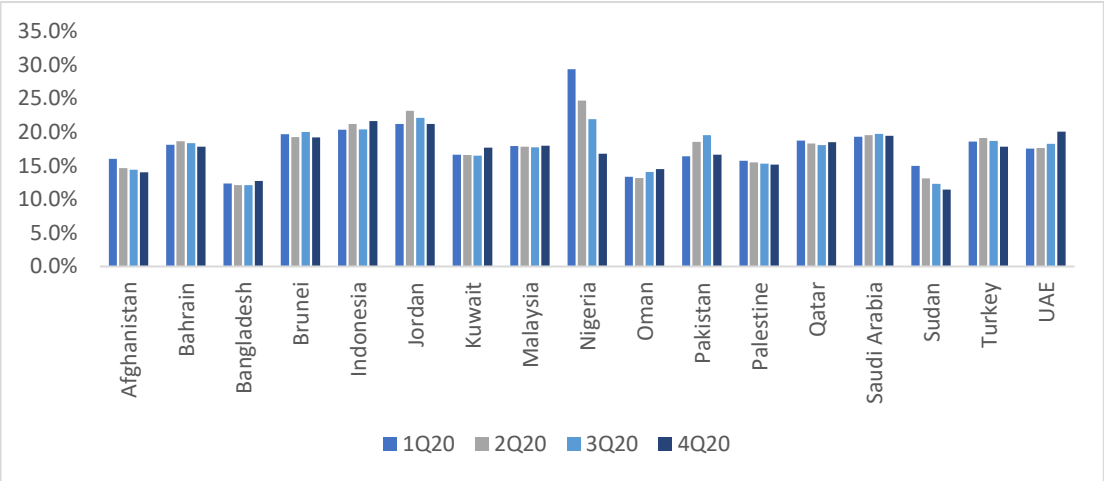
[66] S. Drought, R. Perry and A. Richardson (2018). Aspects of Implementing Unconventional Monetary Policy in New Zealand. *Reserve Bank of New Zealand Bulletin*, *81*(4), 3–22. https://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Bulletins/2018/2018may81-04.pdf

[67] *IFSI Stability Report 2021*.

[68] This is further decomposed to a minimum requirement of 6% for Tier-1 capital comprising minimum Core Equity Tier-1 capital of 4.5% plus Additional Tier-1 capital. While most jurisdictions also adopt the 6% minimum threshold for tier-capital, various minimum requirements have been set for the total regulatory capital requirements for Islamic banks – for instance: 8% in Malaysia and Palestine; 10% in Bangladesh, Nigeria and Pakistan; 12% in Afghanistan, Jordan and Turkey; 12.5% in Bahrain; and 13.5% in Oman.

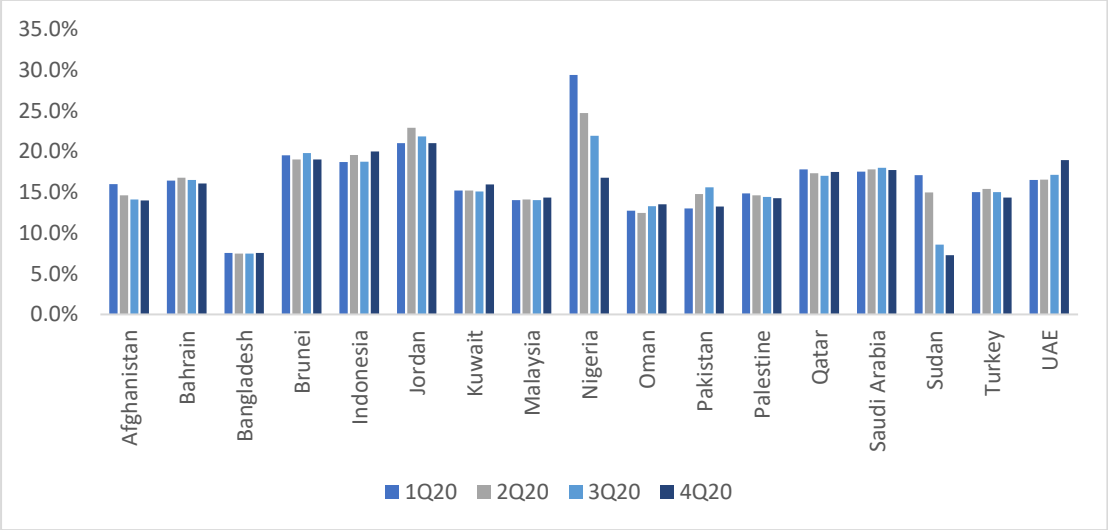
[69] Average CARs calculation excludes Iran and is based on data from 16 jurisdictions contributing to the IFSB's PSIFIs database (excluding Afghanistan, Egypt, Kuwait, Lebanon, Libya, Qatar, Sudan and the UK, due to data limitations).

Chart 5: Islamic Banking Average Total Capital Adequacy Ratio by Country (3Q19–3Q20)



Source: PSIFIs and IFSB Secretariat Workings

Chart 6: Islamic Banking Average Tier-1 Capital Adequacy Ratio by Country (1Q20–4Q20)



Source: PSIFIs and IFSB Secretariat Workings

While this positive outcome could be linked to the emergency policy responses by the RSAs – for instance, due to a reduction in credit risk weights for financing to SMEs – there are also other likely factors. For example, it could be due to the capital headroom increase recorded over the quarters since the pandemic broke out and the pre-pandemic high levels of the regulatory ratios. In this case, the post-GFC banking reforms have provided the intended level of resilience. However, it could also be argued that, absent the fiscal and monetary policy support, would the Islamic banks have used the flexibility embedded within the regulatory standards?

Although the regulatory capital increased with time during the pandemic, there was no evidence to support the expectation that adequate capital and an excess buffer had any positive impact on the financing behaviour of Islamic banks during the pandemic. As stated in the literature, plausible reasons for the unlikely use of capital buffers was

their negative signalling effect, which may derive from the market's view that use of a buffer is an indication of weakness with likely negative implications for cost of funding, credit rating and market valuation.

Other reasons included the high reliance on regulatory capital prior to the outbreak of the pandemic, perhaps as a strategy to avoid supervisory scrutiny,[70] as well as the uncertainty surrounding the course and duration of the pandemic. Also, rebuilding capital buffers may be costlier in future, especially if the regulator directs that they are returned to their pre-pandemic levels over a short-time period.[71] Similarly, not all RSAs across jurisdictions provided policy statements on the utilisation of buffers and a timeline for utilising the flexibility embedded in the regulatory requirement. The uncertainty arising therefrom could have prevented the use of such capital buffers. The implications may be severe where there is no credible restoration plan, especially if the pandemic is prolonged, NPFs increase and the value of collateralised assets deteriorates.[72]

Even in the conventional banking space, where there are global systemically important banks (GSIBs) and domestic systemically important banks (D-SIBs), the post-GFC capital buffer framework has not been tested. Perhaps as the expected credit losses crystallise when forbearance measures are unwound, there may be more evidence of the use of capital buffers. As such, the findings reported here are only indicative, rather than inferential.

4.1.6 Pre-Pandemic Level of Regulatory Ratios and Sharia'h-Compliant Financing

As stated earlier in this paper, there is a challenge in disentangling the effectiveness of the COVID-19 policy measures from the effects of banks' other characteristics,[73] especially given the high level of the former at the outbreak of the pandemic. Tables 3 to 8 in the appendix show the results of the other panel regression analyses conducted in this paper across various specifications. It consists of four columns. Columns 1 and 3 comprise various interacting variables (created from regulatory capital, liquidity and leverage ratios in 1Q19 and 4Q19; and quarterly time dummies from 4Q19 to 4Q20) taking into consideration other control variables mentioned in the methodology section. Columns 2 and 4 exclude the control variables.

4.1.6.1 Impact of regulatory capital and capital headroom on Shari'ah-compliant financing

In columns 2 and 4 of Tables 3, 4 and 5, the results indicate that those Islamic banking sectors with higher CARs, Tier-1 capital ratios and regulatory capital headroom provided more financing during the pandemic, given the positive association and statistical significance of the interaction terms. When the control variables are included in the model, as shown in columns 1 and 3 of Tables 3, 4, and 5, the positive association remains robust except that the statistical significance is attenuated, especially early on in the pandemic. This notwithstanding, the results obtained from the various model specifications indicate that the Islamic banks' strong pre-pandemic

[70] Beck et al. (2021).
[71] BCBS (2021).
[72] Depleted buffers may slow the recovery or undermine the stability of Islamic banks during the later stages of the crisis, especially if it is prolonged. See Drehmann et al. (2020).
[73] BCBS (2021).

capital levels and headroom in excess of the regulatory capital requirements also complemented the various COVID-19 policy measures to ensure that financing facilities are extended to both households and corporates during the pandemic.

4.1.6.2 Impact of leverage ratio on Shari'ah-compliant financing

As observed in columns 2 and 4 of Table 6, for the leverage ratio, the coefficient of the interaction terms increased with time during the pandemic period. However, the statistical significance of the coefficients weakened as control variables are added to the model specifications (columns 1 and 3), especially earlier on during the pandemic. Unlike in the case of the regulatory capital ratio, where the coefficients weakened as the control variables are introduced into the model specifications, those of the leverage ratio remained strong. Notwithstanding the fact that Islamic banking across jurisdictions is less prone to engaging in high-leverage products, due to its focus on the real economy and Sharīʿah restrictions, the positive and significant association of their leverage interaction term indicates no evidence of deleveraging during the pandemic.

4.1.6.3 Impact of liquidity ratios on Shari'ah-compliant financing

Only a few IFSB member jurisdictions that have commenced implementation of Basel III have also been reporting both their LCR and NSFR to the IFSB PSIFIs database. As such, two other indicators are considered in this working paper: the financing-to-deposit ratio (FDR) and the liquid assets to short-term liabilities ratio (LASLR).

As indicated in Tables 7 and 8 (columns 2 and 4), there is a statistically significant relationship between the interaction terms of both the FDR and the LASLR, and the Sharīʿah-compliant financing of the Islamic banking sector during the pandemic. The strength of the relationship improved with time and remained statistically significant even when the base quarter is changed from 1Q19 to 4Q19. The model specification remains largely positive and significant pre- and post-COVID-19 pandemic when the FDR is used as the interaction variable with or without the various macrofinancial and macroeconomic control variables used in the analyses. The results obtained from the LASLR model specification also indicate that the statistical significance of the interaction terms weakened in 4Q20 when the control variables are added to the model.

SECTION 5: CONCLUSION AND RECOMMENDATIONS

Islamic banks entered this COVID-19 induced financial crisis relatively better capitalised, more profitable and more liquid than when the GFC occurred just over a decade ago. Nonetheless, the pandemic is the first major test of the resilience of the Islamic banking sector, especially in terms of how well it continues to support the real economy during this challenging time of COVID-19.

This working paper contributes to the extant literature on the effect of the pandemic by conducting empirical analysis to assess the resilience of the Islamic banking segments in some IFSB member jurisdictions during the pandemic. The analysis is based on the use of aggregated data available in the IFSB Prudential and Structural Islamic Financial Indicators (PSIFIs) to assess to what extent Islamic banks support other fiscal and monetary policies by providing financing to both households and corporates. The findings are very indicative, rather than conclusive, given (among other reasons) the fact that the COVID-19 pandemic is still unfolding in terms of the nature and extent of its effect on economies.[74]

In the interim, repayment moratoria have generally proven to be an effective measure in the short term. However, the fact that non-performing financing across jurisdictions remains around a manageable range should be viewed with caution, as it implies a contraction in the cost of risk. Asset quality deterioration, and a likely consequential increase in expected credit losses, have been masked by forbearance measures put in place across jurisdictions. In this regard, once the deferral period is over, Islamic banks are expected to assess the peculiar financial circumstances of both their retail and corporate customers and proactively offer them the best possible credit recovery strategies.

The cuts in both reserve requirement and policy rates have helped to improve liquidity and reduce borrowing costs, respectively. That said, excessive private-sector leverage could result, due to an increase in both households' and corporates' indebtedness – a usual aftermath of monetary easing. In jurisdictions with a pre-pandemic high private-sector debt-to-GDP ratio, such excessive private-sector leverage beyond a certain threshold could create macroeconomic instability based on the well-documented evidence in the extant literature of an inverted-U function relationship between credit boom and economic growth.[75]

Furthermore, continuous policy rate cuts could also amplify zombie lending, in which case non-viable firms have a greater role in an economy than otherwise would have been the case. Such zombification not only can potentially affect economic growth, but may also trigger financial instability in the event that the likely consequential default results in significant losses.[76]

Regulatory capital relief, liquidity provisions and credit guarantees have also generally proven to be effective, in many instances, in providing temporary relief to Islamic banks from liquidity, as well as regulatory capital requirement, pressures. For instance,

[74] A new variant, Omicron, identified in November 2021, has brought about a further wave of the COVID-19 pandemic and necessitated new travel restrictions across countries.
[75] S. G. Cecchetti and E. Kharroubi (2012). *Reassessing the Impact of Finance on Growth*. BIS Working Paper No. 381. https://www.bis.org/publ/work381.pdf
[76] Beck et al. (2021).

dividend restrictions, and reduced risk-weighted assets due to risk shifting to government guarantees, have helped to ensure a rebound in regulatory capital ratios. However, the effectiveness of the capital relief measures can also be contested given the non-use of the excess regulatory buffers by Islamic banks despite that financing having increased seven-fold during the pandemic. This presents interesting issues that need further investigation vis-à-vis the provisions in the related IFSB standards.[77]

Fiscal policy interventions have been found to be positively associated with providing financial breathing space to both households and businesses, and also the needed incentives to Islamic banks to continue to provide Sharī'ah-compliant financing during the pandemic. That said, slower economic recovery or further weakening of macroeconomic conditions could result in the emergence of fiscal vulnerabilities in some countries that have increased their debt levels amid the pandemic and have limited fiscal space to support a slow recovery. This could, in turn, create challenges for the financial stability and resilience of Islamic banks in such jurisdictions.

The extent of fiscal intervention could also create a benign loop between corporates, banks and the sovereign[78] – for example, where the Islamic banks actively participate in sovereign *suku*k – and also provide the requisite platform to support governments' economic recovery initiatives. This could exacerbate Islamic banks' exposure to sovereign risk where both corporate health and banks' funding depend on continuous government support and funding, respectively. Financial instability implications may be amplified, especially if the sovereign reserves experience some form of stress and depletion, or corporate defaults increase due to a prolonged and challenging economic condition.

Generally, a positive statistically significant relationship is observed in the coefficient of the interaction terms of the regulatory ratios and the Sharī'ah-compliant financing provided by Islamic banks during the period. This finding is consistent with a number of extant studies which document that the build-up of regulatory capital and liquidity levels post the GFC helped Islamic banks to continue to support economic activities and to cope with the large drawdowns that occurred during the initial period of the pandemic.[79]

Although Islamic banks, due to Shari'ah restrictions and the focus on the real economy, rarely focus on high-leverage products, they generally maintain comfortable leverage ratios. The leverage ratio interaction term has positive and significant coefficients when regressed on financing provided by Islamic banks during the pandemic. The outcome also improved with time and remained consistent even when different model specifications were tested and the control variables were added to the model.

Other than the short-lived initial volatility experienced in the stock market in March 2020, the strong Islamic banking liquidity position pre-COVID-19 and the various liquidity injections in many jurisdictions have yielded positive outcomes in most cases. The coefficient of the interaction terms of both the FDR and LASLR are positive and

[77] Beck et al. (2021) provides plausible reasons for the limited use or non-utilisation of regulatory buffers.
[78] Isabel Schnabel (2021). The Sovereign-Bank-Corporate Nexus – Virtuous or Vicious? (europa.eu). Speech delivered at the LSE conference on "Financial Cycles, Risk, Macroeconomic Causes and Consequences", 28 January.
[79] Abboud et al. (2021).

statistically significant during the pandemic. Various model specifications did not affect the statistical significance of the FDR interaction variable, but that of the LASLR weakened as more control variables are added to the model.

Overall, it could be argued that Islamic banks have shown resilience by continuing to provide financing to the real economy despite the challenging COVID-19 situation, However, the extent to which the findings support the argument for the resilience of the Islamic banking sector is constrained by one of the methodological limitations in the paper: the fact that the models could not control for changes in financing demand at the institutions level. Moreover, despite introducing country and time effects into the regression models, it is difficult to discount the effects of the various fiscal supports and guarantee programmes, and of the relaxation of the various prudential requirements to prevent procyclicality.

Across most of the jurisdictions covered in this paper, a comprehensive COVID-19 vaccine roll-out programme is ongoing and socioeconomic activities are gradually resuming. Both monetary and fiscal policy supports have either been or will be suspended, amended or extended, depending on jurisdictional peculiarities.[80] What is not clear is to what extent the Islamic banking sector will remain resilient once the policy support measures are completely phased out. The International Monetary Fund has advised that the benefits of the policy support measures should be considered in terms of their potential medium-term risks,[81] especially for financial stability. That said, designing and implementing an exit strategy should reflect consideration of the interaction between and among the various policy measures, as well as achieving a fine balance between ensuring economic recovery and avoiding systemic risks in the financial system.

Based on the indicative outcome of the analysis conducted in this paper, a starting point would be to phase out the borrower relief measures such as repayment moratoria and loans re-classification. While such relief has been effective in granting breathing space to borrowers in terms of repayment pressure, it is not significantly associated with extending Sharīʿah-compliant financing by Islamic banks. Moreover, from a financial stability perspective, its gradual phasing out as currently being practised across jurisdictions would help in terms of unveiling the real effect of the pandemic on asset quality impairment, ensuring commensurate provisioning[82] and enhancing supervisory monitoring. The consequential balance sheet transparency would also help to strengthen market discipline, especially from the perspective of investors.[83]

Depending on how significant is the increase in credit risk following the suspension of borrower relief measures, the next possible relief measure that could be phased out (based on the analysis in this paper) is the cuts in both policy rates and reserve requirements. This is because, when prolonged, the consequential excessive credit

[80] A high dispersion is reported in terms of economic losses across jurisdictions, thus reflecting the relative intensity of the pandemic and the diversity of policy responses. See P. Rungcharoenkitkul (2021). *Macroeconomic Effects of Covid-19: A Mid-Term Review*. BIS Working Papers No. 959.
[81] IMF (2020). *Global Financial Stability Report*, Washington, D.C., October.
[82] This is because the Islamic banks will be able to incorporate forward-looking information into the measurement of their ECL as per IFRS 9.
[83] Beck et al. (2021).

growth and reduced financial pressure due to lower borrowing rates can heighten systemic risk and increase susceptibility to the negative effect of zombification.[84]

The next phase of the exit strategy may then focus on the various regulatory capital and liquidity relief measures. This is hinged on the fact that a positive rebound was recorded in both regulatory capital and liquidity ratios after the slight decline recorded in 2Q20. These ratios, which are now around their pre-pandemic levels, are also well above both the IFSB and national thresholds reflected in the increasing, yet underutilised, headroom. However, there is also a need for a jurisdiction-specific, comprehensive and realistic capital restoration plan in the event that NPFs build and the value of collateralised assets deteriorates if the pandemic is prolonged. In such a situation, depleted buffers may slow the recovery or undermine the stability of the Islamic banks during the recovery stages of the crisis.[85]

Depending on the fiscal space in a jurisdiction, related fiscal support should be the last measure to be phased out. The various fiscal measures introduced across jurisdictions at the outbreak of the pandemic have provided significant positive complements to the monetary and prudential policies. Although extending support measures would drain fiscal resources, the cost of an early withdrawal prior to attaining a stable economic situation could be higher.[86] Such a withdrawal may also trigger financial stability issues in the event that the pandemic persists, the economy weakens, and asset quality deteriorates, thus leading to a loop effect as highlighted earlier in this paper.

[84] R. Banerjee and B. Hofmann (2018). The Rise of Zombie Firms: Causes and Consequences. *Bank for International Settlements Quarterly Review* (September), pp. 67–78.
[85] Drehmann et al. (2020).
[86] FSB (2021). COVID-19 Support Measures: Extending, Amending, and Ending. https://www.fsb.org/wp-content/uploads/P060421-2.pdf

APPENDIX

Table 1: Descriptive Statistics for Equations 1 and 2

Variable	Mean	SD	Min	Max
SCF (USD' 000)	51,424	78,307	113.32	309,097
FPM (%)	2.45	4.09	-5.00	16.22
PRM (%)	27.95	26.14	-39.50	63.49
RRM (%)	21.76	19.23	0.00	76.36
BRM (%)	5.86	2.25	0.00	29.97
Total Assets USD (bln)	7.60e+004	1.09e+005	482.	4.27e+005
Return on Assets (ROA)	0.0133	0.00981	-0.0101	0.0319
Capital Adequacy Ratio (CAR)	0.174	0.0299	0.121	0.225
Tier 1 Cap	0.156	0.0388	0.0756	0.221
Financing-to-Deposit Ratio (FDR)	1.38	2.82	0.249	13.0
Leverage	0.0865	0.0296	0.0408	0.135
Cumulative Financing Growth_1Q19	1.10	0.129	0.890	1.44
Cumulative Financing Growth_4Q19	1.02	0.0890	0.883	1.22
Quarterly Financing Growth	1.03	0.0503	0.934	1.15
RWA/Total Asset	2.77	8.98	0.205	37.4
Deposit/Total Asset	0.791	0.285	0.0343	1.37
Capital Headroom	0.0935	0.0299	0.0409	0.145
Non-Performing Financing (NPF)	0.0325	0.0165	0.0133	0.0690
Liquid Assets to Short Term Liabilities Ratio	0.668	0.387	0.179	1.49
Real Gross Domestic Product	0.00224	0.0346	-0.115	0.0815
log_Total Asset	10.0	1.91	6.18	13.0

Table 3: Results of Panel Data Analysis – Impact of Total Capital (CAR) on Shari'ah-Compliant Financing

Dependent Variable	**Cumulative Growth of Shari'ah-Compliant Financing (Spec. 1)**				
2019-Q1	(1)	(2)	2019-Q4	(3)	(4)
Constant	-4.7404 (0.6149)***	0.0237 (0.0120)*	Constant	-4.6444 (0.9285)***	-0.0453 (0.0132)***
$CAR_{2019\text{-}Q1}$*2019-Q4	0.0293 (0.0159)*	0.0626 (0.0155)***	$CAR_{2019\text{-}Q4}$*2019-Q4	0.0209 (0.0138)	0.0500 (0.0124)***
$CAR_{2019\text{-}Q1}$*2020-Q1	0.0385 (0.0153)**	0.0617 (0.0193)***	$CAR_{2019\text{-}Q4}$*2020-Q1	0.0250 (0.0165)	0.0467 (0.0174)***
$CAR_{2019\text{-}Q1}$*2020-Q2	0.0567 (0.0198)**	0.0988 (0.0197)***	$CAR_{2019\text{-}Q4}$*2020-Q2	0.0475 (0.0197)**	0.0870 (0.0193)***
$CAR_{2019\text{-}Q1}$*2020-Q3	0.0589 (0.0273)**	0.1215 (0.0241)***	$CAR_{2019\text{-}Q4}$*2020-Q3	0.0642 (0.0253)**	0.1263 (0.0222)***
$CAR_{2019\text{-}Q1}$*2020-Q4	0.0611 (0.0297)*	0.1574 (0.0260)***	$CAR_{2019\text{-}Q4}$*2020-Q4	0.0637 (0.0254)**	0.1544 (0.0247)***
CAR_{t-1}*$COVID_t$					
CAR_{t-1}					
Bank Controls	YES	NO	Bank Controls	YES	NO
Macroeconomic Controls	YES	NO	Macroeconomic Controls	YES	NO
Breusch-Pagan LM Test	117.86 (0.0000)***	210.62 (0.0000)***	Breusch-Pagan LM Test	16.9615 (0.0000)***	23.0565 (0.0000)***
Hausman Test	95.6802 (0.0000)***	23.7403 (0.0000)***	Hausman Test	92.37 (0.0000)***	6.5508 (0.16161)
F-Test (Model)	32.4065 (0.0000)***	9.7169 (0.0000)***	F-Test (Model)	29.0009 (0.0000)***	44.7737 (0.0000)***
R^2 (LSDV for Fixed Effect)	0.8674	0.7893	R^2 (LSDV for Fixed Effect)	0.7963	N/A
Hetero (χ^2 – stat)	8383.65 (0.0000)***	576.30 (0.0000)***	Hetero (χ^2 – stat)	2832.82 (0.0000)***	N/A
Serial Correlation (t-stat)	8.7990 (0.0096)***	6.4438 (0.0227)**	Serial Correlation (t-stat)	3.0411 (0.101)*	10.8382 (0.0049)***
Observations	128	128	Observations	128	128

Source: Author's computation based on data from the IFSB PSIFIs.

Figures in parentheses are t-statistics, except for the Breusch-Pagan LM Test, F-Test, Hausman Test, Hetero and Serial Correlation, which are p-values. Where indicated as N/A (not applicable), the null hypothesis of the adequacy of the pooled OLS model could not be rejected due to a high p-value. For the Random Effect model, the Chi-square joint test on named regressors is used in lieu of the F-Test. N/A implies the figure is not available in either the OLS or Random Effect model. Statistical significance: *<0.10, **<0.05, and ***<0.01.

Table 4: Results of Panel Data Analysis – Impact of Tier-1 Capital Ratio on Shari'ah-Compliant Financing

Dependent Variable	**Cumulative Growth of Shari'ah-Compliant Financing (Spec. 1)**				
2019-Q1	(1)	(2)	2019-Q4	(3)	(4)
Constant	-4.7304 (0.6149)***	0.0244 (0.0110)*	Constant	-4.8834 (0.9082)***	-0.0428 (0.0133)***
$T1\_C_{2019\text{-}Q1}$*2019-Q4	0.0295 (0.0153)*	0.0631 (0.0153)***	$T1\_C_{2019\text{-}Q4}$*2019-Q4	0.0178 (0.0133)	0.0475 (0.0121)***
$T1\_C_{2019\text{-}Q1}$*2020-Q1	0.0351 (0.0118)***	0.0575 (0.0167)***	$T1\_C_{2019\text{-}Q4}$*2020-Q1	0.0179 (0.0117)	0.0427 (0.0140)***
$T1\_C_{2019\text{-}Q1}$*2020-Q2	0.0525 (0.0158)***	0.0936 (0.0174)***	$T1\_C_{2019\text{-}Q4}$*2020-Q2	0.0359 (0.0139)**	0.0771 (0.0162)***
$T1\_C_{2019\text{-}Q1}$*2020-Q3	0.0583 (0.0245)**	0.1216 (0.0227)***	$T1\_C_{2019\text{-}Q4}$*2020-Q3	0.0522 (0.0196)**	0.1116 (0.0210)***
$T1\_C_{2019\text{-}Q1}$*2020-Q4	0.0606 (0.0260)^*	0.1572 (0.0256)***	$T1\_C_{2019\text{-}Q4}$*2020-Q4	0.0494 (0.0215)**	0.1395 (0.0260)***
$T1\_C_{t-1}$*$COVID_t$					
$T1\_C_{t-1}$					
Bank Controls	YES	NO	Bank Controls	YES	NO
Macroeconomic Controls	YES	NO	Macroeconomic Controls	YES	NO
Breusch-Pagan LM Test	116.271 (0.0000)***	206.944 (0.0000)***	Breusch-Pagan LM Test	6.7638 (0.0093)***	10.2958 (0.0013)***
Hausman Test	82.6132 (0.0000)***	14.9291 (0.0106)***	Hausman Test	101.831 (0.0000)***	3.5779 (0.4661)
F-Test (Model)	36.3943 (0.0000)***	10.0636 (0.0000)***	F-Test (Model)	29.0009 (0.0000)***	35.175 (0.0000)***
R^2 (LSDV for Fixed Effect)	0.8680	0.7893	R^2 (LSDV for Fixed Effect)	0.7963	N/A
Hetero (χ^2 – stat)	5993.02 (0.0000)***	695.143 (0.0000)***	Hetero (χ^2 – stat)	2032.41 (0.0000)***	N/A
Serial Correlation (t-stat)	8.4489 (0.0108)***	6.5104 (0.0221)**	Serial Correlation (t-stat)	2.5187 (0.1333)	10.8885 (0.0049)***
Observations	128	128	Observations	128	128

Source: Author's computation based on data from the IFSB PSIFIs.

Figures in parentheses are t-statistics, except for the Breusch-Pagan LM Test, F-Test, Hausman Test, Hetero and Serial Correlation, which are p-values. Where indicated as N/A (not applicable), the null hypothesis of the adequacy of the pooled OLS model could not be rejected due to a high p-value. For the Random Effect model, the Chi-square joint test on named regressors is used in lieu of the F-Test. N/A implies the figure is not available in either the OLS or Random Effect model. Statistical significance: *<0.10, **<0.05, and ***<0.01.

Table 5: Results of Panel Data Analysis – Impact of Capital Adequacy Ratio Headroom on Shari'ah-Compliant Financing

Dependent Variable	Cumulative Growth of Shari'ah-Compliant Financing (Spec. 1)				
2019-Q1	(1)	(2)	2019-Q4	(3)	(4)
Constant	-5.1293 (0.8938)***	0.0290 (0.0134)**	Constant	-5.0336 (0.8604)***	-0.0388 (0.0128)***
$CHDRM_{2019\text{-}Q1}$*2019-Q4	0.0246 (0.0159)	0.0545 (0.0154)***	$CHDRM_{2019\text{-}Q4}$*2019-Q4	0.0167 (0.0128)	0.0435 (0.0116)***
$CHDRM_{2019\text{-}Q1}$*2020-Q1	0.0280 (0.0144)*	0.0518 (0.0188)**	$CHDRM_{2019\text{-}Q4}$*2020-Q1	0.0173 (0.0130)	0.0406 (0.0152)***
$CHDRM_{2019\text{-}Q1}$*2020-Q2	0.0436 (0.0200)**	0.0870 (0.0215)***	$CHDRM_{2019\text{-}Q4}$*2020-Q2	0.0359 (0.0159)**	0.0757 (0.0170)***
$CHDRM_{2019\text{-}Q1}$*2020-Q3	0.0422 (0.0272)	0.1056 (0.0265)***	$CHDRM_{2019\text{-}Q4}$*2020-Q3	0.0465 (0.0215)**	0.1071 (0.0216)***
$CHDRM_{2019\text{-}Q1}$*2020-Q4	0.0441 (0.0313)	0.1433 (0.0280)***	$CHDRM_{2019\text{-}Q4}$*2020-Q4	0.0461 (0.0191)**	0.1296 (0.0263)***
$CHDRM_{t-1}$*$COVID_t$					
$CHDRM_{t-1}$					
Bank Controls	YES	NO	Bank Controls	YES	NO
Macroeconomic Controls	YES	NO	Macroeconomic Controls	YES	NO
Breusch-Pagan LM Test	107.406 (0.0000)***	195.459 (0.0000)***	Breusch-Pagan LM Test	7.0687 (0.0078)***	10.6658 (0.0011)***
Hausman Test	122.133 (0.0000)***	37.0466 (0.0106)***	Hausman Test	117.02 (0.0000)***	4.7301 (0.3161)
F-Test (Model)	45.4029 (0.0000)***	7.8093 (0.0009)***	F-Test (Model)	26.2154 (0.0000)***	34.282 (0.0000)***
R^2 (LSDV for Fixed Effect)	0.8621	0.7627	R^2 (LSDV for Fixed Effect)	0.7892	N/A
Hetero (χ^2 – stat)	21459.05 (0.0000)***	988.207 (0.0000)***	Hetero (χ^2 – stat)	2224.61 (0.0000)***	N/A
Serial Correlation (t-stat)	9.4144 (0.0078)***	7.6926 (0.0142)**	Serial Correlation (t-stat)	2.9938 (0.1041)*	12.5334 (0.0030)***
Observations	128	128	Observations	128	128

Source: Author's computation based on data from the IFSB PSIFIs.

Figures in parentheses are t-statistics, except for the Breusch-Pagan LM Test, F-Test, Hausman Test, Hetero and Serial Correlation, which are p-values. Where indicated as N/A (not applicable), the null hypothesis of the adequacy of the pooled OLS model could not be rejected due to a high p-value. For the Random Effect model, the Chi-square joint test on named regressors is used in lieu of the F-Test. N/A implies the figure is not available in either the OLS or Random Effect model. Statistical significance: *<0.10, **<0.05, and ***<0.01.

Table 6: Results of Panel Data Analysis – Impact of Leverage Ratio on Shari'ah-Compliant Financing

Dependent Variable	**Cumulative Growth of Shari'ah-Compliant Financing (Spec. 1)**				
2019-Q1	(1)	(2)	2019-Q4	(3)	(4)
Constant	-4.7395 (0.9957)***	0.0246 (0.0104**	Constant	-4.8914 (1.0184)***	-0.0428 (0.0133)***
$LEV_{2019\text{-}Q1}$*2019-Q4	0.0299 (0.0154)*	0.0645 (0.0139)***	$LEV_{2019\text{-}Q4}$*2019-Q4	0.0175 (0.0141)	0.0475 (0.0121)***
$LEV_{2019\text{-}Q1}$*2020-Q1	0.0392 (0.0124)***	0.0609 (0.0169)***	$LEV_{2019\text{-}Q4}$*2020-Q1	0.0199 (0.0158)	0.0427 (0.0140)***
$LEV_{2019\text{-}Q1}$*2020-Q2	0.0586 (0.0153)***	0.0998 (0.0174)***	$LEV_{2019\text{-}Q4}$*2020-Q2	0.0406 (0.0187)**	0.0771 (0.0162)***
$LEV_{2019\text{-}Q1}$*2020-Q3	0.0675 (0.0237)**	0.1323 (0.0234)***	$LEV_{2019\text{-}Q4}$*2020-Q3	0.0619 (0.0236)**	0.1116 (0.0210)***
$LEV_{2019\text{-}Q1}$*2020-Q4	0.0682 (0.0245)**	0.1654 (0.0269)***	$LEV_{2019\text{-}Q4}$*2020-Q4	0.0562 (0.0276)*	0.1395 (0.0260)***
LEV_{t-1}*$COVID_t$					
LEV_{t-1}					
Bank Controls	YES	NO	Bank Controls	YES	NO
Macroeconomic controls	YES	NO	Macroeconomic Controls	YES	NO
Breusch-Pagan LM Test	118.506 (0.0000)***	203.615 (0.0000)***	Breusch-Pagan LM Test	22.4712 (0.0093)***	31.6958 (0.0000)***
Hausman Test	117.423 (0.0000)***	29.4577 (0.0106)***	Hausman Test	100.616 (0.0000)***	2.7730 (0.5965)
F-Test (Model)	43.9937 (0.0000)***	10.7592 (0.0000)***	F-Test (Model)	33.521 (0.0000)***	42.523 (0.0000)***
R^2 (LSDV for Fixed Effect)	0.8718	0.7859	R^2 (LSDV for Fixed Effect)	0.7892	N/A
Hetero (χ^2 – stat)	2221.5 (0.0000)***	457.14 (0.0000)***	Hetero (χ^2 – stat)	2691.36 (0.0000)***	N/A
Serial Correlation (t-stat)	8.1644 (0.0120)***	5.7270 (0.0302)**	Serial Correlation (t-stat)	2.9105 (0.1086)	9.4813 (0.0076)***
Observations	128	128	Observations	128	128

Source: Author's computation based on data from the IFSB PSIFIs.

Figures in parentheses are t-statistics, except for the Breusch-Pagan LM Test, F-Test, Hausman Test, Hetero and Serial Correlation, which are p-values. Where indicated as N/A (not applicable), the null hypothesis of the adequacy of the pooled OLS model could not be rejected due to a high p-value. For the Random Effect model, the Chi-square joint test on named regressors is used in lieu of the F-Test. N/A implies the figure is not available in either the OLS or Random Effect model. Statistical significance: *<0.10, **<0.05, and ***<0.01.

Table 7: Results of Panel Data Analysis – Impact of Financing-to-Deposit Ratio (FDR) on Shari'ah-Compliant Financing

Dependent Variable	**Cumulative Growth of Shari'ah-Compliant Financing (Spec. 1)**				
2019-Q1	(1)	(2)	2019-Q4	(3)	(4)
Constant	-4.3662 (0.9536)***	0.0209 (0.0126)*	Constant	0.0014 (0.0401)	-0.0428 (0.0133)***
$FDR_{2019\text{-}Q1}$*2019-Q4	0.0395 (0.0153)**	0.0721 (0.0156)***	$FDR_{2019\text{-}Q4}$*2019-Q4	0.0144 (0.0140)	0.0475 (0.0121)***
$FDR_{2019\text{-}Q1}$*2020-Q1	0.0511 (0.0160)***	0.0670 (0.0192)***	$FDR_{2019\text{-}Q4}$*2020-Q1	0.0026 (0.0003)***	0.0427 (0.0140)***
$FDR_{2019\text{-}Q1}$*2020-Q2	0.0721 (0.0186)***	0.1084 (0.0172)***	$FDR_{2019\text{-}Q4}$*2020-Q2	0.0028 (0.0004)***	0.0771 (0.0162)***
$FDR_{2019\text{-}Q1}$*2020-Q3	0.0796 (0.0249)***	0.1361 (0.0203)***	$FDR_{2019\text{-}Q4}$*2020-Q3	0.0032 (0.0005)***	0.1116 (0.0210)***
$FDR_{2019\text{-}Q1}$*2020-Q4	0.0831 (0.0272)***	0.1670 (0.0234)***	$FDR_{2019\text{-}Q4}$*2020-Q4	0.0038 (0.0006)***	0.1395 (0.0260)***
FDR_{t-1}*$COVID_t$					
FDR_{t-1}					
Bank Controls	YES	NO	Bank Controls	YES	NO
Macroeconomic Controls	YES	NO	Macroeconomic Controls	YES	NO
Breusch-Pagan LM Test	117.939 (0.0000)***	200.675 (0.0000)***	Breusch-Pagan LM Test	0.2897 (0.5904)	0.1066 (0.7441)
Hausman Test	74.9486 (0.0000)***	6.1338 (0.2934)	Hausman Test	N/A	N/A
F-Test (Model)	41.517 (0.0000)***	10.0636 (0.0000)***	F-Test (Model)	193.9854 (0.0000)***	566.2870 (0.0000)***
R^2 (LSDV for Fixed Effect)	0.8798	N/A	R^2 (LSDV for Fixed Effect)	0.2294	0.1200
Hetero (χ^2 – stat)	2264.59 (0.0000)***	N/A	Hetero (χ^2 – stat)	231.778 (0.0000)***	177.015 (0.0000)***
Serial Correlation (t-stat)	8.4187 (0.0110)***	6.0356 (0.0267)**	Serial Correlation (t-stat)	8.0852 (0.0000)***	8.7388 (0.0049)***
Observations	128	128	Observations	128	128

Source: Author's computation based on data from the IFSB PSIFIs.

Figures in parentheses are t-statistics, except for the Breusch-Pagan LM Test, F-Test, Hausman Test, Hetero and Serial Correlation, which are p-values. Where indicated as N/A (not applicable), the null hypothesis of the adequacy of the pooled OLS model could not be rejected due to a high p-value. For the Random Effect model, the Chi-square joint test on named regressors is used in lieu of the F-Test. N/A implies the figure is not available in either the OLS or Random Effect model. Statistical significance: *<.10, **<0.05, and ***<0.01.

Table 8: Results of Panel Data Analysis – Impact of Liquid Assets-to-Short-Term Liabilities (LASLR) on Shari'ah-Compliant Financing

Dependent Variable	Cumulative Growth of Shari'ah-Compliant Financing (Spec. 1)				
2019-Q1	(1)	(2)	2019-Q4	(3)	(4)
Constant	-5.1537 (1.0954)***	0.0295 (0.0120)**	Constant	-4.2905 (0.9952)***	-0.0469 (0.0106)***
$LASLR_{2019\text{-}Q1}$*2019-Q4	0.0198 (0.0164)	0.0547 (0.0138)***	$LASLR_{2019\text{-}Q4}$*2019-Q4	0.0229 (0.0143)	0.0517 (0.0127)***
$LASLR_{2019\text{-}Q1}$*2020-Q1	0.0333 (0.0155)**	0.0605 (0.0202)***	$LASLR_{2019\text{-}Q4}$*2020-Q1	0.0283 (0.0200)	0.0496 (0.0192)**
$LASLR_{2019\text{-}Q1}$*2020-Q2	0.0463 (0.0190)**	0.0933 (0.0197)***	$LASLR_{2019\text{-}Q4}$*2020-Q2	0.0539 (0.0218)**	0.0926 (0.0196)***
$LASLR_{2019\text{-}Q1}$*2020-Q3	0.0478 (0.0265)*	0.1145 (0.0253)***	$LASLR_{2019\text{-}Q4}$*2020-Q3	0.0734 (0.0275)**	0.1331 (0.0229)***
$LASLR_{2019\text{-}Q1}$*2020-Q4	0.0459 (0.0323)	0.1473 (0.0266)***	$LASLR_{2019\text{-}Q4}$*2020-Q4	0.0730 (0.0307)**	0.1612 (0.0249)***
$LASLR_{t-1}$*$COVID_t$					
$LASLR_{t-1}$					
Bank Controls	YES	NO	Bank Controls	YES	NO
Macroeconomic Controls	YES	NO	Macroeconomic Controls	YES	NO
Breusch-Pagan LM Test	107.156 (0.0000)***	191.047 (0.0000)***	Breusch-Pagan LM Test	30.4548 (0.0000)***	45.4124 (0.0000)***
Hausman Test	132.0000 (0.0000)***	33.532 (0.0000)***	Hausman Test	69.0913 (0.0000)***	8.8759 (0.0642)
F-Test (Model)	36.3943 (0.0000)***	10.0636 (0.0000)***	F-Test (Model)	28.6337 (0.0000)***	10.3267 (0.0002)***
R^2 (LSDV for Fixed Effect)	0.8680	0.7893	R^2 (LSDV for Fixed Effect)	0.7991	0.6901
Hetero (χ^2 – stat)	4207.24 (0.0000)***	738.724 (0.0000)***	Hetero (χ^2 – stat)	1694.29 (0.0000)***	400.598 (0.0000)***
Serial Correlation (t-stat)	8.9168 (0.0092)***	5.9093 (0.0281)**	Serial Correlation (t-stat)	3.4438 (0.0832)	9.8422 (0.0068)***
Observations	128	128	Observations	128	128

Source: Author's computation based on data from the IFSB PSIFIs.

Figures in parentheses are t-statistics, except for the Breusch-Pagan LM Test, F-Test, Hausman Test, Hetero and Serial Correlation, which are p-values. Where indicated as N/A (not applicable), the null hypothesis of the adequacy of the pooled OLS model could not be rejected due to a high p-value. For the Random Effect model, the Chi-square joint test on named regressors is used in lieu of the F-Test. Statistical significance: *<0.10, **<0.05, and ***<0.01. ^ The figure is based on test of joint significance of differing group means test.