

Journal of the National Institute of

Banking and Finance

P A K I S T A N

Volume 93 | Issue No. 01

January- March 2026



The Pioneer of Islamic Banking in Pakistan:

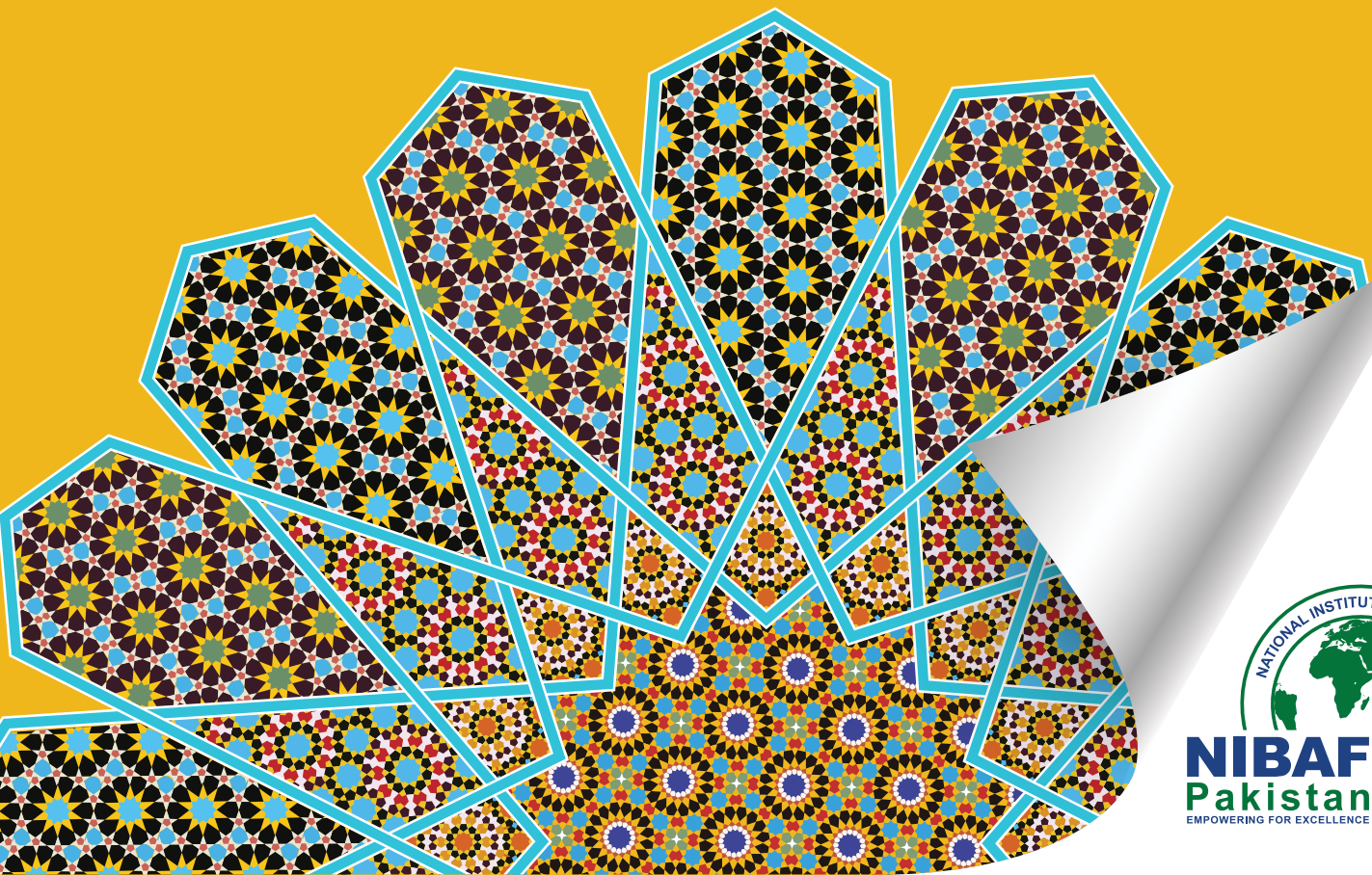
Exclusive interview with Mr Irfan Siddiqui
former President and Founder
of Meezan Bank Ltd.

From Static MIS to Real-Time Risk Dashboards:

Data Architecture and
Governance in Modern Banking

EVOLUTION OF SHARIAH GOVERNANCE FRAMEWORK IN PAKISTAN

*From Foundational Vision to a
Digitally Aligned and Inclusive Future*





Signature
PRIORITY BANKING

Experience Signature Banking

Your Gateway to a Privileged Lifestyle



Swift Onboarding &
Premium Banking Experience



Free Banking Services &
Discounted Products



Dedicated Customer
Touchpoints



Lounge Access
and Benefits



Complimentary UBL VISA
Infinite Debit Card



International
Outreach



Wealth Management
Solutions



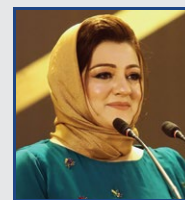
Complimentary
Insurance Coverage



Maintain Signature
Banking criteria to
avail the benefits

Terms and Conditions apply

editorial.



Shahla Naqvi
Editor

The Systemic Shift in Islamic Finance

What was once positioned as an alternative segment in global financial discourse is now undergoing a profound structural evolution: Islamic finance is becoming integrated into mainstream financial architecture. It is no longer viewed primarily through the lens of religious preference or market segmentation, but increasingly assessed for its institutional maturity, resilience, and contribution to the real economy, without any prejudice and exploitation.

The defining question for Islamic finance is what role it will play in shaping the future of mainstream finance. Developments taking place globally and in Pakistan suggest that this transition is already underway.

The global shift is not being driven by demography alone. Across jurisdictions where Islamic finance has reached systemic importance, defined by the Islamic Financial Services Board (IFSB) when Shariah-compliant assets exceed 15% of the banking system, the sector is increasingly influencing financial markets and capital mobilization. More than fifteen economies have crossed this threshold and many more are close to it.

Macroeconomic uncertainty, inflationary pressures, concerns over excessive leverage, and renewed focus on sustainable growth have prompted policymakers and markets to reconsider frameworks emphasizing asset linkage, transparency, and disciplined risk sharing, an integral part of Islamic finance.

These defining features of Islamic finance are increasingly valued by financial systems seeking resilience and sustainability. This is evident in capital markets, where the growing use of Sukuk, development of Islamic digital platforms, and convergence of regulatory standards are shifting the conversation beyond identity toward efficiency, scalability, and institutional credibility. The discussion is no longer simply: *Why Islamic finance?* It is increasingly becoming: *How effectively can Islamic finance deliver?*

Pakistan offers an important case study of this broader transition. Under the proactive stewardship of the State Bank of Pakistan (SBP), what began as a legal and institutional response to Shariah compliance has evolved into a broader transformation of the financial system.

Through alignment with global standards, particularly those developed by AAOIFI (Accounting and Auditing Organization for Islamic Financial Institutions), Pakistan has built an ecosystem designed to be both locally relevant and internationally interoperable.

More importantly, Pakistan's Islamic banking journey reflects growing institutional acceptance, with banks, corporates, regulators, and consumers increasingly engaging with Islamic finance as a complete operating model rather than merely a parallel proposition reinforcing its creditability and global acceptability.

The latest data reinforces this shift. Islamic Banking Institutions (IBIs) in Pakistan now account for 23.0% of total banking assets (PKR 14.659 trillion) and around 28.5% of total deposits (PKR 11.299 trillion). These figures reflect not only growth but changing market structure.

Perhaps the strongest evidence lies in changing customer behavior. Under SBP's revised Customers' Digital Onboarding Framework, Islamic digital account onboarding increased from 663,292 to 1,479,362 within a year, outpacing conventional digital onboarding by 1.6 times, suggesting that demand is increasingly driven by convenience and customer experience rather than preference or compliance alone.

Alongside traditional banking growth, new models are combining Shariah-compliant financial services with mobile-first access, remote onboarding, digital payments, and technology-enabled financial participation. These developments are extending Islamic finance beyond branches into everyday financial behavior, making accessibility, user experience, and speed central to its continued growth.

Pakistan's Islamic banking infrastructure now reflects this scale: seven full-fledged Islamic banks, Islamic banking operations through conventional institutions via Islamic Banking Windows, expanding digital capabilities, and more than 7,600 Islamic banking branches and service points. The sector has moved beyond establishing presence to operational relevance.

The next phase will not be determined by growth metrics alone. The focus will increasingly shift toward execution quality: Can innovation remain aligned with Shariah principles while meeting modern expectations? Can capacity development keep pace with market expansion? Can standardization improve further without reducing flexibility? And can institutions preserve trust while delivering speed, inclusion, and innovation?

Islamic finance has moved beyond proving its legitimacy; the next challenge is demonstrating its ability to shape the future of finance.

YOUR **GATEWAY** TO THE TRUST AND EFFICIENT GLOBAL CONNECTIVITY

Established in 2005, Ravi Exchange is Pakistan's largest exchange house, serving over 2 million customers annually through 144+ branches nationwide. We offer currency exchange at Guaranteed Best Rates, using innovative ways to stay connected with our customers.



OUR SERVICES

Home
Remittance

ترسیلات زر

Currency
Exchange

کرنسی ایکسچینج

Telegraphic
Transfer

ٹیلی گرافک ٹرانسفر



+92 300 1529529 | 042 111 529 529 | raviexchange.com

Head office: 29 - Montgomery Road, Lahore, Pakistan

Contents

THE CONTRIBUTORS

Molana Syed Mazhar Abbas Zaidi is a leading Islamic finance scholar, Shariah advisor, researcher, and trainer with extensive expertise in Islamic banking, Islamic capital markets, Shariah governance, and Halal compliance. He is the first Financial Shariah Advisor from the Shia (Imamia Ithna Ashari) school of thought to be registered with the Securities and Exchange Commission of Pakistan (SECP). He serves on several prominent regulatory and industry bodies, including the Shariah Focus Group of the Pakistan Stock Exchange (PSX), the Shariah Board of Sindh Bank, and multiple committees of the SECP and State Bank of Pakistan. Mr. Zaidi is currently pursuing a PhD in Islamic Banking and Finance from University of Karachi, together with advanced traditional Islamic scholarship from Seminary of Qom and Najaf. He also holds internationally recognized AAOIFI fellowships, namely Certified Shariah Advisor & Auditor (CSAA) and Certified Islamic Professional Accountant (CIPA), reflecting his expertise in both Shariah and contemporary financial practice.

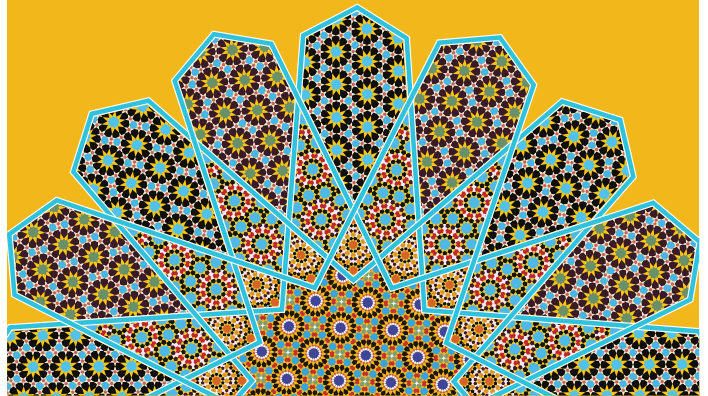
Rahim Zulfiqar Ali is a Microsoft Most Valuable Professional (MVP) for Excel (2025–2026) and a Microsoft Certified Trainer (MCT) (2016–2025). He is the Founder & CEO of Excel Basement and an emerging data scientist specializing in Data Analytics and Business Intelligence solutions, including Excel, Power BI, SQL, and Python. He is a trainer and educator to over 100,000 students globally through Udemy.

COVER STORY

05

EVOLUTION OF SHARIAH GOVERNANCE FRAMEWORK IN PAKISTAN

From Foundational Vision to a Digitally Aligned and Inclusive Future



LEADERSHIP LENS

- 13** The Pioneer of Islamic Banking in Pakistan: Exclusive interview with Mr Irfan Siddiqui, former President and Founder of Meezan Bank Ltd.
- 25** A Conversation with Dr. Ghazala Siddiqui: Leadership, Partnership, and Purpose



National Institute of Banking and Finance Pakistan

QUARTERLY JOURNAL SUBSCRIPTION

☐ One Year Subscription PKR 2000 ☐ Two Year Subscription PKR 3600

Pay Order No. _____

Name: _____ Organization: _____

Delivery Address: ☐ Business ☐ Private _____

Telephone: _____ E-mail: _____

Note: Please return this filled out form along with the pay order of your respective subscription made in favor of "NIBAF Pakistan"



RISK & DATA INTELLIGENCE

- 32** From Static MIS to Real-Time Risk Dashboards: Data Architecture and Governance in Modern Banking

SBP POLICY REGIME ADD-ONS

- 40** Add-ons to SBP Policy Regime (Jan-March 2026)



READING ROOM

- 45** Unconventional: The Bank No One Saw Coming
- 46** Hire Purchase Under Shirakah al-Milk (HPSM) in Islamic Banking and Finance: A Shari'ah Analysis
- 47** Artificial Intelligence and Big Data for Financial Risk Management: Intelligent Applications
- 48** Climate Finance: A Comprehensive Guide to Financial Strategies in a Changing Climate

Published by

National Institute of Banking and Finance Pakistan
Moulvi Tamizuddin Khan Road
Karachi 74200, Pakistan
☎ 92 (21) 111-000-427
🌐 nibaf.sbp.org.pk

Editor

Shahla Naqvi
☎ 92 (21) 35277 529
✉ publications@nibaf.org.pk

Deputy Editor

M. Abdul Basit Adil
☎ 92 (21) 35277 508

Advertising

Muhammad Akram
☎ 92 (21) 35277 511
✉ muhammad.akram@nibaf.org.pk

Design

M. Jahangir Ishaq | S. Haris Jamshaid

Copyright



National Institute of Banking and Finance Pakistan

All rights reserved. The material appearing in this journal may not be reproduced in any form without prior permission of National Institute of Banking and Finance Pakistan.

General Disclaimer

This Journal is based on contributions from individuals & information obtained from local and international print and electronic media. NIBAF Pakistan has not verified this information and no warranty, expressed or implied, is made that such information is accurate, complete or should be relied upon as such. Views expressed in the articles published in this Journal belong to the authors only, and are by no means a reflection of the views of NIBAF Pakistan as an institution. In no circumstances NIBAF Pakistan and its team members would be liable for any incidental or consequential damage that may occur from the use of information contained in NIBAF Pakistan publication(s).

You are invited to send your write-ups to the Editor on topics of interest relating to banking and allied fields. Publishing is subject to approval by NIBAF Pakistan.

To: National Institute of Banking and Finance Pakistan. M.T. Khan Road, Karachi 74200, Pakistan

FOR OFFICE USE ONLY

☐ Jan - Mar _____

☐ Apr - Jun _____

☐ Jul - Sep _____

☐ Oct - Dec _____

☐ Jan - Mar _____

☐ Apr - Jun _____

☐ Jul - Sep _____

☐ Oct - Dec _____

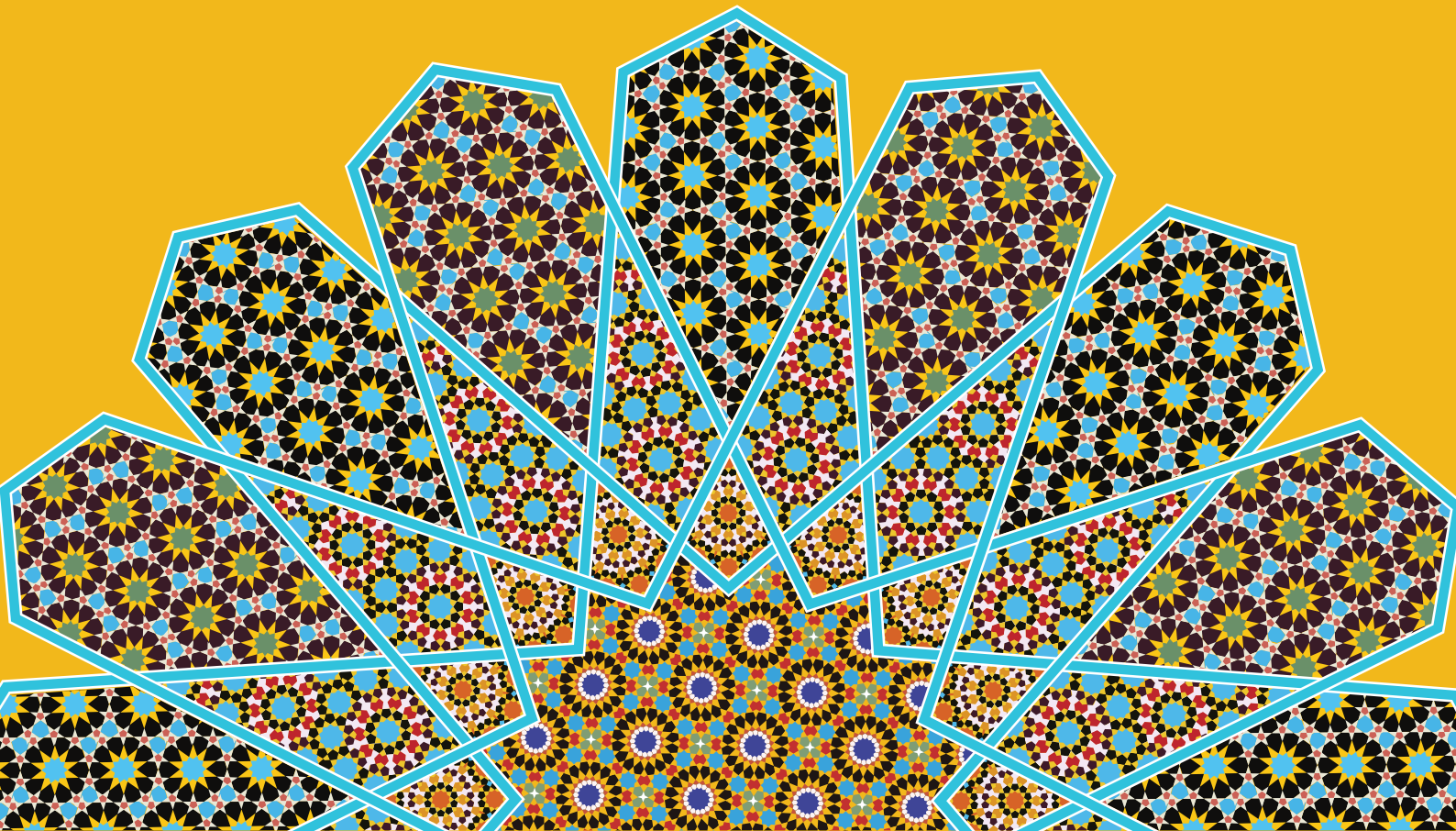
UAN: (021) 111-000-427 | Email: publications@nibaf.org.pk | Website: www.nibaf.sbp.org.pk

EVOLUTION OF SHARIAH GOVERNANCE FRAMEWORK IN PAKISTAN

From Foundational Vision to a Digitally Aligned and Inclusive Future

By: Molana Syed Mazhar Abbas Zaidi

Islamic banking in Pakistan has evolved through a unique convergence of constitutional vision, judicial developments and regulatory innovation. At the center of this evolution lies the Shariah Governance Framework (SGF), which ensures the authenticity, credibility and sustainability of Islamic Banking Institutions (IBIs). This article provides a comprehensive and analytical examination of the development of Shariah governance in Pakistan, tracing its progression from early conceptual foundations to the sophisticated SGF 2024 issued by the State Bank of Pakistan. Drawing upon the latest industry data, the study highlights the growing systemic importance of Islamic banking, an industry that has crossed PKR 14.7 trillion in assets and now commands over a 23% of Pakistan's total banking sector, and explores emerging challenges, including Fintech transformation, digital banking and human capital constraints. The article provides practitioner-focused insights and actionable policy recommendations to strengthen governance practices and enhance Pakistan's position in the global Islamic finance landscape.



The aspiration to develop an Islamic economic system in Pakistan is deeply rooted in the country's founding vision. Quaid-e-Azam Muhammad Ali Jinnah, while inaugurating the State Bank of Pakistan in 1948, emphasized the need to evolve a financial system consistent with Islamic ideals of social justice and economic equity. This vision has served as a guiding principle for policymakers, regulators and scholars over the decades.

However, the transformation of this vision into a functional and sustainable financial system has been neither linear nor straightforward. It has involved periods of experimentation, judicial intervention and regulatory recalibration. In this journey, Shariah governance has emerged as the cornerstone of Islamic banking, ensuring that financial practices remain aligned with Islamic principles while maintaining operational efficiency and financial stability.

For banking professionals, particularly those transitioning from conventional to Islamic banking, understanding the evolution and structure of Shariah governance is critical. It not only provides regulatory clarity but also shapes decision-making, product development and risk management.

Historical Evolution of Islamic Banking in Pakistan

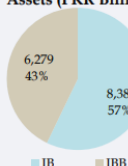
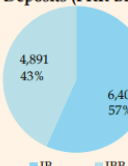
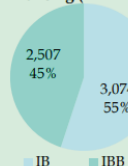
The development of Islamic banking in Pakistan can be understood as a gradual transition from theoretical exploration to practical implementation. In the early decades following independence, efforts were primarily focused on intellectual development, supported by institutions such as the Council of Islamic Ideology. These efforts laid the conceptual foundation for an interest-free financial system.

“Pakistan adopted a pragmatic approach in the early 2000s by introducing a parallel banking system... The three-pronged strategy—establishment of full-fledged Islamic banks, Islamic subsidiaries and Islamic banking branches—provided flexibility and scalability.”

The 1980s marked a more ambitious phase, during which Pakistan attempted to Islamize its financial system through legislative reforms. However, the reliance on mark-up based financing mechanisms led to significant criticism and judicial scrutiny. The landmark judgment of the Federal Shariat Court in 1991 declared prevailing practices inconsistent with Islamic injunctions, prompting further deliberations by the Supreme Court of Pakistan. The subsequent rulings in 1999 and the 2002 review highlighted the complexities of transitioning to a fully Islamic financial system.

Recognizing these challenges, Pakistan adopted a pragmatic approach in the early 2000s by introducing a parallel banking system. This approach allowed Islamic banking to grow alongside conventional banking without disrupting financial stability. The three-pronged strategy—establishment of full-fledged Islamic banks, Islamic subsidiaries and Islamic banking branches—provided flexibility and scalability.

The results of this approach are evident in the substantial growth of the industry. According to the latest Islamic Banking Bulletin (2026) issued by the State Bank of Pakistan, Islamic banking assets reached PKR 14.47 trillion, while deposits stood at PKR 11.04 trillion and financing at PKR 5.65 trillion.

Overall Summary				
	 Assets	 Deposits	 Financing	 No. of Branches
Total	PKR 14.7 Trillion	PKR 11.3 Trillion	PKR 5.6 Trillion	7,674
Change in Quarter	+ PKR 192 Billion + 1.3%	+ PKR 262 Billion + 2.4%	- PKR 73 Billion - 1.3%	+ 112 + 1.5%
Share in Total Banking Industry	23.0% + 0.1%	28.5% + 0.7%	38.2% + 0.1%	-
Share of IBBs & IBs				-

Source: State Bank of Pakistan: Islamic Banking Bulletin (March 2026)

The industry now accounts for 23.0% of total banking assets, 28.5% of total deposits and 38.2% of total financing. The branch network has expanded to 7,674 branches, reflecting significant outreach and financial inclusion.

This rapid growth has transformed Islamic banking into a systemically important segment of Pakistan's financial sector, thereby increasing the importance of robust governance mechanisms.

Why Shariah Governance Matters: Beyond Compliance

Shariah governance is often perceived as a compliance requirement; however, its role extends far beyond that. It is the defining element that differentiates Islamic banking from conventional finance. While conventional banking focuses primarily on financial performance and regulatory compliance, Islamic banking must ensure adherence to ethical and religious principles.

From a risk management perspective, Shariah governance addresses a unique category of risk—Shariah non-compliance risk—which can have significant financial and reputational consequences. For example, income derived from non-compliant transactions must be purified, directly affecting profitability. More importantly, any perception of non-compliance can undermine public trust, which is critical for the sustainability of Islamic banking. For practitioners, Shariah governance also plays a practical role in product structuring and operational decision-making. Understanding the underlying principles enables bankers to design products that are not only compliant but also competitive and innovative.

Evolution of Shariah Governance Framework in Pakistan

The development of Shariah governance in Pakistan reflects a transition from basic oversight to a comprehensive and sophisticated regulatory framework. In the initial phase, regulatory focus was limited to licensing and operational guidelines. However, the issuance of IBD Circular No. 02 of 2008 marked the first formal step toward institutionalizing Shariah governance by mandating Shariah advisors and introducing structured compliance mechanisms.

The introduction of the Shariah Governance Framework (SGF) in 2015 through IBD Circular No. 01 represented a significant milestone. This framework formalized governance structures by defining the roles of Shariah boards, management and the board of directors. It also introduced internal Shariah audit and compliance functions, thereby enhancing oversight and accountability.

The 2018 revision further strengthened the framework by improving reporting structures and enhancing the independence of Shariah functions. These changes reflected the regulator's commitment to continuous improvement and alignment with global best practices.

The SGF 2024, issued through IFPD Circular No. 08 in November 2024 (effective January 1, 2025), represents a paradigm shift. It aligns Pakistan's framework with standards issued by AAOIFI and introduces a risk-based approach to Shariah governance. The framework emphasizes independence, external audit and centralized oversight, reflecting a mature and globally aligned governance model. Critically, the SGF 2024 also sets a phased specific / independence timeline: by January 2028, all Shariah Board members of an IBI, including the chairperson, must serve exclusively on that institution's board, marking a decisive step toward genuine independence and undivided scholarly commitment.

The SGF 2024, issued through IFPD Circular No. 08 in November 2024 (effective January 1, 2025), represents a paradigm shift. It aligns Pakistan's framework with standards issued by AAOIFI and introduces a risk-based approach to Shariah governance."

Emerging Landscape: Islamic Fintech, EMIs and Digital Banks — Shariah Governance Imperatives

The ongoing digital transformation of the financial sector is fundamentally reshaping the architecture of banking and Islamic finance in Pakistan is increasingly becoming part of this transformation. The emergence of Fintech platforms, digital-only banks and Electronic Money Institutions (EMIs) is redefining how financial services are delivered, accessed and consumed. While these developments offer unprecedented opportunities for financial inclusion, cost efficiency and customer-centric innovation, they also introduce a new layer of complexity for Shariah governance frameworks, particularly under the evolving regulatory architecture of the State Bank of Pakistan.

From a Shariah governance perspective, the traditional model, built around product approval, periodic audits and ex-post compliance reviews, is being challenged by real-time, automated and algorithm-driven financial services. The Shariah Governance Framework (SGF), particularly in its latest iteration (2024), emphasizes principles such as independence, risk-based compliance and strengthened oversight. However, the operationalization of these principles within a digital environment requires significant reinterpretation and enhancement.

One of the most immediate challenges arises in the context of digital financing platforms. In conventional Islamic banking, contracts such as *Murabaha* or *Ijarah* are executed through well-defined documentation and human oversight. In contrast, Fintech platforms



One of the most immediate challenges arises in the context of digital financing platforms...this necessitates a shift from document-based compliance to code-based compliance, where Shariah rules are translated into system logic."

often rely on automated workflows, digital contracts and instant approvals. Ensuring that each step of such processes—offer, acceptance, asset ownership and transfer of risk—remains Shariah-compliant requires embedding governance controls directly into the system architecture. This necessitates a shift from document-based compliance to code-based compliance, where Shariah rules are translated into system logic. Under the SGF, this would require expanding the scope of Shariah review functions to include pre-implementation validation of digital processes and system design, rather than merely reviewing end products.

Similarly, Fintech-based investment platforms, including robo-advisory services and crowdfunding models, raise important governance questions. These platforms often use algorithms to allocate funds across portfolios, which must adhere to Shariah screening criteria such as sectoral exclusions and financial ratio thresholds. The SGF's requirement for Shariah compliance and audit must therefore extend to algorithmic transparency and validation. In practical terms, Shariah boards and compliance units must develop the capability to review not only financial structures but also underlying algorithms and data models, ensuring that automated decision-making processes remain aligned with Shariah principles.

The emergence of smart contracts and block chain-based financial products adds another dimension of complexity. While these technologies offer transparency and immutability, they also reduce the scope for human intervention once deployed. From a governance standpoint, this places greater emphasis on ex-ante Shariah assurance, where contracts must be thoroughly vetted before execution. The SGF's emphasis on internal controls and Shariah review must therefore evolve to include technology assurance frameworks, potentially involving collaboration with IT auditors and Fintech specialists.

In Pakistan, the State Bank of Pakistan has taken important steps by introducing licensing regimes for digital banks and EMLs, signaling a forward-looking regulatory approach. However, these frameworks are largely technology- and risk-focused, with Shariah governance considerations not yet fully embedded in

a structured manner. Given the increasing participation of Islamic banks in digital ecosystems, there is a compelling need to integrate SGF requirements explicitly into these emerging regulatory domains.

From a policy perspective, several practical measures can be considered to bridge this gap. First, the SGF can be expanded to include specific guidelines for digital financial services, covering areas such as digital contract execution, automated compliance checks and Shariah governance of Fintech partnerships. This would provide clarity for institutions and ensure consistency in implementation.

Second, there is a critical need to build technological capacity among Shariah scholars and governance professionals. Traditional expertise in fiqh and finance must now be complemented with a working understanding of digital systems, algorithms and Fintech business models. This can be achieved through targeted training programs, joint certifications and collaborative workshops involving institutions such as the National Institute of Banking and Finance (NIBAF) Pakistan. Without such capacity building, there is a risk that governance frameworks may lag behind innovation, leading to compliance gaps.

Third, regulators can leverage regulatory sandboxes to test Shariah-compliant Fintech solutions in a controlled environment. For example, a digital Murabaha financing platform or a blockchain-based Sukuk issuance could be piloted under close supervision, allowing regulators and Shariah boards to assess compliance implications in real time. Insights from such pilots can then inform the development of formal guidelines under the SGF.

Fourth, the increasing reliance on third-party Fintech service providers necessitates extending Shariah governance beyond institutional boundaries. Islamic banks often collaborate with Fintech firms for payment solutions, digital onboarding and customer engagement. Under the SGF, this raises questions about accountability and oversight. A practical solution would be to introduce Shariah governance requirements for outsourcing arrangements, ensuring that all third-party services comply with established principles. This may include mandatory Shariah due

diligence of Fintech partners and inclusion of Shariah compliance clauses in service agreements.

Another important consideration is the development of real-time Shariah compliance monitoring systems. Traditional audit cycles may not be sufficient in a digital environment where transactions occur instantaneously. Leveraging data analytics and automated controls can enable continuous monitoring, allowing institutions to detect and address compliance issues proactively. This aligns with the SGF's shift toward a risk-based approach and enhances the effectiveness of governance mechanisms.

From an industry perspective, collaboration will be key to addressing these challenges. Islamic banks, Fintech firms and regulatory bodies must work together to develop standardized solutions, share best practices and build a common understanding of emerging risks. Industry associations can play a facilitating role by organizing forums and publishing guidance on Fintech-related Shariah issues.

The intersection of Islamic finance and digital innovation represents both an opportunity and a challenge for Shariah governance in Pakistan. While the existing SGF provides a strong foundation, its effectiveness in a digital context will depend on its ability to evolve and adapt. By integrating technology-focused guidelines, enhancing human capital and fostering collaborative innovation, Pakistan can position itself at the forefront of Islamic Fintech while maintaining the integrity and credibility of its Shariah governance framework.

Bridging Fiqhi Differences: Toward a Cohesive Shariah Governance Ecosystem

One of the most intellectually rich yet practically challenging dimensions of Islamic banking is the diversity of jurisprudential interpretations across different schools of thought. This diversity, rooted in centuries of Islamic legal tradition, reflects the dynamism and adaptability of Shariah. However, in the context of modern financial systems, where standardization, scalability and regulatory clarity are essential, it can also give rise to inconsistencies in product structures, governance practices and market perceptions.

In Pakistan, where multiple schools of thought coexist within both society and the financial system, the challenge is not to eliminate these differences but to manage them constructively. The State Bank of Pakistan has, over time, adopted a pragmatic and inclusive approach in its Shariah Governance Framework (SGF), recognizing the need to accommodate diverse viewpoints while ensuring regulatory coherence. This approach is particularly evident in the evolving SGF 2024, which emphasizes both standardization and inclusivity, two objectives that must be carefully balanced.

From a policymaking perspective, the key lies in creating structured platforms for dialogue

and consensus-building. Rather than allowing differences to manifest in fragmented practices across institutions, there is a need for regular consultative forums where Shariah scholars representing different schools of thought can deliberate on emerging financial products and governance issues. Such forums, potentially institutionalized under the auspices of the State Bank of Pakistan, can facilitate the development of minimum agreed standards or "common denominators" that all institutions can adopt, while still allowing room for institution-specific interpretations where appropriate.

"A national-level Shariah board or council, comprising scholars from diverse backgrounds, can issue guiding resolutions on key matters such as commonly used contracts, Fintech innovations and governance practices. These resolutions need not be overly prescriptive; rather, they can serve as reference points."



Another practical mechanism is the strengthening of centralized Shariah advisory structures. A national-level Shariah board or council, comprising scholars from diverse backgrounds, can issue guiding resolutions on key matters such as commonly used contracts, Fintech innovations and governance practices. These resolutions need not be overly prescriptive; rather, they can serve as reference points that reduce uncertainty and enhance consistency across the industry. Importantly, the legitimacy of such a body depends on its representativeness and transparency, ensuring that all major jurisprudential perspectives are adequately reflected.

At the institutional level, Islamic banks can also play a proactive role by adopting principles-based approaches to product development. Instead of focusing narrowly on specific contractual forms, greater emphasis can be placed on the underlying objectives of Shariah (Maqasid al-Shariah), such as fairness, transparency and risk-sharing. This shift in perspective can help bridge differences by aligning diverse interpretations around shared objectives rather than procedural details.

Capacity building is another critical element in fostering convergence. When Shariah scholars are exposed to modern financial practices and bankers are trained in Islamic jurisprudence, the scope for misunderstanding and divergence is reduced. Institutions such as the National Institute of Banking and Finance (NIBAF) Pakistan can facilitate joint training programs that bring together scholars, regulators and practitioners, creating a shared knowledge base and promoting mutual understanding.

It is also important to recognize that some level of diversity is both inevitable and desirable. Attempting to impose complete uniformity may not only be impractical but could also undermine the intellectual richness of Islamic jurisprudence. The objective, therefore, should be to achieve functional harmonization rather than absolute standardization, ensuring that differences do not disrupt market stability or erode public confidence.

In this context, transparency becomes a key tool. Institutions should clearly disclose the Shariah basis of their products and any differences in interpretation, enabling customers and stakeholders to make informed decisions. Over time, market discipline can also play a role in encouraging convergence, as widely accepted practices gain prominence.

Thus, bringing stakeholders onto a common platform despite fiqhi differences requires a balanced and multi-dimensional approach. It involves regulatory leadership, institutional collaboration, capacity building and a shared commitment to the broader objectives of Islamic finance. By fostering dialogue, promoting inclusivity and focusing on common principles, Pakistan can develop a Shariah governance ecosystem that is both coherent and reflective of its diverse jurisprudential heritage, thereby strengthening the credibility and sustainability of its Islamic banking industry.

Policy Recommendations

While Pakistan has made significant progress in developing a robust Shariah governance framework under the leadership of the State Bank of Pakistan, the evolving scale and complexity of Islamic banking necessitate a shift from identification of challenges to implementation of practical, actionable solutions. From a policymaker's perspective, the effectiveness of Shariah governance is no longer determined solely by regulatory design but by the ability of institutions to operationalize these frameworks in a consistent and scalable manner. This requires targeted interventions in capacity building, institutional strengthening and industry-led initiatives.

A primary challenge confronting the industry is the limited availability of qualified Shariah scholars with strong financial expertise. While Pakistan has a pool of respected scholars, the increasing size of the Islamic banking industry, now exceeding PKR 14.7 trillion in assets, demands a broader and more specialized talent base. Addressing this issue requires a structured, multi-tiered capacity-building strategy. At the foundational level, universities and training institutions must introduce specialized degree programs that integrate Islamic jurisprudence with modern finance, accounting and technology. At the professional level, institutions such as the National Institute of Banking and Finance (NIBAF) Pakistan can expand certification programs tailored for Shariah advisors, compliance officers and auditors. A practical example would be the development of a national Shariah certification framework, similar to globally recognized qualifications, which standardizes competency requirements and creates a clear career pathway for professionals entering the field.

While Pakistan has a pool of respected scholars, the increasing size of the Islamic banking industry, now exceeding PKR 14.7 trillion in assets, demands a broader and more specialized talent base."

In addition to academic development, on-the-job capacity building is equally critical. Policymakers can encourage Islamic Banking Institutions (IBIs) to establish structured training rotations where Shariah scholars work closely with product development, risk management and treasury teams. This cross-functional exposure would enable scholars to better understand operational complexities, thereby improving the quality and practicality of Shariah rulings. Conversely, conventional bankers transitioning into Islamic finance should undergo mandatory Shariah literacy programs to bridge the knowledge gap and ensure alignment with governance principles.

Another critical area is the strengthening of institutional mechanisms for Shariah governance, particularly external Shariah audit. While the current framework mandates internal Shariah audit functions, the development of a robust and independent external audit ecosystem remains in its early stages. Policymakers can address this gap by introducing licensed external Shariah audit firms, similar to financial audit firms, with standardized methodologies and regulatory oversight. A practical step would be the issuance of detailed audit guidelines by the central bank, supplemented by pilot audits conducted across selected institutions to refine the framework before full-scale implementation.

Furthermore, the standardization of Shariah interpretations remains a persistent challenge due to differences among various schools of thought. While diversity is an inherent strength of Islamic jurisprudence, inconsistent rulings can create uncertainty in the market. A pragmatic solution lies in strengthening centralized mechanisms such as national Shariah boards or advisory councils under the State Bank of Pakistan. These bodies can issue binding or guiding resolutions on key products and structures, thereby reducing fragmentation. Regular consultative forums involving scholars from different schools of thought can also facilitate consensus-building while preserving inclusivity.

The rapid advancement of financial technology introduces another dimension to Shariah governance challenges. Islamic Fintech, digital banks and Electronic Money Institutions (EMIs) are reshaping financial intermediation, but Shariah governance frameworks have yet to fully adapt to these innovations. Policymakers

must proactively integrate Shariah governance into digital finance by establishing dedicated Shariah Fintech advisory units. These units can work alongside regulatory sandboxes to evaluate new products such as digital Murabaha financing, blockchain-based Sukuk, or AI-driven investment platforms. For instance, a sandbox initiative allowing a Fintech firm to test a Shariah-compliant peer-to-peer financing model under regulatory supervision would provide valuable insights while mitigating risks.

From an industry perspective, collaborative initiatives can play a transformative role in strengthening governance practices. Islamic banks can jointly establish research and development platforms to design standardized products, share best practices and reduce duplication of effort. Industry associations can also facilitate knowledge-sharing forums and publish guidance papers on emerging issues. A notable example would be the development of standardized contract templates for commonly used financing modes, which can enhance consistency and reduce legal and Shariah risks.

Another important policy consideration is the development of alternative benchmarks for pricing Islamic financial products. The continued reliance on conventional interest-based benchmarks creates both perception and operational challenges. Policymakers can initiate pilot projects to develop Shariah-compliant benchmarks based on real economic indicators, such as asset returns or commodity indices. While this is a complex and long-term endeavor, incremental progress in this area would significantly enhance the authenticity of Islamic banking.

“ Policymakers can encourage Islamic Banking Institutions (IBIs) to establish structured training rotations where Shariah scholars work closely with product development, risk management and treasury teams.”



Finally, embedding a culture of Shariah compliance within institutions is essential for the effectiveness of any governance framework. This requires moving beyond a checklist approach to fostering a values-driven culture where compliance is integrated into everyday decision-making. Senior management and boards of directors must play a proactive role in setting the tone from the top, ensuring that Shariah governance is treated as a strategic priority rather than a regulatory obligation.

Embedding a culture of Shariah compliance within institutions ...requires moving beyond a checklist approach to fostering a values-driven culture where compliance is integrated into everyday decision-making."

In the light of these facts, the future effectiveness of Shariah governance in Pakistan will depend on the successful implementation of these practical measures. By investing in human capital, strengthening institutional frameworks, embracing technological innovation and promoting industry collaboration, policymakers and practitioners can ensure that the Shariah governance framework not only keeps pace with the growth of Islamic banking but also enhances its credibility, resilience and global competitiveness.

Conclusion

In conclusion, the evolution of Shariah governance in Pakistan should not be read as a linear regulatory timeline, but as an ongoing process of institutional learning, where policy intent, jurisprudential interpretation and market realities continuously negotiate with one another. The journey from early conceptual discussions to the SGF 2024 demonstrates that Pakistan has moved beyond foundational debates into a phase where the real challenge is not whether Shariah governance exists, but *how effectively it is lived within day-to-day banking practice*.

For professionals transitioning into Islamic banking, this distinction is critical. Much of the literature tends to describe frameworks, circulars and governance structures. However, the lived reality inside Islamic banking institutions is more nuanced. Shariah governance today operates at the intersection of regulatory compliance, product innovation and digital disruption. It is no longer confined to Shariah boards or audit reports; it is embedded in product design decisions, system architecture, Fintech partnerships and even customer experience journeys.

One of the key observations emerging from this evolution is that Shariah governance in Pakistan is gradually shifting from a post-transaction validation model to a pre-emptive design discipline. The SGF 2024, in particular, signals this shift by emphasizing risk-based governance, independence of Shariah functions and stronger integration with institutional risk frameworks. However, the real transformation will depend on how effectively institutions internalize this shift, moving Shariah considerations from "approval checkpoints" to "design principles" embedded at the earliest stages of product and system development.

Another important insight is that the future of Islamic banking governance will be defined less by doctrinal uniformity and more by managed diversity with operational coherence. Pakistan's jurisprudential landscape will continue to reflect pluralism, but successful institutions will be those that can translate this diversity into structured decision-making without compromising market confidence or regulatory clarity. In practice, this requires stronger internal governance cultures, clearer escalation pathways and greater interpretive discipline at the institutional level.

Equally significant is the emerging reality that technology is quietly redefining what Shariah governance means in practice. As digital banks, EMIs and Fintech ecosystems expand, governance is increasingly shifting toward code, algorithms and automated workflows. This introduces a subtle but important change: Shariah compliance is no longer only about validating contracts, but about validating systems that generate contracts at scale. Institutions that fail to recognize this shift risk treating governance as a documentation exercise in an environment that is fundamentally computational.

For practitioners entering this space, the key takeaway is that Shariah governance should be approached as a strategic capability, not a compliance function. It influences competitiveness, product credibility and institutional trust. Those who understand its operational depth, beyond regulatory text, will be better positioned to contribute meaningfully to product innovation, risk management and institutional strategy.

Ultimately, the evolution of Shariah governance in Pakistan reflects a broader transition: from aspiration to architecture and now from architecture to adaptation. The next phase will not be defined by new frameworks alone, but by how effectively professionals translate those frameworks into consistent, scalable and technologically relevant practices within Islamic banking institutions. The next chapter belongs to a generation of practitioners who must be equally fluent in fiqh and fintech—and equally committed to both. ■

An Interview with **Mr. Irfan Siddiqui**

The Pioneer of Islamic Banking in Pakistan



Mr. Irfan Siddiqui is the Founder, Former President & CEO of Meezan Bank since its establishment in 1997. He retired from his executive role on December 29, 2025, and continues to serve as a Member of the Board of Directors of the Bank, as well as a member of its Information Technology, Audit, and HR Committees. He also continues to chair the Board of Al Meezan Investment Management.

Under his leadership, Meezan Bank has grown into Pakistan's leading Islamic bank and a benchmark institution within the country's financial sector, widely recognized for its consistent performance, innovation, and commitment to Shariah-compliant banking.

Over the course of his career, he has played a defining role in the evolution and promotion of Islamic finance in Pakistan.

We are honored to share this conversation with our readers, in which he reflects on his professional journey, the development of Islamic banking, and the future of the industry he has helped shape.

Q. Thank you so much for sparing your precious time to speak to us.

I would like to begin by asking you that initially, as a founder, you started the Al-Meezan Investment Bank in 1979. This was converted into Meezan Bank Limited, the first Islamic commercial bank in 2002. Could you please tell us briefly how Meezan Bank grew from one of the smallest banks in 2002 to one of the largest banks in Pakistan today?

A: Thank you. That is a very good and pertinent question.

When we were planning to establish Al-Meezan, we were still in the process of applying for licenses and completing the necessary formalities. Since I was already in the banking sector, many of my friends and colleagues were bankers as well.

But obviously, the reason for establishing that bank was not profitability.

It was purely based on faith.

I think you have gone through the book written on the history of Meezan Bank. The reason the bank was established was because my wife had started attending Quran classes, and very early in those classes, she came across verses from Surah Al-Baqarah regarding *riba* being prohibited — including the verse which states that dealing in interest is akin to waging war against Allah (SWT) and His Messenger (SAW).

That was obviously a very stark warning for us. My initial reaction at the time, however, was that what the Holy Quran refers to as *riba* was perhaps not the same as modern-day banking interest. That was my understanding then, and that view still exists in certain circles even today.

So, I always tell my friends that if they hold that opinion, it does not necessarily mean they are entirely on the wrong track. I myself once thought the same way. So, Insha'Allah, if I could change my thinking, others can as well. That was really the beginning of the journey. So there was never a career motive behind it, that I wanted to build a bank.

At that time, I had a very comfortable position at Pak-Kuwait Investment Company as General Manager, representing the Government of Kuwait. I left that position and then we started this venture, although Pak-Kuwait itself also became one of the shareholders.

Alhamdulillah, when we established the investment bank, we had a total staff of only nine people. We drafted the vision statement ourselves — not through a consultant. And the vision statement read: "To establish Islamic banking as the banking of first choice."

At that stage, however, the investment bank was extremely limited in scope. Looking back at it today, it had very little resemblance to a full commercial bank.

We could only accept three-month, six-month, or twelve-month deposits. On the asset side, we could only offer car leasing and home finance on a Shariah-compliant basis.

“There was never a career motive behind it. It was purely based on faith.”



It was an extremely restricted license. So, when we created that vision statement, I often wondered whether we were overselling ourselves. After all, we could not open current accounts, issue cheque books, or establish branches like conventional banks. We did not want to make claims we could not deliver on. But somehow, the vision continued.

Then, around four years later, we received what I would describe as a God-given opportunity to acquire Société Générale's operations in Pakistan, as the French bank wanted to divest from the country. We acquired those branches, and eventually the State Bank converted our license into a full commercial banking license.

So, in 2002, Meezan became a commercial bank capable of offering complete banking services, and finally capable of translating that vision into reality. And very soon, we saw customers coming to us without any major marketing effort because they genuinely wanted Islamic banking. So, Alhamdulillah, there was really no looking back after 2002.

At that time, as you mentioned, we were one of the smallest banks in Pakistan. Today, Alhamdulillah, we are among the leading banks in the country — largest in some areas, second largest in others — but firmly among the institutions shaping the banking industry in Pakistan.

Now, when I reflect on the vision statement we wrote almost 'by mistake', I feel there must have been a greater divine plan behind it. Alhamdulillah, that was the journey.

And if you ask me very honestly why we were able to progress the way we did, my simple answer is: because it was based on faith. Divine help was always there. And that support is not limited only to Islamic banking. I believe that whenever you do something sincerely and correctly, whether it is a bank or even a small food business, there is barkat in that effort.

If things are done incorrectly, eventually businesses collapse as well. So, when people ask me what anchored us throughout this journey, I would say that anchoring belief became the reason for the help and support we received, often far beyond what we could ever have imagined.

Q: So, having said that, you went against the tide. Did you ever doubt the viability of this model? Or whether it was going to work?

A: Again, a very good question.

I was always conscious that this was a difficult undertaking because we were going against the tide. At that time, our capital was around Rs. 900 million, which was respectable capital for that period, but certainly not excessive.

I had seen many institutions — not just banks, but companies generally — overspend heavily in their early years and eventually collapse under that burden. So, my own view was that we should grow cautiously. As

the saying goes, "Cut your coat according to your cloth." We should only spend what we genuinely needed to spend. So we remained extremely modest.

For the first three years at Al-Meezan Investment Bank, we had a total staff of around 30 people. For nearly two years, the bank itself operated from a very small office adjacent to my office at Pak-Kuwait, roughly 500 square feet, where three or four of us would sit together.

So, it was a very humble beginning. There was no extravagant spending, no fancy cars, and no expensive offices. And perhaps because of that discipline, we became profitable from the very first month.

Personally, I have not come across many banks globally that were profitable from day one. Most institutions usually project losses for their first five years, and if difficulties arise during that period, they often struggle to recover.

So, Alhamdulillah, we understood from the outset that if you are moving against the current, you must prepare yourself mentally for that reality. Out of necessity — perhaps what people call the "mother of necessity" — we learned the importance of frugality. In my earlier professional life in Kuwait, such frugality was never required because resources were abundant. Pak-Kuwait was also a very comfortable institution.

But at Al-Meezan Investment Bank, I truly learned the value of simplicity and restraint. My entire perspective changed, and naturally that shift influenced the entire organization as well. Even today, at Meezan Bank's head office, we are developing a small museum. I recently told Aamir (Syed Amir Ali), our current CEO, that the furniture used in our first Faisalabad branch, opened after acquiring Société Générale's branches, should be preserved there.

That furniture had originally come from Pak-Kuwait after being used there for several years. We acquired it at around 10% of its book value, used it again ourselves for years, and then transferred it into the branch.

I told him that displaying that furniture would remind future generations how modestly this journey began. There was no fanfare, no desire for extravagant branch setups or unnecessary display. And I believe that modest beginning, and modest vision in terms of resources, but clarity in terms of purpose, actually allowed us to grow faster. As the saying goes, "A journey of a thousand miles begins with a single step," and "little drops make an ocean." That is how Meezan (Bank) began.

“Modesty in resources, but clarity in purpose — that is what allowed us to grow.”



Of course, many people criticized this approach. Some believed that with such a modest operational style, we would never be able to grow meaningfully. But my thinking was always the opposite. The important thing is to move in the right direction. There should be no unnecessary extravagance or display. Modesty and humility became deeply embedded into Meezan's culture from day one. Instead, the real focus had to remain on the vision; and on service, automation, and execution.

Q: When Meezan Bank emerged, it was the bank 'no one saw coming'. In the presence of large, well-established conventional banks, how was Meezan initially received?

A: In all honesty, most of the CEOs of those banks were either my school friends or professional colleagues. Many of them would jokingly say, "The reason you have progressed so much is because nobody initially took you seriously."

One CEO of a conventional bank, who was a good friend of mine, once told me: "Now that you are among the top ten banks, people have started taking you seriously. Competition will now become much tougher for you." And frankly, I think that was very good advice. Up until then, many people believed we would eventually disappear.

In fact, one of the IBP jury board members, who was also a class fellow of mine, used to joke with me and say, "This bank will eventually close down. If you need a job later, let me know." So yes, those kinds of comments were common. Naturally, there was fear as well. But as you rightly said, that fear also created resilience. It forced us to remain careful, disciplined, and focused —

and to make sure we did not fall into complacency. In many ways, that pressure helped us.

Q: So how did Meezan Bank manage not only to gain a competitive edge, but also sustain it over time?

A: First and foremost, it was by the grace of Allah (SWT).

But when we started explaining to customers what Islamic banking actually was, we saw tremendous momentum in public demand. Even today, when discussions take place around Pakistan's intention, Insha Allah, to move toward a more comprehensive Islamic banking framework by 2028, the biggest driver behind that movement is public demand. It is no longer only a regulatory push.

Of course, the State Bank has also been extremely proactive and supportive, but the real momentum is coming from customers themselves. And once customers realize that they can access a viable banking alternative that is not contradictory to their faith, the natural question becomes: "Why not?" That "why not" became a very powerful idea for us.

I often used a bell-curve analogy from HR theory. I would say that perhaps 10% of customers would become deeply loyal Meezan customers regardless of service levels because they strongly believed in Islamic banking. At the other extreme, another 10% would never come to us — even if you placed the moon in one hand and the sun in the other — because they believed religion and banking should remain completely separate.

So, we never focused too much on those two extremes. The real focus was the 70–80% in the middle.



Once customers realize they can access a banking alternative that is not contradictory to their faith, the natural question becomes: ‘Why not?’”

If you could provide them with the right service, the right pricing, the right automation, and a professional banking experience, then the question naturally became: “Why not choose Islamic banking?” And I think that is what ultimately drove customers toward Meezan Bank.

I often gave a simple example. Suppose you are travelling in a non-Muslim country and you see two burger restaurants. One serves ordinary beef burgers, while the other clearly offers *zabiha* products. Most Muslims would naturally choose the *zabiha* option if both are available. The question becomes: why choose a non-compliant option when there is no need to do so?

That same logic helped drive our customer conversion.

Q: Meezan Bank has won the “Best Bank” award five times out of eight participations in the Pakistan Banking Awards— an extraordinary achievement. How do you view this recognition, especially in comparison with both conventional and Islamic banks?

A: To be honest, when we received the award for the fifth time, shortly before my retirement, I genuinely was not expecting it. At some point, you begin asking yourself: how many times can the same institution keep winning?

And honestly, I felt somewhat embarrassed that day because naturally all eyes are on you, and people begin wondering what special factor exists behind that consistency. It is not always easy to carry that spotlight. But Alhamdulillah, Allah has been extremely kind to us.

And I believe a major reason behind this consistency is the vision we discussed earlier: “To establish Islamic banking as the banking of first choice.”

I have studied many vision statements from leading multinational organizations over the years, purely for my own learning, and I still believe this remains one of the most powerful vision statements I have come across because it focuses on a larger purpose. It does not say: “Make Meezan Bank the bank of first choice.” It says: “Establish Islamic banking as the banking of first choice.”

That broader purpose shaped our thinking. So, whenever we needed to support Islamic banking more generally, whether through helping conventional banks establish Islamic windows or supporting newer Islamic institutions, we tried to do so positively.

Over time, we learned to work alongside one another. Today, roughly one-third of the professionals working in Islamic banking in Pakistan, and even many in the Middle East, are former Meezan employees. Former Meezan employees are now present across the industry. In many ways, they have become brand ambassadors for Islamic banking itself. And I believe Meezan’s vision has played a very important role in that.

Secondly, our core values also became deeply important. Although they were not formally articulated in the earliest years, over time we clearly defined them as: Shariah Compliance, Integrity, Service Excellence, and more recently, Digitization. These values became embedded into both our thinking and our culture. In fact, if someone spent years at Meezan Bank and still does not understand these values, then perhaps they did not fully absorb what the Meezan experience was meant to teach.

So, everybody understands that. What is Shariah compliance? Integrity, service excellence etc., Shariah compliance includes all of these things. Your own demeanor, how you behave with other people, all of it is covered within that framework.

So, we say Meezan is a way of life. It is an ecosystem, not merely a place where you come at 9 o’clock and leave at 5. If you leave at 5 o’clock, people usually notice because most people stay later. But it is an ecosystem. So, I will give you an example.

If you go to a juice shop and order a strawberry milkshake, they will add strawberries, milk, sugar and whatever ingredients you want. Then they blend it together into a milkshake. Now, if you ask someone to separate the sugar and strawberries again because you are in the mood to consume them separately, that is no longer possible. It is no longer separable.

So, Islamic banking is the practice of Islam and the practice of banking blended together into one. If, in the practice of Islam, you say, “I will only follow what suits me,” then you cannot truly deliver Islamic banking. I would say a huge majority of our people understand that. That is why their behavior toward their own families, neighbors, colleagues, and customers also reflects those values.

In Islam, there is a strong emphasis on excellence in service and in everything one does. That is service excellence, right? Be honest. Be punctual. Honor your commitments. All of these things make business sense, but we do not merely approach them from a business perspective. When these values are genuinely integrated into professional life, they create a multiplier

effect. Islamic banking, as I said, is a combination of both, faith and banking. When these are truly blended together, something meaningful is created.

Apart from that, continuing with the milkshake example, another important point is that the banking we are blending with Islamic principles is the same banking people were already familiar with before hearing the term "Islamic banking."

There is still a cheque book, there is still a bank counter, and people still withdraw money. Eighty to ninety percent of what happens in banking is already permissible. The elements that are non-compliant or prohibited by Shariah are eliminated. So, it becomes a process of elimination rather than reconstruction from day one.

We have tried to evaluate every transaction individually. For example, if someone wants car financing, we ask: within the conventional car leasing structure, what elements contradict Shariah principles? Those elements are removed. Once you eliminate them, what remains becomes Shariah-compliant car financing.

Now, people often say, "You charge the same rates as conventional banks and provide the same cars." My response is: if we offered a car with three wheels, or charged rates completely disconnected from the market, would anyone come to us?

There is a principle in economics, the law of arbitrage. If you price something significantly above or below market realities, the business becomes unsustainable. That is essentially the law of arbitrage. So, the service being offered must remain commercially viable while also complying with Shariah principles. If that balance is achieved, the customer is satisfied as well.

Some critics might say, for example, that the car itself should somehow look "Islamic", perhaps even be green. I am, of course, giving a simplistic example. Even our logo is not green. Similarly, we are called Meezan Bank, not Meezan Islamic Bank.

My own view has always been that if we are practicing Islamic banking, it is because we believe this is the correct way of banking. This is simply banking done correctly. So why should we constantly label it as "Islamic banking"? In my view, doing so can sound apologetic. It is simply banking conducted in a Shariah-compliant manner. That is why the tagline says "The Premier Islamic Bank," but the institution itself is Meezan Bank Limited.

Even when we were Al-Meezan Investment Bank, we did not call ourselves "Al-Meezan Islamic Investment Bank," because our systems and processes themselves already reflected compliance.

We do not need to use religion merely as a marketing label by saying, "Come to us because we are Islamic." Insha Allah, our aim is to become the banking institution of first choice. And Alhamdulillah, we are seeing that shift happen more and more now. I believe that among the new branches being opened in Pakistan today, more than 80% are now Islamic banking branches. So, this transformation is already taking place.

And in the end, when results come like profitability, deposits, awards, recognition — these are all by-products. If you do the right work, you will get the right result. If the right ingredients are missing, then you will neither achieve profitability nor recognition. So while we remain deeply grateful to Allah for every achievement, we also constantly remind ourselves to stay grounded. "So, we don't want to go from the ground to the first floor!"



At the same time, while growth is important, remaining grounded is equally important. So that is the short answer, and perhaps also the long answer.

“Islamic banking is the practice of Islam and the practice of banking blended together into one.”

Q: During the course of your career, you have worked with more than ten Governors of the State Bank of Pakistan. How would you reflect on that experience?

A: Yes, Masha Allah.

I think you may be wondering how all ten of them managed to tolerate me. Quite frankly, in a light-hearted sense, it is a miracle that they tolerated me (*laughs*).

But on a serious note, Alhamdulillah, every single one of them helped us in a different way. Meezan was built brick by brick, and whether it was Governor 1 or Governor 10, each of them contributed a brick to that foundation and to the growth of the industry itself.

I would especially mention Dr. Ishrat Husain, who actively supported this vision from the very beginning.

Alhamdulillah, his support remained there throughout both the pre-incorporation and post-incorporation phases. He understood that Islamic banking would face difficulties initially and that it would require hand-holding in the early years. And not just Dr. Ishrat, but his entire team at the State Bank was extremely supportive.

Even before we came fully under State Bank regulation in 2002, there was constant engagement and support from them. During the licensing process, Mr. Mansur-Ur-Rehman Khan and others worked extraordinarily hard alongside us. They would often ask me not to come before 5:30 in the evening because they needed uninterrupted time to work. I would arrive around 5:30 and sometimes sit with them until 9 or 10 at night while they continued working through the details.

The State Bank helped us tremendously. The Ministry of Finance also played a major role because this was ultimately a joint national initiative. Even some governors who personally may not have been fully convinced about Islamic banking still fulfilled their institutional responsibility once the license had been granted. Without exception, all ten governors contributed positively.

And currently, Governor Mr. Jameel Ahmad is himself extremely passionate about Islamic banking. That level of passion perhaps did not exist to this extent earlier. Combined with the government's commitment toward transformation by 2028, there is now much greater momentum behind Islamic banking growth.

Q: So, would you say the regulatory philosophy itself has evolved over time with respect to Islamic finance?

A: Yes, absolutely. It has changed significantly, a complete sea change.

Initially, when we approached the State Bank, people would look at us as though this idea had no practical future. But Alhamdulillah, Allah changes hearts. Our hearts also changed in this process. In many ways, our own understanding evolved during this journey as well.

In fact, I myself once used to believe there was no meaningful difference between Islamic and conventional banking. Even today, I have friends who still hold that opinion. I simply tell them that perhaps I understood it slightly earlier, and Insha Allah, over time they may also come to understand it. Gradually, people are realizing that this is a good model to follow. We follow it because of faith. Others may adopt it because of business demand, and that is also perfectly fine.

If someone opens a burger shop because there is market demand for burgers, there is nothing wrong with that. Similarly, if conventional banks recognize customer demand for Islamic banking and enter the space, that too is positive because ultimately it supports the broader objective of making Islamic banking the banking system of first choice.

Q: You mentioned Islamic banking windows earlier. How do you view their success and future?

A: The need for Islamic banking windows emerged because conventional banks realized their customers increasingly wanted Islamic financial products as well. And as I said earlier, there is absolutely nothing wrong with that. In fact, it is a very positive development. This momentum has accelerated significantly over the last decade.

Although Meezan itself is nearly a 30-year-old institution, Islamic window operations have really expanded meaningfully over the last ten years. And Masha Allah, they have opened a substantial number of branches. My own view is that Islamic banking in Pakistan cannot reach 80%, 90%, or 100% penetration through standalone Islamic banks alone. The windows must also participate in that journey.

In many large transactions, participation from these conventional institutions becomes essential. So, it takes two to tango. The level of awareness and confidence in Islamic banking is much higher today. And as long as these windows operate under State Bank guidelines and proper Shariah supervision, that is perfectly acceptable. Customers themselves are intelligent enough to evaluate their options, much like choosing between different kinds of bottled water.

Both may be drinkable, but preferences still vary. Personally, I believe the subsidiary model is even stronger because the operational boundaries become much more clearly defined and almost ironclad. But that is my personal opinion. Overall, I believe Islamic windows have significant future potential if they continue doing things properly.

Q. How would you explain the fundamental differences between Islamic and conventional banking? In particular, how does the Islamic banking model ensure both Shariah compliance and profitability? There is often a misconception regarding profitability in Islamic banking. How would you address this?

A: I can say that there is a reasonable level of clarity among the majority of customers, because if you visit Islamic banking branches, you will see they are full. So, as the saying goes, "Where there is smoke, there is fire." In that sense, one can say the industry has passed a kind of litmus test.

However, for the segment of people who still have some lack of clarity, it is important to explain that the profit we distribute monthly is not pre-determined. All Islamic banks, including Islamic banking windows, declare their profit on a monthly basis. The profit distribution is not fixed in advance; we do not say at the beginning that we will give 8%, 3%, or 4%.

Instead, at the beginning of the month or at the end of the previous month, weightages are defined. For example, if you are investing in a savings account, your weightage may be 2%, and if you are in a fixed deposit, it may be 1%. This simply reflects the relative allocation mechanism, for instance, if one segment earns 4%, another may earn 2%, proportionately.

The profit that is declared every month is actual, calculated down to the last rupee, and there is no ambiguity in the banking system in this regard. Everything is defined under State Bank regulations and accounting standards, making the process very structured and transparent.

We operate through a pool mechanism. Deposits from savings and fixed accounts, not current accounts, as those are treated as *qardh* and carry no remuneration, are pooled together with the bank's capital and invested in sukuk and other financing assets. This is done comprehensively, not selectively.

So, if we have exposure to 100 financing arrangements or 20 different sukuk instruments, all of them are part of the same pool. We calculate the actual income generated from these assets on a monthly basis.

According to State Bank regulations, Islamic banks and Islamic banking windows are required to distribute at least 75% of the declared profit to depositors. For example, if KIBOR is around 10%, our income may also be around that level. In such a case, at least 7.5% must be passed on to customers. We may distribute more, but not less.

However, it is important to understand that this is gross profitability. After distribution, the remaining

margin often does not even fully cover overhead costs. Therefore, the return given to customers is a fair reflection of the actual gross earnings.

Islamic banking returns may sometimes appear lower compared to conventional banking. One reason is that Islamic banks invest a significant portion of funds in sukuk, whereas conventional banks invest in instruments such as T-bills and PIBs. Due to market dynamics and supply-demand conditions, sukuk yields can be lower by around 1.5% to 2%. This is not due to any policy bias, but purely market-driven conditions.

As Pakistan moves further towards Islamic finance, the availability and volume of sukuk instruments will increase. In fact, after several years of effort by the State Bank and the Ministry of Finance, with the support of Meezan Bank, the first asset-light sukuk was recently issued. Under this structure, if the government has assets worth PKR 100, it can issue sukuk of the same value, improving supply liquidity.

This development effectively doubles the sukuk issuance capacity, which will help ease supply constraints. As supply improves, pricing dynamics will also improve, and consequently, 75% of that improved return will be passed on to customers.

Ultimately, Islamic banking ensures that the underlying income is fully Shariah-compliant, and the entire distribution mechanism is governed by a structured, regulated pool system. While exact returns can be estimated, they cannot be fixed in advance with absolute certainty, though they remain highly predictable within a narrow margin.

In contrast, conventional banking income is derived from non-compliant sources for those who view it as such. Whatever is distributed thereafter will also reflect that nature. A simple analogy is that of *zabiha* and non-*zabiha* meat, the distinction remains regardless of how it is processed or distributed.

From a customer's perspective, Islamic banking provides a system that aligns with faith-based principles. Beyond that, customers may differentiate between institutions based on service quality, pricing, and personal preference, just as is the case in any competitive industry.

Q: The State Bank has recently issued digital banking licenses. How do you see the future of Islamic digital banking evolving in the context of Meezan Bank?

A: Today, digital is the answer.

At Meezan Bank, we often say: "Our bank is the app." Even though we have more than 1,100 branches, customers interact with the app daily. People practically do not sleep without their phones anymore. For larger transactions or financing needs, customers may still visit branches, but more than 90% of banking transactions today are already digital.

Our IT head once gave me an interesting example. He said that in the one second it takes to snap your fingers, thousands of transactions are already



processed through the Meezan Bank app. That is the speed and scale of digital banking. Without digital capability, there is no future for banking.

As for the newly licensed digital banks, whether Islamic or conventional, I see them as participants in the same broader ecosystem. If they operate in a lean and mean, cost-conscious manner, they will likely find their own niche and customer segment.

There are certain smaller market segments that large banks sometimes do not prioritize because of operational complexity. Digital banks may serve those segments very effectively.

Pakistan's population is enormous, and demand exists across every category of financial services. So, if things are done properly, both digital banks and traditional banks will continue to thrive, Islamic and conventional alike. Digital is no longer a differentiating factor; it is now a basic requirement, a hygiene factor. If you are not digital, customers simply will not come to you.

Q: Meezan Bank has largely been offering a debit-based payment system. What about the introduction of credit cards?

A: Credit cards are something we have been evaluating for the last 10 years or so. Initially, we did not find a compelling reason because our debit card off-take is extremely high. I believe Meezan Bank has some of the largest debit card transaction volumes in Pakistan, whether ATM-wise or otherwise.

So, for a long time, we did not feel the need for credit cards. Obviously, introducing a Shariah-compliant credit card was also more challenging. However, there are certain things you cannot do on a debit card. For example, if you are travelling abroad and need to make a hotel booking, your account gets debited immediately when using a debit card, whereas with a credit card, the amount is only blocked temporarily. The same applies to car rentals abroad. So, a genuine need was felt. For the last two years, we have been actively working on it.

Eighty to ninety percent of banking is already permissible. The non-compliant elements are simply removed... so, it becomes a process of elimination rather than reconstruction from day one."

We have received some basic in-principle approvals from our Shariah board, with certain caveats, and we are working through those carefully. In terms of speed, I would say the process is slower than what we would normally expect at Meezan Bank.

But it is definitely a work in progress. The reason it is taking time is because it requires careful understanding to ensure that we do not introduce anything that contradicts Shariah principles.

However, several banks globally have already issued Islamic credit cards, and we are studying those models closely. Insha Allah, we will find a suitable solution. How soon, I do not know, but hopefully within a year or so, Insha Allah.

Q: It has often been observed that employees at Meezan Bank exhibit a very strong sense of loyalty to the institution. What drives this culture of trust and retention?

A: The culture that has developed at Meezan is very much top-down. You have to walk the talk. There are many aspects of culture: integrity, humility, frugality, and not overspending on personal desires.

Come on time, leave on time — although leaving on time is often difficult. But at the very least, come on time.

These are basic values. I am not saying such values do not exist in conventional banks, but generally speaking, these values tend to be weaker, not just in Pakistan, but elsewhere as well.

If we are presenting ourselves as an Islamic bank, then naturally Islamic values and practices must also be reflected in our culture. Only then do people begin to truly appreciate it.

For example, this may sound like a small thing, but at our head office, where we have around 3,000 employees, our three Zuhr Jama'ats are scheduled at 1:15, 1:30, and 1:40 pm. But even outside those timings, if you visit the prayer area and find five people there, one person will be leading the prayer while the others follow behind him.

When I used to work at a multinational company in Pakistan, my boss would sometimes ask me to lead the prayers. I would respond that I would pray later on my own because, at that time, I did not feel it was necessary. But today, for me and my children, it has become as natural as breathing.

Those who understand the importance of this culture for themselves often find it difficult to disassociate themselves from Meezan because they cannot easily find this environment elsewhere.

Doing everything in the correct manner is important. It is easy for organizations to say they have values, but the real question is how consistently those values are practiced. Once people begin seeing these values implemented in reality, it strengthens their faith in the institution.

“The underlying income itself must be Shariah-compliant.”

A word that is very common at Meezan is “ecosystem.” By ecosystem, we mean our employees, customers, suppliers; everyone connected to the organization. At Meezan, we often speak about the concept of *barkat* (blessings). It is difficult to explain to someone unfamiliar with our cultural and religious context, but you can genuinely feel its presence. When things are done correctly and ethically, there is a sense of blessing in the work.

I believe this is one of the reasons people stay together at Meezan for so long, although, of course, people do leave as well.

Q: Your spouse, Dr. Ghazala Siddiqui, is widely respected in her own right. What was her contribution to Meezan Bank's growth story?

A: I have always said that this journey was truly a partnership. None of it was just about me alone. In many ways, our entire family became involved with Meezan Bank.

That sense of involvement had never existed in my previous organizations, whether I was working in Kuwait or Abu Dhabi. Here, there was a very different sense of ownership because this was something larger than ourselves.

When we moved back from Kuwait, Dr. Ghazala began attending Quran classes. During that time, she came across the verse in Surah Al-Baqarah which states that involvement in interest (*riba*) is akin to a war against Allah (SWT) and the Prophet (SAW).

I have mentioned this earlier as well. Naturally, this was a very serious realization for us. After conducting extensive research and meeting with Mufti Taqi Usmani Sahib, I also became convinced that this understanding was correct.

Initially, I was in denial. I used to think there was no issue in conventional banking. But eventually, after deeper understanding, we felt we needed to migrate, to make a form of hijrat.

At that point, through collective wisdom, we decided that while we would remain within the banking industry, we would try to create something Islamic from within the conventional system. Once you leave banking entirely, it becomes difficult to build an Islamic alternative because you become too disconnected from the industry.

At the time, I was working at Pak-Kuwait, which naturally involved interest-based transactions. But we believed that, Insha Allah, we could eventually contribute toward creating an Islamic alternative.

“Our bank
is the app.”

That eventually led to the birth of Al-Meezan Investment Bank.

It was a three-year struggle, first understanding the model ourselves, then going through the licensing process, which itself took another three years. Naturally, there were moments of frustration because the process was taking so long, and we were uncertain whether the vision would ultimately be approved or realized.

But Alhamdulillah, it eventually happened.

My wife had an immense contribution in that entire process. Later, when the bank had to be named, Dr. Ghazala selected the name “Meezan” from Surah Rahman, where the word appears repeatedly in verses 7, 8, and 9. That is where the name “Meezan” came from.

In the early years, there was significant resistance. Even among our own friends and family, people would ask, “What are you doing? This will never work. Who will come to an Islamic bank?”

At that time, IBA was one of the primary sources of recruitment for us. We would review the student directories, shortlist candidates, and call them for interviews. If we invited ten people, perhaps only five would show up, and even when we made offers, many would not respond. The concern was always: “What if we join and the bank closes tomorrow? It would look terrible on our CV.” So, in the beginning, establishing ourselves was extremely difficult.

The first call center we established at Meezan Investment Bank used to receive lengthy calls. Customers would ask repeatedly how Islamic banking was truly different from conventional banking. At that stage, we had to spend considerable time explaining the concept and ensuring people understood the Shariah basis. Today, people rarely question it. Most customers now come already convinced.

During those difficult years, immense support from family becomes critical. Dr. Ghazala was always there. At times, I would become frustrated or disheartened, particularly when dealing with regulatory issues or delays. Whenever I became upset, she would often remind me to remain patient and approach matters wisely.

That journey, Alhamdulillah, continued despite the difficulties. Establishing something entirely new requires enormous effort, travel, time, and sacrifice. Throughout all of it, she would continue encouraging me, saying that since we were working for Islamic banking, we should give it everything we could. As you may have seen in the book (*Unconventional: The Bank No One Saw Coming*), even its color selection was done by my daughter. So, in many ways, the entire family felt ownership of the institution, both intellectually and emotionally.

Alhamdulillah, that was the sense of ownership we all carried. And I believe the same spirit eventually spread among our colleagues at Meezan as well.

Q: With this transition in leadership, do you believe this culture and feeling will continue?

A: Yes, Alhamdulillah. I believe our transition itself deserves recognition — perhaps even a place in the Guinness Book of Records! It has been a very long transition process.



Syed Amir Ali was with us for 13 years before leaving to join BankIslami as CEO at a time when the institution itself was facing significant challenges. That became its own turnaround story, and I often say he received on-the-job training for handling difficult situations. Then, as I was approaching retirement, I told him jokingly, "The time for martyrdom is near — please come back!" Alhamdulillah, he returned.

But my search for a successor had actually started nearly five years earlier. I wanted someone who could continue carrying the same vision and culture forward. Now, after observing Meezan Bank from outside for the last four months, I can honestly say that things appear even better than before.

Our progression has continued. The Board sometimes jokes that things are better after my departure, and I tell them that this, in fact, is my greatest success. If things were not improving, I would feel troubled. True success is when an institution continues to grow even after you step away from it. So, from both a business perspective and a Shariah governance perspective, I genuinely see Meezan continuing to improve. Alhamdulillah.

“Meezan is a way of life. It is an ecosystem.”

Q: As we come toward the close of this interview, what advice would you like to offer the next generation of leaders in Islamic finance and beyond?

A: Meezan, for me, was a learning ground.

One of the biggest lessons we learned at Meezan Bank is that there is absolutely no substitute for hard work. Unfortunately, I feel the younger generation's inclination toward industriousness is gradually declining. They often think AI can provide shortcuts for everything. There was a time when graduates from IBA and LUMS would join us and believe they would become CEOs within three years. Very quickly, they would begin feeling that whatever work they were doing was merely clerical. My response to that was always simple: "For the last 20 years, much of my own work has also been clerical." Eighty percent of professional life involves routine execution. Only a small portion is strategic thinking. The routine work still has to be done. So hard work remains essential.

Secondly, people must develop patience — *sabr*. Professional growth takes time. Young professionals should not resort to switching jobs too frequently simply because they become frustrated, face temporary difficulties, or receive a slightly higher salary offer elsewhere. There has to be consistency.

And when you combine this professional discipline with the values Islam teaches us, it shapes an individual's entire personality. An organizational culture that teaches honesty, fulfilling promises, humility, and

ethical conduct contributes greatly toward developing good human beings. At Meezan, we also work with NGOs and often tell them that their training programs should focus not just on technical capability, but on building good human beings.

For us, the Quran and Hadith provide a very clear and sufficient framework for that. Ultimately, people need to remain grounded and avoid becoming excessively ambitious. Everything else becomes, as I said earlier, a by-product: career growth comes as a by-product, salary comes as a by-product, and material comforts come as a by-product.

Nowadays, people sometimes leave jobs merely because they are offered a better company car. They chase the car but later realize they compromised on the quality of the job opportunity itself. People need to focus far more on consistency.

At Meezan, we always say that we work harder and smarter. Intelligence can be hired relatively easily, but a hardworking mindset is absolutely essential.

Q: With the conclusion of your executive tenure at Meezan Bank and the transition of leadership to a new generation, what personal reflections do you have on this journey? Looking back, are there any regrets or "what-ifs" that come to mind?

A: When I reflect on regrets, I believe the human ability to forget is actually a blessing from Allah. When hardships come, I tend to move on from them relatively quickly. It is a healthy defence mechanism that prevents us from becoming trapped under the weight of difficulties. Challenges are inevitable in every environment.

A former colleague of mine once used a football analogy. He said, "Imagine watching or playing a football match with no goalkeeper. Would it still be enjoyable?" At first, scoring effortless goals may sound entertaining, but eventually the game loses its meaning. Real satisfaction comes from overcoming obstacles.

The excitement, and ultimately the growth, comes from the struggle itself. If tomorrow morning you walk into work and simply process standard account openings all day, there is nothing remarkable about that. Anyone can do it. The real question is: without a challenge to solve, what have we truly contributed? Difficulties will always come, and you must learn to overcome them. After some time, those very difficulties no longer even feel difficult.

We faced many challenges ourselves. But Alhamdulillah, when you look ahead, the highway in front of you appears bright, while in the rearview mirror, past struggles begin to look much smaller.

Mr. Irfan Siddiqui, thank you so much for generously sharing your time and insights. It has truly been an honor speaking with you, and Insha Allah, we wish you all the very best in your future endeavors.



A Conversation with **Dr. Ghazala Siddiqui**

Leadership, Partnership, and Purpose

*While Mr. Irfan Siddiqui reflects on his professional journey and the evolution of Islamic banking in Pakistan, the second part of this feature offers a more personal perspective through the insights and reflections of his wife, **Dr. Ghazala Siddiqui**.*

Dr. Ghazala Siddiqui is the Founding Principal and CEO of Generation's School. She has shared over four decades of companionship with Mr. Irfan Siddiqui, through the remarkable journey that ultimately led to the establishment of Meezan Bank. Alongside her steadfast support for this vision, she also brought strength, conviction, and a deep sense of shared purpose to that journey.

We are honored to share this conversation with Dr. Ghazala Siddiqui, in which she reflects on her experiences, her role alongside Mr. Irfan Siddiqui during the formative years of Meezan Bank, and her inspiring journey in leadership, education, and institution building.



Q. I would like to begin by asking you, as Mr. Irfan's life partner for over 40 years, Masha Allah, how do you view your shared intellectual and spiritual conviction during the formative years that contributed towards the establishment of Meezan Bank?

A. In the name of God, the Most Merciful, the Most Compassionate.

Well, yes, it has been, Masha Allah, 43 years together. Alhamdulillah. And when I look back, actually, in retrospect, what it really looks like is that it is only now, after so many decades, say for example Meezan Bank, almost 30 years, that I can see the puzzle pieces fitting together.

But when we traversed those 40-plus years, we never felt that it would eventually become the kind of story it appears to be today, Alhamdulillah.

In the beginning, I think it all started, and the major contribution has been that we became friends with our beliefs. We started understanding who we really are. And that was through the Quran itself.

I am a medical doctor, Masha Allah, and I did practice for a short while. I completed my house job, got married, and then moved to Abu Dhabi, where Irfan was working with ADIC, Abu Dhabi Investment Company.

I got some time away from my practice there. And that is where I decided, and Alhamdulillah Allah (SWT) put the right thought in my mind, to start studying the Quran, which I had not done during the first 25 years of my life.

In spite of my mother always encouraging all of us, especially me, to do that, I always had my medical books in my hand. Then I reminded myself that this was exactly what my mother had always wanted for me. So I thought this was the right time to do it, before we had children.

After marriage, I had the time, and that is where I devoted myself to studying and reflecting upon the

Quran. Not only the Arabic recitation, but also the Tafsir and commentary. Within days and weeks, I started receiving insights that I had never experienced before. I started finding myself in it. Then I started sharing these reflections with Irfan whenever he came back from the office, just little by little, bite-sized discussions. And within a year or so, we were together on that path.

Alhamdulillah, Irfan also started studying the Quran, initially through me and then independently. We began studying it together. That is when our lifestyle started changing, and we started thinking through a completely different paradigm. There was a paradigm shift taking place. That was the commencement.

Then we moved to Kuwait, where Irfan joined KIA, Kuwait Investment Authority. He held a senior position there, Masha Allah, and was among the highest-paid Pakistanis in Kuwait at that time. I am narrating this only for the lessons that life offers all of us. There, we had decided that we would stay for some time.

Until one day, Irfan received a very unpleasant response from the immigration authorities while seeking an *iqama* for his parents. He was the only child, and we had always received *iqama* facilities in the UAE. KIA had also promised that they would facilitate it.

But Irfan, being proactive by nature, went personally to the immigration director without informing HR, expecting that his request would be respected. Instead, the director responded: "If you are so worried about your parents, then why are you here? Why don't you go back to Pakistan?"

That was it.

Irfan was deeply affected. He came back home extremely upset, and we discussed it for a couple of hours. Then he said, "Probably he is right. Why are we here? If our parents are not welcome here, then why not live in our own country?" And almost miraculously, we decided that we would return to Pakistan. Within a couple of days, we had made up our minds.

Without having another job in hand, and without overthinking finances or security. Alhamdulillah, those things did not become obstacles for us. We simply felt that life must have a higher purpose. So we decided to return to our parents and to Pakistan.

Later, the KIA officials told us: "Why did you go directly to the immigration office? You should have informed HR. We would have handled it for you." But by then, the decision had already been made. And for us, Alhamdulillah, it became a blessing. Allah wanted us to return.

Initially, we planned to establish a healthcare center, since I was a medical doctor and Irfan had an entrepreneurial mindset. We thought we would work together and establish a high-quality healthcare facility.

Then, in 1989, while looking for a school for our eldest son, Shoaib, who was four years old at the time, we realized we could not find a school that felt balanced. By then, our paradigm shift had already taken place. We believed that education should produce both a good human being and a good Muslim. But we could not find that balance. Either there were missionary schools, or madrasahs, and neither fully aligned with what we were looking for.

That is where the idea of Generation's emerged. Then, within the next few years, while studying Surah Al-Baqarah, we encountered the verses regarding *riba*, that it is a war against Allah (SWT) and His Prophet (SAW). That was it. We felt we could not continue with it anymore. The important thing, however, was that I initially assumed Irfan would leave banking altogether and pursue something else, perhaps business or entrepreneurship, because he had the capability for many things, Masha Allah.



But after a few days, when we became certain that this was not the right direction for us, Irfan said: "No. Let me remain within conventional banking, with the intention of finding a way towards Islamic banking."

And another important thing was this: had he left conventional banking at that stage, perhaps the vision for Islamic banking would not have materialized the way it eventually did. Had he not remained there, and had he not possessed the creativity, courage, and willingness to challenge the existing system and status quo, perhaps this journey would not have unfolded the way it did. Maybe someone else would have done it, Allah knows best. But for us, Alhamdulillah, we feel it was one of the grand decisions Allah enabled us to take.

Throughout this journey, we remained together, coherent, and aligned, Alhamdulillah. That has been a journey of the soul, and a journey through the Quran. That is what kept us determined, consistent, and persistent in whatever we were doing.

So when Irfan was answering your earlier question regarding challenges or regrets, even I found myself reflecting upon it. And Alhamdulillah, I genuinely could not think of any regret. Because whatever happened, there was always some goodness hidden within it.

Q. Dr. Ghazala, during this journey, with all its ups and downs, there must have been moments when Irfan Sahib may have felt morally exhausted, or fearful of failure, as happens in every major endeavor. How did you support him during those times?

A. Well, yes, as you rightly said, every ambitious journey comes with moments where one feels blocked and unable to see beyond the challenge ahead.

The good thing, Alhamdulillah, has been that Allah blessed us both with a very strong understanding between us. Our bedroom discussions were always meaningful and purposeful, whether the challenge was mine or Irfan's. I think we always approached these efforts as a shared mission. Whether it was Meezan Bank or Generation's School, we both owned the mission together.

So whenever one of us felt burdened or emotionally exhausted, the other would provide reassurance and perspective. And that reassurance came largely through the Quran. Allah promises that He will always create a way forward. He does not break His promises. You and me, we can break our promises. Allah cannot. If He says that if you take one step towards Him, He comes ten steps towards you, then that promise is absolute. So we always believed that there would be a way out.

And if, for any reason, Allah decided that something was not meant to continue, then our responsibility was simply to do our best and remain content with His decision. That mindset helped us immensely.

And Masha Allah, Irfan has always been someone who thinks in possibilities. If not one way, then another. That is something I learned from him. He has always had the ability to turn challenges into opportunities. All the

time. So yes, difficult moments came, but Allah always helped us overcome them.

We have taken U-turns, left turns, and right turns, but the direction has remained the same. I think it is the kind of mission Allah blessed us with. And then, of course, the entire team also becomes part of that mission. Once something becomes your mission, you own it completely. Then whatever comes your way, you continue doing your best while remaining connected to your Creator. And then, somehow, things begin to work out.

That is the promise.

Q. You yourself are an educationist, an institutional leader, and have also journeyed alongside Mr. Irfan Siddiqui through the formative years of Meezan Bank. What guiding principles have shaped your leadership philosophy?

A. Well, it has been a long journey.

We established Generation's in 1990, so it has now been 35 years, and we have recently commenced our 36th academic session. When I look back now, perhaps some of it may be described as leadership. But honestly, right from the beginning, whenever people visited the school, they would say: "It is so innovative. It is so different." And I would genuinely wonder: "What is so special about it? Isn't this how education should naturally be?"

But after 10 or 20 years of consistent feedback, I began to realize that perhaps something meaningful was happening. Even then, we were never in a hurry to declare success. Whenever people asked how Generation's was doing, I would say: "We honestly do not know yet. We are trying our best." Because education deals with the most precious creation of Allah, human beings. I used to say that it would take at least a quarter of a century before we could truly evaluate whether we had succeeded in what we intended to achieve.

Only when the students grew up, entered professional life, family life, and society, could we genuinely assess whether we had helped nurture academic excellence, values, and leadership qualities. So for me personally, it genuinely took nearly 25 years before I felt confident enough to say: "Yes, perhaps we are making a meaningful impact."

That was very important for us.

We eventually realized that the vision itself was extraordinary because it was not limited only to success in this world, but also success in the Hereafter. That is the grandest vision a human being can have. And I think it is that grand vision that continuously drives us. At the core of it all is purpose. Everything Allah creates has a purpose.

If I am wearing this watch today, and it stops functioning, then eventually I will set it aside because it no longer fulfils its purpose. Likewise, if we do not fulfil the purpose for which Allah created us, then what happens?

We become sidelined. That understanding became central to our philosophy. We constantly encouraged teachers, students, and parents to reflect on fundamental questions: Why am I here? What am I striving for? What kind of success truly matters? And not merely short-term success or instant gratification, but success in the eternal sense.

Then everything else becomes a by-product, profession, recognition, wealth, status, leadership, entrepreneurship, all of it. Both Meezan and Generation's were established on foundational principles inspired by the Quran. Meezan was built on the concept of *riba*-free banking, while Generation's focused on holistic, values-based human development.

That larger picture of life became our source of motivation and inspiration. And throughout this journey, we remained anchored to the belief that Allah does not abandon those who strive sincerely on the right path.

Even regarding intention, I constantly pray: "Yā Muqallibal-qulūb, thabbit qalbī 'alā dīnik." (O Changer of hearts, keep my heart firm upon Your religion.) Because Allah alone is the owner of our hearts and intentions. So I always pray that He keeps our intentions pure and our direction correct. And truly, dua works. Dua works. Whether in easy times or difficult ones.

Even now, when our students appear for their examinations, they message their teachers asking for prayers. That connection with Allah remains alive. And seeing that gives immense satisfaction, that students work hard, strive for excellence, and at the same time remain connected spiritually.

I think these principles have kept us grounded throughout this journey.

Q. Dr. Ghazala, you trained as a medical doctor, and later went on to become an educationist and entrepreneur. What advice would you offer to women aspiring to build long-term careers in any field, whether banking, education, or other unconventional paths?

A. I think to all the ladies and women who aspire for long-term careers, I would suggest very strongly that it is important to reflect on what we should actually be aspiring for.

If we fix our target only on becoming a long-term career-oriented woman, and stop there, full stop, that may or may not turn out to be a positive or pleasant experience.

What I always thought was this: being a medical doctor, I pursued it as a passion. When I interacted with patients, that taught me what life is. When I saw life and death in front of me, in labor rooms, surgery tables, wards, and hospital beds, that is what taught me that nothing is stable or forever.

So if I were to give advice, it would be this: we must aspire, but not keep those aspirations fixed. You continue aspiring throughout life.

If you look at it, I found myself again through the Quran. I realized what I had been



created for. Allah created Adam and Eve together, Adam first and then Eve. Likewise, both roles are not in competition with each other; rather, they supplement and complement each other to make one whole. They are complementary, 50-50.

If you understand that concept of life, that just as an inventor has a purpose for an invention, or a producer has a purpose for a product, you always go through the manual to understand how to use it with maximum efficiency. Our Creator has also created us with a holistic approach. So it is better if we realize, first of all, that my husband and I are going to, insha Allah, achieve together.

I have my own identity, of course, and my husband has his own identity. But the moment those two identities come together through *nikah*, Alhamdulillah, they become one. So that is where the understanding starts.

It is important for us to realize that we are not aspiring only for careers. Yes, careers are important, but not careers alone. We should actually aspire for long-term success in life. Whether we are in industry, the service sector, or teaching, there will be phases in life where we will be able to work differently because each of us has a definite role to play.

Our husbands are the *qawwams* (maintainers), so it is their responsibility to support the family financially and in many other ways. Our role is to ensure that we create and sustain a productive, homogenous culture with a growth mindset at home. We go on maternity leave; men do not. So it is not about competing with each other. It is about completing each other. That philosophy should also reflect in our work practices.

Like Irfan and myself, we have always worked together, of course with full support from my husband. Career-wise, it is important not to fixate your mind only on your own career. If you begin thinking holistically, as a family, as a couple, then you begin asking: what can we accomplish together?

At times, it may happen that I have to temporarily pause my career to do something greater or more important at that phase of life. But expecting that the husband should give up his career may not always be justified because he carries the responsibility of supporting the entire family financially and otherwise.

I may not always need to be outside the home, but pursuing a career is still important. Had I not entered education, I would have continued with medicine. That is where the deeper layer of family bonding comes in. Men must also take care of the home, predominantly outside, yes, but without neglecting the family culture and relationships. Similarly, wives predominantly nurture the home, children, and family culture. At the same time, women can also work outside and pursue careers, but not with the mindset that career must continue no matter what. The greatest priority is to hold the family together.

That is what we learn when we observe how family systems have weakened and shattered in parts of the West. So yes, have aspirations. But do not fixate yourself.

There will be phases in life where temporarily something else becomes the priority. But if husband and wife grow together as a family, eventually you still accomplish what you are meant to. Sometimes I say:

I wanted to be a doctor since childhood. My father wanted me to become a doctor, and I also wanted that. But eventually I did not practice medicine for very long. Then life showed me another need: education. You may not be an educationist, but you still realize the importance of education, as a family need, a national need, and even an international need. Where do you want to go? If you think like that, you can change many things. It is not the end of the world. When people become doctors or engineers, they often think: this is all I want to do. I do not want to stay at home. And if I sit at home, my self-esteem will go down. Nothing of that sort.

If you know how important you are in the eyes of Allah, and how important you are for your family and nation, then you understand that both roles complement each other. Your ambitions may evolve throughout life. One must have the wisdom to contextualize decisions and choices according to every phase of life.

And this is something I have observed very closely over the years. Over the past five years, I have interviewed many women. Most of the time, I hear: "Yes, I completed my Masters ten years ago." Very good. And then I ask, "What have you been doing since then?" "Nothing. I am a housemaker." Now, being a housemaker in itself is extremely important. If you do not build your homes, who else will? Not your husband alone. Of course, men also have a very important role to play, but perhaps they may not always take holistic responsibility for the home environment.

Then I ask them, "What have you learned in the last ten years?" Some women have actually said to me: "Ghazala, we have not even held a pen in ten years." That is a disaster.

Does staying at home restrict you from learning, progressing, or capacity building? Of course not. There is so much you can do, even while raising children. And if you are able to make arrangements for child-care while pursuing your work, then you are also

contributing economically by creating employment opportunities for others.

At the same time, you are serving society at a higher level. You are playing a larger role for the community. Just like Bibi Aisha (RA) and the wives of the Prophet (SAW), who contributed immensely to society. Women even participated actively during the Ghazwahs. Hazrat Nusaiba (RA), for example, protected the Prophet (SAW) during Jang-e-Uhad. Likewise, Hazrat Safiya (RA) also demonstrated extraordinary courage. Women have always had an important role to play in society. That does not mean they neglected their homes and responsibilities. So if you can manage both responsibly, then absolutely move forward. But look after your family and relationships to the utmost.

Your response is very insightful, and also contains important advice for men. Having said that, what advice would you give to men whose wives aspire to pursue full-fledged careers, higher education, academic publishing, or PhDs, all of which require significant investment of time, effort, and intellect?

A. Now, coming to husbands, I think I am among those very fortunate women who received a spouse who was ready to listen and encourage me from day one. I will give you a small example. The very first day after marriage, we had to go to the passport office. I came from a very modest, middle-class family. We travelled mostly in buses, and rickshaws were considered expensive.

I had a brand-new bridal purse, but there was not a single penny in it. My husband asked me, "Do you have anything in your purse?" I said, "No." I barely knew him then. Then he took out a few thousand rupees, which at that time was a very large amount for families like ours, and said: "Keep this in your purse." I said, "No, I do not need this much. Three or four hundred rupees are enough for me." He replied: "No, you should always keep this much with you, just in case."



That was the beginning of a relationship built on trust. And from then onwards, Masha Allah, he has always encouraged me, supported me, and guided me. I have learned professional skills, life skills, and positive thinking from him. We have shared responsibilities together. He has washed dishes with me while we were living in the Middle East. He has cooked with me. Sometimes he would take over completely. And we remained genuinely happy doing these things together.

At the same time, he would also include me in professional settings. In Tokyo and elsewhere internationally, he would say: "Come along." And I would say, "I can just sit quietly in the corner because I am an introvert." But he would insist: "No, you should sit beside the meeting table." I learned so much through those highly professional international meetings and interactions. He would proudly introduce me to senior people and directors. And I would wonder: What is so special about me that I should be introduced this way? Mashallah, that confidence mattered.

So I would really advise husbands as well: The Quran describes spouses as *libas* for one another. A husband is a dress for the wife, and a wife is a dress for the husband. What does clothing do? It protects you. It beautifies you. It gives you confidence. And it conceals your shortcomings. When I reflected on that verse, it deeply impacted me.

So my advice to couples is: Please become *libas* for one another. Protect each other. Respect each other. Love each other. And recognize that this relationship itself is an *ibadah*. Do not pull yourselves down from the high purpose Allah has created for you. I have often observed that in casual gatherings, spouses criticize each other or make fun of one another publicly. Unfortunately, it has become a trend. I would say it is a very unhealthy and demeaning practice. You are exposing your own self because your spouse is not separate from you. You are one whole. So please do not do that. Be proud of one another. Grow together. Complement one another.

Another verse that deeply impacted me says that if there is something you dislike in your spouse, then still remain patient, tolerant, affectionate, and respectful. Because Allah says that you never know where He has placed *khair-e-kathir*. *Khair-e-kathir* means immense and unlimited goodness. Even with shortcomings, if you choose patience and respect, Allah can bring tremendous goodness from it.

Nowadays people expect perfection. But are any of us perfect? Has any husband and wife remained happy every moment after marriage? Never. And probably never completely. But what matters most is respect, compassion, contentment, and thankfulness for what we have.

So I would advise men as well: Support your wives. Help them grow. The more confidence and support you give them, the more they flourish. At the same time, husband and wife must work together. A child's upbringing cannot be complete without the involvement of the father. No matter how busy men are, they must always give time to their children.

Alhamdulillah, that is what Irfan did. He taught history and mathematics. I taught English and other subjects. We divided responsibilities, timings, and schedules together. I attended PTMs and school events. And Alhamdulillah, he has never made fun of me publicly. Not that I do not have shortcomings. Of course I do. And similarly, I have also tried to uphold the same respect towards him. So we genuinely feel good about each other, privately and publicly.

Tolerance is not compromise. It is making the best of what you have. It is turning challenges into opportunities and accomplishments. And when husband and wife do that together, the entire family rises. And Allah grants immense *izzat*.

Dr. Ghazala, it has truly been a pleasure listening to you. Masha Allah, you have spoken with great sincerity and depth, clearly grounded in your own lived experiences.

A. My grandmother used to say something that I only fully understood after five decades. Both my grandmothers actively participated in the Pakistan Movement while observing full hijab.

And they would always say:

"Kaam karo, bada kaam karo. Read, write. Quran mat chhoro. Sirf kitchen mein nahi baith jaana. Sirf pakane ke liye nahi ho. Bohot bade targets hain."

Then she would recite:

"Ilahi seem-o-zar ke zavaron se mujhko nafrat ho, Mera gehna haya-daari, meri poshak ismat ho."

(May my adornment not merely be gold and jewellery. May my true adornment be modesty, dignity, and chastity).

If you possess self-respect and these values, then you can become the best of the best. Women can become CEOs and rise to great heights in whatever field they choose. Do aspire, but while keeping these values in mind. Then there will be no looking back, while still preserving the family and the community.

That was beautiful. Thank you so much for sharing this with us.

May Allah bless you, may Allah bless Pakistan, and may Allah bless our ladies, gents, wives, and husbands, Insha Allah.

Acknowledgement:

We extend our sincere thanks to Ms. Rabab Abedi, SVP-Manager Corporate Communication at Meezan Bank, and her team for their valuable support and coordination in facilitating these interviews.

We also gratefully acknowledge Generation's School for providing the venue and studio arrangements for the recordings.



FROM STATIC MIS TO REAL-TIME RISK DASHBOARDS

DATA ARCHITECTURE, PIPELINES, AND GOVERNANCE IN MODERN BANKING

By: Rahim Zulfiqar Ali (MVP, MCT, Trainer + Consultant)

The transition from static Management Information Systems (MIS) MS Excel Reports to Real-Time Risk Dashboards represents a fundamental shift in how financial institutions survive and thrive. In the legacy world, a bank might only realize its liquidity is strained or its credit exposure has peaked 24 hours after the fact, reflecting a "rear-view mirror" approach that is no longer viable in an era of high-frequency trading and instant payments. Modern banking requires a shift from batch processing to event-driven architectures, where data moves from a transaction to a risk metric in milliseconds.



“The convergence of distributed streaming platforms, cloud-native data warehouses, real-time OLAP engines, and modern governance tooling has, for the first time, made it technically and economically feasible for banks to build data pipelines that move at the speed of risk rather than the speed of the printer.”

On the morning of 15 September 2008, Lehman Brothers filed for the largest bankruptcy in American history. What made that collapse uniquely catastrophic was not simply leverage or hubris, it was blindness. Regulators, counterparties, and even Lehman's own senior management lacked the ability to see their true risk exposure in time to act. Data existed, but it lived in siloed spreadsheets, overnight batch files, and disconnected systems that spoke different languages. By the time the numbers were assembled, aggregated, and printed into a management information pack, reality had already moved on. The bank did not fail despite having data; it failed, in part, because it could not use its data fast enough.

That lesson became the founding mandate of BCBS 239, the Basel Committee's landmark 2013 framework of fourteen principles for effective risk data aggregation and risk reporting. Its diagnosis of the 2008 crisis was blunt: "Banks' information technology and data architectures were inadequate to support the broad management of financial risks," leaving them unable to spot risk exposures quickly or accurately when it mattered most. More than a decade after that

framework came into force, the financial industry is still working to close the gap. A recent study shows that only 14% of banks are fully compliant with BCBS 239, while 43% are materially non-compliant, a striking reminder that the transformation from legacy reporting to real-time risk intelligence is not finished; in many institutions, it has barely begun.

What has changed is not the existence of the problem but the availability of the solution. The convergence of distributed streaming platforms, cloud-native data warehouses, real-time OLAP engines, and modern governance tooling has, for the first time, made it technically and economically feasible for banks to build data pipelines that move at the speed of risk rather than the speed of the printer. The big data analytics market in banking was valued at \$41 billion in 2024 and is projected to reach \$67 billion by 2032, growing at a CAGR of 27.8% according to *Verified Market Research*; a trajectory driven precisely by the pressure to replace spreadsheet-based MIS with live, interactive dashboards that give risk managers, traders, and regulators a shared, trusted view of exposure as it evolves. AI and machine learning-based solutions are already demonstrating what is possible: one US commercial lender implemented a real-time data analytics platform that predicted customer delinquency with 93% accuracy, reducing non-performing loans before they materialized rather than reporting on them after the fact.

CORE FUNDAMENTALS

1. The Core Data Architecture

To support real-time risk, banks are moving away from monolithic data warehouses toward a Data Mesh or Lakehouse architecture. This allows for the simultaneous handling of structured transaction data and unstructured market feeds.

- **Operational Layer:** Where core banking systems (CBS) and trading platforms live.
- **Streaming Layer:** The "central nervous system" (often powered by Apache Kafka or Amazon Kinesis) that captures events as they happen.
- **Analytical Layer:** Where real-time computer engines apply risk models to streaming data.

2. High-Velocity Data Pipelines

The "plumbing" of a real-time system is the CI/CD-enabled pipeline. Unlike traditional ETL (Extract, Transform, Load), which runs nightly, real-time pipelines utilize ELT or Stream Processing.

- **Ingestion:** Change Data Capture (CDC) monitors database logs to stream updates without slowing down the core banking system.
- **Transformation:** In-flight processing (using tools like Flink or Spark Streaming) calculates "rolling windows" of risk for example, a 10-minute moving average of a trader's Value at Risk (VaR).
- **Loading:** Data is pushed to high-speed "hot" storage or directly to the dashboard via WebSockets.

1. Real-Time Risk Dashboards

A real-time dashboard is more than just a flashing screen; it is an actionable intelligence tool. It prioritizes "Exception-Based Reporting," highlighting only the metrics that breach predefined thresholds.

- **Liquidity Risk:** Monitoring Real-Time Gross Settlement (RTGS) flows to ensure the bank meets intraday obligations.
- **Market Risk:** Instant updates on VaR or Greeks during periods of high market volatility.
- **Fraud Risk:** Detecting anomalous patterns across thousands of transactions per second.

2. Governance & Quality in a Fast-Paced Environment

In a static MIS, you have time to "clean" data before the board sees it. In real-time, Governance must be automated.

- **Data Lineage:** You must be able to prove to regulators exactly where a real-time number came from.
- **Automated Quality Checks:** If a feed becomes "stale" or "noisy," the system must automatically flag the data as unreliable.
- **Metadata Management:** Ensuring that "Exposure" means the same thing to the Credit team as it does to the Treasury team in real-time.

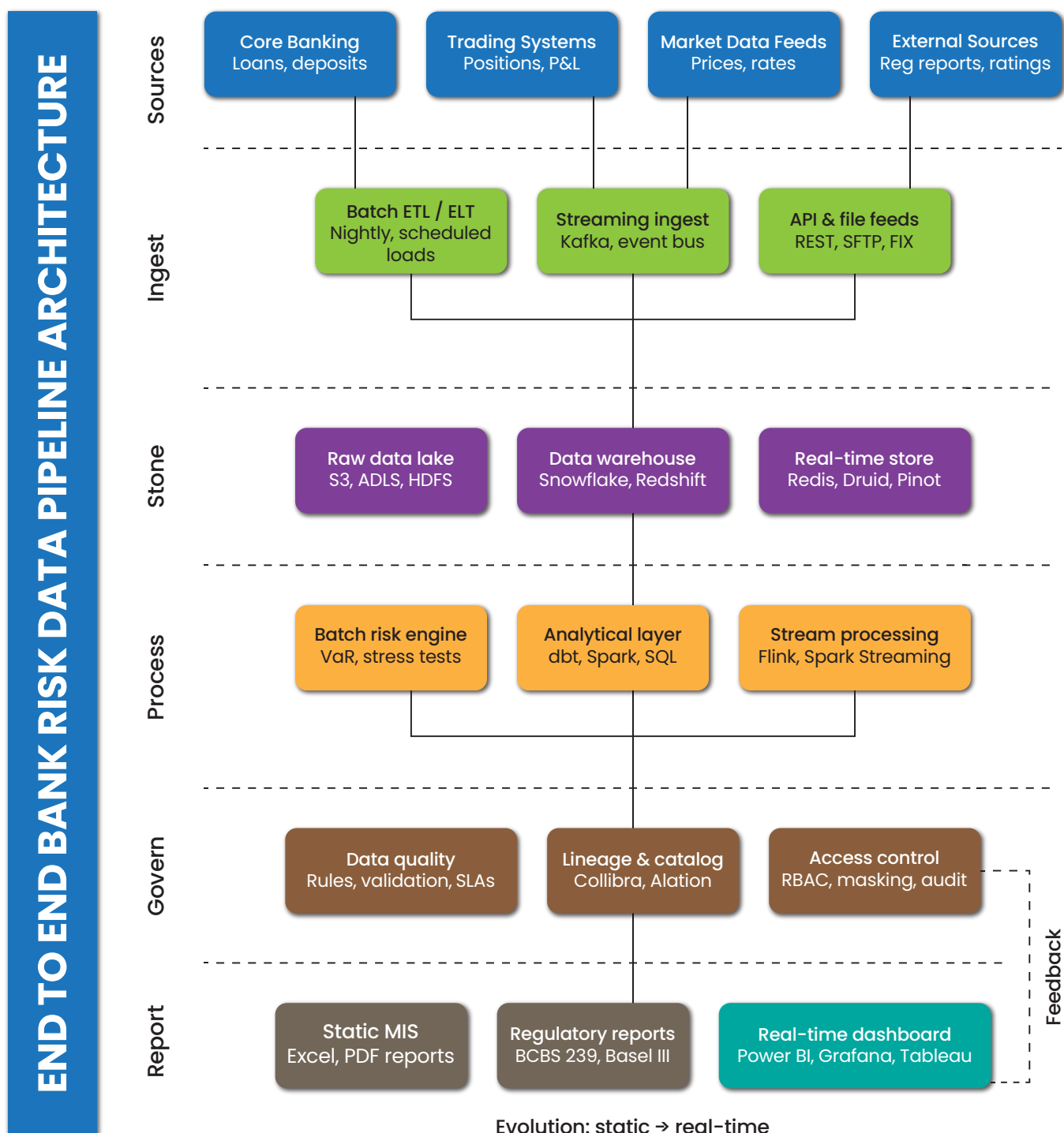


Figure: Author's Own

Here's the end-to-end data pipeline for modern bank risk infrastructure, organized into six architectural layers:

Sources: Raw data originates from core banking systems (loans, deposits), trading/treasury platforms (positions, P&L), real-time market data feeds (prices, rates), and external sources like rating agencies and regulatory files.

Ingestion: Data enters the pipeline through three channels: nightly batch ETL/ELT jobs for high-volume historical data, streaming ingestion via Kafka for event-driven feeds, and API/file-based connectors (REST, SFTP, FIX protocol) for third-party sources.

Storage: Data lands in a tiered store: a raw data lake (S3/ADLS) for unprocessed archives, a structured data warehouse (Snowflake/Redshift) for curated historical data, and a real-time store (Redis, Apache Druid/Pinot) for millisecond-latency queries.

Processing: Three compute paths run in parallel: batch risk engines computing overnight VaR and stress tests, an analytical layer using dbt/Spark for data modeling, and stream processing (Flink/Spark Streaming) for real-time aggregations and alerts.

Governance: Before any data reaches reporting, it passes through data quality checks (validation rules, SLA monitoring), a data lineage and catalog layer (Collibra, Alation) for traceability, and access control (RBAC, dynamic masking, audit logs) for regulatory compliance, this is the BCBS 239 backbone.

Reporting: The output spans three tiers: legacy static MIS (Excel/PDF), structured regulatory submissions (Basel III, COREP), and the target state, real-time risk dashboards in Power BI, Grafana, or Tableau. The dashed arrows show the evolutionary direction from static toward real-time, and the feedback loop on the right shows how dashboard exceptions flow back to governance for remediation.

THE ARCHITECTURE OF MODERN BANKING DATA INFRASTRUCTURE

From Data Warehouses to Data Lakehouse's

The traditional enterprise data warehouse (EDW) showed by platforms such as IBM Netezza, Teradata, and Oracle Exadata was designed for structured, relational data at manageable volumes. It served the MIS era well. However, the proliferation of semi-structured data (JSON from API calls, XML from SWIFT messages), unstructured data (call transcripts, document images), and high-velocity streaming data (trade ticks, card transactions) has exposed its fundamental limitations.

The industry has progressively migrated toward Data Lakehouse architecture, a hybrid paradigm combining the schema-on-read flexibility of a data lake with the ACID transactional guarantees and query performance historically associated with warehouses. Platforms such as Databricks Delta Lake, Apache Iceberg on AWS S3, and Google Big Lake exemplify this convergence. Industry data suggest that adoption of cloud-native data Lakehouse platforms among Tier 1 banks reached approximately 58% in 2023, up from under 15% in 2019.

For risk management purposes, the lakehouse architecture offers a critical advantage: it enables a single source of truth that can serve both exploratory analytics and production risk reporting, eliminating the data drift that emerges when risk teams maintain shadow copies of data in departmental silos.

The Medallion Architecture for Risk Data

A widely adopted pattern within banking data engineering is the Medallion (or multi-hop) architecture, which organizes data processing into three layers: Bronze, Silver, and Gold.

- **Bronze Layer:** Raw ingestion data arrives as-is from source systems (core banking, trading systems, external market data feeds) with full fidelity and

Dimension	Data Warehouse (EDW)	Data Lake	Data Lakehouse
Schema	Schema-on-write	Schema-on-read	Both supported
Data Types	Structured only	All types	All types
ACID Transactions	Yes	No	Yes (Delta/Iceberg)
Streaming Ingestion	Limited	Possible	Native support
Cost at Scale	High	Low	Moderate
Regulatory Lineage	Strong	Weak	Strong (with governance)

timestamp preservation. No transformations are applied. This layer serves as the system of record and is critical for regulatory audit trails.

- **Silver Layer:** Conformed and cleansed data deduplication, type normalization, entity resolution (e.g., resolving Legal Entity Identifier cross-references), and business rule application. Risk data aggregation at counterparty, sector, and geography level typically occurs here.
- **Gold Layer:** Curated, consumption-ready data purpose-built for specific analytical use cases: credit risk dashboards, liquidity coverage ratio (LCR) reporting, capital adequacy calculations, or stress testing scenarios.

This layered approach directly addresses BCBS 239's requirement for data accuracy and integrity: the Bronze layer provides an immutable record, while the Gold layer delivers actionable intelligence. Lineage tools (Apache Atlas, Alation, Collibra) can trace any dashboard metric back through Silver and Bronze to its source system transaction.

PIPELINE ENGINEERING: DESIGN PRINCIPLES FOR FINANCIAL DATA

Exactly-Once Semantics

Financial data pipelines operate under a more demanding correctness regime than typical analytics pipelines. A transaction processed twice will double-count exposure. A missed settlement will understate liquidity risk. Pipeline engineers in banking must therefore design for exactly-once processing semantics ensuring that even in the event of failure and retry, each event is processed precisely once and produces a deterministic output.

Apache Kafka (version 0.11+) supports exactly-once semantics through transactional producers and idempotent writes. Flink's checkpointing mechanism, combined with transactional sinks to Delta Lake or relational databases, enables end-to-end exactly-once guarantees across the pipeline. These are not merely engineering preferences; they are functional requirements in a regulatory environment where position discrepancies trigger supervisory scrutiny.

Schema Evolution and Backward Compatibility

Core banking systems evolve. New products introduce new data fields. Regulatory changes mandate additional attributes. Schema Registry solutions (Confluent Schema Registry, AWS Glue Schema Registry) manage schema evolution for Kafka topics using Apache Avro or Protobuf serialization formats, enforcing compatibility rules that prevent downstream consumers from breaking when upstream schemas change.

In practice, banks should enforce full backward and forward compatibility as a standard new field must have defaults, and no fields required by downstream risk calculations may be removed without a formal deprecation process governed through the data governance function.

Orchestration and Observability

Apache Airflow remains the dominant orchestration tool for batch components of banking data pipelines, while tools such as Prefect and Dagster are gaining traction for their native support of dynamic, parameterized workflows. A mature observability framework for banking pipelines encompasses:

- Data freshness monitoring (SLA alerts when gold layer tables exceed expected latency thresholds)
- Volume anomaly detection (statistical alerts when record counts deviate from expected distributions, an early warning of upstream system failures or data feed interruptions)
- Business metric consistency checks (e.g., ensuring that total exposure in the risk dashboard reconciles with the general ledger within an agreed tolerance)
- End-to-end lineage tracking for audit and root-cause analysis

Tools such as Monte Carlo, Great Expectations, and Soda Core provide data quality monitoring capabilities that can be embedded within pipelines, surfacing quality issues before they propagate to executive dashboards or regulatory submissions. Institutions that have deployed automated data quality monitoring report a 40–65% reduction in data-related incident escalations to risk committees, according to industry surveys conducted by Gartner (2023).

REAL-TIME RISK DASHBOARDS: DESIGN AND GOVERNANCE DIMENSIONS

The Dashboard as a Regulatory Artefact

In the post-BCBS 239 era, the risk dashboard was not merely a management convenience, it is a regulatory artefact. Supervisors expect banks to demonstrate that dashboard metrics are accurate, timely, complete, and auditable.

Technology Stack and Adoption Landscape

The selection of dashboard technology in banking is constrained by security requirements, on-premises versus cloud deployment models, and integration with existing data infrastructure. Technology adoption surveys reveal significant differentiation by bank tier: The dominant platforms in use across Tier 1 and Tier 2 institutions include:

- **Tableau and Power BI:** Dominant for management reporting and regulatory dashboards where a rich visual feature set is required. Both integrate natively with cloud data warehouses (Snowflake, Azure Synapse, BigQuery).
- **Grafana:** Increasingly adopted for operational risk monitoring, particularly where time-series metrics from Prometheus or InfluxDB are involved. Well-suited for intraday liquidity and treasury operations.

Regulatory Requirement	Dashboard Design Implication
Data lineage	Every metric must display its data source, calculation methodology, and last refresh timestamp
Accuracy	Metrics must reconcile to authoritative systems; unexplained variances flagged automatically
Timeliness	Staleness indicators; automated alerts when data breaches latency SLAs
Completeness	Coverage metrics; explicit identification of entity populations excluded from aggregations
Adaptability	Dashboard must accommodate ad hoc stress scenarios without weeks of development effort

- **ThoughtSpot and Sigma Computing:** Emerging platforms offering natural language querying, reducing dependency on BI developers for ad hoc regulatory queries.
- **Custom web applications (React/D3.js):** Used where proprietary risk models require bespoke visualization – common in market risk and structured credit.

Semantic Layer Architecture

A critical and often underappreciated component of the real-time dashboard ecosystem is the semantic layer, a business logic abstraction that sits between raw data and dashboards. Without it, metric definitions proliferate across individual reports, creating the "metric sprawl" phenomenon: the CFO's dashboard calculates non-performing loan (NPL) ratio differently from the Risk dashboard, generating debates about which number is correct rather than what action to take. Tools such as dbt for SQL-based metric definitions, and dedicated semantic layer platforms such as AtScale or Cube.js, address this problem systematically.

DATA GOVERNANCE: THE FOUNDATION OF TRUSTWORTHY RISK INTELLIGENCE

The Three Pillars of Banking Data Governance

Effective data governance operates across three interlocking pillars: organizational accountability, policy frameworks, and technical controls.

Pillar 1: Organizational Accountability

The Chief Data Officer (CDO) function now standard

among systemically important financial institutions that provide executive-level ownership. Below the CDO, a federated model of Data Owners (business-line accountable executives), Data Stewards (operational custodians), and Data Consumers (risk, finance, regulatory reporting teams) create a governance ecosystem connecting technical data management to business outcomes.

Pillar 2: Policy Frameworks

The policy layer codifies the rules governing data: classification standards, retention schedules aligned to regulatory requirements, data quality thresholds and remediation workflows, lineage documentation requirements, and cross-border data transfer restrictions under GDPR, PDPA, and equivalent frameworks. These policies must be operationalized, embedded in pipeline design, enforced in access controls, and audited through automated controls.

Pillar 3: Technical Controls

The technical control layer implements governance policy through automated mechanisms: role-based access control (RBAC) and attribute-based access control (ABAC) enforced through Apache Ranger or AWS Lake Formation; automated data quality rules embedded in pipeline checkpoints; and metadata catalogues (Collibra, Alation, DataHub) that maintain a living inventory of data assets with quality metrics and lineage graphs.

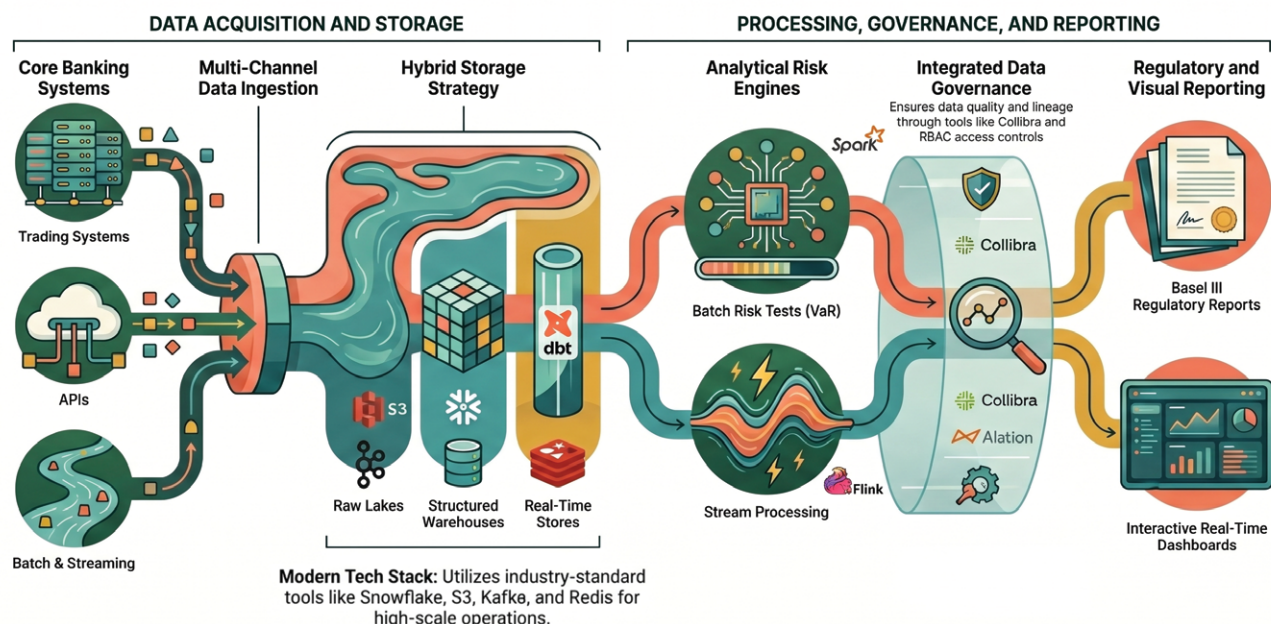
The Six Dimensions of Data Quality

A mature data quality framework in banking encompasses six dimensions, each requiring both business definition and technical measurement:

BCBS 239 Compliance Architecture

BCBS 239 Domain	Principle Focus	Architectural Response
Overarching Governance	Board and senior management ownership	CDO function; data governance council; board-level data risk appetite
Risk Data Aggregation	Accuracy, integrity, completeness, timeliness	Medallion architecture; exactly-once pipelines; automated reconciliation
Risk Reporting	Accuracy, comprehensiveness, clarity, frequency	Semantic layer; certified metrics; dashboard SLA monitoring
Supervisory Review	Remediation and home/host cooperation	Lineage tooling; audit logs; regulatory reporting APIs

The Modern Bank Risk Data Pipeline Architecture



- **Completeness:** Are all required records and attributes present?
- **Accuracy:** Do data values correctly reflect the real-world entities and events they represent?
- **Consistency:** Are the same data attributes represented identically across systems?
- **Timeliness:** Is data available within the timeframe required for its intended use?
- **Validity:** Do data values conform to the defined domain, format, and business rules?
- **Uniqueness:** Are entity records free from duplication within and across systems?

These dimensions must be monitored continuously through automated rules embedded in pipeline checkpoints, with results surfaced in a data quality dashboard accessible to stewards and owners. Institutions reporting mature data quality monitoring programmes show a 40–65% reduction in data-related risk incidents escalated to senior management.

NEXT-GEN BANKING: REAL-TIME RISK DASHBOARDS, PIPELINES, AND DATA GOVERNANCE

- Modern banks are shifting from static MIS reports to real-time dashboards because traditional batch reporting can delay risk detection by up to 24 hours, while streaming pipelines can reduce alert latency to under 2–5 minutes using event-driven systems like Kafka or Kinesis.
- Real-time banking dashboards now process billions of daily transactions across payment systems and digital channels, enabling fraud detection models

to flag anomalies instantly instead of waiting for end-of-day reconciliation.

- A well-designed risk data pipeline can reduce manual reconciliation effort by 40–60% of analyst time, allowing teams to focus on risk interpretation rather than data collection.
- Banks implementing real-time risk dashboards have reported improving decision speed from 1.5 days to under 0.5 days, significantly increasing capital allocation efficiency during market volatility.
- Modern streaming architectures support sub-second data updates, allowing liquidity and credit exposure metrics to refresh continuously instead of relying on overnight batch cycles.
- In advanced banking systems, governance frameworks enforce data quality SLAs such as timeliness, completeness, and accuracy, because even a few minutes of stale data can distort real-time risk models.
- Real-time risk architectures in BFSI increasingly rely on lakehouse platforms that unify structured and unstructured data, helping institutions process multiple terabytes of transactional and behavioral data per day in a single governed layer.
- Regulators such as Basel frameworks (e.g., BCBS 239 principles) emphasize that banks must maintain traceable, auditable data lineage, ensuring every risk metric in a dashboard can be explained end-to-end from source to visualization.

EMERGING FRONTIERS: AI, MACHINE LEARNING, AND THE NEXT LAYER OF RISK INTELLIGENCE

Machine Learning in Real-Time Risk

The maturation of real-time data infrastructure creates the substrate upon which machine learning-driven risk analytics can be deployed at scale. Several application domains have achieved sufficient production maturity to be considered mainstream in leading institutions:

- **Anomaly detection for fraud and AML:** Gradient boosting and deep learning models (GBM, LSTM, Graph Neural Networks) deployed as streaming inference services, scoring transactions within milliseconds. Feature stores (Feast, Tecton, Hopsworks) maintain real-time feature vectors that feed these models with current context.
- **Credit risk early warning:** ML models trained on transactional behavior, payment patterns, and macroeconomic indicators generate continuous probability-of-default scores, enabling relationship managers to intervene before arrears emerge.
- **Market risk scenario generation:** Generative models (VAE, GAN) augment traditional historical simulation for VaR calculation, improving tail risk estimation for instruments with limited price history.

The MLOps (Machine Learning Operations) Imperative in Regulated Environments

Deploying ML models in banking risk environments introduces governance requirements that exceed those of standard analytics. Models informing regulatory capital calculations or credit decisions are subject to SR 11-7 (Federal Reserve guidance on model risk management) or equivalent frameworks, requiring:

- Model validation by an independent function prior to deployment
- Ongoing performance monitoring with automated retraining triggers
- Explainability requirements particularly for adverse action notices under consumer credit regulations
- Full audit trail of model versions, training datasets, and inference outputs

Generative AI and the Future of Risk Reporting

Large language models are beginning to demonstrate utility in banking data contexts beyond marketing and customer service. In the risk intelligence domain, promising applications include natural language querying of risk data (enabling non-technical risk officers to interrogate dashboards without SQL knowledge), automated narrative generation for regulatory submissions (ICAAP, ILAAP), and intelligent anomaly explanation.

Banks implementing real-time risk dashboards have reported improving decision speed from 1.5 days to under 0.5 days, significantly increasing capital allocation efficiency during market volatility."

CONCLUSION

The migration from static MIS to real-time risk dashboards is not primarily a technology project, it is an organizational transformation in which technology is the enabler. The banks that will derive the greatest strategic and regulatory value from this transformation are not those deploying the most sophisticated streaming infrastructure, but those pairing architectural capability with governance maturity.

Data that moves at the speed of markets but cannot be trusted, traced, or explained is not a risk management asset, it is a risk management liability. Compliance gaps persist not because the technology is unavailable, but because the governance structures, organizational accountabilities, and quality management disciplines required to make real-time data trustworthy remain underdeveloped across a significant proportion of the industry.

The staircase from static MIS to intelligent risk infrastructure is a sustained institutional commitment architectural, organizational, and cultural to the principle that in modern banking, data quality is risk management quality. Institutions that invest in both the engineering and the governance of their data infrastructure will find that the returns are simultaneously regulatory, operational, and strategic. ■

Add-ons to **SBP POLICY REGIME** January–March 2026

The primary objective of this feature is to highlight changes, or ‘add-ons’ to the SBP policies, on a quarterly basis to provide the readers better comprehension and analysis of the central bank’s policy regime, as well as being an easily accessible time-lined reference guide.

All circulars are easily accessible in the PDF of the Journal, available on the following link on the NIBAF Pakistan website: <https://nibaf.sbp.org.pk>



01

Assuming Charge as Executive Director, Banking Supervision Group

BSD-1 Circular Letter No. 01 of 2026/ March 18, 2026

<https://www.sbp.org.pk/bsd-1/2026/CL1.htm>

02

Upgradation of Firm on Panel of Auditors Maintained Under Section 35(1) of Banking Companies Ordinance, 1962

BPRD Circular Letter No. 01 of 2026/ January 15, 2026

<https://www.sbp.org.pk/bprd/2026/CL01.htm>

03

Deduction of Zakat at Source in Respect of Saving Banks / Profit & Loss Sharing and Similar Bank Accounts (Asset Code No.101) and Deposit Thereof Immediately After Deduction Date

BPRD Circular Letter No. 03 of 2026/ February 17, 2026

<https://www.sbp.org.pk/bprd/2026/CL3.htm>

04

Office and Business Hours During the Month of Ramadan-UI-Mubarak 1447 A.H.

BPRD Circular Letter No. 05/ February 18, 2026

<https://www.sbp.org.pk/bprd/2026/CL5.htm>

05

Assuming Charge as Director, Banking Policy & Regulations Department

BPRD Circular Letter No. 08/ March 17, 2026

<https://www.sbp.org.pk/bprd/2026/CL8.htm>

06

Consolidated Customer Onboarding Framework

BPRD Circular Letter No. 09 of 2026/March 24, 2026

<https://www.sbp.org.pk/bprd/2026/CL9.htm>

07

Launch of Cyber Shield Cyber Resilience Strategy for SBP Regulated Entities (2025-2030)

CRMD Circular Letter No. 01 of 2026/ February 16, 2026

<https://www.sbp.org.pk/CRMD/2026/CL01.htm>

08

Maintenance of Cash Reserve Requirement (CRR)

DMMD Circular No. 01 of 2026/ January 26, 2026

<https://www.sbp.org.pk/dmmd/2026/C1.htm>

09

Rate of Remuneration on Special Cash Reserve Account Maintained with SBP Against Deposits Raised Under Fe-Circular 25 of 1998DMMD Circular Letter No. 01 of 2026/ January 30, 2026
<https://www.sbp.org.pk/dmmd/2026/CL1.htm>

10

Rate of Remuneration on Special Cash Reserve Account Maintained with SBP Against Deposits Raised Under Fe-Circular 25 of 1998DMMD Circular Letter No. 02 of 2026/ February 27, 2026
<https://www.sbp.org.pk/dmmd/2026/CL2.htm>

11

Rate of Remuneration on Special Cash Reserve Account Maintained with SBP Against Deposits Raised Under Fe-Circular 25 of 1998DMMD Circular Letter No. 03 of 2026/ March 31, 2026
<https://www.sbp.org.pk/dmmd/2026/CL3.htm>

12

Updated Appendix V-147-Remittances to Digital Service Provider CompaniesEPD Circular Letter No. 01 of 2026/ January 13, 2026
<https://www.sbp.org.pk/epd/2026/FECL1.htm>

13

Amendment in Instructions Related to Business of Exchange CompaniesEPD Circular Letter No. 02 of 2026/ January 15, 2026
<https://www.sbp.org.pk/epd/2026/FECL2.htm>

14

Payment to Non-Resident Directors/Chairmen/Shariah Advisors/Shariah Scholars of SBP's Regulated Entities on Account of Remuneration, Meeting Fee, etc.EPD Circular Letter No. 03 of 2026/ January 22, 2026
<https://www.sbp.org.pk/epd/2026/FECL3.htm>

15

Permission for Import of Crude Oil/ Petroleum Products on CIF BasisEPD Circular Letter No. 04 of 2026/ March 11, 2026
<https://www.sbp.org.pk/epd/2026/FECL4.htm>

16

Instructions regarding Foreign Currency Accounts and Non-resident Rupee AccountsEPD Circular Letter No. 05 of 2026/ March 24, 2026
<https://www.sbp.org.pk/epd/2026/FECL5.htm>

17

Standard Operating Procedures (SOPs) for Investment in Conventional Naya Pakistan Certificates (Certificates)

FD Circular Letter No. 01 of 2026/ February 25, 2026

<https://www.sbp.org.pk/acc/2026/CL1.htm>

18

Standard Operating Procedures (SOPs) for Investment in Conventional and Shariah Compliant Naya Pakistan Certificates (NPCs)

FD Circular Letter No. 02 of 2026/ March 24, 2026

<https://www.sbp.org.pk/acc/2026/CL2.htm>

19

Standard Operating Procedures (SOPs) for Investment in Conventional Naya Pakistan Certificates (Certificates)

FD Circular Letter No. 03 of 2026/ March 26, 2026

<https://www.sbp.org.pk/acc/2026/CL3.htm>

20

Markup Subsidy and Risk Sharing Scheme for Affordable Housing Finance

SH&SFD Circular Letter No. 01 of 2026/ March 17, 2026

<https://www.sbp.org.pk/sme/sfd/circulars/2026/CL1.htm>

21

Prime Minister's Fan Replacement Program (PM FRP)

SH&SFD Circular Letter No. 01 of 2026/ February 17, 2026

<https://www.sbp.org.pk/sme/sfd/circulars/2026/CL1.htm>

22

Assuming Charge as Executive Director, Islamic Finance Group

IFPD Circular Letter No. 01 of 2026/ March 18, 2026

<https://www.sbp.org.pk/ifpd/2026/CL1.htm>

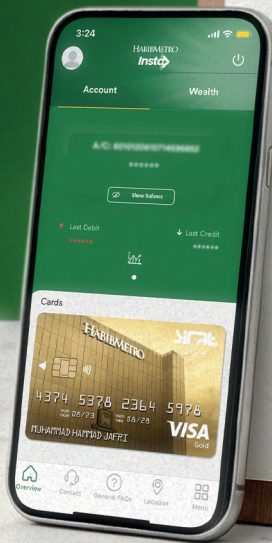
SIRAT
Current
Plus
ACCOUNT

HABIBMETRO
Sirata
صراط

Experience the
Plus
in Everyday
Banking

Unlock a world of
premium services
with **no minimum
balance** requirement.

Open your
Sirat Current Plus
account today!



Free

*VISA Debit Card



Free

Cheque Books



Free

SMS Alerts



Free

Same-Day &
Intercity Clearing



And Various Other
Free services



*Terms & Conditions apply

021-111-1(HABIB)42242
www.habibmetro.com

STAY AHEAD

UNCONVENTIONAL

The Bank No One Saw Coming

By: Sibtain Naqvi

Synopsis

Meezan Bank's story is not just the history of a financial institution—it is the story of a bold idea that challenged an entire industry. At a time when conventional banking was the only accepted norm, Meezan Bank emerged with a radically different vision: to build a banking system rooted in Islamic principles and guided by values of fairness, humility, and service.

What began as a small initiative in a challenging environment grew into Pakistan's first and largest Islamic bank. Along the way, it redefined what success in banking could look like—not by following the crowd, but by staying true to its convictions.

This book is a chronicle of that unconventional journey. Of the early doubts and the quiet perseverance. Of the turning points, the trials, and the triumphs. Above all, it is the story of how Meezan Bank became more than a financial institution—it became a movement that transformed the landscape of banking in Pakistan. *Unconventional: The Bank No One Saw Coming* invites readers into that remarkable journey—one that continues to inspire, challenge, and lead.

Reviews

"I have seen Meezan grow from a bold idea into one of Pakistan's top five banks. Its rise was driven by vision, discipline, and a purpose-led culture. Meezan didn't just follow banking norms—it reshaped them."

—**Senator Muhammad Aurangzeb – Federal Minister for Finance & Revenue**

"Given its scale, experience and market standing. Meezan Bank is well-positioned to lead the next phase of the industry's development and set new benchmarks of high performance."

—**Jameel Ahmad – Governor, State Bank of Pakistan**

"Meezan Bank's rise from an investment bank to a leading commercial bank is a remarkable success. It has been central to building a more inclusive financial system in Pakistan."

—**Akif Saeed – Chairman, SECP**

"Meezan's success didn't just grow a bank—it reshaped the entire industry. Today when people think Islamic banking, they think Meezan."

—**Arif Habib – Chairman, Arif Habib Group**

"Pakistani corporations have much to learn from Meezan's steady, values-driven ascent. Meezan isn't just the talk of the town—it's the benchmark."

—**Atif Bajwa – President & CEO, Bank Alfalah**

"Meezan didn't just win because it was Islamic—it won because it was better managed. It led with service, not slogans—and customers followed."

—**Muhammad Jawaaid Iqbal – President & CEO, UBL**

"Meezan Bank is not just an Islamic Banking success story. It's the success story of Pakistan's banking history."

—**Mian Muhammad Mansha – Chairman, MCB Bank Limited**

"From a valuation of USD 65 million to over USD 2 billion in just two decades—Meezan Bank is a true success story that has completely reshaped Pakistan's banking landscape."

—**Mohammed Sohail – CEO, Topline Securities**

"What skeptics saw as risky growth; time revealed as disciplined success. Meezan changed perceptions and proved that fast growth and sound fundamentals can go hand in hand."

—**Sima Kamil – Former Deputy Governor, SBP and former CEO, UBL**

"Meezan Bank has transformed the banking landscape of an entire country. Its rise and influence have no real parallel, making it one of the most significant financial success stories of our time."

—**Zafar Masud – Chairman, Pakistan Banks' Association**

About the Author

Sibtain Naqvi is an independent researcher and writer specializing in institutional and cultural history, whose work has also been presented at Oxford, Cambridge, Columbia, and other international universities.



Hire Purchase under Shirakah al-Milk (HPSM) in Islamic Banking and Finance: A Shari'ah Analysis

By: M. Kabir Hassan; Muhammad Mostafa Hossain & Aishath Muneeza

Synopsis

HPSM is a modern financial contract that comprises shirkah (partnership), ijarah (lease), and sale contracts. In the HPSM contract, ownership of the asset is jointly held by the bank and the client. The client makes regular installments. During the contract, the client is granted to use the asset as long as he meets specific conditions. Upon the completion of all installments, the asset becomes the property of the client.

This book seeks to shed light on the fundamental concept of HPSM, including the policies, regulations, and subsidiary contracts that play a vital role in its practical application. It provides a thorough exploration of the documentation and accounting procedures, while also addressing potential Shari'ah-related issues in HPSM, and will be of potential interest to students, researchers, policymakers and practitioners, offering a comprehensive understanding of how HPSM is applied within the Islamic finance industry.

About the Authors

M. Kabir Hassan is Professor of Finance in the Department of Economics and Finance at the University of New Orleans, USA. He holds four endowed Chairs – Hibernia Professor of Economics and Finance, Hancock Whitney Chair Professor in Economics, Bank One Professor in Business I, and Bank One Professor in Business II. He is Financial Economist with consulting, research, and teaching experiences in development finance, money and capital markets, Islamic finance, corporate finance, investments, monetary economics, macroeconomics, Islamic banking and finance, and international trade and finance.

Muhammad Mostafa Hossain is pursuing his Ph.D. from the Department of Fiqh and Usul at the University of Malaya, Malaysia. He has been awarded the best conference presenter and excellent paper classification at several international academic conferences. Before that, he was awarded several local and international scholarships, among them a Fulbright Scholarship by the Egyptian government to pursue his bachelor at Al-Azhar University, Egypt.

Aishath Muneeza is Professor and Associate Dean for students and internationalization at INCEIF, Malaysia, known as the global university of Islamic finance. She has served as first female Deputy Minister of the Ministry of Islamic Affairs in the Maldives.



ARTIFICIAL INTELLIGENCE AND BIG DATA FOR FINANCIAL RISK MANAGEMENT

Intelligent Applications

Edited By: Noura Metawa, M. Kabir Hassan, Saad Metawa

Synopsis

This book presents a collection of high-quality contributions on the state-of-the-art in Artificial Intelligence and Big Data analysis as it relates to financial risk management applications. It brings together, in one place, the latest thinking on an emerging topic and includes principles, reviews, examples, and research directions.

The book presents numerous specific use-cases throughout, showing practical applications of the concepts discussed. It looks at technologies such as eye movement analysis, data mining or mobile apps and examines how these technologies are applied by financial institutions, and how this affects both the institutions and the market. This work introduces students and aspiring practitioners to the subject of risk management in a structured manner. It is primarily aimed at researchers and students in finance and intelligent big data applications, such as intelligent information systems, smart economics and finance applications, and the internet of things in a marketing environment.

About the Authors

Noura Metawa is Assistant Professor of Finance at the Faculty of Commerce, Mansoura University, Egypt, and at the College of Business Administration, University of Sharjah, Sharjah, UAE.

M. Kabir Hassan is Professor of Finance in the Department of Economics and Finance at the University of New Orleans, Louisiana, USA.

Saad Metawa is Professor of Finance at the Faculty of Commerce, Mansoura University, Dakahliya, Egypt.



Climate Finance

A Comprehensive Guide to Financial Strategies in a Changing Climate

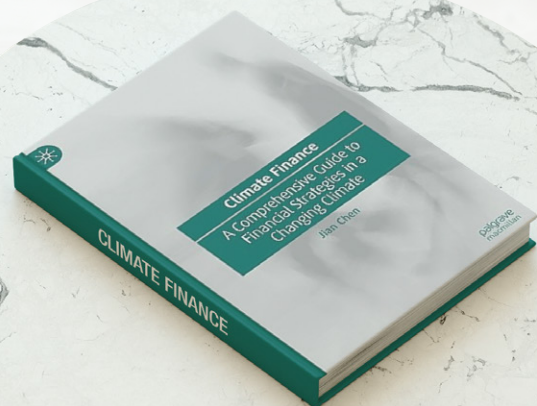
By: Dr. Jian Chen

Synopsis

In a world confronting the urgent realities of climate change, Jian Chen's *Climate Finance* offers an indispensable guide for professionals tackling our greatest global challenge. This comprehensive textbook seamlessly connects environmental science with financial innovation, empowering students, investors, business leaders, and policymakers to address the dual crises of climate risk and economic disruption. Through a structured five-part framework, Chen demystifies the complexities of mobilizing capital for climate solutions—from renewable energy investments and risk modelling to disclosure frameworks and portfolio management. With clear insights into physical and transition risks, cutting-edge financing mechanisms, and emerging trends, this book transforms climate challenges into actionable financial opportunities. Whether you're managing assets, shaping policy, or studying sustainability, *Climate Finance* equips you with the knowledge to drive meaningful change in the transition to a resilient, low-carbon economy. Take the first step toward building a sustainable future—your journey begins here.

About the Author

Dr. Jian Chen is a professor of finance at Fudan University. His research spans Climate Finance, renewable energy, AI applications, and credit risk. He has advised Chelion Renewables Group on global energy storage projects. Previously, he held senior roles at MSCI, IFE Group, Freddie Mac, and Fannie Mae.



پاکستان کا بہترین اسلامک بینک



- خدمت کے جذبے سے بھرپور، شرعی تقاضوں کے مطابق پروڈکٹس کی وسیع رینج۔
- پاکستان کے 350+ سے زائد شہروں میں 900 اسلامی برانچز کا نیٹ ورک۔





For more details
scan the QR code

JAHAN PAYMENTS RUKTI NAHI, SIRF KAAM AAGEY BARHTA HAI

-  **FREE** Debit Card*
-  **FREE** Personalized Cheque Books & Banker's Cheques*
-  **FREE** Online Banking
-  **FREE** AL Habib Digital & Netbanking
-  **Discounted Mark-up on Auto Finance and Processing Fee Waiver on Auto & Housing Finance****

*Free services are subject to maintaining monthly average balance of PKR 25,000/- else charges will apply as per the prevailing SOC.

**Terms & Conditions Apply

