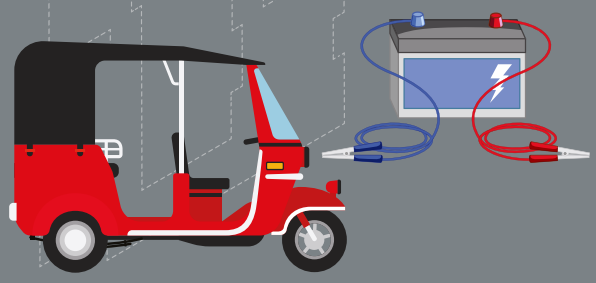
Volume 20 | Issue 04 | April 2024

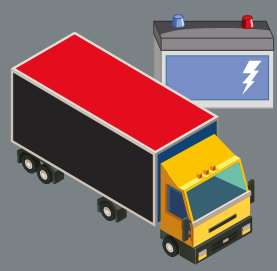
IDLC MONTHLY

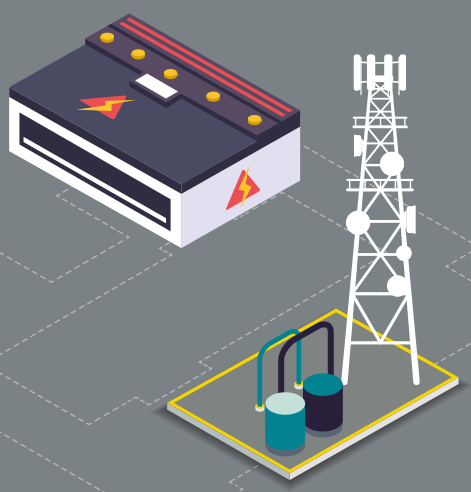
BUSINESS REVIEW



BATTERY INDUSTRY IN BANGLADESH:

POWERING UP THE NATION ON THE GO





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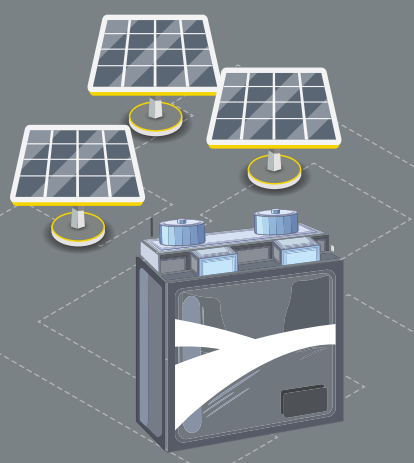


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কাঙ্ক্ষিত লক্ষ্যে পৌঁছাতে
দরকার হয় একটু নির্ভরতার!
আপনিও আস্থা রাখুন আইডিএলসি'র চার দশকের দক্ষতা ও অভিজ্ঞতায়
আপনার দুরন্ত স্বপ্নগুলোকে ডানা মেলার শক্তি দিতে চাই দূরদর্শিতা, দীর্ঘ অভিজ্ঞতা ও দক্ষতা। দীর্ঘমেয়াদী পরিকল্পনা, সুশাসন, স্বচ্ছতা ও আন্তরিক সেবা নিয়ে দেশের সর্ববৃহৎ আর্থিক প্রতিষ্ঠান আইডিএলসি লাখ লাখ মানুষের পাশে আছে আস্থা ও ভরসা হয়ে।
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FROM THE

EDITOR

Battery Industry in Bangladesh: Powering Up the Nation on the Go

The lead-acid battery industry, which has grown three to four times in the last decade and is valued at BDT 10,000 crore currently, serves a wide variety of purposes without which portability and mobility would have never been a possibility. Solar panels, easy bikes, battery-run rickshaws, passenger transports, commercial vehicles, IPS, UPS, and telecommunication towers—all these either run on batteries or require batteries as power storage. The fact that the lead-acid battery industry exported around USD 29 million worth of batteries on average in the last five fiscal years makes the industry a potential contributor to our foreign exchange earnings as well.

It is not unknown that the industry faces controversies due to the unregulated manufacturing and recycling operations of some market players. Just like many other industries dependent on imports of raw materials, the rising dollar price has affected the industry adversely. On top of that, the potential emergence of the local lithium battery industry may bring additional challenges. However, policymakers should come forward to create a conducive business environment for this decades-old industry and regularise the unregulated players to minimise the associated environmental and health risks and boost the country's tax revenues.

Md. Shah Jalal
Editor
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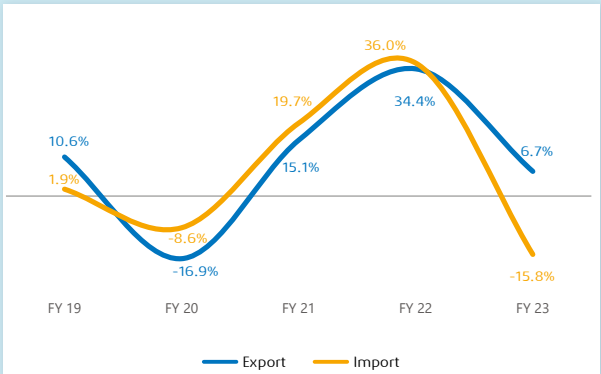
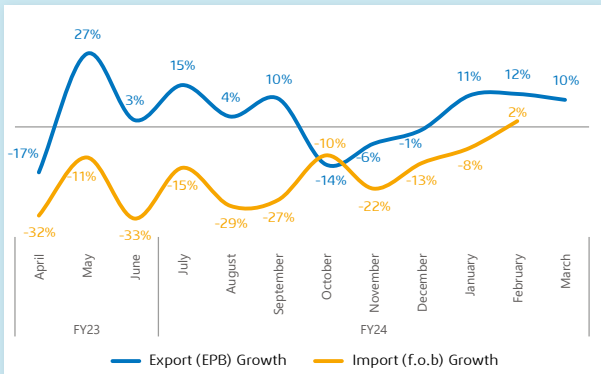
ECONOMY AT A GLANCE

EXPORT-IMPORT

Growth in Export-Import Trade (Last 5 Years)

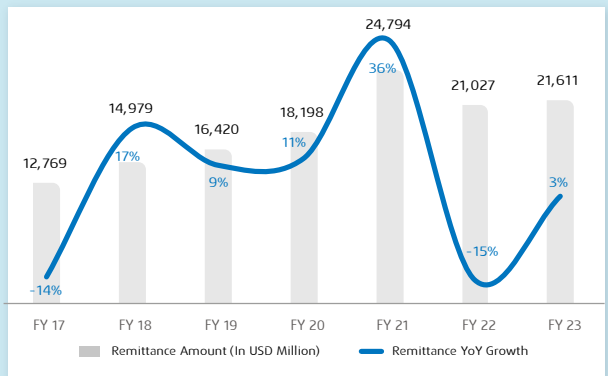


Export and Import Growth (Last 12 Months)

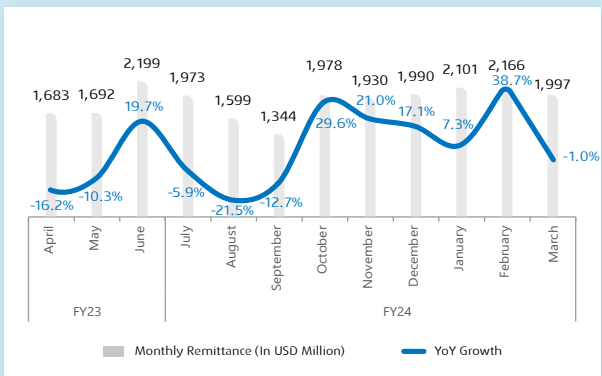


REMITTANCE

Remittance Amount (In USD Million and YoY Growth)

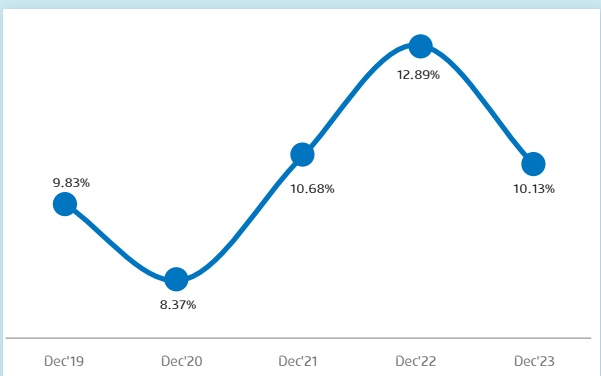


Monthly Remittances (In USD Million and YoY Growth)

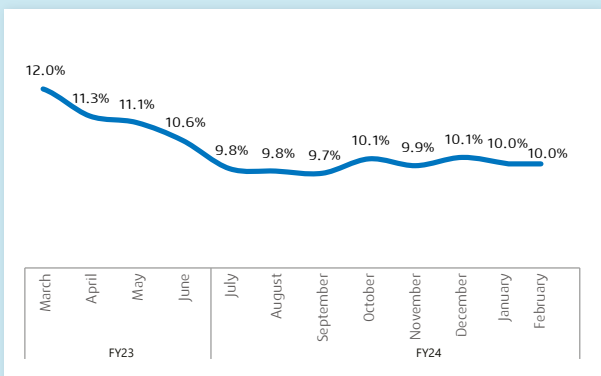


PRIVATE SECTOR CREDIT GROWTH

Private Sector Credit Growth (Last 5 Years)



Private Sector Credit Growth (Last 12 Months)



MONTH IN BRIEF

● As decided at the Ministrial Conference of the World Trade Organisation on March 01, 2024, **duty-free market access has been extended for Bangladesh for three more years after the country's graduation from the LDC group.**

● **Bangladesh experienced a remittance inflow of USD 2.16 billion in February 2024,** which is 38.46% higher than the same month in 2023. The amount is also the highest in the last eight months.

● The amount of loans disbursed through agent banking increased by approximately 50% from October 2023 to December 2023, **reaching BDT 15,407 crore, compared to BDT 10,307 crore during the same period in 2022.**

● **The International Monetary Fund mission recommended raising the tax-free income limit to BDT 5 lakhs from the current limit of BDT 3.50 lakhs** during a session at the National Board of Revenue's head office on March 14, 2024.

● **As per the data of the Bangladesh Bank, the outstanding amount of the government's borrowing from the commercial banks and the central bank reached BDT 402,359 crore** as of February 15, 2024, mainly attributable to increased expenditures and a decline in foreign direct investment.

● According to provisional data from the Bangladesh Bureau of Statistics, point-to-point inflation decreased to **9.67% in February 2024 compared to 9.86% in January 2024. In February 2024, food inflation was 9.44%, whereas non-food inflation was 9.33%.**

● As per the statement of the central bank's spokesperson on March 12, 2024, **Bangladesh Bank will take decisions regarding mergers of the banks based on performance unless banks merge voluntarily until December 2024.**

● In the first seven months of FY2023–24, the National Board of Revenue collected **BDT 197,839 crore against its target of BDT 215,590 crore during the period.**

● **According to Eurostat data, apparel exports to the European Union in January 2024 dropped by 33.92% to EUR 1.19 billion, compared to EUR 1.80 billion** in the same month of the previous year. The economic slowdown resulting from the Russia-Ukraine war is the reason for the decline.

● The opening of LCs declined in February 2024 to **USD 5.22 billion from USD 6.33 billion in January 2024, according to data from the Bangladesh Bank.**

THE DOLLAR CRISIS IN RECENT TIMES IS A GLOBAL PROBLEM. BUT THE GOVERNMENT IS GIVING PRIORITY TO THE ENERGY AND POWER SECTORS. SO IT WILL NOT BE A BARRIER.

Zanendra Nath Sarker, Chairman of Petrobangla, on Bangladesh inviting for international bidding for oil and gas exploration in the Bay of Bengal. (March 06, 2024. The Financial Express.)

This commitment extends beyond Bangladesh's borders, earning us international recognition. We are now home to 54 of the top 100 LEED Green Factories globally, including 9 out of the top 10, and 18 out of the top 20.

Faruque Hassan, President of Bangladesh Garment Manufacturers and Exporters Association, on two more factories in Bangladesh earning LEED certification. (March 06, 2024. The Business Standard.)

When banks are merged, it will be done in a proper and transparent process. A merger shall ensure that good banks are not weakened and weak banks become better.

Md Mezbaul Haque, Executive Director of Bangladesh Bank, on mergers of banks in the country. (March 12, 2024. The Business Standard.)

The rate on FDR has increased and this is the main reason behind the surge in share of FDR in total deposits. Currently, many banks offer more than 10 per cent as interest on term deposits and there are few banks having liquidity shortage offer even around 12 per cent on one-year-tenure term deposits.

Emranul Huq, CEO and Managing Director of Dhaka Bank, on term deposits in banks reaching BDT 7.80 trillion in the last quarter of 2023. (March 16, 2024. The Financial Express.)

Our investment in the facility has reached around Tk 500 crore as we imported sophisticated machinery from the US, Germany, Japan and India to ensure API production of global standard.

Sheikh Maksudur Rahman, Director of ACME Laboratories, on ACME Laboratories starting production of active pharmaceutical ingredients (APIs) at the API Industrial Park in Gazaria of Munshiganj. (March 17, 2024. The Daily Star.)

The government is planning to undertake initiatives to develop capital market which is also a deliverable under the IMF programme. We believe that interest in capital market will increase, once the macroeconomic conditions start stabilising.

Naser Ezaz Bijoy, Director of Central Depository Bangladesh Limited, on sluggish growth in BO account opening. (March 15, 2024. New Age.)

Operational costs increased by 40 percent solely due to the increase in value of the US dollar and the remaining for the price hike of utilities.

Mohammad Jahangir Alam, President of Bangladesh Steel Manufacturers Association, on steel sector's operational costs jumping by 65%. (March 20, 2024. The Daily Star.)

Overall exports from the sector were not impressive last fiscal year but we are assuming that there will be an improvement this year as western economies have started to rebound.

Kamruzzaman Kamal, Director of Marketing at Pran-RFL Group, on competitive prices driving growth in plastic exports. (March 19, 2024. The Daily Star.)

WORLD ECONOMIC INDICATOR

Country	Nominal GDP: 2022 (In USD Billion)	Real GDP Growth: 2022 (Yearly % Change)	Inflation Point to Point (%)		Current Account Balance: (% of GDP)	Interest Rates (%), Ten Years Treasury Bond	Currency Units (Per USD)
Frontier Markets							
Sri Lanka	75.30	-8.66	0.90	March-24	-1.94	13.44	300.33
Vietnam	406.45	8.02	3.97	March-24	-0.88	2.87	25,405.00
Kenya	115.99	5.37	5.70	March-24	-4.72	18.24	132.00
Nigeria	477.38	3.25	33.20	March-24	-0.72	19.71	1,151.18
Bangladesh	453.85	6.03	9.33	March-24	-0.70	12.15	110.00
Emerging Markets							
Brazil	1,924.13	2.90	3.93	March-24	-2.91	11.79	5.29
Saudi Arabia	1,108.15	8.74	1.60	March-24	13.79	N/A	3.75
India	3,386.40	6.83	4.85	March-24	-2.61	7.19	83.62
Indonesia	1,318.81	5.31	3.05	March-24	1.00	7.06	16,230.00
Malaysia	407.92	8.69	1.80	February-24	2.64	4.01	4.79
Philippines	404.26	7.60	3.70	March-24	-4.41	6.91	57.19
Turkey	905.53	5.57	68.50	March-24	-5.38	27.48	32.54
Thailand	536.16	2.64	-0.47	March-24	-3.26	2.79	36.79
China	18,100.04	2.99	0.10	March-24	2.31	2.27	7.24
Russia	2,215.29	-2.05	7.70	March-24	10.27	14.36	94.15
Developed Markets							
France	2,784.02	2.61	2.30	March-24	-1.71	3.00	0.94
Germany	4,075.40	1.78	2.20	March-24	4.20	2.48	0.94
Italy	2,012.01	3.68	1.18	March-24	-0.73	3.88	0.94
Spain	1,400.52	5.48	3.20	March-24	1.06	3.32	0.94
Hong Kong	360.98	-3.51	2.10	February-24	10.73	3.97	7.83
Singapore	466.79	3.65	3.40	February-24	19.33	3.41	1.36
United States	25,464.48	2.07	3.50	March-24	-3.64	4.64	1.00
Denmark	390.68	3.62	0.90	March-24	12.82	2.53	7.01
Netherlands	993.68	4.52	3.10	March-24	5.49	2.74	0.94
Australia	1,701.89	3.66	4.10	December-23	1.20	4.40	1.56
Switzerland	807.23	1.70	1.00	March-24	9.84	0.72	0.91
United Kingdom	3,070.60	4.05	3.20	March-24	-5.55	4.34	0.80

Bangladesh Data: The new GDP size (FY23) is as per the provisional estimate of Bangladesh Bureau of Statistics and real GDP growth (FY23) is as per new base year. Calculation Method of CA balance (% of GDP) = CA balance of FY23 /Provisional Estimate for GDP of FY23.

Interest rate (%) 10 years TB as per April 2024, Inflation as per March 2024 and Currency Unit (per USD) as per 8th April 2024 are sourced from Bangladesh Bank.

Nominal GDP: Data of all countries apart from Bangladesh is sourced from IMF estimates of 2023 data (April, 2023 Outlook).

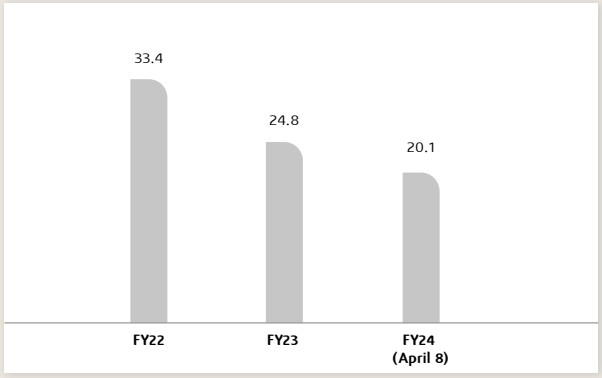
Real GDP Growth and Current Account Balance: Data of all countries apart from Bangladesh is sourced from IMF estimates of April, 2023 data (World Economic Outlook, April 2023).

Inflation: Data of all countries apart from Bangladesh is sourced from tradingeconomics.com.

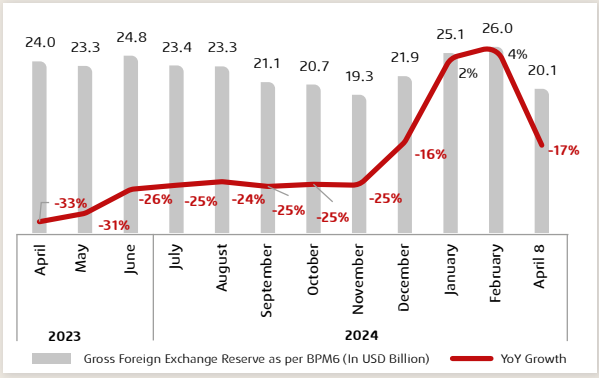
Interest Rates 10 Years TB and Currency Unit : Data of all countries apart from Bangladesh is sourced from investing.com.

BANKING DATA CORNER

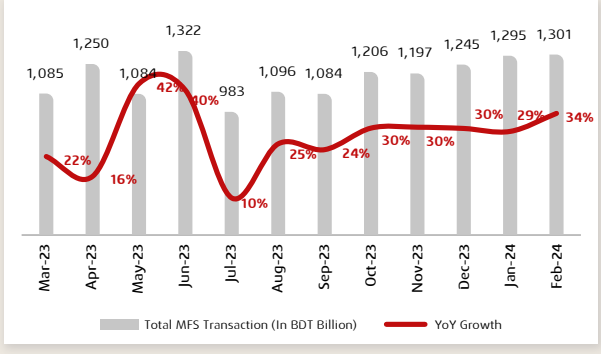
Gross Foreign Exchange Reserve as per BPM6
(In Billion USD and Last 2 Years)



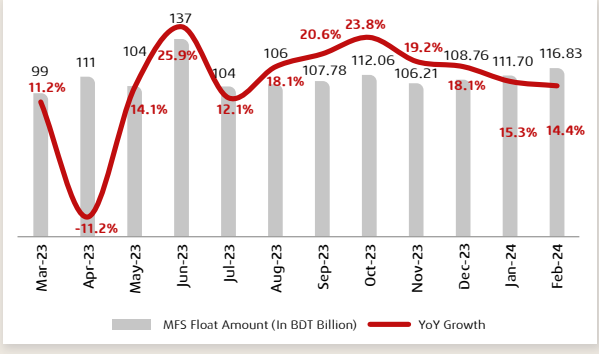
Gross Foreign Exchange Reserve as per BPM6
(In USD Billion and Last 12 Months Trend)



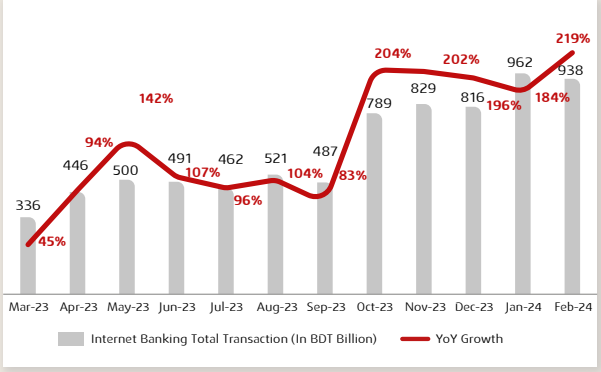
MFS Total Transaction Value
(In BDT Billion and YoY Growth)



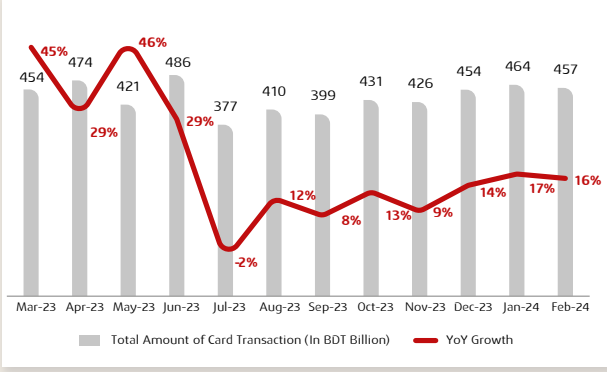
MFS Float Amount
(In BDT Billion and YoY Growth)



Total Amount of Internet Banking Transaction
(In BDT Billion and YoY Growth)



Total Amount of Card Transaction
(In BDT Billion and YoY Growth)



Source: Bangladesh Bank

Sigmind

Md. Abu Anas Ibn Samad
Founder and CEO, Sigmind

Interviewed By
Akhlaqur Rahman Sachee, Team MBR

Sigmind is a pioneering AI-focused startup specialising in advanced computer vision technologies, founded in 2017 with a mission to revolutionise public safety, traffic management, and security through innovative solutions. Leveraging deep learning and artificial intelligence, Sigmind transforms visual data from surveillance cameras into actionable insights, enhancing the operational efficiency of enterprises and governments. With its flagship products like TrafficFlow and Watchcam, Sigmind offers a comprehensive suite for real-time traffic and human analytics, setting new standards in surveillance automation. Team MBR was in a conversation with the founder and CEO of Sigmind, Mr. Md. Abu Anas Ibn Samad, and had the opportunity to learn about his inspirations behind forming the startup and his future aspirations surrounding Sigmind.

Akhlaqur Rahman Sachee: Sigmind has recently created a buzz on social media with the introduction of TrafficFlow, a solution that employs video analytics for real-time traffic management. Would you kindly share with us how you came up with the idea to form Sigmind?

Md. Abu Anas Ibn Samad: The genesis of Sigmind was driven by a vision to harness the transformative power of artificial intelligence and computer vision to address some of the most pressing challenges faced by modern societies. Our journey began with a keen observation of the burgeoning challenges in urban management, particularly in the context of Bangladesh. Traffic congestion, a lack of efficient public safety measures, and inadequate security infrastructure are not just inconveniences but significant barriers to economic growth and societal well-being. These issues are compounded by the rapid urbanisation and growth of digital infrastructure, creating a pressing need for innovative solutions.

Dhaka is the slowest city, according to the US-based National Bureau of Economic Research. A study by BRTA shows that traffic congestion costs Dhaka approximately USD 3.2 billion annually in lost productivity and fuel waste. The founding team members of Sigmind, equipped with backgrounds in AI, machine learning, and software engineering, recognised the untapped potential of AI-powered computer vision technologies to solve this issue. The idea for TrafficFlow, our flagship solution, is a direct response to the chaotic traffic conditions in Dhaka. We envisioned a system that could not only monitor but also analyse and predict traffic patterns, offering actionable insights for traffic management. By employing state-of-the-art

video analytics and deep learning algorithms, TrafficFlow has been conceptualised as a solution that could revolutionise traffic management by providing real-time data, enhancing decision-making, and ultimately improving the quality of urban life.

The positive reception of TrafficFlow on social media and beyond is a testament to the relevance and impact of our solutions. The formation of Sigmind was underpinned by a commitment to innovation, excellence, and social impact. As we continue to innovate and expand our offerings, the foundational idea of using technology to solve real-world problems remains at the heart of Sigmind.

Akhlaqur Rahman Sachee: As video analytics facilitates the study of object attributes, movement patterns, behaviours, and so on, the scope of applications of this technology is quite wide. May we know what areas Sigmind has already explored and what areas it intends to explore in the near future?

Md. Abu Anas Ibn Samad: Sigmind has harnessed the capabilities of video analytics to address a broad spectrum of applications, focusing on enhancing public safety, optimising traffic management, and improving security measures. Our exploration of the potential of video analytics has led to the development of innovative solutions that cater to diverse needs. Below are the areas we have explored.

Traffic Management: With our flagship product, TrafficFlow, we have made significant strides in real-time traffic management, offering solutions for vehicle detection, classification, speed estimation, and congestion analysis to improve traffic flow and reduce congestion.

Public Safety: Our solutions contribute to public safety by enabling crowd management, detecting unauthorised gatherings, and identifying potential safety hazards in real-time. This is crucial for event management, urban planning, and emergency response coordination.

Security and Surveillance: We've applied video analytics to enhance security measures through facial recognition, intrusion detection, activity monitoring, and attendance monitoring. These capabilities are vital for securing public spaces, critical infrastructure, and private properties.

Retail Analytics: Our technology also finds application in the retail sector, where it can track customer movement, analyse behaviour patterns, and optimise store layouts to improve the shopping experience and increase sales.

Industrial Automation: We have started to explore the use of video analytics for industrial automation, including monitoring equipment performance, ensuring safety protocols are followed, and optimizing manufacturing processes.

We have plans to explore the following areas in the near future.

Smart Cities: We intend to deepen our involvement in smart city initiatives by developing solutions that integrate with various urban systems for enhanced city-wide management, energy conservation, and sustainable urban development.

Education: Enhancing security on campuses and optimising educational resources through behaviour analysis and space utilisation are areas we see significant potential in.

Agriculture: Leveraging video analytics for precision agriculture to monitor crop health, detect pest infestations, and automate harvesting processes is another avenue we're excited about exploring.

Environmental Monitoring: We are keen on developing solutions for environmental monitoring, such as tracking wildlife populations, detecting forest fires early, and monitoring air and water quality, to contribute to conservation efforts.

In addition to the aforementioned areas, Sigmind is keenly exploring the integration of large language models (LLMs) and generative AI into our video analytics solutions. This innovative approach aims to enhance predictive video analytics and forecasting capabilities, offering even more sophisticated insights into security, traffic management, environmental monitoring, and more.

Akhlaqur Rahman Sachee: Sigmind has already provided vehicle analytics and human analytics solutions to BEPZA, PMO, CAAB, BCB, Finance Division, Robi Axiata, and some other local organisations. Would you kindly share with us the business model of Sigmind and how it makes money out of the solutions it provides?

Md. Abu Anas Ibn Samad: Sigmind operates under a business model that is designed to offer scalable, cutting-edge AI-powered video analytics solutions to a diverse clientele, including government bodies, enterprises, and private organisations. Our revenue generation strategies are built around providing high-value, customisable solutions that cater to the specific needs of our clients, ensuring a high level of satisfaction and return on investment. Here is an overview of how Sigmind makes money from its solutions.

Sales of Software Licenses and Hardware Systems: We sell licenses for our proprietary video analytics software, including TrafficFlow and other human and vehicle analytics solutions. These licenses can be offered on a perpetual basis or through annual renewals, depending on client preferences. For clients requiring hardware, we provide integrated solutions that combine our software with specialised hardware, such as GPU-accelerated servers or embedded systems. This ensures optimal performance of our analytics solutions.

Service Subscriptions: Sigmind also adopts a software-as-a-service (SaaS) model for clients preferring to use our solutions without a significant upfront investment in hardware and software licenses. This model provides access to our video analytics platform for a recurring subscription fee, making it flexible and scalable for various business sizes. Leveraging cloud computing, we also offer cloud-based video analytics services that allow clients to analyse video data without maintaining their own computing infrastructure.

Custom Solutions and Consultancy: We engage in custom solution development for clients with unique requirements. This includes tailoring our existing software, developing new algorithms, or integrating our solutions with existing systems. Alongside, Sigmind provides consultancy services in AI and computer vision, helping clients design and implement effective surveillance, security, and traffic management strategies. This consultancy extends to system design, deployment strategies, and optimisation of video analytics operations.

Maintenance and Support Services: For ongoing support and maintenance of our systems, we offer annual maintenance contracts. These contracts ensure that clients receive software updates, system maintenance, and technical support, providing a steady revenue stream for Sigmind. We also offer comprehensive training programmes for clients' technical and operational staff, ensuring they can effectively use and maintain the video analytics systems.

Partnerships and Collaborations: Collaborating with hardware vendors, software developers, and service providers expands our market reach and opens up new revenue streams through joint ventures and co-marketing efforts. By securing contracts with government agencies and large enterprises for city-wide surveillance, traffic management, and public safety projects, we ensure long-term engagements that contribute significantly to our revenue.

Akhlaqur Rahman Sachee: Solutions that employ video analytics can be inappropriately used, breaching the privacy of others. How does Sigmind ensure that its solutions are used for the purposes for which they are intended to be used?

Md. Abu Anas Ibn Samad: Sigmind is aware of the ethical considerations and privacy concerns surrounding the use of video analytics and facial recognition technologies. We are committed to ensuring that our solutions are employed responsibly and for their intended purposes, which are to enhance public safety, streamline traffic management, and bolster security measures without infringing on individual privacy rights. To this end, we have implemented several key measures.

Privacy by Design: Our systems are developed with privacy as a core principle. We employ techniques such as data anonymization and encryption to protect individuals' identities. Our solutions process visual data in a way that emphasises the privacy of individuals, ensuring that personal data is not unnecessarily exposed or stored.

Compliance with Regulations: Sigmind strictly adheres to local and international data protection regulations, including GDPR in applicable regions.

We work closely with legal experts to ensure our products comply with all relevant laws and guidelines, particularly those governing privacy and data protection.

Ethical Guidelines: We have established ethical guidelines for the deployment of our technologies. These guidelines mandate that our solutions are used in a manner that respects human rights and privacy. We conduct thorough ethical reviews of potential deployments, rejecting applications that pose a significant risk of misuse or harm.

Client Education: Sigmind actively educates clients on the responsible use of video analytics technology. We provide guidance on best practices for protecting privacy, including recommended operational protocols that minimise the risk of privacy violations.

Transparency and Accountability: We advocate for transparency in the use of video analytics and facial recognition technologies. Our policies and practices are openly communicated to stakeholders, and we hold ourselves accountable for the responsible deployment of our technologies.

Selective Deployment: Sigmind is selective about the projects and clients we work with, choosing partners who share our commitment to ethical practices and who intend to use our solutions for public good, such as enhancing safety and security in a non-invasive, privacy-respecting manner.

Through these measures, Sigmind aims to lead by example in the responsible development and application of AI-powered video analytics, ensuring that our innovative technologies contribute positively to society without compromising the privacy and rights of individuals.

Akhlaqur Rahman Sachee: Would you kindly share with us the deployment procedure for the video analytics solution that Sigmind provides? Would the existing surveillance setups of the users be sufficient to integrate Sigmind's solutions, or would the users need to replace the existing setups and purchase customised hardware from Sigmind?

Md. Abu Anas Ibn Samad: Sigmind's deployment procedure for our video analytics solutions is designed to be seamless and efficient, ensuring minimal disruption while maximising the utility of existing infrastructure. We start by understanding the specific requirements, challenges, and objectives of the client. This involves assessing the client's current surveillance and security setup and identifying areas where our video analytics solutions can add value. A technical assessment of the existing surveillance infrastructure is conducted to determine compatibility with our solutions. This includes evaluating the specifications of existing cameras, network capabilities, and hardware to ensure our software can be integrated effectively. It is to be noted that Sigmind's solutions are designed to be highly compatible with a wide range of IP cameras and surveillance systems. Our software can often be integrated with existing setups without the need for extensive hardware upgrades, leveraging the current investment to its fullest potential. For scenarios where the existing infrastructure cannot support advanced analytics or where enhanced capabilities are desired, Sigmind offers customised hardware solutions. These include GPU-accelerated embedded systems and servers that are optimised for high-performance computing needs in video analytics.

Our technical team oversees the integration of Sigmind's software with the client's surveillance system, ensuring seamless operation. If new hardware is required, we assist in its installation and configuration to work in tandem with existing setups. The system undergoes rigorous testing and calibration to ensure accurate analytics, optimal performance, and reliability. This phase includes tuning the algorithms to the specific use-case scenarios of the client, such as specific traffic patterns or security monitoring needs.

Sigmind provides comprehensive training to the client's staff, covering system operation, data interpretation, and maintenance procedures. This ensures that the client can effectively utilise the system from day one. We also offer ongoing technical support and system updates to ensure the analytics solutions continue to perform optimally and evolve with the client's needs. This includes software updates for improved features and capabilities.

Our solutions are designed with scalability in mind, allowing for easy expansion or upgrades as the client's requirements grow or change. This includes adding more camera inputs, enhancing analytics capabilities, or integrating new AI models.

Akhlaqur Rahman Sachee: Video analytics may fail to detect objects with accuracy and generate misleading data. Would you kindly shed some light on the statistics regarding the accuracy of TrafficFlow, which is currently trending?

Md. Abu Anas Ibn Samad: TrafficFlow, Sigmind's flagship video analytics solution designed for traffic management and vehicle analytics, represents the forefront of our AI-driven technology suite. The effectiveness and reliability of TrafficFlow are grounded in its sophisticated algorithmic foundation and extensive validation across diverse real-world scenarios. TrafficFlow achieves a high degree of accuracy in vehicle detection and classification, distinguishing between 25 distinct vehicle categories specific to the Bangladeshi context. The system consistently demonstrates over 98% accuracy in vehicle detection and classification under varied lighting and weather conditions. The licence plate recognition feature of TrafficFlow, crucial for vehicle identification and tracking, shows an accuracy rate of over 99% in broad daylight, while it falls to nearly 95% in low-light conditions. This is particularly notable given the challenges of diverse plate designs, varying conditions of visibility, angles of capture, and lighting conditions. With our innovative recurrence sorting method, we are able to achieve state-of-the-art licence plate recognition from a broader camera perspective. For measuring vehicle speed and direction, TrafficFlow employs optical flow-based algorithms, providing accurate estimations that are critical for traffic management applications. The system achieves an accuracy rate of approximately 91% in speed estimation and direction detection.

However, Sigmind is committed to continuous research and development to further enhance the accuracy and performance of TrafficFlow. Our AI models are regularly updated with new data, improving their ability to adapt to changing conditions and new challenges.

Akhlaqur Rahman Sachee: Sigmind has provided its solutions to some government bodies and some local corporations so far. May we know if Sigmind is interested in providing its surveillance and security solutions for small businesses and private properties? If positive, what pricing plan does it provide for small-scale subscribers to accommodate their needs?

Md. Abu Anas Ibn Samad: Sigmind is dedicated to democratizing access to advanced AI-powered surveillance and security solutions, not only for government bodies and large corporations but also for small businesses and private property owners. Recognising the unique challenges and budget constraints that smaller entities might face, Sigmind has tailored offerings designed to bring the benefits of cutting-edge computer vision technologies within their reach. Our approach ensures that smaller entities can benefit from high-quality surveillance without the need for extensive infrastructure or significant upfront investment.

Our pricing strategies are designed to accommodate varying levels of usage, ensuring that small businesses and private properties can select a plan that best suits their security needs without overspending. We offer subscription-based services that allow smaller entities to access our surveillance and security solutions without a hefty initial investment. These subscriptions can include regular updates and maintenance, ensuring that clients always have access to the latest features and improvements. In addition to that, our solutions are modular, allowing clients to choose and pay for only the features they need. Whether it is basic surveillance, vehicle analytics, or facial recognition capabilities, clients can tailor their package to match their requirements and budget. To help small businesses and private property owners understand the value of our solutions, we offer trial periods and demonstrations. This allows potential clients to experience firsthand the benefits of our technology before making a commitment.

All our clients, regardless of size, receive comprehensive support to ensure the smooth operation of their surveillance systems. This includes technical support, software updates, and training on system usage and maintenance. We provide custom training sessions tailored to the specific operational needs of small businesses and private properties, ensuring that staff can effectively manage and utilise the surveillance system.

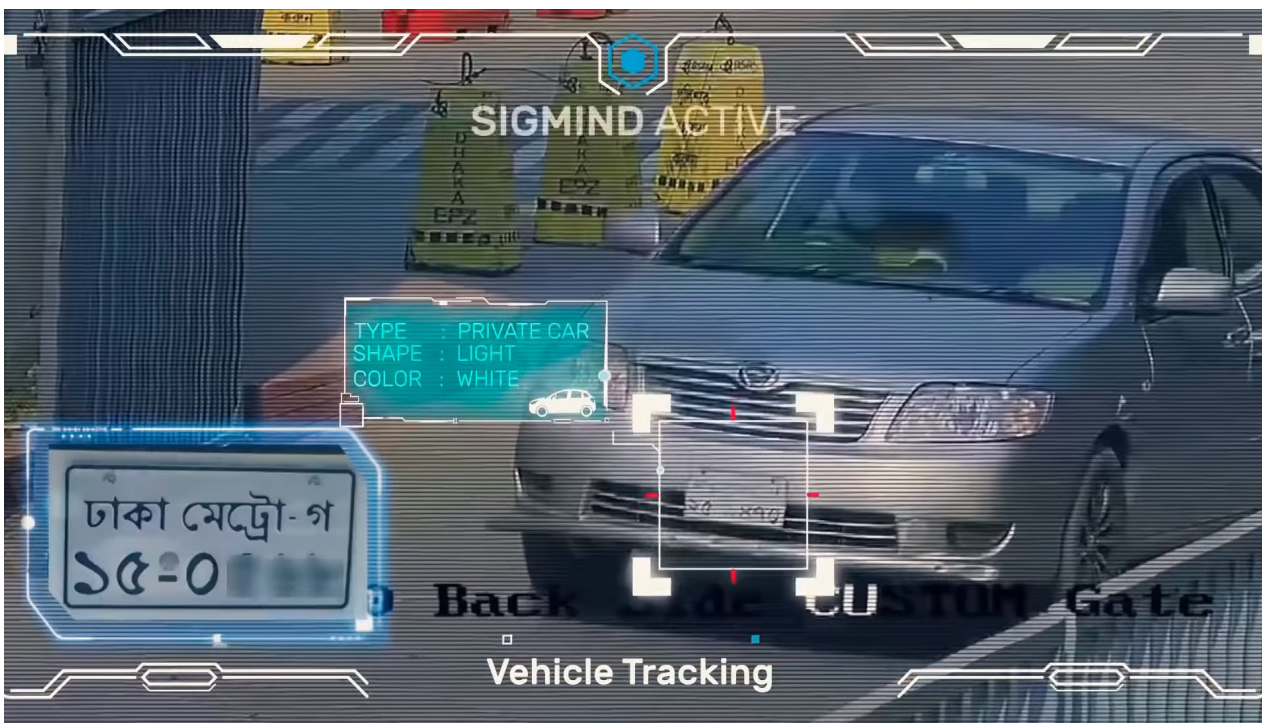
Akhlaqur Rahman Sachee: The solutions Sigmind provides are less likely to face geographical barriers, or the solutions may

be useful in other geographical boundaries with slight tweaking. Would you kindly share with us if Sigmind has explored cross-border business opportunities?

Md. Abu Anas Ibn Samad: Sigmind recognises the universal applicability and potential of its AI-powered surveillance and security solutions to transcend geographical boundaries. The core technology behind our offerings, grounded in advanced computer vision and artificial intelligence, is highly adaptable and can address similar challenges faced by entities worldwide. Given the global nature of security and surveillance needs, our solutions are designed to be customised to various environments and legal frameworks, making cross-border applications not only feasible but highly promising.

Sigmind has conducted comprehensive market assessments to understand the specific needs, challenges, and regulatory landscapes of potential international markets. In addition to its impactful presence within Bangladesh, Sigmind has broadened its horizons by exporting its cutting-edge software solutions to several countries around the globe, including the United Kingdom, the Netherlands, Japan, India, and others. This expansion is a testament to the universal applicability and high demand for advanced AI-powered video analytics technologies across various sectors worldwide.

We have initiated pilot projects in selected countries to demonstrate the adaptability and effectiveness of our solutions in diverse settings. These pilots serve as a foundation for establishing partnerships with local entities and understanding the operational nuances in different geographical contexts. An essential part of our cross-border strategy is ensuring that our solutions comply with international data protection and privacy standards, such as GDPR in Europe. This commitment to compliance facilitates smoother entry into international markets by aligning with local regulations. Recognising the importance of local context, from traffic patterns to architectural differences in surveillance environments, our team works closely with local partners to customise our solutions. This includes adjusting models by fine-tuning them to local demographics, vehicle types, and even specific security threats.



BATTERY INDUSTRY IN BANGLADESH
POWERING UP THE NATION ON THE GO

Written By
Akhlaqur Rahman Sachee

From the smartphones in our hands to the vehicles moving on the streets, anything that requires an energy carrier on the go is being powered up by batteries. Without batteries, smartphones would have been just expensive paperweights, clocks would not have been ticking, starter motors would not have gotten the engines in the vehicles started, solar panels would have failed to deliver uninterrupted supply of electricity in the absence of sunlight, telecommunications would have been significantly disrupted, and emergency power backups like Instant Power Supply (IPS) and Uninterrupted Power Supply (UPS) would have never been a possibility. With the growing adoption of electric vehicles and renewable energy sources such as solar, the demand for batteries is expected to only go up in the near future. However, the aforementioned purposes require different variants of batteries, including dry-cell batteries, lead-acid batteries, lithium batteries, and so on, which are of different technologies, and different chemical reactions take place inside the batteries to generate electricity. Among them, lead-acid batteries are used for most of the applications in the context of Bangladesh.

Lead-acid Battery Industry in Bangladesh

The size of the lead-acid battery industry in Bangladesh is more than BDT 10,000 crore, according to a report published by The Business Standard. The Business Post stated that the size of the industry has been multiplied three to four times in the last ten years. In terms of the number of units, the market players are capable of producing more than 40 lakh units of batteries every year. The pioneer in the local lead-acid battery industry is Rahimafrooz Group, which was incorporated in 1954. The concern first produced industrial batteries in 1985. Currently, Rahimafrooz Batteries Limited is the largest lead-acid battery manufacturer in the country, producing 200 different types of batteries for diversified applications. Also, there are two more concerns under the umbrella of Rahimafrooz Group, named Rahimafrooz Globatt Limited and Rahimafrooz Accumulators Limited. These concerns produce specialized batteries for vehicles and industrial applications. Alongside, there are more than 25 local manufacturers in Bangladesh producing batteries for solar panel systems, easy bikes, battery-run rickshaws, passenger transports, commercial vehicles, IPS systems, UPS systems, telecommunication towers, and so on. Navana Battery, Hamko Battery, Panna Battery, General Battery, Rimso Battery, Rangs, etc. are some of the prominent names in the lead-acid battery manufacturing industry in Bangladesh. The industry has employed more than 1 lakh people, directly or indirectly.

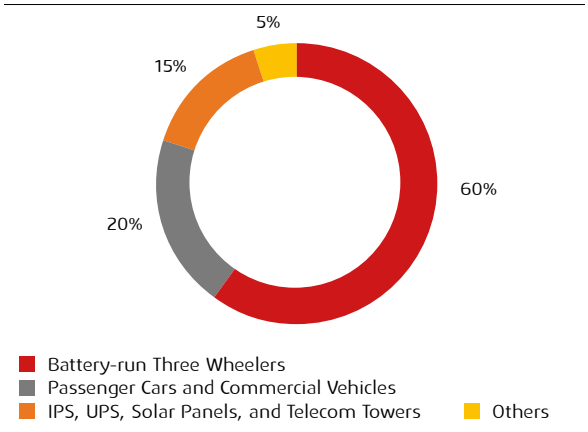
The lead-acid battery industry in Bangladesh is expected to experience a Compound Annual Growth Rate (CAGR) of more than 3% during the forecast period of 2022 to 2027, as per a report by Mordor Intelligence. With the decreasing price of lithium batteries and the increasing adoption of electric vehicles, which primarily use lithium batteries, the growth of the lead-acid battery industry is expected to slow down.

In the context of Bangladesh, the major portion of the demand for lead-acid batteries comes from battery-run three-wheelers, which are known as easy bikes. Battery-run rickshaws also fall into this category. A report by The Business Standard states that the number of easy bikes on the streets of Bangladesh has already exceeded 30 lakh. As policymakers are planning to regularise this mode of transport with the introduction of safer designs of vehicles and licencing procedures, the number of easy bikes and battery-run rickshaws will go up in the future. On top of that, easy bikes usually require five lead-acid batteries to run, and these batteries last much less than a year, generating recurring sales for the lead-acid battery manufacturers. According to an industry expert, these three-wheelers currently consume nearly 60% of the lead-acid batteries produced in the country.

Passenger cars and commercial cars using combustion engines require lead-acid batteries too. These vehicles are generating approximately

20% of the total demand for batteries. On the other hand, IPS, UPS, solar panels, telecommunication towers, etc. account for roughly 15% of the total demand. Rest 5% goes to other special purposes.

Figure 01: Applications of Lead-acid Batteries



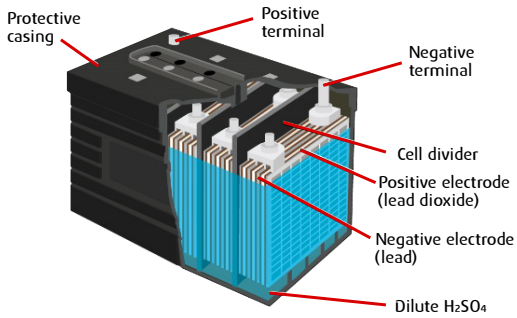
Source: Industry Experts

Broadly, the lead-acid batteries available in Bangladesh can be categorised into two types: flooded batteries and sealed batteries. Flooded batteries have removable caps that can be opened to refill distilled water, whereas sealed batteries are mostly maintenance-free. On the other hand, in terms of applications, lead-acid batteries can be divided into stationary batteries and mobile batteries. Stationary batteries are those used in solar panels, IPS, UPS, telecommunication towers, and so on, and mobile batteries are those used in automotives.

How a Lead-acid Battery Works

From the cross-sectional view of a lead-acid battery, it can be observed that there are two electrodes immersed in an electrolyte in a protective casing. The positive electrode is made of lead dioxide, and the negative electrode is made of lead. Each cell in a lead-acid battery produces 2 volts, and six cells produce 12 volts altogether. The electrolyte usually consists of 35% sulfuric acid and 65% water.

Figure 02: Cross-section of a Lead-acid Battery



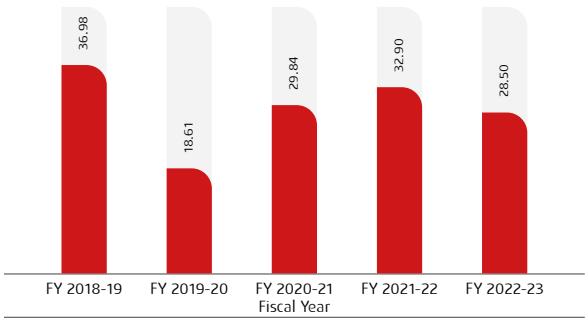
Source: LibreTexts

Approximately 50% of the raw materials required to produce lead-acid batteries are imported from countries like Malaysia, Singapore, China, South Korea, Thailand, India, and so on. The rest of the materials are sourced locally through recycling, mostly.

Export Outlook of the Battery Industry

In the last five fiscal years, around USD 29 million worth of lead-acid batteries were exported from the country on average. In terms of Harmonised System Codes (HS Codes), 850710 represents lead-acid accumulators for starting piston engines, and 850720 represents lead-acid accumulators (excl. for starting piston engines). Other than lead-acid batteries, the country also exports parts in small quantities. In FY2022-23, USD 28.50 million worth of lead-acid batteries were exported from the country. The major export destinations were the United Arab Emirates, Oman, Saudi Arabia, Kuwait, Nepal, Qatar, Australia, Malaysia, India, South Korea, Indonesia, and so on. The majority of the export revenues were earned by Rahimafrooz, which pioneered exporting batteries in 1992.

Figure 03: Exports of Lead-acid Batteries (In USD Million)



Source: Export Promotion Bureau

Recycling and Environmental Hazards

Battery Rescue states that 97% of a lead-acid battery can be recycled if done in a proper manner. Most of the components of lead-acid batteries, including lead plates, electrode separators, protective casings, etc., can be recycled. However, the acid must be neutralised before being released into the environment, and other wastes must be treated in regulated manners with the help of air treatment plants and effluent treatment plants. According to a report published by The Business Standard, 30 lakh easy bikes and battery-run rickshaws on the streets are generating 1.80 lakh metric tonnes of used lead-acid batteries every year. The unregulated facilities where lead-acid batteries are dismantled are locally known as 'Bhatti'. Currently, there are 800 bhattis in operations without any clearance certificate from the Department of Environment (DoE). These bhattis pollute the land, water, and air in the process of recycling. The DoE requires the users of the lead-acid batteries to return those to the sellers after use. As per the rules, the manufacturers must collect the used batteries and recycle those themselves or get those recycled by compliant recyclers. However, there are more than 100 brands of lead-acid batteries available on the market that do not have certificates from Bangladesh Standards and Testing Institution. Manufacturers of these brands rely on these bhattis for recycled leads.

Alongside the environmental impacts, the adverse impact on the health of the workers of these bhattis is alarming. These workers have been found to have blood lead levels ranging from 66 to 78 micrograms per deciliter, whereas the World Health Organization recommends that lead exposure be terminated once someone is found to have a lead concentration of more than 5 micrograms per deciliter. Such high blood lead levels among the workers of bhattis will ultimately result in kidney failure.

Challenges Forward

The lead-acid battery industry may face transformations with the introduction of local production of lithium batteries. As a part of this endeavour, Bangladesh Lithium Battery Limited is constructing a manufacturing plant at Mirsarai, Chattogram, with an annual capacity of 1 gigawatt hour. The project requires an investment of BDT 600 crore to be operational, and it has already availed a syndicated term loan facility of BDT 332.6 crore, where Eastern Bank PLC. is the lead arranger.

The policymakers are planning to popularise electric vehicles among the masses, and hybrid vehicles are already popular in the country. These vehicles use lithium batteries. However, this is a prospective market for the local lithium battery industry. A major existing market, approximately 60% of the lead-acid battery market, which comprises easy-bikes and battery-run rickshaws, may become exposed to the risk of being captured by the lithium battery industry, as lithium batteries last longer, weigh less, require less time to recharge, and offer better mileage in comparison to lead-acid batteries. However, lithium batteries have drawbacks too. These batteries cost more, possess a higher risk of catching fire, offer less resale value, and require a more expensive recycling process in comparison to lead-acid batteries. Also, the installation of lithium batteries and replacing the lead-acid batteries will require easy bike and battery-run rickshaw owners to replace the charging systems and may require changes to the vehicle designs.

Alongside, 65% of the local demand is being served by Chinese companies. Allegations regarding unregulated operations and tax evasions have been heard against some Chinese companies producing lead-acid batteries. As a result, regulated local manufacturers struggle to compete with these Chinese companies in terms of pricing.

Lastly, the rising dollar price has affected the industry adversely. As around 50% of the raw materials required to produce lead-acid batteries are imported, the costs of manufacturing have surged. Also, finance costs have risen as opening LCs (Letters of Credit) these days requires a 100% cash margin or more.

The local lead-acid battery industry has served the country for decades while earning export revenues for the country. If policymakers come up with the

required policy support to create a level playing field, the projected transitions in the industry will be a win-win scenario for every participant in the battery industry as a whole. Moreover, the government should come forward to bring the unregulated battery manufacturers under regulations so that environmental and health risks can be minimised and the government can earn tax revenues from these manufacturers.

Faraaz A. Rahim

Executive Director, Rahimafrooz Batteries Limited

Interviewed By
Akhlaqur Rahman Sachee, Team MBR

Mr. Faraaz A. Rahim is the Executive Director at Rahimafrooz Batteries Limited. He has been with the company's Storage Power Business since 2010, in various local and international scopes, currently leading a sales and marketing force of over 100 team members and revenues exceeding USD 60 million. The company holds the position of market leader in Bangladesh and has a presence in over 50 international markets. Mr. Rahim has been a key catalyst in the company's regrowth since the post-COVID-19 market decline. Prior to joining Rahimafrooz, he was working with Brummer & Partners Asset Management Company as an Investment Analyst. Earlier, he was with Twentieth Century Fox London in its Branding and Merchandising team, and prior to that, at Aramark Food Company USA in its Marketing and Distribution division. Mr. Rahim completed BSc in Business Administration from Boston University School of Management in 2008. He is an executive committee member of the Dhaka Chamber of Commerce & Industry and the Accumulators Battery Manufacturers & Exporters Association of Bangladesh. He is also the National Member's Squash Champion for 2023–24 and an active member of the country's Gulshan Club and Kurmitola Golf Club. Team MBR was fortunate enough to have a conversation with Mr. Rahim and receive his take on the battery industry in Bangladesh.

Akhlaqur Rahman Sachee: The local market size of lead-acid batteries is more than BDT 12,000 crore, and it has been observed that the market is growing at a rate of 10% to 15% every year. Would you kindly share with us what drivers are fueling the growth the local lead-acid battery manufacturing industry is experiencing?

Faraaz A. Rahim: The local market size was expected to hit BDT 12,000 crore in 2024, as per a projection that was made in 2020. However, because of the ongoing greenback crisis impacting imports of vehicles, the policy for motorcycles and three-wheeler CNG autorickshaws reducing the number of registrations, and the sluggish economic growth resulting from lower economic activities, the growth in the battery industry did not take place as projected. The only major growth in this industry arose from the backup battery segment (generator/IPS) in the last two years, which was also limited due to the dollar crisis. Currently, the market is standing at around BDT 10,000 crore. A market growth of 5% to 7% is expected in the next few years, assuming a stable

recovery from the existing macro-economic situation.

Akhlaqur Rahman Sachee: Lead-acid batteries have a wide scope of applications, which include off-grid solar panel systems, easy bikes, battery-run rickshaws, passenger transports, commercial vehicles, IPS systems, UPS systems, telecommunication towers, and so on. Would you kindly shed some light on the areas from which a major portion of the total demand is being triggered?

Faraaz A. Rahim: Among the aforementioned applications of lead-acid batteries, the major portion of the demand comes from three-wheeler electric vehicles, which are known as easy-bikes in our country. These easy-bikes use batteries of different technologies and sizes, consuming around 60% of the total production of batteries. Battery consumption by passenger cars and commercial vehicles together is around 20%. The backup and stationary segment, which includes IPS, solar panels, telco, UPS, and other systems that require power storage, consists of around 15% to 18% of the market. Other smaller segments (motive power, special usage, etc.) roughly cover around 3% to 5%.

Akhlaqur Rahman Sachee: As lithium batteries are soon going to be produced in the country, the battery industry is expected to experience significant transformations. What are your thoughts regarding the projected shift in demand for lead-acid batteries with the arrival of locally produced lithium batteries?

Faraaz A. Rahim: Lithium batteries come with both positives and negatives. It is the current best technology for power storage (not for starter battery applications), but it is not considered to be a sustainable technology. As a result, aggressive research is going on to invent new technologies, and those have been trialled in many countries already. Lithium in the battery world is considered a transient technology until a more sustainable and environmentally friendly technology can be invented for mass production.

Lithium has positive characteristics such as higher cycle life (longer life) and high power density (quick charge and power output capacity). It also has a lighter weight, and it is non-spillable. These characteristics have made the lithium battery evolve as a trending technology, particularly because the new generation of electric vehicles would not be possible without lithium batteries.

However, the downsides of lithium batteries include the relatively higher costs in comparison to lead-acid batteries, the lack of resale value, the risk of catching deadly fires while in operation, the scarcity of materials used for the production of lithium cells, and the inability to recycle lithium batteries on a large scale. The developed countries dump used batteries after refurbishing them to underdeveloped countries for applications demanding lower power performance as their recycling policy. Once the lithium batteries sold around the world reach their end-of-life cycles, they turn into hazardous piles in developing markets.

While the local production of lithium batteries is welcome to bring about positive technological changes in our storage power industry, we must be careful of the scale at which it will be produced, the ability of the local workforce to adopt the new technology, and the size of the segments of the domestic market it will be targeting. Lithium cell production requires a high level of sophistication and a high production capacity to be viable. However, for lithium batteries to be accepted for applications where lead-acid batteries are used, just replacing the lead-acid batteries or conventional batteries will not work, as the entire eco-system needs to be changed, including chargers and others. If launched successfully, a major shift is expected to come in storage applications, which include backup systems, easy-bikes, motive power, and emerging hybrid or electric vehicles. On a commercial aspect, it is yet to be understood whether our consumers are ready to spend more on a higher-technology battery (unless the application demands it), where a more economic battery technology has been proven to work over decades, having lower risk and a recyclable value of almost 30% of the cost of new ones.

Akhlaqur Rahman Sachee: Production and recycling of lead-acid batteries can have serious environmental and health impacts if not performed in regulated manners. Would you kindly share with us the practices Rahimafrooz and other prominent players in the industry follow during the production and recycling of lead-acid batteries to minimise the environmental and health impacts?

Faraaz A. Rahim: Production and recycling of lead acid batteries, if done in the correct manner, may not lead to any environmental hazards, and it is still the most environmentally sustainable battery technology with above 97% recyclability.

Rahimafrooz and some other regulated players follow standard procedures to ensure that the production and recycling of lead are not harmful to the environment. Rahimafrooz operates with ISO 9000, 14000, 45000, 17025, and 17020 certifications, including IMDG UN certification for handling dangerous goods. It is part of the culture and process at Rahimafrooz, where the company started using IOT devices to measure the water and air in its factories to continuously monitor and ensure that the parameters are within the permissible limits.

As of today, there are approximately 6,000 to 7,000 metric tonnes of lead being recycled locally per month, where only eight players are operating in a regulated manner and more than 450 players are operating in an unregulated manner, particularly in the smelting operations. This poses a serious threat to the environment.

Allowing these unregulated players space in the market curtails the scope for regulated players to operate, as they are able to get undue advantages from the cost and tax savings that regulated players have to incur. Rahimafrooz and other regulated players, through the Accumulators Battery Manufacturers & Exporters Association of Bangladesh, are actively pursuing the government to regulate this market for safety and sustainability.

Akhlaqur Rahman Sachee: Bangladesh exported approximately USD 29 million worth of lead-acid batteries during FY2022-23 to more than 25 countries, including multiple countries in the Middle East, Australia, Malaysia, India, Korea, and so on. Will you kindly share with us the factors that have made importing lead-acid batteries from Bangladesh lucrative for these countries?

Faraaz A. Rahim: Unfortunately, in Bangladesh, more than 95% of these national battery export figures over the last few decades came from a single company, which is Rahimafrooz. This shows that it is logistically and policy-wise very difficult and unattractive to export batteries from Bangladesh, where most raw materials have to be imported. Other battery-exporting countries like India, China, Korea, Turkey, and so on have their own domestic supplies of raw materials, port facilities (direct vessels to many ports), dangerous goods handling capabilities, free-trade or preferential-trade agreements, etc., making their industries much more robust, competitive, and sustainable. The policies towards exports and engineered products are also more rewarding and beneficial in those countries, allowing for higher economies of scale and lower break-even points for the factories.

In the initial days, Bangladeshi batteries had to be sold at heavy discounts for market acceptance. This gradually changed over time, and now Bangladesh is considered to be one of the more reliable and high-quality battery manufacturers in almost all the markets it exports to. This, along with lower production lead times (due to smaller scales), the relationship built over time, and the willingness to customise (which is also costlier than standard products), allow Bangladeshi batteries to gain share in multiple markets.

Akhlaqur Rahman Sachee: Around 50% of the raw materials required to produce lead-acid batteries are imported from Thailand, Malaysia, Singapore, South Korea, China, India, and other countries. Would you kindly explain the impact of the ongoing greenback crisis on the battery manufacturing industry and how it is addressing this challenge?

Faraaz A. Rahim: In the case of exports, the earnings from dollar appreciation mostly cover

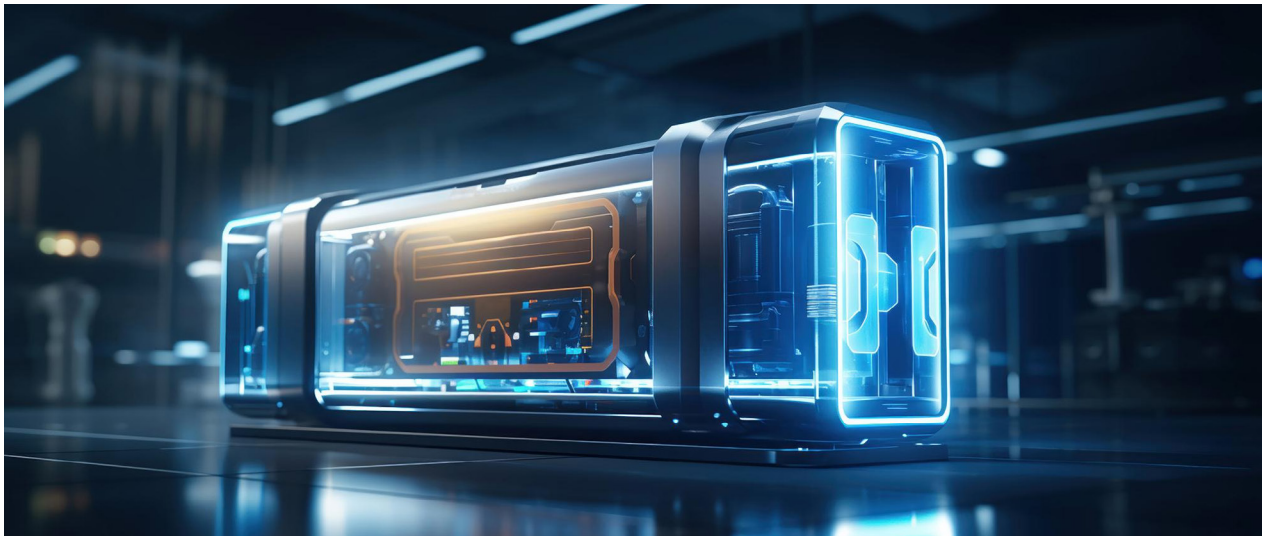
the dollar required for imports, so the challenge is mitigated to some extent. However, for domestic battery production, this resulted in a severe loss in several areas. For instance, in forex, the official rate is BDT 110.50 per dollar, but the effective LC opening rate ranges between BDT 116 and BDT 122 per dollar. On the other hand, as imports have become more expensive, purchasing the raw materials locally has sometimes become inevitable. Local materials, particularly lead, since the majority of the market is unregulated, now cost about 20% to 30% more than imported materials. Also, the working capital requirements have gone up significantly, and finance costs have moved upward sharply from a 0% to 10% LC opening margin to a 100% to 110% margin. On a more severe note, even after arranging USD at high exchange rates, some countries and banks stopped accepting LCs from a few Bangladeshi banks because their previous LC commitments were not honoured.

Akhlaqur Rahman Sachee: Chinese companies operating in Bangladesh meet nearly 65% of the demand for lead-acid batteries. Would you kindly share with us why the local manufacturers are lagging behind and what policy support is required for the local manufacturers to thrive?

Faraaz A. Rahim: Around 90% of the aforementioned 65% market consists of easy bikes and e-rickshaws. This has been possible for Chinese companies primarily because of unregulated operations, no environmental licence, no labour regulation, no VAT or tax obligation, no BSTI certification, illegal Chinese workers, etc., which allow those companies to gain major competitive advantages in terms of costs over the local manufacturers. The association has raised this issue many times with various government authorities, ministries, and the Chinese Embassy, but it gets overlooked every time.

Policy support is required to create a level-playing field. For that, we must ensure that no manufacturer can operate their factories without association membership or adequate regulatory compliance. In addition to that, standardised certifications need to be introduced for the easy-bikes and the batteries while ensuring regular BSTI and other magistrate-driven investigations in the market so that it becomes difficult and troublesome for the dealers and retailers to stock and display batteries that are supplied from unregistered or unregulated factories.

Alongside, it has become crucial to reduce material import VAT and domestic battery sales VAT to 5% from 15%. This will bring all the players under the NBR framework. VAT levels can be gradually regularised over a few years. Eventually, the government's revenues will increase because now it is not able to collect taxes from a major portion of sales from the aforementioned 65% battery market.



Beyond Banking:
A Deep Dive into BaaS

Written By
Md. Faruk Hasan

Banking as a Service (BaaS) has the potential to completely overhaul the way financial services are provided in Bangladesh, where traditional banking has struggled to serve the massive unbanked population. Only 52.81% of adults in Bangladesh had access to formal financial services in 2021, according to the World Bank's Global Findex Database, highlighting the urgent need for innovative solutions to drive financial inclusion.

In the fast-paced realm of finance, technological advancements have sparked a revolution, reshaping how we interact with money and banking services. Among the myriad innovations, BaaS stands out as a transformative concept that is redefining the traditional banking landscape.

Understanding Banking as a Service

Banking as a Service, often abbreviated as BaaS, is a concept that has gained significant traction in recent years, propelled by the rapid digitisation of financial services and the growing demand for seamless, user-centric banking experiences. At its core, BaaS represents a paradigm shift in the way financial services are delivered, enabling non-bank entities, such as FinTech companies and non-FinTech businesses, to offer core banking services to their customers without the need for a banking license.

The fundamental premise of BaaS lies in the integration of non-bank entities with traditional banking infrastructure through Application Programming Interfaces (APIs). These APIs serve as the conduit through which businesses can access essential banking functions, such as account management, payment processing, and lending services, seamlessly embedding them into their own product offerings.

The Mechanism of Banking as a Service

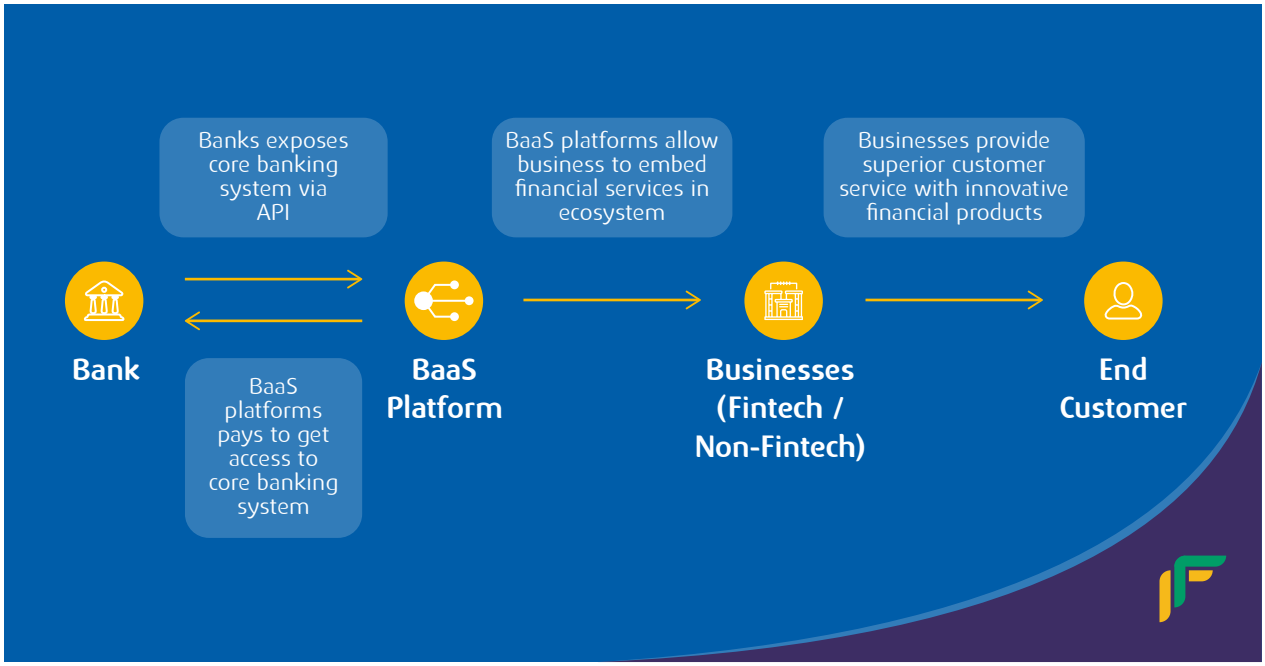
To comprehend the mechanics of BaaS, it is essential to dissect the roles of the key players involved.

i. The Bank: Traditional banks, along with newer digital banking players, serve as the foundational pillars of BaaS. These institutions provide the necessary infrastructure, including banking licences and core banking systems, which form the backbone of the BaaS ecosystem. By exposing their core banking functionalities through APIs, banks enable non-bank entities to leverage their infrastructure and offer financial services to their customers.

ii. BaaS Platform: Acting as intermediaries, BaaS platforms facilitate seamless communication between traditional banks and non-bank entities. These platforms, often referred to as middleware, ensure secure data transmission and compliance with regulatory standards. By offering API-based solutions, BaaS platforms empower businesses to integrate banking services into their applications and products without the need for complex infrastructure development.

ii. FinTech and Non-FinTech Businesses: At the forefront of the BaaS revolution are FinTech companies and non-FinTech businesses that interact directly with end customers. By leveraging BaaS platforms, these entities can offer a wide array of financial services, ranging from digital payments and lending to wealth management, without being burdened by the regulatory complexities of traditional banking. Through seamless integration with BaaS platforms, businesses can enhance their product offerings and deliver tailored financial solutions to their customers.

Figure 01: The Mechanism of Banking as a Service



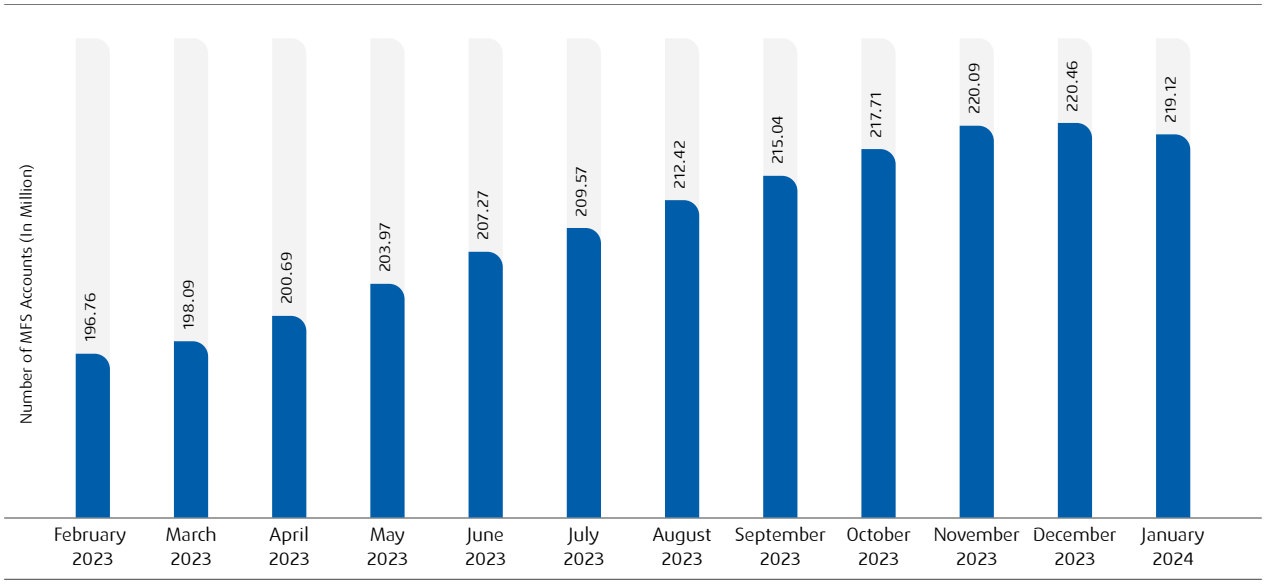
Source: Cashfree Payment

BaaS's main objective is to make it possible for companies to provide banking services to their clients without needing to get their own banking licenses. Utilizing the infrastructure and regulatory adherence of well-established financial institutions frees up businesses to concentrate on providing cutting-edge financial services and solutions that are customized for their target markets. BaaS offers a special chance to close the gap between the underserved and the banking industry in this era of digitalization. BaaS extends the reach of financial services to even the most remote areas of the nation by empowering non-banking entities, like FinTech companies and even retailers, to seamlessly integrate banking services into their platforms and products by leveraging the power of technology and partnerships.

Adoption of BaaS in Bangladesh

The potential impact of BaaS in Bangladesh is substantial. Statistics by the central bank of Bangladesh on the mobile financial services (MFS) industry reveal that the number of registered MFS accounts stood at a staggering 219.12 million as of January 2024, with bKash, the pioneering mobile financial services provider, accounting for the majority market share. This widespread adoption of mobile financial services underscores the readiness of the Bangladeshi population to embrace digital banking solutions, paving the way for BaaS to thrive. Moreover, the burgeoning FinTech ecosystem in Bangladesh is a testament to the growing demand for innovative financial services. As per a report published in The Business Standard, there are at least 198 FinTech startups. BaaS presents these FinTech companies with opportunities to leverage the infrastructure and regulatory compliance of established banks, enabling them to introduce cutting-edge financial products and services tailored to the unique needs of the Bangladeshi market.

Figure 02: Trend in the Number of MFS Accounts (Last 12 Months)



Source: Bangladesh Bank

Bangladesh's entry into the digital lending era is exemplified by the collaborative efforts of The City Bank, a prominent private commercial bank, and bKash. After a year of testing under Bangladesh Bank's supervision, the 'digital nano loan' was commercially introduced on bKash's platform in 2021. Since then, users of the bKash app have obtained nano loans from The City Bank totaling BDT 7 billion.

According to Prothom Alo, 245,000 bKash customers have availed this collateral-free nano loan 0.70 million times. Many of these customers have taken this hassle-free, instant, and affordable loan multiple times. By guaranteeing credit availability, the primary goal of this digital loan program is to expedite the financial inclusion of the nation's impoverished populace, particularly women and those residing in rural areas. About 24% of these clients are female as of 2023, while 55% of all borrowers reside in rural areas. Customers of bKash who have completed their e-KYC via the bKash app are deemed qualified for this loan from The City Bank, in accordance with directives from the central bank. An automated credit assessment system determines the customers' loan eligibility and amount based on their transactions in their bKash account and The City Bank's credit policy. With just a few taps, eligible customers can quickly obtain a nano loan from The City Bank, with amounts ranging from BDT 500 to BDT 20,000. Customers can apply for this loan without having to visit the office, sign any paperwork, or even have a nominee or guarantor.

Adoption of BaaS among the Regional Peers

Bangladesh's neighbouring country, India, has been at the forefront of BaaS adoption, with several notable examples. According to Stellar Market Research, the Indian BaaS market was valued at USD 12.67 billion in 2023, and the total BaaS revenue is expected to grow at 13.20% from 2024 to 2030, reaching nearly USD 30.19 billion.

In 2013, BaaS was introduced by Yes Bank and RBL Bank, which made multiple APIs available. Afterwards, a number of banks debuted their API developer portals and hubs, including Barclays, J.P. Morgan, Wells Fargo, and Citi. All of the country's main private banks, including HDFC, ICICI, and Kotak, currently offer APIs, while a number of BaaS FinTech startups, including Zeta, Setu, and Yap, are expanding quickly thanks to increasing funding. As major banks started

to make their APIs available, a new group of challengers and neobanks emerged, focusing primarily on digital banking. Paytm and Open are arguably the most noteworthy success stories in the Indian retail banking sector.

Perks of BaaS

The BaaS model presents a wealth of benefits for banks, non-bank businesses, and end-customers alike.

For Banks:

- Increased sources of revenue through API-based transactions and partnerships.
- Cost savings by leveraging third-party solutions and expertise.
- Enhanced customer insights and personalisation capabilities.

For Non-banking Businesses:

- Ability to bypass complex banking regulations and licence requirements.
- Innovative financial solutions for customers.
- Increased customer trust and loyalty by leveraging the brand reputation of banks.

For End-customers:

- Access to a wider range of user-friendly, integrated financial services.
- Improved customer experience and seamless interactions.
- Greater financial inclusion and access to credit for underserved populations.

Unlocking the Full Potential of BaaS in Bangladesh

As the nation continues to embrace digitalization and cultivate a conducive environment for fintech innovation, BaaS is poised to play a pivotal role in driving financial inclusion, fostering entrepreneurship, and accelerating economic growth. To fully capitalise on the benefits of BaaS, Bangladesh's financial industry must take a proactive and collaborative approach. Banks should prioritise the modernization of their core banking systems, transitioning to a more modular and API-driven architecture. This will enable them to seamlessly integrate with BaaS platforms and offer their services to a wider range of businesses and customers.

Regulators, too, have a crucial role to play. By establishing a supportive legislative framework and nurturing a conducive environment for FinTech innovation, they can pave the way for the widespread adoption of BaaS in Bangladesh. This includes developing robust digital infrastructure, incentivizing talent development programmes, and ensuring a streamlined regulatory environment that encourages collaboration between banks, FinTech firms, and technology providers.

A strong digital infrastructure, talent development programmes, and a legislative environment in favour of BaaS would be necessary for its successful implementation in Bangladesh. Working together, regulators, banks, FinTech firms, and technology suppliers must play their respective roles to overcome obstacles and realise the full promise of BaaS.

Relaxy

Jahnnobi Rahman

Co-founder and CEO, Relaxy

Interviewed By
Akhlaqur Rahman Sachee, Team MBR

Relaxy provides a platform where everyone can share and talk about their emotions without any hesitation or fear of being judged. It emphasises the importance of peer support and has created a supportive community on the Relaxy app where users can connect and discuss mental health matters with peers in their network. The app also provides users with the option to connect with licenced mental health professionals for personalised care and guidance, regardless of time and place. Team MBR was in conversation with the co-founder and CEO of Relaxy, Ms. Jahnnobi Rahman, and learned about her inspirations to form Relaxy and her aspirations for the startup.

Akhlaqur Rahman Sachee: As a computer science graduate, you are leading Relaxy, a tech startup that aims to address mental health issues among youth. Would you kindly share with us the factors that motivated you to form the startup and how your academic background helped you integrate technology with the mental health niche?

Jahnnobi Rahman: Back in 2020, when I was an undergrad student, I was diagnosed with depressive and anxiety disorders. To seek expert consultation, I tried to make an appointment with a psychologist. However, I faced many difficulties because of the long waiting time for the appointment, and the last-minute cancellation made it even worse. This particular event in my life made me realise the void in finding the right specialist at the right time. It motivated me to create a safe space where youths can share their mental struggles anonymously without fear of being judged. Being a computer science graduate, I was surely privileged to be equipped with the prior knowledge and skills required to explore the digital space to provide the solution I intended to offer to address mental health issues.

Akhlaqur Rahman Sachee: Mental health issues are still one of those topics about which people of all demographics are less comfortable speaking up. Would you kindly shed some light on Relaxy's efforts to raise awareness among the masses regarding mental health?

Jahnnobi Rahman: Relaxy is committed to breaking the barriers youths face to opening up about their mental struggles. We utilise social media platforms to share informative contents, real-life stories, and practical tips to overcome the challenges youths face. By leveraging the power of digital communities, we are providing a safe space for people to express themselves and seek support without the fear of judgment. In addition to that, Relaxy facilitates individuals to connect with mental health professionals and learn coping mechanisms in a supportive environment. Furthermore, Relaxy collaborates with organisations to normalise discussions regarding emotional well-being and spreads knowledge and resources to promote awareness.

Akhlaqur Rahman Sachee: Relaxy offers a platform where users can seek support from peer users. May we know how Relaxy ensures that all the users on the platform are complying with the community standards?

Jahnnobi Rahman: Relaxy allows users to seek support from peer users while ensuring that the users on the platform are in compliance with specific community guidelines. After a user posts anything on the platform using the Relaxy app, it undergoes scrutiny and requires approval from the admins. Once it is made sure that the post complies with the app's community guidelines, it is made public. Relaxy is devoted to providing a space where everyone feels safe and no one feels uncomfortable because of the actions of others.

Akhlaqur Rahman Sachee: Users of the Relaxy app can book sessions with psychologists and counsellors through the app. Would you kindly share with us the selection criteria that Relaxy follows while onboarding psychologists and counsellors so that the users receive the best services?

Jahnnobi Rahman: Relaxy upholds the quality of its services by employing rigorous selection criteria for onboarding psychologists and counselors. Supervised by an advisory team comprising Dr. Ashique Selim, Managing Director of Psychological Health & Wellness Care, and Tahasin Alam, Chief Technology Officer of Belong Health, Relaxy ensures that professionals meet the required qualifications to provide expert consultations to the users. This approach guarantees that users receive the best services, enhancing their experiences with the app.

Akhlaqur Rahman Sachee: It has been observed that mental health problems arise from diversified issues such as family issues, workplace issues, loneliness, stress, traumas, and so on. How does Relaxy address the mental health problems of a diversified user base?

Jahnnobi Rahman: As the user base of Relaxy is diverse and may have mental health issues arising from unique experiences, the app employs an early disorder detection tool to address this matter. A detection method is used to identify the probable mental health disorder. Based on the detected probable mental health disorder, the users are guided to different services based on their unique needs.

Akhlaqur Rahman Sachee: The Relaxy app has already been downloaded more than 50,000 times, and there are more than 15,000 active users. Would you kindly share how Relaxy makes money out of the services it provides to its users and the revenue streams of Relaxy?

Jahnnobi Rahman: Relaxy is currently being operated following a freemium model where users can access basic features such as chatting with peers, posting on the platform, self-care contents, etc. for free. However, to avail premium features such as chat sessions with experts,

continuous empathetic support from Relaxy Support, meditations, and so on, they need to subscribe to Relaxy Premium, which starts at BDT 399 only for a period of 15 days. Users can also book counselling sessions and chat sessions with psychologists using the Relaxy app. Chat sessions start at BDT 399 only, and counselling sessions start at BDT 699 only.

Akhlaqur Rahman Sachee: It has been reported on the news that Relaxy received pre-seed funding from the SAJIDA Foundation in 2023. May we know how Relaxy is planning to scale up its operation in the future?

Jahnnobi Rahman: After receiving pre-seed funding from the SAJIDA Foundation in 2023, Relaxy aims to scale up its operations effectively. It plans to allocate 45% of the funding to tech and R&D, 30% to marketing, 15% to operations, and 10% to HR and personnel. This strategic distribution of resources is expected to fuel Relaxy's growth and expansion endeavors.

Akhlaqur Rahman Sachee: You have been named one of the Forbes 30 Under 30 from Asia in the Social Impact category, which is surely an international recognition of your noble endeavor. Do you have plans to make Relaxy go global and serve international youth communities?

Jahnnobi Rahman: Being honoured with a position in the Forbes 30 Under 30 from Asia, Relaxy is entitled to more responsibilities to address mental health issues around the world. It is committed to making mental health services accessible and affordable for everyone. Currently, Relaxy is focusing on the Bangladeshi market. By 2025, the startup will scale to other Asian markets, including Indonesia, Vietnam, Nepal, and some other countries.

CAPITAL MARKET REVIEW

Performance of Equity Markets of Bangladesh and Peer Countries

Bangladesh equity market closed the month of March in negative territory. During the month, the broad index DSEX, blue chip index DS30 and Shariah index DSES decreased by -6.8%, -5.0% and -6.9% respectively.

Among the regional peers, Pakistan, Sri Lanka and Vietnam reported a positive return of 3.8%, 7.4% and 2.5% respectively. MSCI Frontier Markets Index increased by 3.8% in March. Over 5-year horizon, Sri Lanka (+105.9%) yielded the most encouraging return.

Table 1: Equity market performance of Bangladesh and peer countries

Indices	Index Points, March 2024	Return*					
		1M	3M	YTD	12M	3Y	5Y
Bangladesh							
DSEX	5,829.7	-6.8%	-6.7%	-6.7%	-6.1%	10.4%	6.2%
DS30	2,021.3	-5.0%	-3.5%	-3.5%	-8.5%	1.3%	2.7%
DSES	1,266.3	-6.9%	-7.2%	-7.2%	-6.2%	5.2%	-0.7%
Peer Countries							
Pakistan (KSE 100)	67,005.1	3.8%	10.7%	7.3%	67.5%	50.3%	73.4%
Sri Lanka (CSE-All Share)	11,444.4	7.4%	7.5%	7.4%	23.0%	60.7%	105.9%
Vietnam (VNI)	1,284.1	2.5%	11.3%	13.6%	20.6%	7.8%	30.9%
MSCI Frontier Markets Index	**804.8**	**3.8%**	**7.6%**	**7.6%**	**14.9%**	**6.3%**	**12.1%**

*All returns are Holding Period Return

Source: Investing.com, MSCI, DSE

Liquidity Condition in Equity Market of Bangladesh

During March, the total market capitalization decreased by -10.2%. The daily average turnover was USD 53.9 mn in March, down by -52.9% from that of last month. Turnover velocity which represents overall liquidity of the market stood at 19.8% in March, compared to 37.7% of last month. In 2023, turnover velocity of Bangladesh equity market was 18.1%, in comparison to 30.7% in 2022.

Table 2: Market capitalization and turnover statistics

Particulars	31-Mar-24	29-Feb-24	% change
Total market capitalization (USD* mn)	62,119	69,157	-10.2%
Total equity market capitalization (USD mn)	35,264	38,673	-8.8%
Total free float market capitalization (USD mn)	14,022	15,066	-6.9%
Daily Avg. Turnover (USD mn)	53.9	114.4	-52.9%
Turnover Velocity~	19.8%	37.7%	N/A

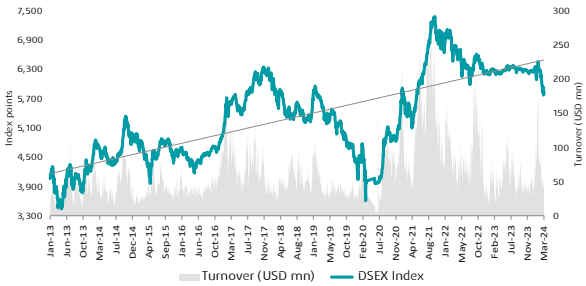
*All USD figures are converted using an exchange rate of 110 as of March 31, 2024 as per Bangladesh Bank website.

~Turnover velocity is calculated by dividing monthly total turnover with month-end market capitalization. The figures are annualized.

Historical Index Points and Market Participation Data

Since its inception on February 27, 2013, DSEX yielded a holding period return of 43.7% till March 2024. During this period, daily average turnover of the market amounted to BDT 6.8 bn (USD 61.8 mn) (Figure 1).

Figure 1: DSEX since inception along with market turnover

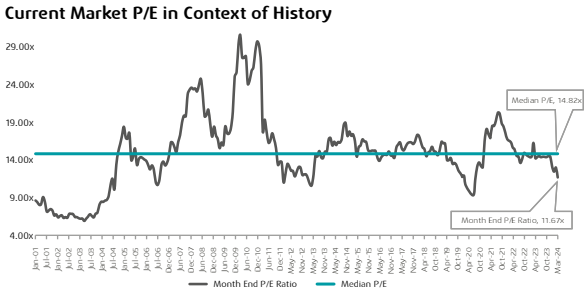


Source: DSE

Market Valuation Level - P/E Ratio:

The market P/E decreased to 11.67x in March, 2024 compared to 12.98x in February, 2024. It is lower than the 23 years' median market P/E of 15.00x (Figure 2).

Figure 2: Historical market P/E* and it's median



*Price Earnings (P/E) Ratio is calculated by dividing total market capitalization of all profit making listed companies with their total audited annual earnings.

Source: CEIC, DSE

Sector Performance

All sectors posted negative return in March 2024. Food & Allied sector (-18.5%) faced the most price correction.

Cement sector has the highest dividend yield of 5.4% among all sectors.

Table 3: Sector performance snapshot

Sector	Market Capitalization (USD mn)		Return*						P/E** (x)	P/BV^ (x)	Dividend Yield~
	Total	Free Float	1M	3M	YTD	12M	3Y	5Y			
Pharmaceuticals & Chemicals	5,812	3,070	-7.5%	-11.4%	-11.4%	-8.3%	12.0%	34.5%	13.4	2.8	2.6%
Bank	6,146	3,406	-2.6%	-1.4%	-1.4%	6.2%	25.0%	26.9%	6.3	0.7	4.3%
Telecommunication	4,438	477	-15.4%	-16.3%	-16.3%	-16.3%	-23.1%	-20.8%	12.7	5.1	4.7%
Engineering	3,444	904	-9.6%	-28.2%	-28.2%	-26.0%	-25.5%	5.9%	21.6	1.8	3.3%
Fuel & Power	3,081	935	-6.9%	-21.3%	-21.3%	-18.7%	-9.2%	-19.7%	9.5	1.1	4.5%
Food & Allied	2,987	968	-18.5%	-17.8%	-17.8%	-16.8%	-9.2%	1.9%	14.4	7.4	2.3%
Miscellaneous	2,183	936	-2.5%	3.3%	3.3%	9.3%	36.0%	87.0%	38.1	2.6	1.4%
NBFI	1,140	383	-12.4%	-33.3%	-33.3%	-32.4%	-24.4%	-31.1%	15.5	1.3	2.1%
Textile	1,283	734	-8.1%	-18.0%	-18.0%	-4.9%	25.9%	-13.3%	17.9	0.9	2.2%
Cement	1,070	421	-9.3%	-3.9%	-3.9%	6.8%	37.1%	20.8%	13.4	3.1	5.4%
Non-Life Insurance	904	511	-10.4%	-4.9%	-4.9%	9.6%	14.7%	107.7%	17.3	1.9	2.9%
Life Insurance	524	305	-12.1%	-23.5%	-23.5%	-21.4%	1.6%	-1.9%	85.3	5.7	2.4%
Tannery	249	123	-4.9%	-13.0%	-13.0%	-11.1%	52.9%	1.2%	24.2	2.5	2.2%
IT	337	208	-6.3%	-1.8%	-1.8%	-12.6%	79.8%	71.4%	23.6	3.0	1.7%
Ceramics	251	109	-7.0%	-16.8%	-16.8%	-16.5%	28.7%	-0.5%	37.6	1.8	1.9%
Travel & Leisure	640	272	-4.2%	-2.9%	-2.9%	-45.0%	40.2%	44.1%	23.9	1.4	1.1%
Paper & Printing	310	113	-11.6%	-12.0%	-12.0%	-14.7%	92.5%	38.0%	22.9	2.4	1.0%
Services & Real Estate	219	112	-8.6%	-8.4%	-8.4%	-16.0%	53.8%	50.7%	18.0	1.4	3.7%
Jute	68	35	-3.6%	3.3%	3.3%	33.2%	94.2%	-8.4%	28.3	22.0	0.1%
Market	**35,264**	**14,022**	**-6.8%**	**-6.7%**	**-6.7%**	**-6.1%**	**10.4%**	**6.2%**	**11.8**	**1.5**	**3.4%**

*All returns are Holding Period Return.
**Price Earnings (P/E) Ratio is calculated by dividing total market capitalization of all profit making listed companies with their annualized earnings.
^P/BV is calculated by dividing total market capitalization of listed companies with their respective total book values, excluding companies with negative book values.
~Dividend yield is calculated by dividing last year's declared cash dividend with market capitalization

Cap Class Performance

During the month of March 2024, Micro cap (-9.8%), Large cap (-9.5%), Small cap (-9.2%) and Mid Cap (-8.2%) ended in negative territory.

Table 4: Performance of different market cap classes

Cap Class	Definition based on market capitalization (USD mn)	% of total equity Mcap	Return*						P/E (x)	P/BV (x)	Dividend Yield
			1M	3M	YTD	12M	3Y	5Y			
Large	≥92	76.5%	-9.5%	-12.9%	-12.9%	-10.5%	25.6%	26.5%	10.7	1.5	4.0%
Mid	28-91	11.2%	-8.2%	-19.0%	-19.0%	-20.2%	-45.5%	-43.8%	16.2	1.3	2.6%
Small	9-27	8.8%	-9.2%	-9.7%	-9.7%	1.0%	58.5%	50.1%	24.5	1.0	2.5%
Micro	<9	3.6%	-9.8%	-6.2%	-6.2%	14.9%	-84.1%	-83.1%	28.2	0.9	1.9%
Market		**100.0%**	**-6.8%**	**-6.7%**	**-6.7%**	**-6.1%**	**10.4%**	**6.2%**	**11.8**	**1.5**	**3.4%**

*All returns are Holding Period Return

Performance of 20 Largest Listed Companies in Bangladesh

Among the 20 largest listed companies in terms of market capitalization, EBL increased by 6.0% followed by SQURPHARMA (+0.4%). On the other hand, DUTCHBANGL generated a negative return of -2.1% followed by MARICO (-2.8%), BERGERPBL (-3.9%), POWERGRID (-5.7%), BRACBANK (-5.9%), ROBI (-8.0%), LHBL (-8.3%), UNILEVERCL (-10.4%), BXPHARMA (-12.5%), WALTONHIL (-12.8%), BEACONPHAR (-13.1%), UPGDCL (-13.7%), ICB (-14.6%), GP (-17.0%), RENATA (-17.8%), BATBC (-22.2%). All the other stocks of this list remained unchanged.

Majority of these companies yielded outstanding return over longer time horizon (5 years) such as BEACONPHARMA (+1067.0%), BEXIMCO (+472.4%), UNILEVERCL (+148.1%), MARICO (+102.2%), and LHBL (+88.2%).

Among the scripts, LHBL, UPGDCL, GP, SQURPHARMA, and WALTONHIL recorded higher dividend yield compared to that of market.

Table 5: Snapshot of 20 largest companies in terms of market capitalization

DSE Code	Sector	Market Capitalization (USD mn)		Daily Avg. Turnover (USD mn)	Return*						P/E (x)	P/ BV (X)	Dividend Yield
		Total	Free Float		1M	3M	YTD	12M	3Y	5Y			
GP	Telecommunication	2,919	292	0.65	-17.0%	-17.0%	-17.0%	-17.0%	-19.8%	-29.6%	9.7	11.0	5.3%
BATBC	Food & Allied	1,982	524	0.87	-22.2%	-22.2%	-22.2%	-22.2%	-17.0%	-6.1%	12.2	6.6	2.5%
WALTONHIL	Engineering	1,790	19	0.08	-12.8%	-38.0%	-38.0%	-36.2%	-43.1%	N/A	28.9	2.5	4.6%
SQURPHARMA	Pharmaceuticals & Chemicals	1,754	1,140	0.53	0.4%	3.5%	3.5%	9.0%	25.1%	7.5%	8.6	2.7	4.8%
ROBI	Telecommunication	1,314	131	0.39	-8.0%	-8.0%	-8.0%	-8.0%	-36.2%	N/A	45.2	2.4	3.6%
BEXIMCO	Miscellaneous	921	616	0.03	0.0%	0.0%	0.0%	0.9%	65.3%	472.4%	1,926.7	1.7	0.9%
RENATA	Pharmaceuticals & Chemicals	809	394	0.22	-17.8%	-36.3%	-36.3%	-36.0%	-20.6%	-3.1%	23.4	4.5	0.8%
UPGDCL	Fuel & Power	764	76	0.02	-13.7%	-38.0%	-38.0%	-35.8%	-39.9%	-55.4%	9.2	3.2	5.5%
BERGERPBL	Miscellaneous	754	38	0.04	-3.9%	0.8%	0.8%	3.1%	5.7%	7.3%	27.2	11.4	2.2%
LHBL	Cement	721	259	0.89	-8.3%	-1.4%	-1.4%	5.4%	50.5%	88.2%	13.3	5.1	7.3%
MARICO	Pharmaceuticals & Chemicals	700	70	0.05	-2.8%	-0.6%	-0.6%	2.2%	25.5%	102.2%	16.1	41.8	3.1%
BRACBANK	Bank	588	316	0.23	-5.9%	12.3%	12.3%	14.3%	26.2%	-16.4%	9.2	1.7	1.7%
ISLAMIBANK	Bank	477	306	0.04	0.0%	0.0%	0.0%	2.1%	23.5%	45.6%	9.0	0.9	3.1%
BXPHARMA	Pharmaceuticals & Chemicals	472	330	0.22	-12.5%	-20.4%	-20.4%	-18.5%	-34.7%	62.7%	8.7	1.7	3.0%
ICB	NBFI	443	16	0.01	-14.6%	-34.3%	-34.3%	-34.1%	-29.9%	-38.8%	(11.5)	5.1	0.4%
BEACONPHAR	Pharmaceuticals & Chemicals	431	259	0.57	-13.1%	-16.2%	-16.2%	-20.0%	93.4%	1067.0%	31.6	16.1	0.8%
DUTCHBANGL	Bank	379	49	0.02	-2.1%	-5.6%	-5.6%	-1.5%	21.7%	7.5%	7.6	1.6	2.9%
EBL	Bank	351	243	0.52	6.0%	8.8%	8.8%	17.5%	45.7%	76.9%	6.3	1.6	3.9%
UNILEVERCL	Food & Allied	351	50	0.04	-10.4%	-0.8%	-0.8%	3.0%	19.2%	148.1%	40.2	34.2	1.5%
POWERGRID	Fuel & Power	290	72	0.03	-5.7%	-14.7%	-14.7%	-13.1%	15.5%	-9.7%	(106.4)	0.6	2.2%
Market		**35,264**	**14,022**	**53.95**	**-6.8%**	**-6.7%**	**-6.7%**	**-6.1%**	**10.4%**	**6.2%**	**11.8**	**1.5**	**3.4%**

*All returns are Holding Period Return.

^WALTONHIL got listed on Sep 23, 2020. ROBI got listed on Dec 24, 2020.

Top Performing Mutual Funds

The top ten open end mutual funds are selected based on the latest published fund size. SEML PBSL Fixed Income Fund, Grameen Bank-Aims First Unit Fund and Sandhani AML SLIC Fixed Income Fund outperformed the market on the basis of YTD.

Table 6: Top ten open end funds based on Fund Size

Name	Asset Management Company	Fund Category	Fund Size (USD mn)^	NAV Return		
				YTD	2023	2021-23
Bangladesh Fund	ICBAMCL	General	160.9	-14.1%	3.9%	8.0%
ICB AMCL Unit Fund	ICBAMCL	General	80.3	-10.9%	3.7%	8.4%
Grameen Bank-Aims First Unit Fund	AIMS	General	14.3	0.5%	7.1%	N/A
ICB AMCL Second NRB Unit Fund	ICBAMCL	General	12.6	-19.4%	3.9%	7.2%
SEML PBSL Fixed Income Fund	SEML	Fixed Income	9.3	1.1%	1.8%	N/A
VIPB SEBL 1st Unit Fund	VIPB	General	9.1	-4.9%	2.8%	N/A
Shanta First Income Unit Fund	Shanta	General	8.5	-11.5%	1.4%	9.1%
MTB Unit Fund	Alliance	General	8.2	N/A	2.2%	7.8%
Sandhani AML SLIC Fixed Income Fund	Sandhani	Fixed Income	7.9	0.4%	6.3%	N/A
First ICB Unit Fund	ICBAMCL	General	7.7	-18.9%	6.3%	10.1%
Market (Broad Index) Return (%)				**-6.1%**	**0.6%**	**5.0%**

*Based on published NAV and DSEX point of April 9, 2024
^Fund Size based on latest published data

All the top ten closed end mutual funds on the basis of 3 years (2021-2023) outperformed the market during the same horizon. Among them ICBEPMF1S1 (+13.3%) posted the highest return.

Table 7: Top ten close end funds based on 3Y return (CAGR) performance

DSE Code	Fund Size (BDT mn)	Fund Size (USD mn)	Price[1] (BDT)	NAV[1] (BDT)	Price/ NAV	Dividend Yield[2] (%)	NAV Return[3]			Redemption Year[4]
							YTD	2023	2021-23	
ICBEPMF1S1	619.5	5.6	6.1	8.3	73.8%	4.9%	-11.9%	4.5%	13.3%	2030
1STPRIMFMF	212.6	1.9	34.6	10.6	325.5%	2.9%	-21.8%	3.7%	13.0%	2029
PF1STMF	487.8	4.4	6.8	8.1	83.6%	4.4%	-14.7%	6.7%	12.6%	2030
ICBAMCL2ND	449.5	4.1	7.7	9.0	85.7%	3.9%	-11.8%	4.4%	12.1%	2029
ICB3RDNRB	793.0	7.2	5.5	7.9	69.4%	5.5%	-12.3%	4.2%	12.0%	2030
PRIME1ICBA	842.0	7.7	6.2	8.4	73.6%	4.8%	-12.7%	3.0%	11.0%	2030
ICBSONALI1	893.0	8.1	10.4	8.9	116.5%	2.4%	-11.8%	5.2%	9.6%	2033
IFILISLMF1	782.0	7.1	5.6	7.8	71.6%	5.4%	-16.5%	4.7%	9.4%	2030
CAPMBDBLMF	477.7	4.3	8.3	9.5	87.1%	7.2%	-13.2%	-4.1%	9.2%	2027
ICBAGRANI1	888.3	8.1	8.5	9.1	93.9%	5.9%	-13.6%	4.7%	9.2%	2027
Market							**-6.1%**	**0.6%**	**5.0%**	

[1]Price as on March 31, 2024 and index value as on April 9, 2024.

[2]On last cash dividend declared.

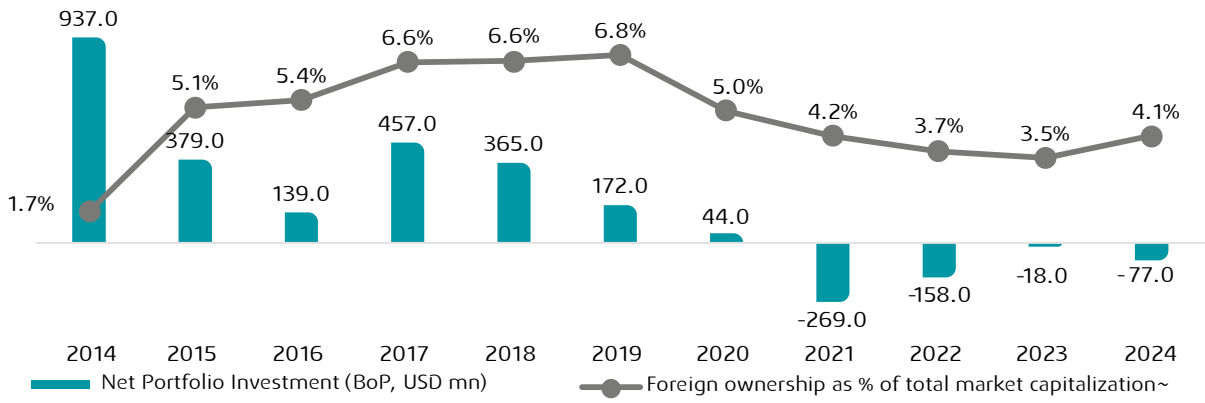
[3]CAGR computed for 2021-2023, adjusted for dividend. YTD returns of funds debuting within the year represent return generated since debut, hence is not directly comparable with return of funds that operated throughout the year.

[4]In reference to BSEC Press Release বিএসইসি/মুখপাত্র (৩য় খন্ড)/২০১১/২৫ published on Sep 16, 2018, tenure of existing listed closed end mutual funds can be extended by another tenure equal to maximum 10 years, provided that the full tenure of the subject fund does not exceed 20 years in total. However, the mutual funds those are not willing to extend their tenure will still have the option to convert or wind up as per rules and regulations.

Foreign Participation in Equity Market of Bangladesh

In the month of February 2024, Bangladesh equity market has seen a slight increase in foreign investment. As of February 2024, total foreign ownership stood at 4.1% of the total equity market capitalization, which was only 1.7% in February 2014.

Figure 3: Net foreign portfolio investment and foreign ownership as % of total equity market capitalization



Source: DSE and Bangladesh Bank

Note:
1. % of foreign ownership of equity market capitalization as of February 2024 and net portfolio investment as of June of the respective years.
2. Net portfolio investment of FY'24 includes Jul-Feb, 2024.

Among all the companies with foreign ownership, BRACBANK had the highest foreign shareholding of 30.8% as of February 2024, followed by BXPHARMA with 28.5%.

Table 8: Top ten companies with highest foreign shareholding as of February 2024

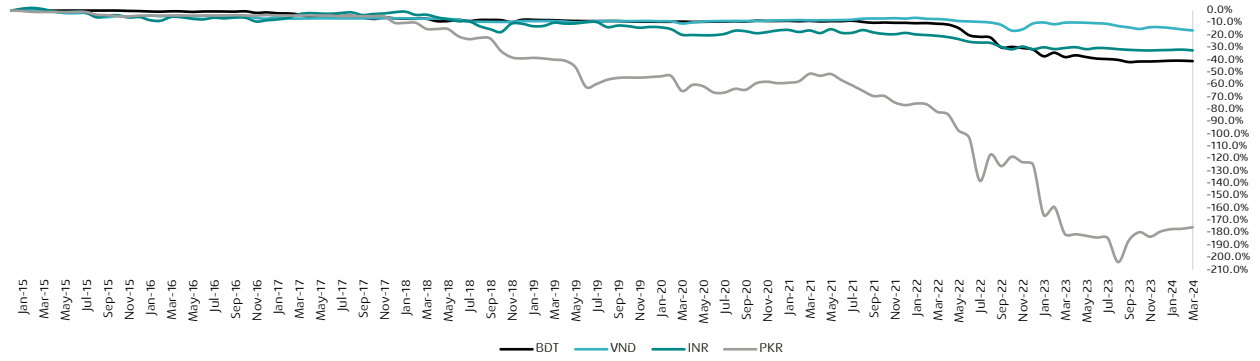
Ticker	Sector	Foreign Shareholding*
BRACBANK	Bank	30.8%
BXPHARMA	Pharmaceuticals & Chemicals	28.5%
NAVANAPHAR	Pharmaceuticals & Chemicals	27.7%
OLYMPIC	Food & Allied	24.5%
RENATA	Pharmaceuticals & Chemicals	22.6%
BSRMLTD	Engineering	17.3%
SQURPHARMA	Pharmaceuticals & Chemicals	14.0%
ISLAMIBANK	Bank	13.2%
DBH	NBFI	12.0%
SHEPHERD	Textile	9.5%

Source: DSE

Performance of BDT and Currencies of Peer Countries against USD

BDT depreciated by 40.8% against US Dollar while other currencies of neighbor countries like Vietnamese Dong (VND), Indian Rupee (INR) and Pakistani Rupee (PKR) also lost value against US Dollar by 16.0%, 32.2% and 175.3% respectively, since December 2014.

Figure 4: Nine year's relative performance of BDT and peer currencies



Source: Investing.com

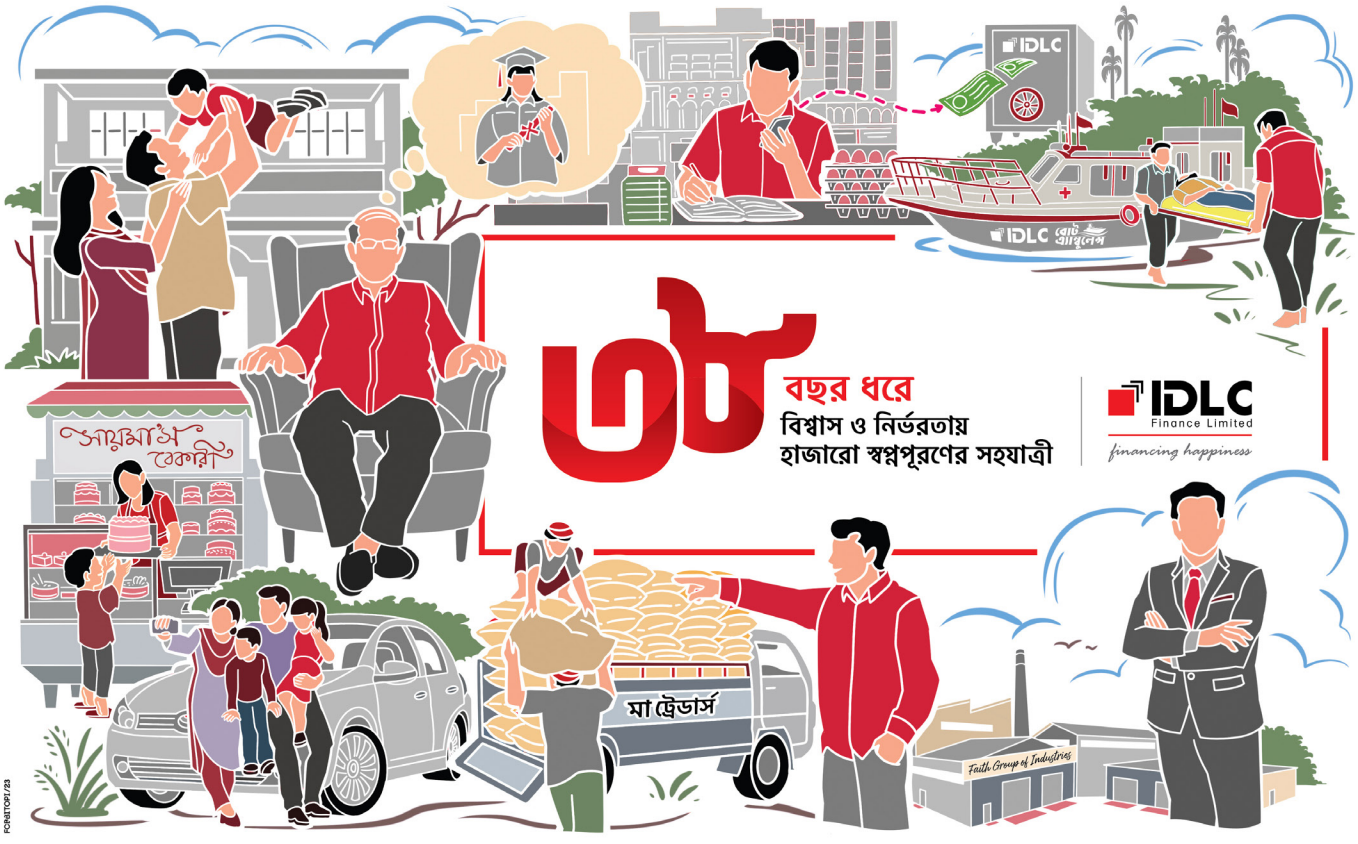
Major Commodity Price Movement

Among the major commodities, Crude Oil increased by 3.7% in March, followed by Aluminum (+2.2%). On the other hand, Wheat witnessed the most correction of -1.3%. Cotton remain unchanged. Over last 5 years, Wheat price hiked the most by 33.6%.

Table 8: Major Commodity Price Movement

Particulars	Price Change					
	1M	3M	YTD	12M	3Y	5Y
Crude oil (Average)	3.7%	10.3%	10.3%	9.2%	30.9%	31.0%
Wheat (US HRW)	-1.3%	-5.6%	-5.6%	-25.7%	0.6%	33.6%
Cotton (A Index)	0.0%	9.6%	9.6%	4.0%	8.5%	18.4%
Aluminum	2.2%	2.0%	2.0%	-3.1%	1.6%	19.0%

Source: World Bank Pink Sheet
*Average of Crude oil (Brent), Crude oil (Dubai), Crude oil (WTI)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