

REVIEW

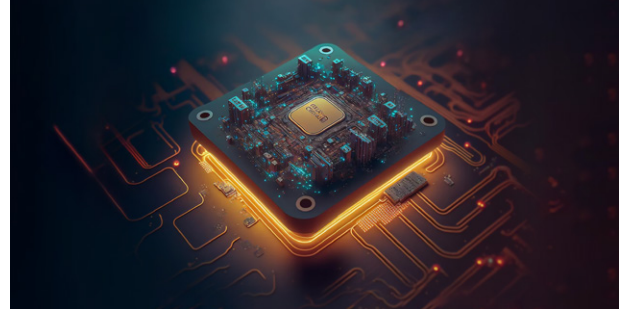


THE RECYCLING INDUSTRY OF BANGLADESH: PAVING THE PATH TOWARDS A GREENER FUTURE

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**The Recycling Industry of Bangladesh:
Paving the Path towards a Greener
Future**

As per an estimation by the World Bank Group, Bangladesh exhibits a considerable scope for climate-smart investments, amounting to approximately USD 172 billion spanning the period from 2018 to 2030. The recycling sector in Bangladesh plays a significant role in the nation's economic and environmental landscape. The industry can have an instrumental impact on the economy by generating employment opportunities, promoting economic growth, and preserving natural resources. Given sustained funding and backing, the recycling sector in Bangladesh has the potential to assume a more significant position in the nation's upward trajectory.

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The Recycling Industry of Bangladesh: Paving the Path towards a Greener Future

Waste generation has risen to alarming levels in recent years, with the World Bank reporting that the figure is expected to reach almost 3.88 billion metric tonnes by 2050. Population growth, the rapid urbanisation rate, economic expansion, and consumers' indiscriminate consumption patterns are deemed to be the key reasons behind this ever-increasing waste generation. The state of our environment is a dire concern owing to the existing linear economic system (take-make-waste), and one of the most effective ways to combat this crisis is by championing the cause of recycling.

The rise in purchasing power of people in Bangladesh has led to increased consumption, eventually resulting in large-scale waste generation. Moreover, the informal recycling process is hindering the country's efficient waste management, preventing Bangladesh

from recognising its true potential in the recycling industry. However, adopting a circular economy, the alternative to the linear economic system, through waste elimination and replenishment of natural resources can not only unlock avenues for revenue streams but also pave the way for a greener future.

In a world of limited resources, recycling offers a beacon of hope and a tangible solution to mitigate the damage we have inflicted on our environment. By implementing a proper recycling process, Bangladesh can bolster its economic and environmental landscape by generating employment opportunities, promoting economic growth, and preserving natural resources.

Md. Shah Jalal

Editor

IDLC Monthly Business Review

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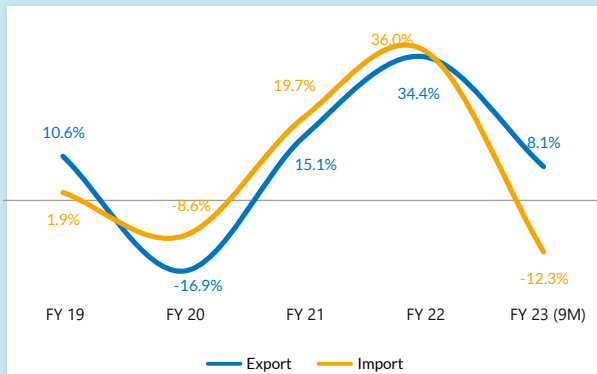
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ECONOMY AT A GLANCE

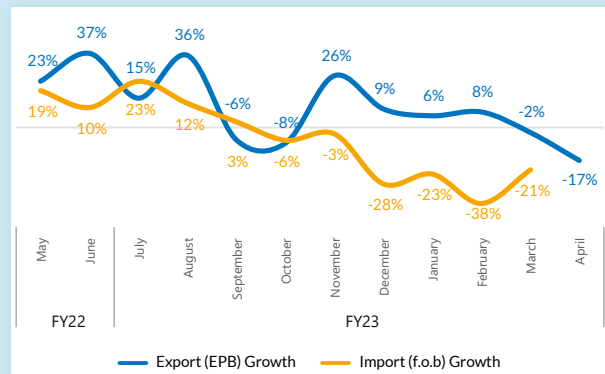
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EXPORT-IMPORT

Growth in Export-Import Trade (Last 5 Years)

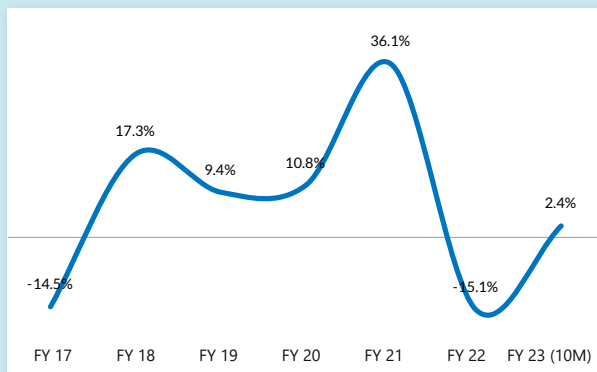


Export and Import Growth (Last 12 Months)

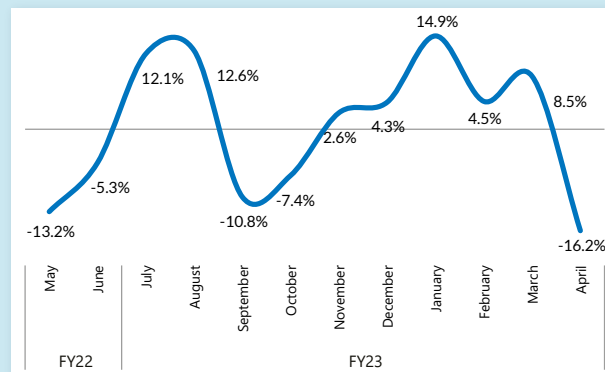


REMITTANCE

Remittance Growth (Last 7 Years)

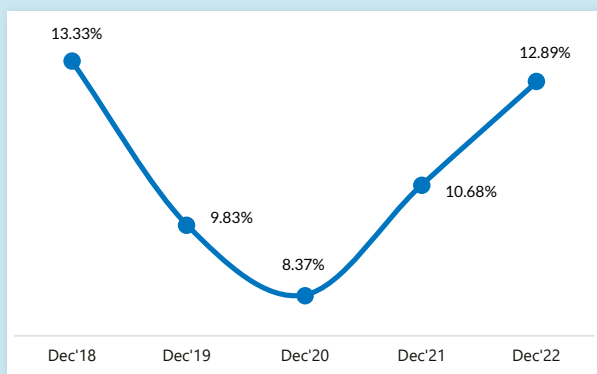


Remittance Growth (Last 12 Months)

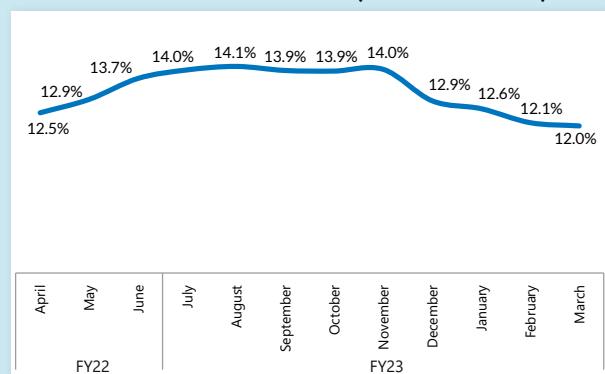


PRIVATE SECTOR CREDIT GROWTH

Private Sector Credit Growth (Last 5 Years)



Private Sector Credit Growth (Last 12 Months)



■ MONTH IN BRIEF

● An increase of BDT 1 in the dollar exchange rate has been introduced for both remitters and exporters. With the new rate effective from May 02, 2023, **banks have started offering BDT 108 per dollar for remittances and BDT 106 per dollar for export proceeds.**

● **The Bangladesh Garments Manufacturers and Exporters Association has become a member of a global alliance that encourages governments** to update their local fashion labelling regulations and promote the adoption of more sustainable digital labels.

● The data from the Export Promotion Bureau reveals that apparel exports from Bangladesh to non-traditional markets (Japan, India, Australia, etc.) rose by **34.74% year-on-year, amounting to USD 6.44 billion in the first three-quarters of FY2022-23.**

● **A circular issued by the Bangladesh Bank on April 26, 2023,** stated that not more than one director from an entity can be appointed to the board of directors of Non-bank Financial Institutions (NBFIs).

● **BDT 1,000 crore of cash incentives have been released by the Ministry of Finance for the export-oriented knitwear sector.** The ministry granted the request after 11 days of receiving an application dated March 30, 2023, from the Bangladesh Knitwear Manufacturers and Exporters Association.

● In terms of bilateral trade and investment exposure, Japan has risen to be Bangladesh's 11th largest export destination and 7th largest source of imports, registering a total bilateral trade of **USD 3.79 billion in FY2021-22.** Moreover, Japan is the **12th largest contributor to Bangladesh's FDI stock, with investments totalling USD 457.98 million.**

● As part of the agreement with the International Monetary Fund for the disbursement of the second tranche of the **USD 4.7 billion loans,** the Bangladesh Bank is optimistic that the net reserves will stand at around **USD 24 billion by the end of June 2023.**

● In the months of February and March this year, the government availed around **BDT 17,770 crore in loans from banks while collecting a significantly smaller amount of BDT 1,409 crore from non-bank sources.**

● **Banks have been instructed to maintain provisions from 0.5% to a maximum of 5%** according to risk against off-balance sheet liabilities in a circular published on April 25, 2023, by the Bangladesh Bank.

● At a meeting held on April 04, 2023, **the governor of the Bangladesh Bank instructed the managing directors of four state-owned banks to bring their non-performing loans below 10%.**

*AS CURRENT-ACCOUNT
DEFICIT HAS STARTED
DECLINING, THE GOVERNMENT
COULD RELAX SOME OF ITS
MEASURES ON IMPORT OF
GOODS.*

Dr Masrur Reaz, Founder and Chairman of Policy Exchange Bangladesh, on rising of export-import through Chattogram port on economic pickup. (April 17, 2023. The Financial Express.)

We are actively working to raise both export earnings and their share in the non-traditional markets to diversify destination and reduce dependency from the traditional ones where demands are changing due to the economic turmoil, high inflation rate and the Russia-Ukraine war.

Faruque Hassan, President of Bangladesh Garments Manufacturers and Exporters Association, on exports of readymade garments growing nearly 35% in nine months. (April 17, 2023. The Financial Express.)

Have there been huge earnings of Bangladesh in yuan, we may have a chance to make gain in case of yuan appreciating against US dollar.

Dr Zahid Hussain, Former Lead Economist of World Bank, on China providing buyer's credit in yuan for dollar dilemmas. (April 29, 2023. The Financial Express.)

As Bangladesh aims to be more prosperous, it will need stronger institutions and policies to serve the needs of an upper-middle-income country. This CPF will support the government's reform programs to deliver jobs and support inclusion and resilience.

Abdoulaye Seck, Country Director of World Bank for Bangladesh and Bhutan, on approval of new country partnership framework for Bangladesh. (April 29, 2023. The Financial Express.)

Most banks have already increased their interest rates on both loans and deposits slightly following the relaxations of interest rate cap, particularly for consumer loans, and the complete removal of the deposit floor rate by the central bank in its latest monetary policy statement.

Adil Chowdhury, President and Managing Director of Bank Asia, on banks hiking deposit rate. (April 21, 2023. The Daily Star.)

We should definitely keep giving tax exemptions and incentives to certain segments of the digital sector. However, our expectation is that these benefits, which would help generate income and employment, will prepare the ground for increased taxes after a certain period.

Professor Mustafizur Rahman, Distinguished Fellow of Centre for Policy Dialogue, on exploration of avenues to tax digital economy. (April 30, 2023. The Daily Star.)

We hope the ongoing discussions to ease and support the businesses from both sides through the gateway of RCEP [Regional Comprehensive Economic Partnership] by 2026 will serve to further strengthen our ties.

Md Jashim Uddin, President of Federation of Bangladesh Chambers of Commerce and Industry, on signing of MoU with Japan to boost bilateral trade. (April 27, 2023. The Daily Star.)

Our main objective is to fix pricing, so as to resist overpriced imports. And we observe that currently 1,500-2,200 LCs are being opened daily as before, but the value of LCs has decreased to \$5.5 billion per month from \$8.5 billion due to our monitoring. We think this is our big success.

Md Mezbaul Haque, Executive Director of Bangladesh Bank, on Bangladesh Bank setting new lending rate formula. (April 02, 2023. The Business Standard.)

Country	Nominal GDP: 2022 (USD in 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 Market								
Sri Lanka	75.30	-8.66	35.30	April-23	-1.94	25.55	318.02	
Vietnam	406.45	8.02	2.81	April-23		-0.88	3.12	23,467.50
Kenya	115.99	5.37	7.90	April-23		-4.72	14.80	136.50
Nigeria	477.38	3.25	22.04	March-23		-0.72	14.49	460.44
Bangladesh	460.20	7.10	9.33	March-23		-4.06	8.60	106.90
Emerging Markets								
Brazil	1,924.13	2.90	4.65	March-23	-2.91	12.30	4.99	
Saudi Arabia	1,108.15	8.74	2.70	March-23	13.79	N/A	3.75	
India	3,386.40	6.83	5.66	March-23	-2.61	7.05	82.09	
Indonesia	1,318.81	5.31	4.33	April-23	1.00	6.56	14,744.65	
Malaysia	407.92	8.69	3.40	March-23	2.64	3.83	4.45	
Philippines	404.26	7.60	6.60	April-23	-4.41	5.86	55.80	
Turkey	905.53	5.57	43.68	April-23	-5.38	14.27	19.52	
Thailand	536.16	2.64	2.67	April-23	-3.26	2.43	33.70	
China	18,100.04	2.99	0.70	March-23	2.31	2.77	6.92	
Russia	2,215.29	-2.05	3.50	March-23	10.27	10.65	77.70	
Developed Markets								
France	2,784.02	2.61	5.90	April-23	-1.71	2.95	0.91	
Germany	4,075.40	1.78	7.20	April-23	4.20	2.35	0.91	
Italy	2,012.01	3.68	8.30	April-23	-0.73	4.27	0.91	
Spain	1,400.52	5.48	4.10	April-23	1.06	3.45	0.91	
Hong Kong	360.98	-3.51	1.70	March-23	10.73	3.18	7.84	
Singapore	466.79	3.65	5.50	March-23	19.33	2.76	1.33	
United States	25,464.48	2.07	5.00	March-23	-3.64	3.53	1.00	
Denmark	390.68	3.62	6.70	March-23	12.82	2.62	6.79	
Netherlands	993.68	4.52	5.20	April-23	5.49	2.74	0.91	
Australia	1,701.89	3.66	7.00	March-23	1.20	3.47	1.48	
Switzerland	807.23	2.13	2.60	April-23	9.84	1.21	0.89	
United Kingdom	3,070.60	4.05	10.10	March-23	-5.55	3.89	0.79	

Bangladesh Data: The new GDP size (FY22) and real GDP growth (FY22) are as per new base year. Calculation Method of CA balance (% of GDP) = CA balance of FY22 / GDP of FY22

Interest rate (%) 10 years TB as per April 2023, Inflation as per March 2023 and Currency Unit (per USD) as per 2nd May 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)

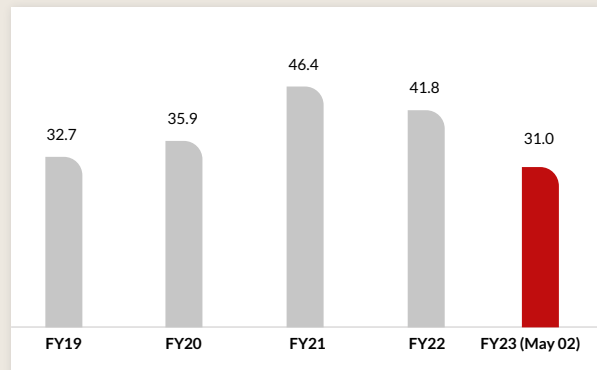
Inflation : Data of all countries apart from Bangladesh is sourced from tradingeconomics.com

Interest rates 10 years TB and Currency Unit : Data of all countries apart from Bangladesh is sourced from Investing.com

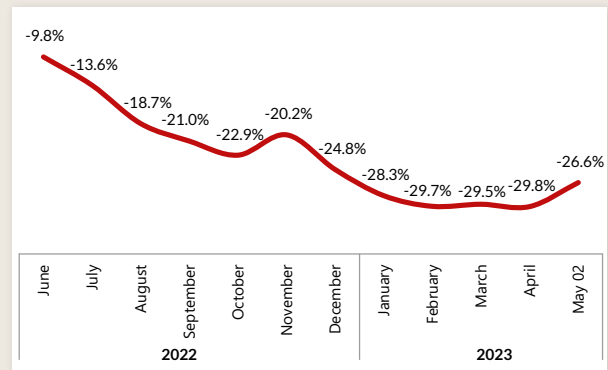
BANKING DATA CORNER

Prepared by IDLCSL Research Team

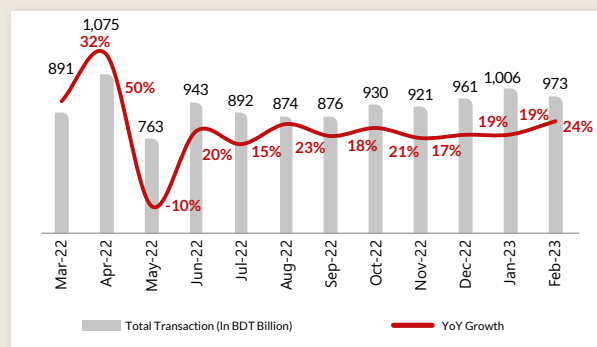
Foreign Exchange Reserve (In USD Billion and Last 5 Years)



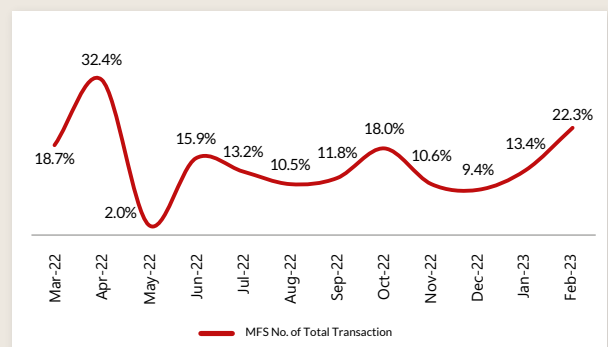
Foreign Exchange Reserve (Last 12 Months Trend)



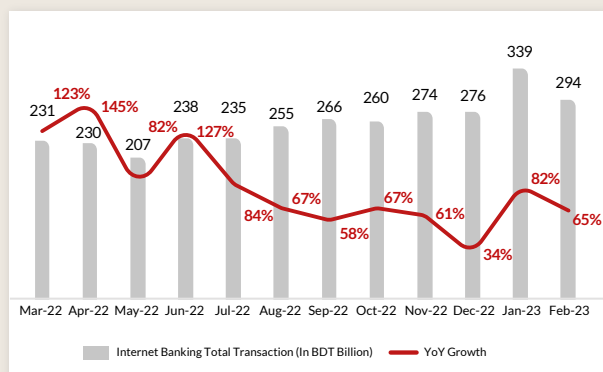
MFS Monthly Transaction (BDT Billion and YoY Growth)



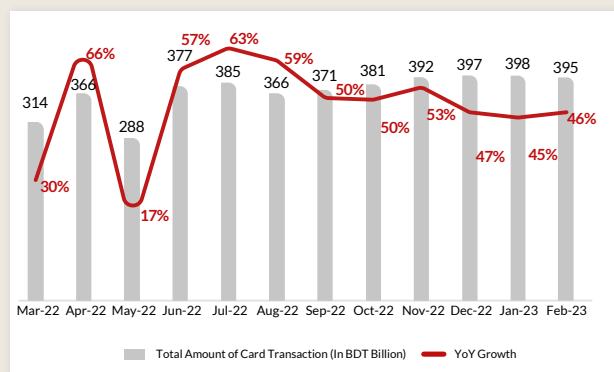
MFS No. of Total Transaction (YoY Growth)



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



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



Source: Bangladesh Bank

SMEVai Technologies Limited



Mahadi Hasan Sagor

Managing Director, SMEVai Technologies Limited

Interviewed By

Syed Md. Rakeen, Team MBR

SMEVai Technologies Limited is a cloud-based platform offering one-stop business solutions to make SMEs bankable in Bangladesh. The company adopts a 'tech and touch' approach, where it leverages technology with a hint of human expertise. It provides solutions to the primary business requirements of Small and Medium-sized Enterprises (SMEs), namely accounting, marketing, legal, and training services. With a view to growing its paid users to 5,000 by 2023, it envisions empowering 100,000 SMEs within the next five years. Team MBR was in conversation with Mr. Mahadi Hasan Sagor to learn about his inspirations and vision for devising solutions for SMEs.

Syed Md. Rakeen: SMEVAI is a web platform that provides various solutions to meet the major business necessities of small and medium-sized enterprises (SMEs). Would you kindly share with us how you came up with this idea?

Mahadi Hasan Sagor: We found a long-unaddressed problem and a big market opportunity (if the problem can be addressed). Hence we started SMEVai.

There are over 7 million SME & MSME businesses in Bangladesh, which contribute to 70-80% of the non-agricultural sector employment. Despite being the bloodline of our economy, these millions of SMEs struggle to access bank finance while scaling their businesses. Why can't they access bank financing?



Mostly because of the following two reasons: lack of preparedness and lack of compliance. SMEVai is trying to solve these two problems for these small business owners. We have built a unique accounting solution that is very easy to manage, and most importantly, it is designed in such a way that any non-accounting founder can manage it without any accounting literacy or experience. It's a cloud solution, so anyone from any part of the country can access this solution through their mobile phones or laptops and digitise their bookkeeping and automatically generate financial reports asked by banks while processing loans. We are also working collaboratively with some banks so banks can use our financial reports for credit scoring and disburse loans to our users in a quicker timeframe.

Regarding compliance issues, we have vetted vendors on our platform who provide professional services related to necessary licensing and other regulatory issues. Anyone from any part of the country can book a service through our platform and get it done very easily through our professional service providers.

Syed Md. Rakeen: According to a report published by the Bangladesh Bank, small and medium enterprises in the country generated an output of BDT 43,780 crore in 2020, but the sector's true potential is yet to be explored. How is SMEVAI working towards unlocking the potential of SMEs?

Mahadi Hasan Sagor: We all know that Bangladesh is an SME-driven country. There are 7.8 million MSMEs listed/operating in Bangladesh, employing 30% of the total working-class population, but when we look at the total contribution to our GDP, it's only 25%, which is significantly low compared with neighbouring countries like India, Vietnam, and Malaysia. Though, as a sector, our SME sector is very large in numbers, when it comes to individual business growth, the majority of our SMEs can't grow much due to a shortage of capital and proper business know-how. And why they can't access finance through formal banking channels, as I explained in the previous question. Hence, we are developing our integrated toolkit to make our SMEs bankable.

Syed Md. Rakeen: With over 7.80 million SMEs in Bangladesh, each business possesses unique characteristics and unique needs. How does SMEVAI tailor its products to cater to the varied needs of these different-sized enterprises?

Mahadi Hasan Sagor: Well, we already have developed multiple versions of our system to cater to the needs of different business sectors, i.e., the service module for all service-related businesses and the trading module for trading businesses. We are developing more industry-specific modules so

users find it more user-friendly and comfortable while using our accounting solution.

Syed Md. Rakeen: SMEs often face difficulties securing loans from formal lending channels, leaving them underserved. How is SMEVAI addressing this issue and helping them bridge the financing gap?

Mahadi Hasan Sagor: This is the main reason for SMEVai's existence, and in our business model, we are developing products and partnerships to solve this problem. Two of our core products are designed to help SMEs bridge the financing gap:

1. **SME Hishab:** A cloud accounting software designed for Bangladeshi businesses that ensures complete documentation of transactions and helps connect them with financial institutions.
2. **SME Legal:** Managed marketplace for essential legal services to enable MSMEs to be fully compliant with proper documentation so they can pass the eligibility checklist while seeking bank finance

Apart from offering direct solutions with our designed products and processes, we are also working to inform SMEs about the process and preparation of bank financing.

Syed Md. Rakeen: SME Hishab is an accounting solution for SMEs that helps automate their accounting systems and generate real-time reports. How is the solution addressing the specific requirements of SMEs and differentiating itself from other accounting solutions available on the market?

Mahadi Hasan Sagor: As I already mentioned, our unique value proposition is that we have created our accounting software so that anyone who can use a mobile phone and access the internet can manage it. Whereas in other accounting software, you need a proper understanding of accounting

journals and double-entry systems. The majority of our SME owners do not have proper accounting knowledge, or they can't hire a full-time accountant to manage their accounts in those software, and this is the reason the market is still a blue ocean. In our system (SME Hishab software), all you need to do is create an invoice and record collection / payment; the rest of the accounting will be done automatically by the system. Important financial statements like the income statement, cash flow statement, and balance sheet will be generated automatically in the system.

Syed Md. Rakeen: SMEVAI is offering training to SME owners online to equip them with the skills required for the daily operations of their businesses. Would you kindly tell us the range of training SMEVAI is currently offering and the impact the initiative is creating?

Mahadi Hasan Sagor: Currently, we have a total of nine online courses to enlighten our SME owners about the basics of business know-how, like business planning, accounting, and marketing. We are also developing more elaborated content on topics like digital marketing, branding, human resource management, and a few industry-specific courses to cater to the needs of specific industry participants.

Our SME owners are finding these low-priced, insightful courses very useful in their businesses as they are delivered in Bengali, and most importantly, they can access these courses anytime online through their mobile phones.

Syed Md. Rakeen: SME Policy 2019 has been prepared to help businesses enhance efficiency, improve the business environment, get easy access to finance, ensure better marketing facilities, upgrade technologies and innovative capabilities, and create employment opportunities. Would you kindly share with us your viewpoints regarding the policy? What else could have been addressed there?

Mahadi Hasan Sagor: Yes, I do agree with you. Several essential points are addressed in SME Policy 2019. However, if we talk about the implementation of those initiatives, then there is a lot to do. No policy is good until it is used and implemented. I think policymakers and other associated bodies should be more proactive to ensure a proper SME-friendly ecosystem.

Syed Md. Rakeen: SMEVAI is currently offering accounting, marketing, and legal solutions to SMEs. Are there plans to expand the product portfolio with additional SME-focused products in the near future?

Mahadi Hasan Sagor: Not actually; we want to focus more on improving these existing products and expanding the market in the upcoming years. However, product R&D will always be there, but we will wait till we acquire a good number of customers in our system before launching any new product further.



The Recycling Industry of Bangladesh: Paving the Path towards a Greener Future

Written By
Syed Md. Rakeen

"We do not inherit the earth from our ancestors. We borrow it from our children."

The aforementioned statement underscores the significance of sustainable development and the imperative to achieve a harmonious equilibrium between economic advancement and safeguarding the environment. The statement has emerged as a topic of discussion in recent times, with many environmentalists wondering about the state of the world they will be leaving behind for future generations. Global waste production has shot up significantly in recent years and has shown no signs of stopping. This is evident due to the simultaneous exponential rise in worldwide consumption and waste generation. According to the World Bank (WB), global waste generation is predicted to reach nearly 3.88 billion metric tonnes by 2050. Numerous variables, including population increase, urbanisation, economic expansion, and consumer purchasing patterns, are the reasons behind this ever-increasing waste generation trend. In underdeveloped countries, waste is frequently dumped at dangerous open dump sites. Although wealthier nations generate a larger volume of waste than poorer nations, their efficient waste management systems allow them to become adept at tackling environmental challenges while developing countries lag behind.

Modern society faces a challenge in managing the enormous amounts of waste that are shifting consumer habits and rapid urbanisation are producing. Research claims that about 5,000 metric tonnes of waste are generated in Dhaka city daily, of which only half is correctly collected and disposed of, with the other half being untreated. Roughly one-third of the more than 2.01 billion metric tonnes of waste generated worldwide needs to be managed in an ecologically responsible way.

The potential of the Recycling Industry in Bangladesh

As per an estimation by the World Bank Group, Bangladesh exhibits a considerable scope for climate-smart investments, amounting to approximately USD 172 billion spanning the period from 2018 to 2030. The majority of these investments are expected to be directed towards environmentally friendly buildings,

transportation infrastructure, urban water, agriculture, and renewable energy. Bangladesh possesses the potential to establish a domestic green finance or bond market that could be utilised to secure private funding for climate-related initiatives. As per a recent report published by Our World in Data, it has been found that developed nations are the foremost consumers and producers of plastic products. According to recent data, approximately 70% of the world's plastic production and consumption can be attributed to a select group of countries. This translates to an estimated economic value of USD 405 billion.

The concept of the plastic circular economy presents opportunities for countries such as Bangladesh to establish their global market presence. However, certain countries may lack the motivation and infrastructure to implement recycling practices effectively. Statistics indicate that a mere 6% of global recycling efforts occur within developed nations, leading to widespread plastic pollution and significant environmental harm that may prove irreversible.



Waste in Urban and Rural Areas

Rural Sewage

Based on the findings of a survey, a daily average of 4,290 metric tonnes of waste is produced in the rural markets of the country. On average, a bazaar comprising approximately 1,500 shops produces two metric tonnes of waste. On haat days, approximately 2.5 metric tonnes of waste are produced, while on other days, the amount decreases to one to one and a half metric tonnes. The study reveals that biodegradable waste constitutes a significant proportion of the total waste generated, ranging from 56.77% to 60%. Non-biodegradable waste, on the other hand, accounts for

approximately 36.62% to 37.53% of the total waste generated. Medical or hazardous waste, which poses a significant threat to the environment and human health, accounts for a relatively smaller proportion of the total waste generated, ranging from 2.82% to 4.49%.

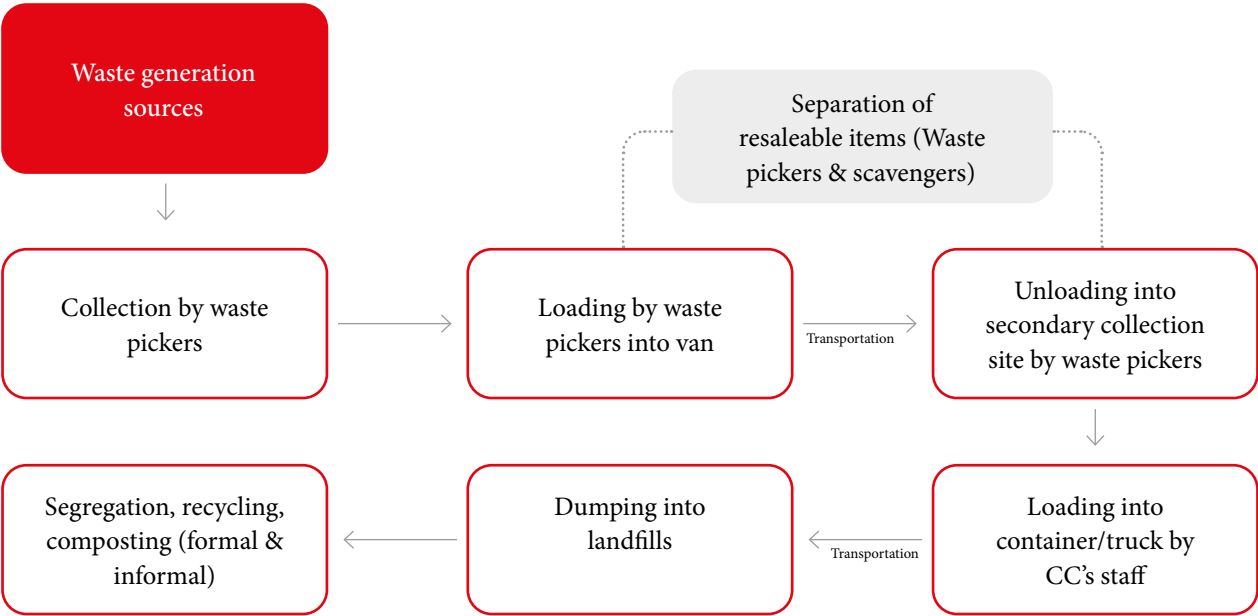
Urban Waste

Bangladesh is one of the fastest-urbanising economies in South Asia, with 38% of the total population residing in urban areas. The phenomenon of rapid urbanisation has led to a rise in the amount of waste generated, thereby increasing the complexity of waste management. This issue is particularly pronounced in densely populated cities such as Dhaka and has resulted in negative impacts on urban livability, environmental quality, and public health.

Waste Collection

As Figure 01 shows, the current waste collection and management system in Dhaka appears to be outdated and lacking in organisation. The waste management process is comprised of three distinct stages: primary, secondary, and landfill. During the primary collection stage, waste is gathered from the streets by child waste collectors and vans. The waste is deposited into indiscriminate and unsegregated receptacles at secondary collection sites, where it frequently remains uncollected for extended periods, resulting in unhygienic conditions and an elevated likelihood of waste-related illnesses. It is imperative to modernise the system in order to prevent the possibility of a public health crisis.

Figure 01: Waste Management Process in Dhaka City



Source: Asia-Europe Foundation

Waste Segregation

The process of waste segregation involves separating various waste materials based on their distinct characteristics and composition. This ensures that these materials are managed and disposed of in a manner suitable for each type of waste. The categorisation of waste is crucial to waste management and environmental sustainability. This is because it enables the effective management of waste and promotes the

preservation of the environment. The categorisation of waste materials into distinct groups, including paper, plastic, glass, and metal, facilitates the recycling process and enables the retrieval of valuable resources. Adequate segregation of waste materials is crucial to guaranteeing the secure disposal of hazardous waste, thereby preventing any detrimental effects on the environment and public health. The act of waste segregation has the potential to decrease the volume of waste materials directed to landfills, thereby reducing

the expenses incurred in managing waste. In the grand scheme of things, implementing efficient waste segregation practises plays a crucial role in advancing the principles of a circular economy and mitigating the ecological repercussions of waste. The prominent areas of waste production in Bangladesh are:

Plastic Waste

A study reveals that daily plastic waste generation in Dhaka has risen from 178 metric tonnes in 2005 to 646 metric tonnes in 2020. Plastic waste is mostly deposited in various locations, such as landfills, bodies of water, recreational areas, roadways, and coastal beaches. According to recent research, the recycling rate of plastic waste in Bangladesh has decreased from 51% in 2006 to 36% in 2019. Specifically, out of the 8.25 lakh metric tonnes of plastic waste produced in 2019, only 36% of it was recycled.

E-Waste

E-scrap, also known as waste from electric and electronic equipment, are complex chemical substances that are hazardous. The e-waste stream is composed of various hazardous but valuable substances such as iron, steel, copper, aluminium, and plastics. These wastes are predominantly disposed of as general waste, particularly in developing countries. Improper disposal of waste materials can result in the depletion of natural resources and irreversible harm to the environment, which can pose a health risk to individuals employed in the industry if not recycled using scientific methods.

Medical Waste

A significant proportion of healthcare facilities and diagnostic centres across the country are facing challenges adhering to the prescribed protocol for the segregation and disposal of hazardous medical waste. Specifically, the segregation of waste into yellow containers for dangerous medical waste, red containers for sharp waste, silver containers for radioactive waste, white containers for recyclable waste, and black containers for non-recyclable waste is posing a challenge for these facilities.

Waste from Ready-Made Garments

The nation of Bangladesh, which holds the distinction of being the second-largest apparel producer globally,

generates a significant quantity of cotton textile scraps. However, these byproducts are typically disposed of through landfilling, incineration, exportation, or repurposing into fabrics of substandard quality. The lack of production of recycled yarn from byproducts in the country results in a missed opportunity to meet the increasing global demand for apparel products. A significant dependence on imported textile fibre characterises the current state of Bangladesh's textile industry. According to data collected in 2019, the nation's import of primary cotton fibre amounted to 1.63 million metric tonnes, valued at approximately USD 3.5 billion. According to the research conducted by the Circular Fashion Partnership, a cross-sectorial project led by the Global Fashion Agenda, the recycling of solely 100% cotton waste within Bangladesh has the potential to reduce imports by approximately 15%. This import reduction could result in cost savings of up to USD 500 million that would have otherwise been spent on cotton imports.

Linear Economy vs. Circular Economy

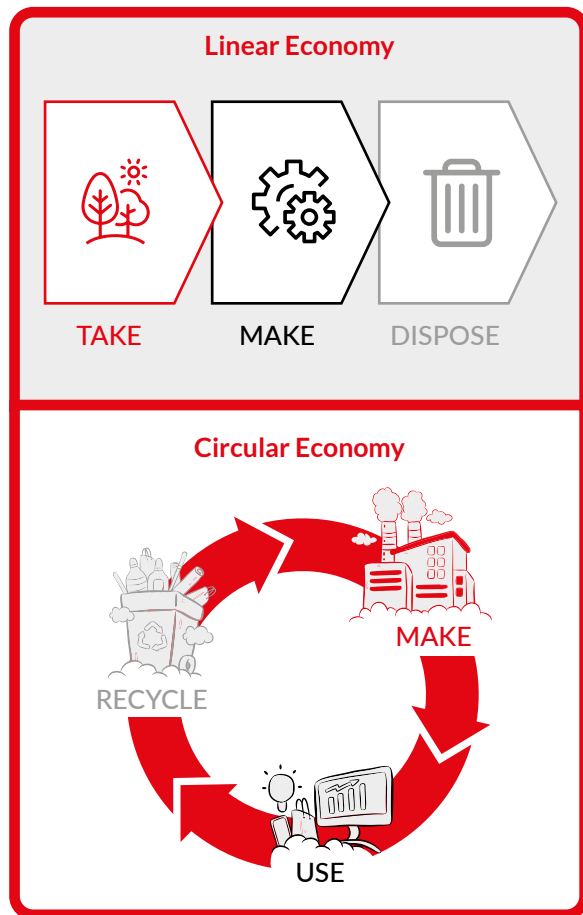
The World Economic Forum reported that most international business investments follow the linear economic model of the take-make-dispose economic cycle, accounting for USD 35 trillion in total economic activity from 2019 to 2021. Conversely, the circular economy promotes the 'repair, redesign, reuse' mentality. The circular economy seeks to curtail excessive consumption, eliminate waste, and repair and replenish ecosystems and natural resources. New financial tools and investments are required to fund circular business models and breakthroughs at scale.

Globally, the focus is shifting from the linear economy model to a circular economy, broadening the scope to include the complete chain of production and consumption activities that result in waste that must be disposed of. The circular economy model aims to investigate production and consumption patterns that minimise waste creation without compromising business profit or national economic development.

Additionally, waste is not just meant for disposal. It may also be recycled and used as a source of raw materials for energy or new manufacturing. In other words, the circular economy seeks to be regenerative by design, with little generation of waste that cannot be recycled and maximum use of products throughout time, coupled with the best possible reuse, best possible

refurbishing, best possible remanufacturing, and best possible recycling of products and resources. Better solid waste management is necessary to move towards a circular economy in order to achieve the Sustainable Development Goals (SDGs), which the 193 United Nations member states adopted.

Figure 02: Linear Economy vs. Circular Economy



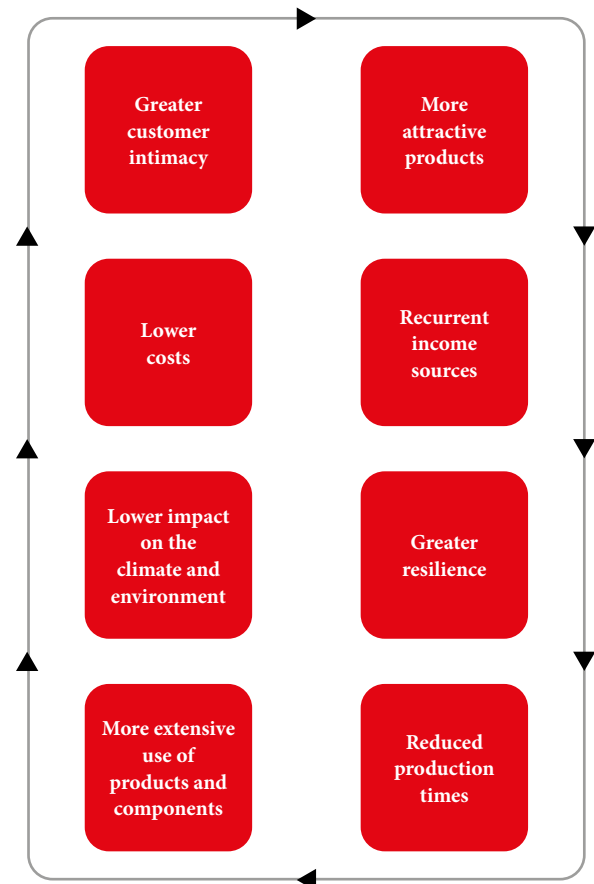
Source: PwC

Challenges in Embracing the Circular Economy

Several factors, including a lack of awareness, the unavailability of data, and the absence of a dedicated platform, hinder the promotion of the circular economy (CE). The magnitude of the informal recycling industries within the country, specifically those dealing with paper, plastic, and electronic items, is substantial. Designating these sectors as official industries can facilitate the transition towards a circular economy. This designation would provide additional support and resources for these industries.

Humans produce millions of tonnes of waste annually. Authorities must provide effective waste treatment and disposal services given the enormous volumes of waste being created. As reported by Statista, less than 20% of waste is annually recycled globally, while a sizable quantity is still dumped in landfills.

Figure 03: Eight Ways the Circular Economy Outperforms Linear Business Models



Source: DXC Technology

Creating a Roadmap for a Greener Future

Recover, a worldwide manufacturer of recycled cotton fibre and fibre blends with environmental consciousness, has engaged in discussions with the Bangladesh Garment Manufacturers and Exporters Association (BGMEA) regarding a potential partnership aimed at bolstering the country's textile waste recycling capabilities, with the ultimate goal of establishing Bangladesh as a leading global recycling hub. Through the capture and repurposing of textile waste, Bangladesh has the potential to significantly curtail its reliance on imported cotton and instead

produce and export recycled fibre-based clothing valued at approximately USD 3 billion. According to available data, Bangladesh's plastic product exports amounted to USD 1.2 billion annually. It is believed that the country's plastic product manufacturers have the potential to further augment their shipments, provided they receive adequate policy support. Following Bangladesh's graduation from the status of Least Developed Country (LDC) in 2026, it will be imperative for the country to prioritise the production of recycled fibre. It is projected that there will be a 25% rise in consumer demand for recycled products. A mandatory requirement has been established to utilise 30% recycled water.

The recycling sector in Bangladesh plays a significant role in the nation's economic and environmental

landscape. The industry can have an instrumental impact on the economy by generating employment opportunities, promoting economic growth, and preserving natural resources. Given sustained funding and backing, the recycling sector in Bangladesh has the potential to assume a more significant position in the nation's upward trajectory. Coupled with its strong ties to sustainable development goals, the sector should be prioritised in a bid to lessen Bangladesh's negative environmental impact. However, the insufficiency of available facilities poses a challenge to individuals who have the intention to recycle. The absence of a sorting mechanism for recyclables results in the commingling of various types of recyclables during the collection process, rendering the prior segregation efforts and the whole waste management process futile.





Nazmus Sadat

Circular Economy Specialist & Co-founder
BD Recycle Technologies Ltd (BRTL)

Interviewed By
Syed Md. Rakeen, Team MBR

Nazmus Sadat is an internationally certified circular economy specialist, sustainability professional, and entrepreneur. With a background in Materials & Metallurgical Engineering (BUET), Mr. Nazmus Sadat started working for e-waste and other solid waste management in 2017. Since then, he has been running initiatives to raise awareness and establish a traceable solid waste management system in Bangladesh. Moreover, he assists organisations in achieving net-zero emissions through climate strategy, goal and target setting, Life Cycle Analysis, GHG accounting, reporting & disclosures, and climate investing. Team MBR was in a conversation with Mr. Nazmus Sadat and was fortunate enough to receive his take on the recycling industry.

Syed Md. Rakeen: The informal waste recycling sector plays a significant role in the recycling industry in Bangladesh, which involves collecting and processing waste informally that would otherwise end up in landfills. Would you kindly share how the informal waste recycling sector can be integrated into the formal recycling system to improve overall waste management?

Nazmus Sadat: Bangladesh needs a sincere and holistic intervention in this space for sustainable integration. Unfortunately, the industry is currently in a poor state, with many stakeholders acting out of selfish motives for making money. We are yet to walk the talk. Despite the numerous conversations and initiatives facilitated by concerned bodies, we haven't seen much sustainable change. To turn this around, stakeholders from all corners of the industry must come together and agree to a win-win policy or law

that integrates informal waste collectors, dismantlers, aggregators, traders, and recyclers. The deal or policy must ensure their safe and optimal income generation, or else it will be challenging to enforce any law while making the informal sector suffer.

Document the informal labourers, get them a rewarding process to follow, establish visibility over their daily transactions, leave no space for bureaucratic processes, and let them make money by following the law/policy that secures the interests of consumers, the government, corporations, and other parties in the waste value chain. A separate unit of the DoE can be created to facilitate the formalisation of informal sectors in collaboration with local governments. Independent members should be included in that unit to ensure accountability, transparency, and speed of work.

Syed Md. Rakeen: Enhancing recycling efficiency and lessening environmental impacts are two of the major issues that

need to be taken care of. What cutting-edge trends and technologies in the global recycling industry do you think are suitable for adoption within the country's waste management framework?

Nazmus Sadat: We need to establish a functional and regulated system before introducing new technologies. Implementing extended producer responsibility (EPR) can help hold producers accountable for taking back their products and incentivise proper waste management practices. Europe is leading the way in waste management technology innovation, followed by China, the USA, and Japan. In Bangladesh, we need technologies that can convert non-recyclable mixed waste into value-added products like boards, tiles, and blocks. Upgrading to the latest pyrolysis machines and adopting lithium and lead battery recycling technologies can also help reduce pollution. Plastic recycling has made progress, but better organisation is needed. E-waste recycling has seen progress worldwide. Implementing waste-to-energy, chemical recycling, blockchain technology, and AI-powered robotic sorting in waste recovery facilities can enhance efficiency. Proper synchronisation, optimisation, and coordination of these technologies are crucial for successful execution.

Syed Md. Rakeen: As Bangladesh strives for a greener future, the recycling industry must collaborate with various stakeholders. How can the sector further involve local communities, businesses, and government agencies in developing a more circular economy and pursuing eco-friendly initiatives?

Nazmus Sadat: The waste management sector must focus on consumer education, incentives, policies, and partnerships. Circular economy principles could be part of the secondary school curriculum to instil proper consumption; disposal practises, and attitudes. Manufacturers, governments, NGOs, and academic institutions can all contribute to raising consumer awareness through various media and events. Steps like offering event tickets in exchange for discarded items,

promoting take-back schemes, and reducing reverse logistics costs can also encourage proper waste disposal. The government can allocate funds for clean-tech and climate-tech startup initiatives, providing entrepreneurs with the necessary support to take commercially viable actions. Without subsidies or government support, the private sector cannot tackle this challenge alone. It's essential for the concerned authority to either make producers pay or provide subsidies for change. Rather than engaging in some idealistic endeavours once or twice a year, it is imperative that we take decisive and resolute actions that prioritise the interests of our nation over the financial gains of some producers. We can learn a lot from India in this particular context.

Syed Md. Rakeen: In 2019, ready-made garments and textile mills produced approximately 577,000 metric tonnes of waste, of which almost half was pure cotton waste. Those could have been sold for USD 100 million. How can Bangladesh develop strategies to monetise these wastes and promote sustainable waste management in the aforementioned industry?

Nazmus Sadat: Bangladesh needs to identify viable solutions for the different types of textile and RMG waste. We have seen a few initiatives on recycling in recent times, but I am not sure how our industry has been in favour of those initiatives for their viability. Investing in innovative waste sorting, recycling infrastructure, and a reliable supply system is crucial for the development of this sector. The price of recycled materials needs to be affordable. The unavailability of infrastructure and the required volume of certain categories of waste are making the work costly in multiple ways. I personally love the idea of creating value-added products from waste. We can create value-added products from post-industrial and post-consumer waste. This trend is already taking off globally, with fashion designers creating new styles from discarded items and clothing brands selling them with proper branding. Bangladesh can export these products directly or through strategic partnerships with global brands. With proper planning, sustainable waste management can be profitable while promoting environmental responsibility.

Syed Md. Rakeen: The traditional linear economy model (take-make-waste approach) has significantly contributed to our planet's degradation. A circular economy (closed-loop economic model) can offer a more sustainable path forward and help address climate change and biodiversity loss. What are your thoughts on the potential impact of this transition?

Nazmus Sadat: Today, our usage of resources exceeds the earth's ability to replenish them by 60%, indicating that we are utilising 1.6 earths worth of resources. But the transition to a circular economy could change the world to a great extent. The transition to a circular economy could halve carbon dioxide emissions by 2030, reduce greenhouse emissions by 7.4 million metric tonnes per year, reduce primary material consumption by 32%, increase GDP by up to USD 700 billion by 2030, create up to 65 million new jobs by 2030, and allow consumers to receive safer products. Even in the textile industry, circular economy practises can recapture value worth USD 500 billion annually.

As with many models, a circular economy is not an absolute solution for the world. It has its limitations as well, like the fact that recycling modern products is not 100% efficient, and complex products require much more energy and resources to recycle. Products containing synthetic materials, microchips, and batteries are not easily recyclable. Although recycling is the least desired step in a circular economy model, the idea of less production and waste is also quite challenging. It challenges the "growth orientation" of business. Besides, 20% of the total resources used worldwide are fossil fuels, and 98% of them are burned as a source of energy and cannot be reused or recycled. And global resource use keeps increasing, making it kind of impossible to grow a circular economy sustainably. But pursuing a "circular economy" or "performance economy" could benefit us tremendously. It's still a revolutionary idea for Bangladesh and the world.

Syed Md. Rakeen: 646 metric tonnes of plastic waste are collected in Dhaka daily, which accounts for 10% of all waste generated in Bangladesh, and only 37.2% of

this plastic waste is recycled. What measures do you suggest to improve recycling rates and reduce environmental impacts in the city?

Nazmus Sadat: I am familiar with the statistics on plastic waste recycling in our industry. Unfortunately, plastic recyclers face significant challenges in sourcing sufficient supplies for recycling facilities. Recently, a Dubai-based recycler requested PET from us, but we were unable to meet their target prices due to the high cost of PET in our market. Similarly, a German company sought a monthly supply of LDPE, but we were unable to secure sufficient supplies at their target prices, despite their attractive offers. This raises concerns about the accuracy of the data on plastic waste recycling in our industry and the risks associated with undocumented waste. To address this issue, we need to establish traceability for solid waste, which would support the development of sustainable practices. I am quite doubtful about the quality of locally recycled plastic products people use as food containers. The government should take strict action to eradicate harmful plastic recycling practices and ensure that non-compliant facilities are transformed into compliant ones with clear annual targets and action plans. Shutting down such facilities is not a viable solution in our socio-economic condition. It won't get us the desired outcome.

Syed Md. Rakeen: The National Action Plan for Sustainable Plastic Management has set its sights on recycling 50% of plastics by 2025, phasing out 90% of single-use plastic by 2026, and reducing the generation of plastic waste by 30% by 2030. What are the initiatives required to reach these milestones from your perspective?

Nazmus Sadat: The National Action Plan for Sustainable Plastic Management is interesting. To materialise the plan, I am biased towards establishing a committee of stakeholders supported by the government. The committee should ensure broad-based participation from government agencies, producers, consumers, waste collectors, aggregators, recyclers, and other relevant communities. The committee must adopt a deliberate approach to executing the plan on

behalf of the people. It should work independently with the assistance of the government and private sector to achieve the plan's objectives.

Additional measures should also be considered, such as leveraging existing stakeholder infrastructure for a 3-7 year term (which I always prefer over building new), raising awareness through regular campaigns to reduce consumption and promote traceable disposal, incentivising consumers to adopt reusable products and alternative packaging, and encouraging sustainable and circular design practises. Strengthening regulations and policies and fostering collaboration and partnerships among stakeholders are also critical for achieving success.

Syed Md. Rakeen: As Bangladesh plans to reduce plastic waste and boost recycling, international cooperation can play an instrumental role. How can Bangladesh establish and maintain international collaborations and partnerships to support its endeavours in minimising plastic waste and promoting recycling initiatives?

Nazmus Sadat: I am familiar with the global landscape of this field and have established contact with a few international organisations. However, most of the funds are deployed in Southeast Asia, and the

only country they seem to recognise in South Asia is India, due to various reasons. Pakistan, somehow, is considered a part of the MENA community. Although I reached out to some stakeholders, they connected me with their Indian wing, which already has massive demand as one of the largest economies. As a result, getting sufficient attention for Bangladesh is a big challenge.

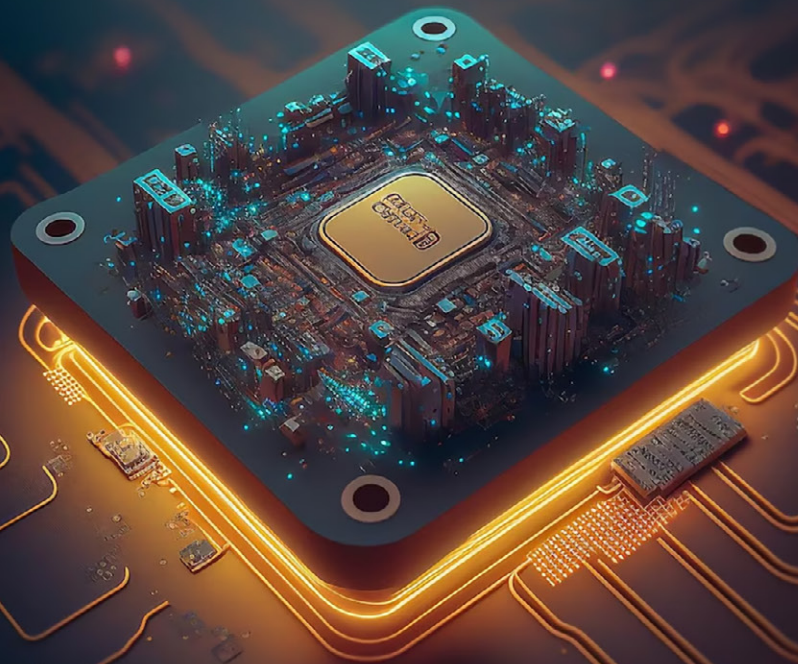
To address this, we need a specialised unit or team backed by the government to connect us with international stakeholders and facilitate visits, exchanges, partnerships, and collaborations between local and foreign organisations. Unfortunately, I struggle to rely on traditional setups and their governance, particularly when it comes to ambitious goals. Since this requires access to the top level of those stakeholders, the government's intervention could make it smooth. Private efforts alone won't align well with our national agenda and targets. With access to global funding, technologies, and resources, we can transform our industry within 5-7 years. Without full focus and coordinated effort, it will be difficult to make meaningful progress with our global connection.

Above all, for Bangladesh, we need coordinated efforts from a joint force of government, producers, consumers, waste collectors/aggregators & recyclers, with some support from global stakeholders.



The Semiconductor Industry of Bangladesh: A New Frontier of Hi-Tech Manufacturing Hub in the Making

Written By
Syed Md. Rakeen



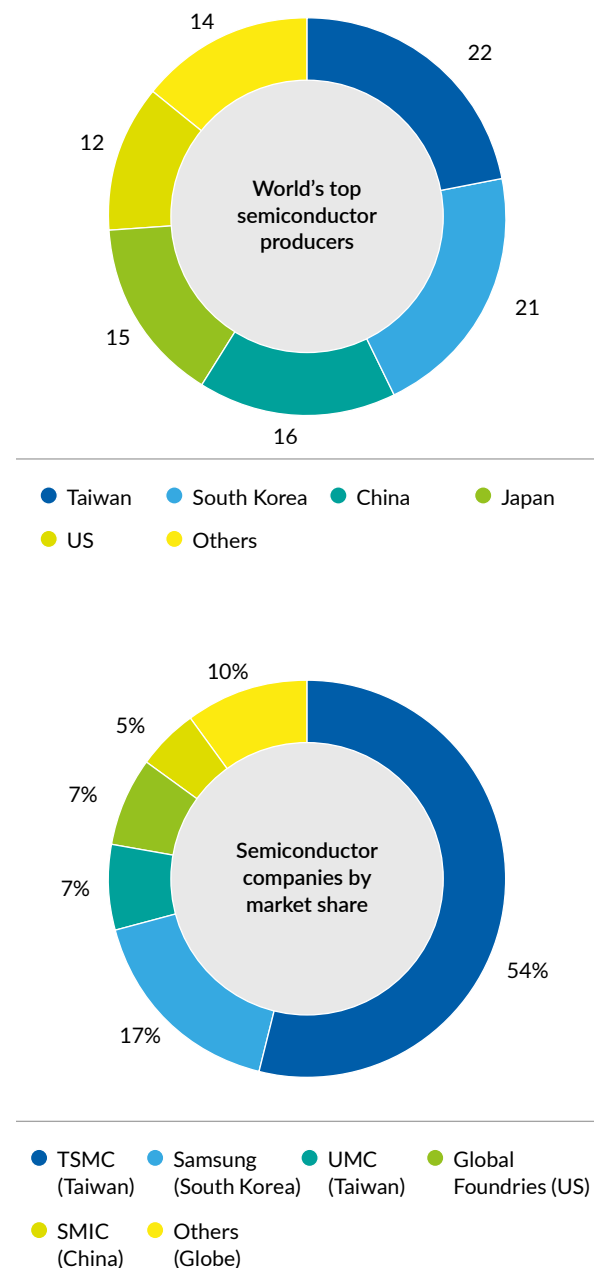
Semiconductor chips constitute a fundamental building block of electronic devices. The utilisation of these technologies has facilitated progress in numerous domains, such as telecommunications, computing, medical care, defence, transportation, sustainable energy, and others. According to the Semiconductors Industry Association, semiconductors are considered the brains of modern electronics, with their developments being the reason behind the shrinking size of electronic devices during the last 50 years. Companies operating in this space are at the heart of technological innovation, geopolitics, human ingenuity, and finance, with their influence reaching almost every corner of the world. The semiconductor industry in Bangladesh is still in its primary stage, with industry insiders estimating that Bangladesh is currently earning up to USD 5 million from the industry in a year, a stark contrast compared to India, which is earning around USD 60 billion annually. Although chips are the main output, many market players in Bangladesh still limit themselves entirely to specific stages of the chip-making process. The reasons behind such trends are pretty obvious: a shortage of capital and capacity, both on the financial and technological fronts.

Global Market Overview

Globally, the industry leaders are Intel, Samsung, TSMC, Qualcomm, Nvidia, and Texas Instruments. The Metropolitan Chamber of Commerce & Industry (MICC) estimates the market size will reach USD 1,033.5 billion by 2031. Taiwan Semiconductor Manufacturing Company, commonly known as TSMC, is the largest chip manufacturer in the world. The company holds the sixth position in market value globally, with a market capitalisation exceeding USD 600 billion. It is a significant supplier of chips to prominent technology companies such as Apple, Intel, and Nvidia. Only TSMC and Samsung possess the technological capacity to manufacture the latest and most sophisticated 5-nanometer chips in contemporary

iPhones. The company based in Taiwan is reportedly poised to commence production of its 3-nanometer chips in 2022, thereby providing the most cutting-edge foundry technology.

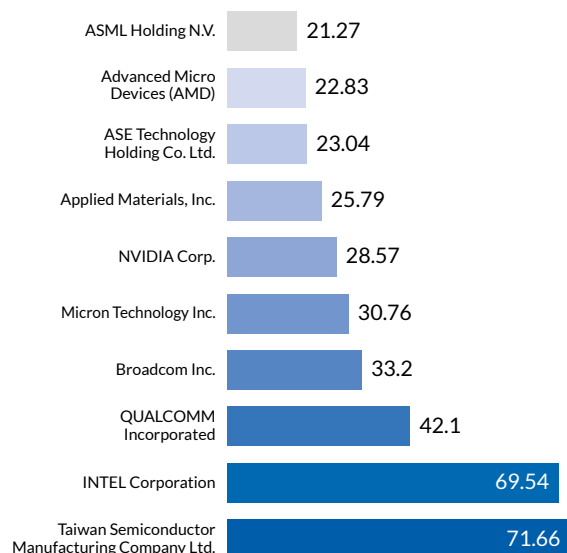
Figure 01: World's Top Semiconductor Producers and Semiconductor Companies by Market Share



Source: The Business Standard

Figure 02: Top 10 Semiconductor Companies in the World as Per Trailing 12 Months (TTM) Revenues

Trailing 12 Months (TTM) Revenues
(In USD billions) (As of December 22, 2022)



Source: Investopedia

History of Semiconductors

The emergence of semiconductors can be traced back to the invention of the rectifier (AC-DC converter) in 1874. In 1947, Bardeen and Brattain, two researchers at Bell Laboratories in the United States, successfully developed the point-contact transistor. Following this breakthrough, in 1948, Shockley, another researcher, created the junction transistor. The aforementioned event marked the commencement of the era of transistors. In 1946, the University of Pennsylvania successfully built a computer using vacuum tubes. However, the vacuum tubes occupied an entire room and produced substantial heat and power due to their considerable size. Subsequently, the initial transistor-based calculator, which served as a rudimentary computer, was developed, leading to significant advancements in computer technology.

Following the invention of the transistor, the semiconductor industry experienced rapid expansion. Due to its compact size and low weight, the Integrated Circuit (IC) has found extensive usage across various

electrical devices. In 1959, Kilby of Texas Instruments and Noyce of Fairchild Semiconductor developed bipolar integrated circuits in the United States. The aforementioned finding marked the beginning of the era of integrated circuits and significantly impacted the history of semiconductors. The large-scale integrated circuit development resulted from the continued advancement of integrated circuit integration. During the 1980s, there was a significant advancement in the field of microelectronics with the introduction of Very Large Scale Integration (VLSI) technology, which enabled the integration of electronic components ranging from 100,000 to 10,000,000 on a single chip. Subsequently, in the 1990s, the field witnessed the emergence of Ultra Large Scale Integration (ULSI) technology, which facilitated the integration of more than 10,000,000 electronic components on a single chip

Table 01: Capacity of Integrated Circuits

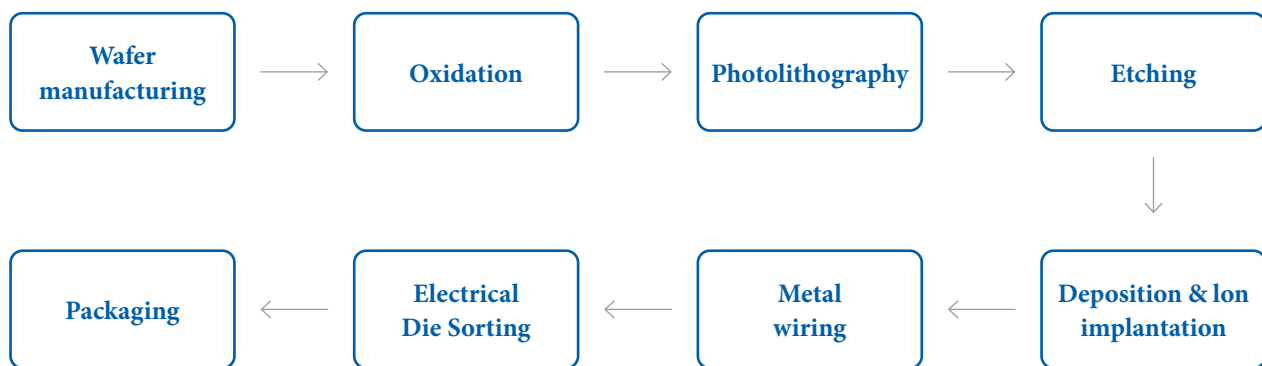
Integrated Circuits (IC)	Electronic Components Per Chip
SSI (Small Scale Integration)	1-100
MSI (Medium Scale Integration)	100-3,000
LSI (Large Scale Integration)	3,000-100,000
VLSI (Very Large Scale Integration)	100,000-1,000,000
ULSI (Ultra Large Scale Integration)	Greater than 1,000,000

Source: Stony Brook University

Manufacturing Process of Semiconductors

Semiconductor companies specialise in the production or fabrication of chips. Fabless semiconductor companies, which refer to organisations that design and supply chips without owning fabrication facilities, typically rely on outsourcing their chip manufacturing operations to foundries (which produce semiconductor products on behalf of other semiconductor companies), predominantly located in Asia.

Figure 03: Manufacturing process of semiconductors



Source: Samsung

The production of integrated circuits entails a multifaceted procedure encompassing several stages. Initially, a thin and lustrous silicon wafer is fabricated and refined to attain a reflective surface. Subsequently, a silicon dioxide coating is deposited onto the wafer's surface to safeguard against potential chemical contaminants. Later, the computer-aided design software is utilised to generate the circuit design, which is then transposed onto a glass substrate through photomasks. During the etching process, excessive portions of the wafer surface are eliminated until the intended circuit patterns remain. The method of depositing thin films onto the surface of a wafer is followed by the creation of metal circuits that connect the electronic elements. Upon completion of the manufacturing process, the chips undergo a series of evaluations, which include electrical die sorting, to verify that they conform to the specifications set by the manufacturer. Subsequently, the operational microchips are sectioned and affixed to a lead frame or printed circuit board, followed by a moulding procedure to produce an outer casing. Later, the chips undergo secondary testing to verify their proper functionality.

Nascent Stage of the Semiconductor Industry in Bangladesh

Bangladesh has set a goal to increase the valuation of its IT sector from the current USD 1 billion to USD 5 billion by 2025. The potential for the semiconductor industry to serve as an economic catalyst for Bangladesh's entry into the 4th Industrial Revolution

is worth exploring. The Hi-Tech Park Authority is investigating the possibility of sending local engineers abroad for advanced study and hands-on training in semiconductor-related sectors. The Bangladesh Hi-Tech Park Authority has been working to develop the semiconductor sector by offering tax breaks and other financial advantages to businesses that manufacture semiconductors. The government has also granted tax holidays to firms that produce semiconductors and exemptions from import taxes on the machinery and raw materials used in the manufacturing process. High-skilled workers with backgrounds in electrical engineering, physics, material science, and computer science engineering are needed in the semiconductor businesses. Engineers may be offered necessary benefits in exchange for staying in their native countries and working for themselves in this sector. Bangladesh provides considerable market potential for the semiconductor sector due to the country's high demand for electronic devices, including smartphones, tablets, desktops, and laptops.

Some companies, such as Ulkasemi and Neural Semiconductor, have already blazed a trail in the industry. Even though chips are the primary product, several players still only participate in certain phases of the chip-making process.

According to The Business Standard, nearly 20,000 students majoring in electrical and electronic engineering and computer engineering graduate from universities each year. However, the VLSI industry

barely attracts about 30 workers. Webinars are now being conducted while pushing towards industry-academia collaboration to pique students' interest in this sector and make it a part of their curriculum.

Leading Semiconductor Companies in Bangladesh

Semiconductor chip manufacturing in Bangladesh is widely regarded as an emerging sector. Designing a chip is only part of the entire process. The combination of silicon refinement, fine chemical processing, bonding, assembly, and packaging together make up the whole package, which is labour-intensive. Currently, only three semiconductor companies in Bangladesh provide mainstream chip design services: Neural Semiconductor Limited, Ulkasemi Limited, and PrimeSilicon Limited.



Ulkasemi Private Limited

Ulkasemi, a company founded in 2007, maintains offices in India, Bangladesh, Canada, and the United States. Ulkasemi has been identified as the leading provider of semiconductor design services in Bangladesh. In 2021, TMSI, a leading semiconductor company, established a partnership with Ulkasemi in its design centre partnership programme. The TMSI design centre alliance comprises a select group of 20 businesses globally. Furthermore, Ulkasemi has disclosed a USD 25 million investment in Bangabandhu Hi-Tech Park to provide semiconductor design services.



NEURAL SEMICONDUCTOR

Neural Semiconductor Limited

Neural Semiconductor Limited, one of Bangladesh's most rapidly expanding semiconductor firms, is a sister company of DBL Group, one of the nation's top readymade garment exporters. It has extended its VLSI

design and software services to some international semiconductor manufacturing businesses. Analogue-mixed signal design, digital verification, physical design, design for testability, and process automation are among the firm's services. They work for organisations that are among the top five chip manufacturers in the world.



PrimeSilicon Technology Inc.

PrimeSilicon is a firm that specialises in rendering design services for Application-Specific Integrated Circuits (ASIC). The organisation has a proven history of showcasing proficiency in this area. PrimeSilicon, founded in 2007 in San Jose, California, has provided ASIC design implementation services and solution consultation to multiple Silicon Valley-based companies across diverse technology nodes. In 2013, PrimeSilicon embarked on establishing its largest offshore design centre in Dhaka, Bangladesh. The research team specialises in FinFET technology and has acquired significant expertise in the design of chips with a minimum feature size of 7-nanometer. The individual's commitment to their professional responsibilities is commendable, having effectively provided outstanding chip design solutions and having accomplished more than 30 tape-outs.

Complexities of the Chip-Making Business

Cracking the code of the chip-making business involves a complex procedure, hundreds of technologies, high-precision equipment, and a close network between all parties. Electronic Design Automation (EDA) software is the first step, followed by the actual design, production, packaging, and testing. Extremely precise machinery, clean chemicals, and subatomic handling are required for the manufacturing process. This procedure involves thousands of patents, intellectual property rights, tools, and complex teamwork.

Bangladesh should plan to reduce its reliance on readymade garments in the export basket as it prepares

to graduate from LDC status and lose access to favourable tariffs in its export markets. Investigating the semiconductor sector might be the first step towards Bangladesh's much-needed diversification. The size of the semiconductor market is anticipated to skyrocket gradually in the coming years. The aforementioned factor makes this industry appealing to foreign investors.

Bangladesh would need to produce more VLSI experts and keep them in continuous training. It would be beneficial if Bangladesh could initially focus on design, servicing, packaging, and testing, as the other processes, especially fabrication, require a high up-front investment.

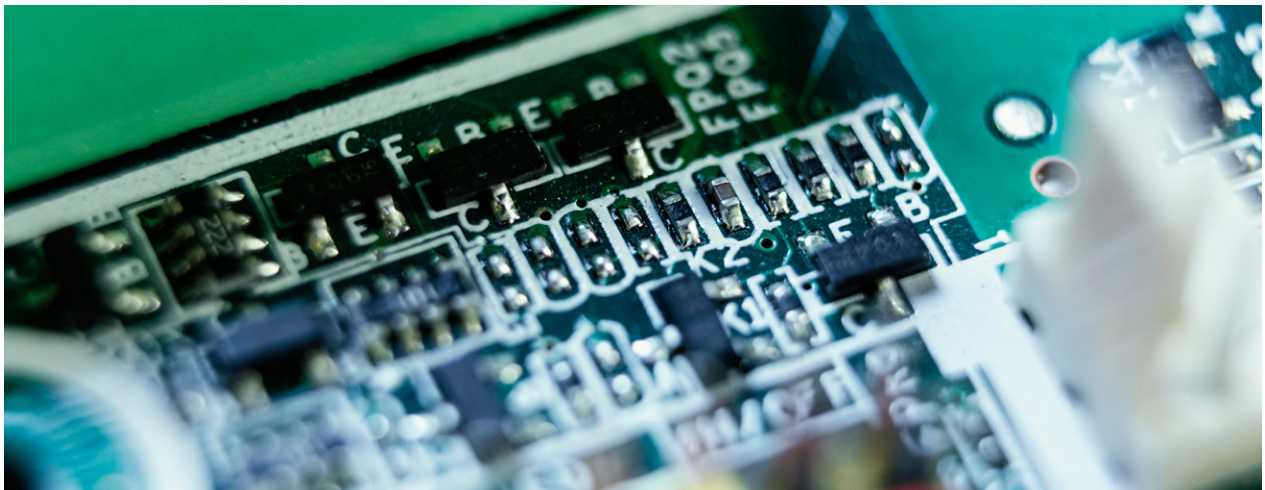
The Battle for Chip Supremacy

Manufacturing semiconductors is an exceedingly challenging, high-stakes industry that has historically seen enormous corporate competition. The contest now includes governments as well. These vital technological components, sometimes called integrated circuits or, more generally, just chips, are some of the most miniature but precise items ever created. There is a global reliance on a small number of firms since they are so expensive and difficult to produce. Chip availability has also evolved into a geopolitical weapon as the United States tightens restrictions on shipments to China to quell the growth of a business rival. The CHIPS Act, recently implemented in the United States, reflects a growing concern regarding the domestic production of semiconductors. The Act

aims to promote semiconductor fabrication within the country's borders.

Currently, TSMC and Samsung are the only fabs capable of manufacturing the most advanced 5-nanometer chips. Both are preparing for 3-nanometer chips that may go into production at any time.

As the demand for semiconductors continues to rise worldwide, it is imperative for countries to strategically explore new industries and seize market opportunities to secure a share of the market. The attainment of success in this particular industry significantly depends on political foresight and direction. Bangladesh must increase the number of experts in VLSI and ensure their ongoing training. The current state of VLSI expertise in Bangladesh is limited due to insufficient knowledge and practical experience. It is suggested that Bangladesh prioritise the design, servicing, packaging, and testing processes, particularly in the initial stages. The prioritisation of industry-academia collaborations is recommended to streamline academic curricula and expedite the development of VLSI specialists. Establishing post-graduation training programmes as a fundamental component for individuals within this particular industry is imperative. It is recommended that Bangladeshi experts hailing from the Silicon Valley of the United States be engaged in the advancement and expansion of the industry. According to recent research, the potential for Bangladesh to become a leading economy in the future could be significantly enhanced through investments in semiconductors.





M. A. Jabbar

Managing Director, DBL Group

Interviewed By
Syed Md. Rakeen, Team MBR

M. A. Jabbar, a CSE graduate from the University of Texas, Dallas, USA, is highly aware of and compliant with the changing flows in global markets and is passionate about CSR and sustainability. He has been instrumental in developing a good reputation and ensuring continued success for DBL. His dynamic leadership brought growth opportunities for the company, resulting in the evolution of more diversified industries for DBL Group. In a span of three decades, DBL has grown and diversified from apparel and textiles to ceramic tiles, pharmaceuticals, dredging, telecom, VLSI, and the ICT industry. M. A. Jabbar is a member of multiple renowned national and international bodies and the president of the proposed Semiconductor Industries Investors Association of Bangladesh (BSIA). Team MBR was in conversation with Mr. M. A. Jabbar and was fortunate enough to receive his take on the semiconductor industry.

Syed Md. Rakeen: According to the Semiconductor Industry Association, the size of the global semiconductor industry was USD 574.1 billion in 2022. Do you think that Bangladesh has the potential to nail down a competitive position and capture at least a small portion of the highly competitive global market?

M. A. Jabbar: The global semiconductor industry was worth USD 574.1 billion in 2022, and the prediction says that it is going to be a market worth above USD 1,300 billion by 2030. Bangladesh has an advantage because the majority of its population is young. Almost 45% of the population is under the age of 25, and 70% is under the age of 40. The number of yearly ICT graduates is above 25,000. About 800 professional engineers are working with global companies in Dhaka, competing with engineers from other countries. So, it is possible to contribute to the global market with the right strategic plan, and this is the right time. However, we are already late.

Syed Md. Rakeen: Multiple hi-tech parks have been established recently, with access to high-speed internet, uninterrupted power supplies, and advanced telecommunications systems. How can Bangladesh reap the benefits of its hi-tech parks to make the semiconductor industry flourish?

M. A. Jabbar: While working with global clients, it is imperative to have high-speed internet, uninterrupted power supplies, and lower-cost spaces to minimise the overhead cost. Hi-tech parks have those facilities along with other strategic benefits as well. To make the semiconductor industry flourish, Bangladesh can invite global companies to set up their local offices in hi-tech parks. Besides global companies, local companies should be inspired to develop their own intellectual properties and products by providing additional benefits or incentives.

Syed Md. Rakeen: Building semiconductors requires a high level of expertise, while Very Large Scale Integration (VLSI) experts are very few in Bangladesh. How can academia and industries collaborate to produce more skilled individuals for the semiconductor industry?

M. A. Jabbar: To establish an industry, it is crucial to keep the resource pipeline ready. If any global company wants to come to Bangladesh but does not see any strategic plan or process for preparing trained engineers, they will not feel interested as there is no growth opportunity there. In the semiconductor design industry, we need to train fresh graduates for 4-6 months to make them ready for any project. This is a long process that is also costly for small companies. From the very beginning, Neural Semiconductor believes that an efficient industry-academia collaboration should be there to establish this industry. We are working closely with a few universities to develop industry-grade resources for the VLSI segment. We have an official MoU with top engineering universities, and we maintain regular activities with them, such as arranging seminars, workshops, technical discussions, VLSI syllabus upgrades, thesis/project collaboration, etc.

Syed Md. Rakeen: According to industry insiders, Bangladesh is raking in about USD 5 million annually from designing semiconductor chips; however, its neighbour, India, is earning USD 60 billion a year from this sector. Would you kindly shed some light on the areas where Bangladesh lags behind its peers?

M. A. Jabbar: Bangladesh is in a very early stage of contributing on a large scale to the semiconductor design industry. We have to plan from scratch, including policy development, intensive training and development programmes, university alignment, focused committees or associations, a strategic plan, and a budget for at least ten years. We need a long-term strategy rather than short-term actions. Even if 5,000 engineers are trained, developed, and placed into projects, it could generate revenue of USD 150 million to USD 200 million per year.

Syed Md. Rakeen: As reported in The Daily Star, Bangladesh has the potential to export semiconductors worth USD 3 billion in the next five years. In your opinion, which initiatives can help unlock the massive potential of the semiconductor industry?

M. A. Jabbar: We need to prepare a long-term roadmap, at least for ten years. We have to prepare the ecosystem first through requirement analysis and policy development and then through trained resources. After that, we have to inspire both global and local companies to invest in this industry by offering incentives or benefits. The goal should be to develop the design market, followed by the testing and packaging markets.

Syed Md. Rakeen: Ulkasemi, Neural Semiconductor, and PrimeSilicon are some of the few companies that are making strides in this nascent industry. How can Bangladesh leverage its existing semiconductor industry players to expand its presence in the semiconductor market?

M. A. Jabbar: Bangladesh needs to develop inter-government understandings as much as possible. This will minimise business obstacles and open the doors to new opportunities. Local companies have the potential and experience, but they need ecosystem support, initial financial support, and proper incentives to mitigate the risks. Also, the EDA tools (Cadence/ Synopsys /Mentor Graphics) are very expensive. So, the government should give central tool support to engineering universities so that small startups in VLSI can survive and grow. The good news is that the ICT division understood the need for this and has already initiated a project named 'Hire & Train' to develop VLSI-skilled resources.

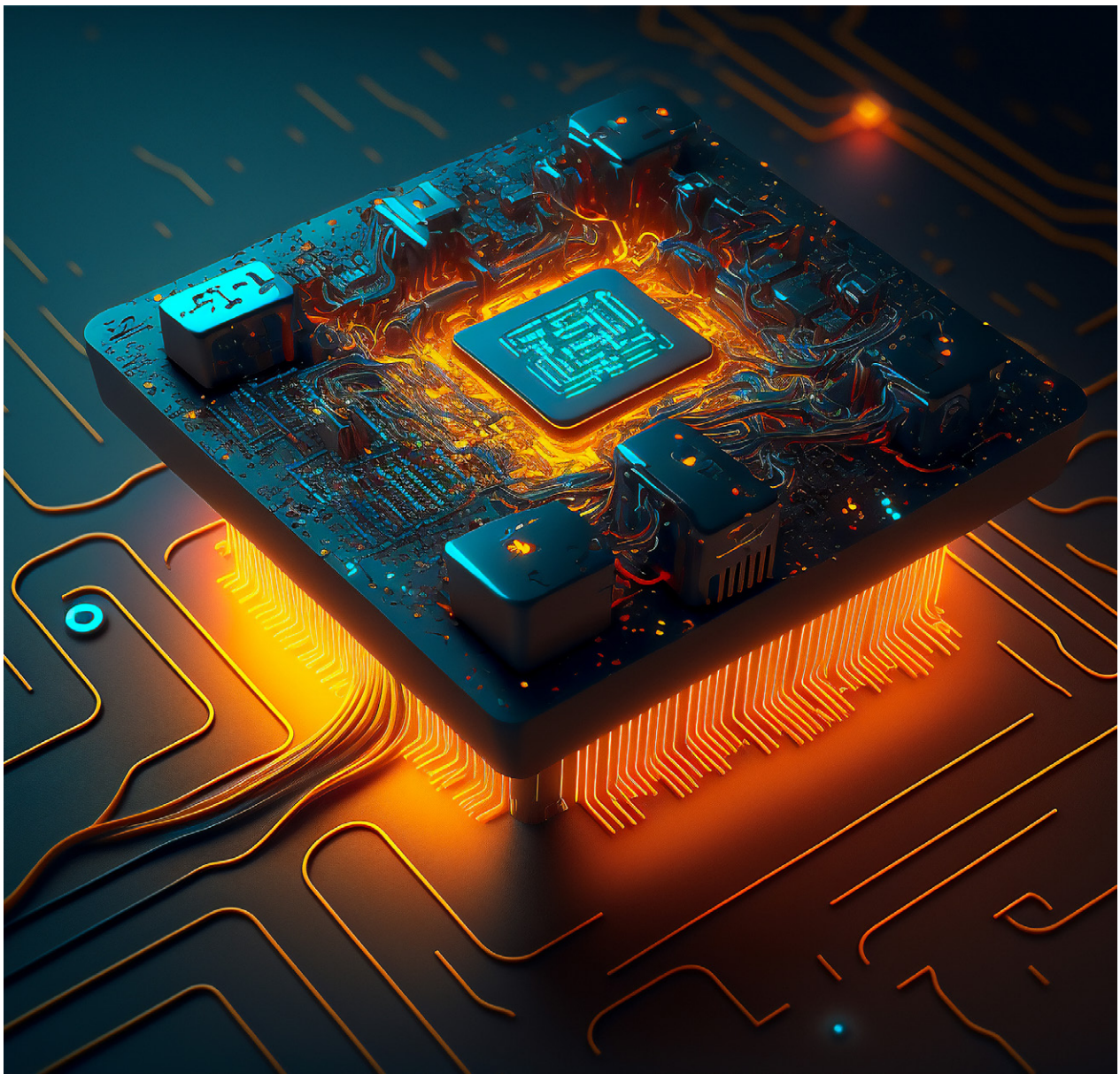
Syed Md. Rakeen: Protection of intellectual property rights and collaboration with global players are two major concerns that need to be addressed. What are your suggestions for addressing intellectual property issues in the semiconductor industry to protect innovations and facilitate collaboration with global players?

M. A. Jabbar: In technology companies, IP protection is vital, and to support them, Bangladeshi companies need to maintain it strictly. We should follow global standards, prepare ourselves as required, and practise them carefully. Proper documentation and IP protection allow global clients to trust each other to share knowledge and access advanced technology.

Syed Md. Rakeen: According to a report by J.P. Morgan, chip shortages could very well last through 2023 and into 2024. What is your long-term perception of Bangladesh's semiconductor industry, considering the

global market dynamics and potential entry strategies?

M. A. Jabbar: We saw an investment of about USD 1.2 trillion globally due to the supply chain complexities. Giant companies are planning to be self-sufficient by diversifying their business positions. So, the chip shortage issue will be sorted out very soon. In addition, global dynamics say the potential of Bangladesh is better than before as a large amount of investment came to Asian countries like Malaysia, Vietnam, India, etc. These countries will need the support of Bangladesh, as there will be a shortage of skilled engineers in the near future.



Tulika Eco



Esrat Jahan Chowdhury

Owner and CEO, Tulika Eco

Interviewed By

Syed Md. Rakeen, Team MBR

A recipient of the National SME Award of Bangladesh in 2022, Tulika Eco is an excellent manufacturer and exporter of eco-friendly handicrafts and diverse jute-based products. The enterprise currently employs over 50 skilled rural artisans, with the majority being young women, and seeks to increase job opportunities for rural women. As the world gradually shifts towards sustainability, Tulika Eco is committed to promoting rural craft internationally by exporting its award-winning eco-friendly products. Team MBR was in a conversation with Ms. Esrat Jahan Chowdhury and was fortunate enough to learn about her inspirations and vision behind Tulika Eco.

Syed Md. Rakeen: You started your professional career as a banker and later switched to entrepreneurship. Would you kindly share your journey and the inspiration behind launching Tulika Eco?

Esrat Jahan Chowdhury:

I started my career as a banker. After having my baby, I had to take care of her. Hence, I decided to resign from my role at that bank. After a three-year hiatus, I decided to come back to work again and spent eight months in a corporate job. Whenever I engaged in any work, I always loved to be dedicated to it. But soon, I realised I was not getting the recognition I deserved.

Then it dawned on me that I had to create something for myself. It would be something where I would give all my efforts and manage a good return while having mental satisfaction.



I have always wanted to start a business since my school days, but that plan did not materialise. This time, I realised that it was high time that I started my own business.

Exporting and sending products to other countries has always intrigued me. Initially, I planned to go into an export-oriented business. So, I dug deep to find products with a lot of demand from countries abroad.

This led me to the jute industry, once dubbed the 'Golden Fibre' of Bangladesh, and from then on, it felt great to carry on my journey from there.

Syed Md. Rakeen: The journey of Tulika Eco began in 2017, and it started exporting to the European market the very next year. How did you manage to enter the European market? How has Tulika's expansion in the European market impacted its growth and brand visibility internationally?

Esrat Jahan Chowdhury: I started Tulika in 2017. I consider it my second child. I conducted a lot of research, attended training, visited many factories, talked with senior exporters, communicated with banks, and completed all documentation to launch my career in the export segment. I got valuable suggestions from a friend who lives in Europe. Eventually, I took a gold membership at Alibaba and started searching for buyers for my products on that platform. Initially, the order quantity was meagre from the buyers, but once the orders were dispatched successfully, we started to get more and more orders with time.

Syed Md. Rakeen: Tulika Eco offers a wide range of jute products while also catering to customised orders. How do you ensure the quality and consistency of your products while also catering to the customisation requests of the buyers?

Esrat Jahan Chowdhury: Commitment is the utmost priority when dealing with buyers. So, I always try to maintain that, and as a result, I have received good results. We always try to design our samples in the manner our buyers prefer. Once the samples are approved, we start working on them. We always prioritise the overall quality of the process, including the quality of the fabrics, their making, packaging, and on-time delivery.

That is how we work. That is why they can trust us regarding any commitment, knowing well enough that we will always maintain our commitment. Additionally, we always inform them about our local market. Hence, in my opinion, communication plays a crucial role in building trust, which is achievable by ensuring the quality and consistency of products.

Syed Md. Rakeen: Going into entrepreneurship and leaving a full-time job was not easy for you. That was indeed more challenging as a woman entrepreneur. Would you kindly share with us the challenges you faced in the earlier days? How did you overcome those?

Esrat Jahan Chowdhury: As a woman entrepreneur, establishing a business is quite difficult and challenging. For example, I did not have enough money to invest in my business. When I started getting my orders, I had to take out a loan and sell all my gold to complete the export orders.

Also, my relatives and people close to me who did not have confidence in me with money were eventually convinced, as they were confident that I was not going to waste anyone's money. This is not an easy journey for women because they have to manage both their children and families. So, if the family is not supportive, it is tough.

Syed Md. Rakeen: Around 50 female workers are employed at your production unit. May we know about your initiatives to empower local women through your business? How have those impacted their lives and families?

Esrat Jahan Chowdhury: In my factory in Dhaka, we work with some women and men, and I have other units located in a village with around 50 women working with us from home. Those women are supporting their households through the jobs we created, and they are now able to buy necessities for themselves and their children. As most of the women work from home, they do not need to go out. They can take care of their family and children while also earning. I feel really good about it. They do not depend on others.

Syed Md. Rakeen: Recently, Tulika Eco received the 'Best New Product' award at the NY NOW Winter Trade Show in New York City for its outstanding jute-made bags. How significant has this achievement been for your company and for Bangladesh, particularly in terms of raising the profile of the jute industry?

Esrat Jahan Chowdhury: It is a big honour for us. At the New York Show, almost 900 brands from different countries participated in the competition, and there were 12 categories for nominations. Tulika Eco managed to win a prize in one category. Even the US Embassy Ambassador, Peter Hass, also invited me to this achievement. It is undoubtedly a great honour for Tulika Eco, and I am very blessed.

Syed Md. Rakeen: The idea of exporting jute and jute-based products is gradually gaining popularity among entrepreneurs. In your opinion, how can the government support entrepreneurs in revitalising the jute industry?

Esrat Jahan Chowdhury: Nowadays, people have started using jute products. We have 17 mandatory packaging acts for using jute, but people still use plastic. So, we are in dire need of applying this obligatory packaging act.

Also, the government needs to organise an international match-making fair in Bangladesh so that buyers can

reach us. Particularly small entrepreneurs who cannot go to the international fair would benefit from it and get good deals. As a result, more entrepreneurs can work with jute products, and factories will survive. Eventually, this will help save our environment as well.

Syed Md. Rakeen: Although the jute industry has been in dire straits in recent times, it is slowly gathering momentum and reclaiming its lost glory as sustainable products become more popular day by day. From your perspective, what role can the industry play in promoting eco-friendly and sustainable products worldwide?

Esrat Jahan Chowdhury: Bangladesh is the world's second-largest producer of jute. Our golden jute is known for its quality and durability. As the world becomes more conscious of eco-friendly products, jute is poised to play a crucial role in the global market. What we need to do is bring innovation to jute-based product manufacturing through cutting-edge technologies so that people are inclined to use jute-based products more and more.



CAPITAL MARKET REVIEW

Performance of Equity Markets of Bangladesh and Peer Countries

Bangladesh equity market closed the month of April in positive territory. During the month, the broad index DSEX increased by 0.9%. Blue chip index DS30 declined by -0.3%, whereas Shariah index DSES went up 0.8%, respectively in the month of April.

Among the regional peers, Pakistan reported the highest positive return of 3.9% followed by Vietnam (-1.5%) and Sri Lanka (-3.4%). MSCI Frontier Markets Index performance was negative by 2.3% in April. Over 5-year horizon, Sri Lanka (+37.5%) booked the most encouraging return.

Table 1: Equity market performance of Bangladesh and peer countries

Indices	Index Points, April 2023	Return*					
		1M	3M	YTD	12M	3Y	5Y
Bangladesh							
DSEX	6,262.7	0.9%	0.7%	0.9%	-5.9%	56.2%	9.1%
DS30	2,202.4	-0.3%	-0.8%	0.3%	-10.5%	65.5%	2.7%
DSES	1,359.8	0.8%	0.0%	0.1%	-6.0%	47.7%	N/A
Peer Countries							
Pakistan (KSE 100)	41,580.9	3.9%	2.9%	2.9%	-8.1%	42.2%	-8.6%
Sri Lanka (CSE - All Share)	8,983.2	-3.4%	3.8%	5.7%	17.8%	96.5%	37.5%
Vietnam (VNI)	1,049.1	-1.5%	2.1%	4.2%	-23.2%	58.4%	-0.1%
MSCI Frontier Markets Index	684.2	-2.3%	-1.1%	1.6%	-15.7%	19.6%	-16.5%

*All returns are Holding Period Return. To calculate 3Y return, we have considered March 25, 2020 as the beginning value.

Source: Investing.com, MSCI, DSE

Liquidity Condition in Equity Market of Bangladesh

During April, the total market capitalization escalated by 0.4%. The daily average turnover of April was BDT 5.7 bn (USD 53.6 mn), growing by 21.6% from that of the last month. Turnover velocity which represents overall liquidity of the market stood at 16.1% in April compared to 14.8% of last month. In 2022, turnover velocity of Bangladesh equity market was 30.7%, in comparison to 65.3% in 2021.

Table 2: Market capitalization and turnover statistics

Particulars	30-Apr-23	31-Mar-23	% change
Total market capitalization (USD* mn)	71,724	71,413	0.4%
Total equity market capitalization (USD mn)	41,700	41,381	0.8%
Total free float market capitalization (USD mn)	16,320	16,127	1.2%
Daily Avg. Turnover (USD mn)	53.6	44.1	21.6%
Turnover Velocity~	16.1%	14.8%	N/A

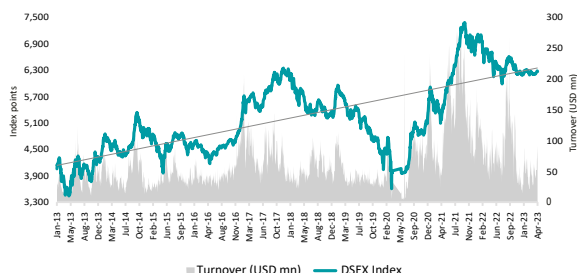
*All USD figures are converted using an exchange rate of 106.76 as of May 07, 2023 as per Bangladesh Bank website.

~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 54.1% till April, 2023. During this period, daily average turnover of the market amounted to BDT 6.8 bn (USD 63.7 mn) (Figure 1).

Figure 1: DSEX since inception along with market turnover



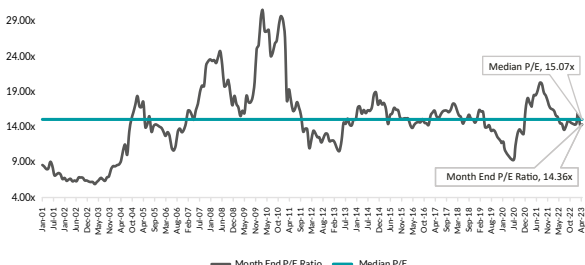
Source: DSE

Market Valuation Level - P/E Ratio

The market P/E increased to 14.36x in April compared to March's 14.24x. It is slightly higher than the 23 years' median market P/E of 15.07x (Figure 2).

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

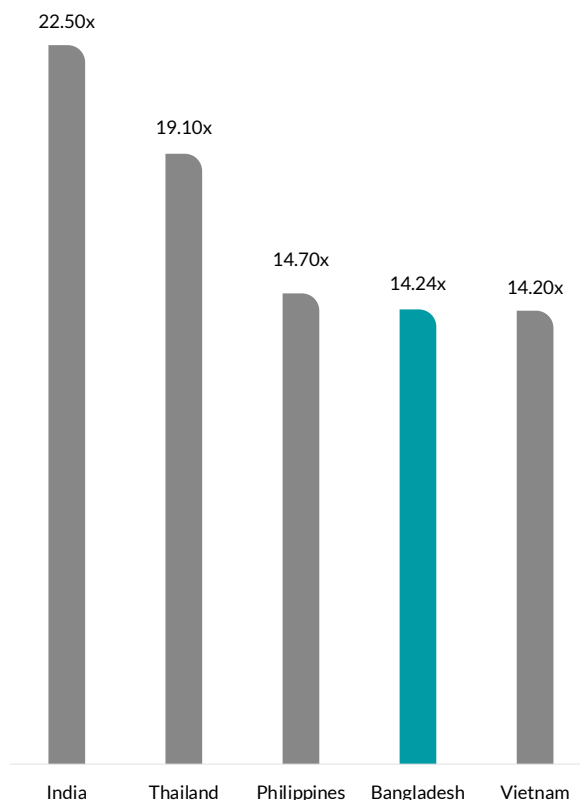
Current Market P/E* in Context of History



*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

Figure 3: Current market P/E* of Bangladesh and peer countries



Sector Performance

Large cap sectors posted positive performance in April 2023. Textile posted the highest positive return of 10.4% followed by Banks (+4.1%), Food & Allied (+1.9) and Miscellaneous (+0.3%). Pharmaceuticals, Telecommunication and Engineering remained flat. Conversely, Fuel & Power sector reported negative return of 3.5%.

Telecommunication sector has the highest dividend yield of 5.9% 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	6,692	3,585	0.0%	-1.5%	-2.0%	-2.0%	70.2%	41.6%	16.5	3.1	2.2%
Bank	6,395	3,474	4.1%	3.0%	1.9%	-4.6%	58.0%	20.6%	7.1	0.7	4.1%
Telecommunication	5,435	598	0.0%	0.4%	3.0%	-6.8%	56.1%	-10.5%	16.8	6.0	5.9%
Engineering	4,922	1,058	0.0%	-0.2%	0.2%	-8.3%	117.8%	42.4%	65.5	2.5	1.6%
Fuel & Power	4,200	1,207	-3.5%	-3.1%	-3.3%	-5.7%	27.3%	25.3%	13.1	1.4	4.9%
Food & Allied	3,951	1,226	1.9%	4.8%	5.5%	-2.8%	85.9%	63.2%	19.2	9.5	1.7%
Miscellaneous	2,163	915	0.3%	1.0%	0.0%	-12.2%	135.1%	129.2%	14.2	2.5	2.2%
NBFI	1,755	623	0.3%	1.6%	0.0%	-7.2%	50.0%	-1.7%	32.8	2.0	1.6%
Textile	1,566	898	10.4%	2.5%	-2.9%	-3.2%	57.0%	17.3%	19.9	1.1	2.4%
Cement	1,121	440	10.3%	12.0%	11.5%	-5.9%	77.9%	8.6%	17.6	3.2	1.8%
Non-life Insurance	845	477	0.2%	0.8%	-2.1%	-20.8%	113.2%	138.2%	15.7	1.7	3.3%
Life Insurance	672	396	0.7%	1.1%	3.4%	-0.2%	38.9%	37.6%	83.9	7.4	1.8%
Tannery	315	169	1.9%	4.1%	3.0%	-12.9%	77.4%	25.0%	33.1	3.0	2.1%
IT	408	257	-2.2%	5.7%	9.7%	25.4%	128.2%	100.0%	24.7	3.5	1.0%
Ceramics	296	118	-1.1%	-1.5%	-0.8%	7.1%	70.7%	32.1%	41.5	2.0	1.7%
Travel & Leisure	562	297	-1.7%	9.1%	38.4%	80.4%	152.5%	152.3%	17.3	2.1	0.8%
Paper & Printing	392	136	4.5%	4.2%	6.1%	-6.2%	143.7%	8.7%	47.9	3.0	0.8%
Services & Real Estate	294	152	5.5%	12.8%	19.0%	28.2%	152.3%	78.7%	24.4	1.8	3.0%
Jute	35	18	19.0%	18.0%	2.2%	88.7%	108.2%	101.9%	128.2	11.0	0.0%
Market	42,710	16,320	0.9%	0.7%	0.9%	-5.9%	56.2%	9.1%	14.7	1.8	3.1%

*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 April, all cap classes showed positive performance. Micro class reported the highest positive return of 6.7% followed by Mid class (+2.8%), Small class (+2.7%) and Large class (+0.6%), respectively. Large cap was the highest dividend yielding (3.6%) class.

Table 4: Performance of different market cap classes

Cap Class	Definition based on market capitalization (USD mn)	% of total equity Meap	Return*						P/E (x)	P/BV (x)	Dividend Yield
			1M	3M	YTD	12M	3Y	5Y			
Large	≥95	77.3%	0.6%	0.8%	1.5%	-5.5%	97.1%	50.3%	13.8	1.8	3.6%
Mid	29-94	12.3%	2.8%	1.2%	3.6%	2.9%	-13.2%	-30.8%	18.6	1.6	2.3%
Small	9-28	7.7%	2.7%	2.4%	-2.4%	-5.1%	111.4%	62.4%	25.5	1.0	3.0%
Micro	<9	2.7%	6.7%	10.1%	2.8%	-1.0%	-76.2%	-84.3%	41.3	0.9	2.6%
Market	-	100.0%	0.9%	0.7%	0.9%	-5.9%	56.2%	9.1%	14.7	1.8	3.1%

*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, UNILEVERCL (+6.7%) advanced the most, followed by BERGERPBL (+0.2%). On the other hand, BEACONPHAR registered the highest negative return of 5.2% followed by ISLAMIBANK (-0.3) while others remained unchanged.

Majority of these companies yielded outstanding return over longer time horizon (5 years) such as BEACONPHARMA (+1113.0%), BEXIMCO (+333.4%), UNILEVERCL (+153.4%), MARICO (+144.1%), DUTCHBANGL (+88.2%) and BERGERPBL (+82.1%).

Among the scripts, GP, UPGDCL and SQURPHARMA 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	Telecommuni- cation	3,625	363	0.05	0.0%	0.0%	3.3%	-7.4%	39.4%	-20.6%	12.9	13.3	7.7%
WALTONHIL^	Engineering	2,973	30	0.01	0.0%	0.0%	0.0%	-8.6%	N/A	N/A	95.2	4.0	1.4%
BATBC	Food & Allied	2,624	694	0.04	0.0%	1.9%	1.9%	-7.4%	92.7%	60.8%	15.7	8.5	1.9%
SQURPHARMA	Pharmaceuticals & Chemicals	1,742	1,138	0.25	0.0%	0.0%	0.0%	-2.5%	40.3%	-7.0%	8.7	2.6	4.8%
ROBI^	Telecommuni- cation	1,472	147	0.01	0.0%	2.3%	2.3%	-5.2%	N/A	N/A	85.7	2.6	2.3%
RENATA	Pharmaceuticals & Chemicals	1,400	682	0.03	0.0%	0.0%	0.0%	-3.4%	58.2%	65.1%	39.1	7.6	1.1%
UPGDCL	Fuel & Power	1,269	127	0.00	0.0%	0.0%	0.0%	-9.5%	29.5%	73.6%	11.9	5.1	7.3%
BEXIMCO	Miscellaneous	949	634	0.07	0.0%	0.0%	0.0%	-20.3%	850.5%	333.4%	10.1	1.7	2.6%
BERGERPBL	Miscellaneous	754	38	0.03	0.2%	1.1%	0.8%	-1.8%	40.8%	82.1%	29.5	11.1	2.3%
MARICO	Pharmaceuticals & Chemicals	715	71	0.07	0.0%	0.0%	0.0%	6.4%	71.1%	144.1%	19.7	41.4	1.2%
LHBL	Cement	705	253	0.17	0.0%	2.3%	2.3%	-13.7%	98.4%	27.2%	16.9	4.8	2.3%
ICB	NBFI	694	77	0.00	0.0%	0.0%	0.0%	-9.4%	44.1%	-10.4%	113.3	7.8	0.5%
BXPBARMA	Pharmaceuticals & Chemicals	611	427	0.32	0.0%	0.0%	0.0%	-11.8%	171.7%	60.8%	13.5	2.1	2.4%
UNILEVERCL	Food & Allied	600	84	0.06	6.7%	17.4%	17.4%	15.6%	68.6%	153.4%	54.8	56.7	0.7%
BRACBANK	Bank	540	290	0.01	0.0%	0.0%	0.0%	-16.3%	55.2%	-35.1%	9.6	1.5	1.9%
BEACONPHAR	Pharmaceuticals & Chemicals	530	371	0.20	-5.2%	-18.2%	-14.3%	-7.1%	309.7%	1113.0%	47.1	19.2	0.7%
ISLAMIBANK	Bank	495	242	0.59	-0.3%	-1.8%	-0.6%	0.6%	110.4%	51.1%	23.4	0.9	3.0%
DUTCHBANGL	Bank	408	53	0.01	0.0%	0.0%	0.0%	-5.2%	58.2%	88.2%	7.7	1.6	2.8%
TITASGAS	Fuel & Power	379	95	0.00	0.0%	0.0%	0.0%	7.7%	58.9%	34.6%	383.4	0.6	2.4%
POWERGRID	Fuel & Power	350	87	0.00	-98.1%	-98.1%	-98.1%	-98.3%	-97.3%	-97.6%	(8.4)	0.7	1.9%
Market		42,710	16,320	53.58	0.9%	0.7%	0.9%	-5.9%	56.2%	9.1%	14.7	1.8	3.1%

*All returns are Holding Period Return.

^WALTONHIL got listed on February 23, 2020. ROBI got listed on February 24, 2020.

Top Performing Mutual Funds

The top ten open end mutual funds based on 5Y year CAGR outperformed the market, during the same period. Among them, Zenith Annual Income Fund (+21.8%) yielded the highest return. On YTD basis, all these funds outperformed compared to market except Shanta First Income Unit Fund, CAPM Unit Fund, HFAML-ACME Employees' Unit Fund, Second ICB Unit Fund and Capitec Padma P.F. Shariah Unit Fund.

Table 6: Top ten open end funds based on 5Y return (CAGR) performance

Name	Asset Management Company	Fund Size (USD mn)	NAV Return		
			YTD 2023	2022	2018-22
Zenith Annual Income Fund	ZENITH	0.9	2.4%	-1.0%	21.8%
Shanta First Income Unit Fund	SHANTA	9.9	-0.7%	-5.3%	13.5%
Vanguard AML Growth Fund**	VANGUARD	1.0	3.9%	-0.3%	12.1%
CAPM Unit Fund	CAPM	1.4	-2.9%	5.6%	12.0%
Credence First Shariah Unit Fund	CREDENCE	1.1	1.6%	3.2%	11.5%
HFAML-ACME Employees' Unit Fund	HFAML	2.0	-6.6%	-0.9%	11.3%
Second ICB Unit Fund	ICB AMCL	2.1	0.1%	-1.6%	9.4%
IDLC Growth Fund	IDLC	4.7	2.1%	-3.8%	9.1%
EDGE Bangladesh Mutual Fund	EDGE	2.5	2.1%	-4.2%	9.0%
Capitec Padma P.F. Shariah Unit Fund	CAPITEC	3.9	-5.1%	10.2%	8.3%
Market (Broad Index) Return (%)			1.1%	-8.1%	-0.1%

*Based on published NAV and DSEX point of April 27, 2023

All the top ten closed end mutual funds on the basis of 5 years (2018-2022) outperformed the market during the same horizon. Among them 1STPRIMFMF (+8.8%) and CAPMIBBLMF (+8.8%) posted the highest return. On the YTD basis, PF1STMF (+4.0%), ICBEPMF1S1 (+2.8%) and ICBSONALI1 (+2.4%) were the top performers.

Table 7: Top ten close end funds based on 5Y return (CAGR) performance

DSE Code	Fund Manager	Fund Size (USD mn)	Price ¹ (BDT)	NAV ¹ (BDT)	Price/NAV	Dividend Yield ² (%)	NAV Return ³				Redemption Year ⁴
							YTD 2023	2022	2020-22	2018-22	
1STPRIMFMF	265.2	2.5	13.8	13.3	104.1%	8.0%	1.3%	0.5%	23.6%	8.8%	2029
CAPMIBBLMF	762.8	7.1	10.2	11.4	89.4%	7.8%	-2.9%	-0.2%	14.8%	8.8%	2027
CAPMBDBLMF	583.0	5.5	9.9	11.6	85.1%	8.1%	-3.6%	4.6%	17.7%	8.0%	2027
ICBEPMF1S1	714.0	6.7	7.1	9.5	74.6%	7.0%	2.8%	0.8%	25.0%	7.8%	2030
PRIME1ICBA	984.0	9.2	7.7	9.8	78.3%	6.5%	1.9%	-2.3%	20.8%	7.6%	2030
ICB3RDNRB	916.0	8.6	6.5	9.2	71.0%	7.7%	2.2%	-1.1%	22.7%	7.0%	2030
PF1STMF	574.8	5.4	9.9	9.6	103.3%	5.1%	4.0%	-4.1%	21.4%	6.6%	2030
ICBAMCL2ND	512.0	4.8	8.7	10.2	85.0%	6.9%	1.9%	-0.8%	22.2%	6.4%	2029
ICBSONALI1	1,010.0	9.5	7.8	10.1	77.2%	6.4%	2.4%	-1.1%	17.1%	6.1%	2023
ICBAGRANI1	1,049.2	9.8	9.2	10.7	86.1%	9.8%	2.0%	-1.6%	17.2%	5.6%	2027
Market							1.1%	-8.1%	12.0%	-0.1%	

1 Price as on May 01, 2023 and index value as on April 27, 2023.

2 On last cash dividend declared.

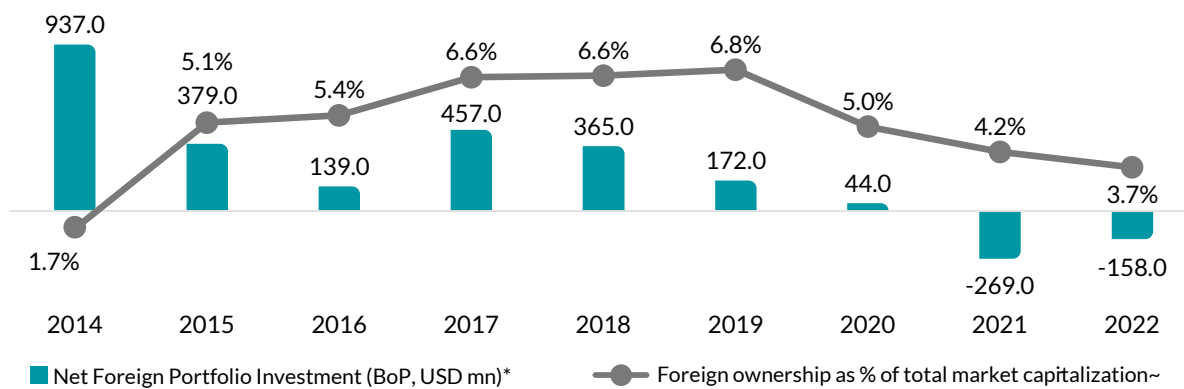
3 CAGR computed for respected periods, except for 2021 and 2022 YTD, adjusted for dividend. YTD returns of funds debuting within the year represent return generated since debut, hence is not directly comparable with return of funds that operated throughout the year.

4 In reference to BSEC Press Release বিএসসিএস/মুখপাত্র (৩য় খণ্ড)/২০১১/২৫ published on April 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

Over last 5 years, Bangladesh equity market has seen a fall of foreign investment. As of March 2023, total foreign ownership stood at 3.6% of the total equity market capitalization, which was only 1.7% in February 2014.

Figure 4: Net foreign portfolio investment and foreign ownership as % of total equity market capitalization



Source: DSE and Bangladesh Bank

~% of foreign ownership of equity market capitalization data are as of December of the respective years.

Among all the companies with foreign ownership, BRACBANK had the highest foreign shareholding of 33.4% as of March 2023, followed by BXPHERMA with 28.9%.

Table 8: Top ten companies with highest foreign shareholding as of March 2023

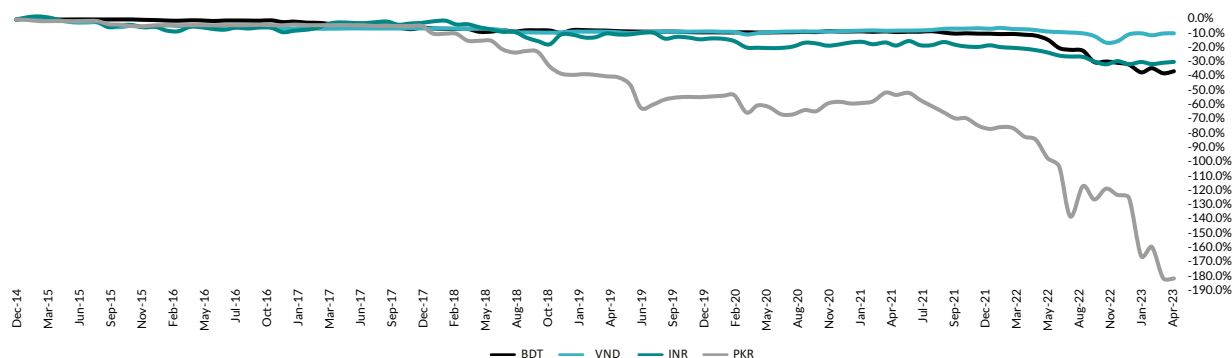
Ticker	Sector	Foreign Shareholding*
BRACBANK	Bank	33.4%
BXPHERMA	Pharmaceuticals & Chemicals	28.9%
NAVANAPHAR	Pharmaceuticals & Chemicals	27.7%
OLYMPIC	Food & Allied	23.6%
RENATA	Pharmaceuticals & Chemicals	22.7%
ISLAMIBANK	Bank	20.2%
DBH	NBFI	18.2%
BSRMLTD	Engineering	17.3%
SQURPHARMA	Pharmaceuticals & Chemicals	13.3%
SHEPHERD	Textile	9.5%

Source: DSE

Performance of BDT and Currencies of Peer Countries against USD

BDT depreciated by 36.2% against US Dollar, other currencies of neighbor countries like Vietnamese Dong (VND), Indian Rupee (INR) and Pakistani Rupee (PKR) lost 9.6%, 29.6% and 181.0%, respectively.

Figure 5: Five year's relative performance of BDT and peer currencies



Source: Investing.com

Major Commodity Price Movement

Among the major commodities, crude oil surged by 7.8% in April followed by Wheat (+2.2%), Aluminum (+2.0%), whereas cotton price witnessed correction of 0.2%. Over last 5 years, wheat price hiked the most by 76.8% followed by crude oil (+19.9%), aluminum (+3.9%) and cotton (+3.2%)

Table 9: Major Commodity Price Movement

	Price Change (%)					
	1M	3M	YTD	12M	3Y	5Y
Crude oil	7.8%	2.7%	5.6%	-20.3%	291.9%	19.9%
Wheat	2.2%	-4.2%	-2.1%	-23.6%	72.7%	76.8%
Cotton	-0.2%	-4.2%	-5.7%	-38.7%	49.8%	3.2%
Aluminum	2.0%	-3.0%	-2.4%	-27.8%	60.5%	3.9%

*Source: World Bank Pink Sheet





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