Trade Working Capital Viewpoints

Working Capital in Healthcare: *Perspectives on supporting the healthcare supply chain*

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Working Capital *in Healthcare*

Healthcare corporates face rising costs, increased inventory levels, and require significant investment in innovation. Treasurers are focused on optimizing working capital by minimizing trapped liquidity while ensuring financing continues to reach suppliers, customers, and distribution channels. When making working capital decisions treasurers consider the following:

- **Optimizing working capital:** The pharmaceutical industry's cash conversion cycle (CCC) is far longer than that of other industries, and the medical device industry's days inventory outstanding (DIO) has increased meaningfully in recent years, while days payable outstanding (DPO) and days sales outstanding (DSO) improved modestly due to focused efforts to manage CCC.
- **Research and Development (R&D) is a capital-intensive process:** In 2022 pharmaceutical companies spent an average of 19.1% of total sales on R&D. There has been a 53% increase in R&D spend in the healthcare industry since 2019, with the average spend now at $2.8bn.[1]
- **Resilient healthcare supply chains require reliable financing:** Ensuring that financing reaches manufacturers up and down the supply chain can help secure stable access to APIs and other critical components.
- **Maximize excess liquidity to fund acquisition finance and R&D:** Skillful working capital management may help maximize liquidity for healthcare corporates interested in bolstering their long-term growth.

"Working capital is an interesting space keenly watched by Healthcare companies. In a recent survey we ran with over 130 Healthcare clients, a *resounding 60%*[2] *chose working capital optimization as the key treasury fundamental to prioritize for the year*. This represents a real shift in the treasury priorities of healthcare companies and is something that we are acutely focused on to *support our clients as they navigate the next phase of optimization.*"

– Saurabh R. Gupta, Global Sales Head of Healthcare, Consumer & Wellness, Treasury & Trade Solutions, Citi

[1] See Figure 9: S&P Capital IQ, Citi Treasury and Trade Solutions.
[2] Survey was conducted as part of the client webinar "The Impact of Emerging Technologies on the Healthcare Industry" held on Mar. 14, 2024.

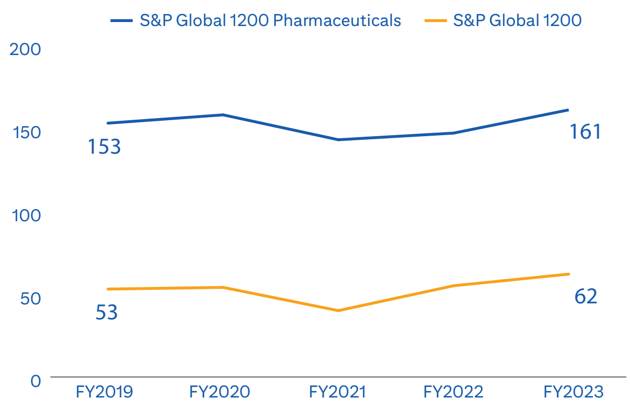
The Working Capital Landscape *in Healthcare*

The Healthcare ecosystem depends on innovation, such as quantum computing and artificial intelligence. Innovation requires significant investment, and supply chain structure considerations. Based on our analysis from S&P's healthcare industry's working capital metrics, there are some unique challenges and opportunities treasurers and procurement leaders may have to optimize working capital.

Working Capital in the Pharmaceutical Sector

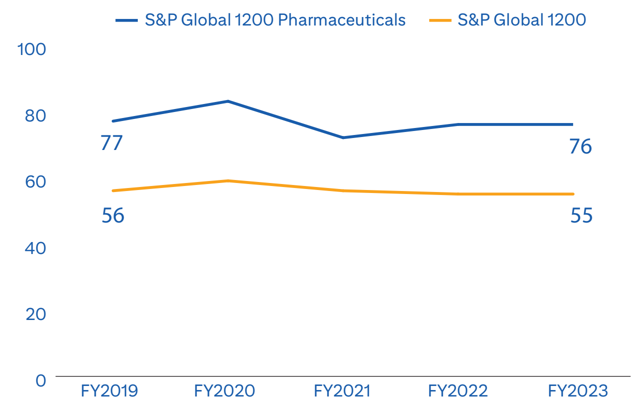
Pharmaceutical industry participants' cash conversion cycle (CCC), or the time it takes a company to disburse and collect cash, is far longer than that of other industries (see Figure 1). This is due in part to days inventory outstanding (DIO). The industry tends to hold onto larger levels of buffer stock, especially for drugs or products that can be lifesaving. In some cases, pharmaceutical firms may begin building inventory prior to receiving regulatory approval to meet forecasted demand. Slightly offsetting increases in DIO, days payables outstanding (DPO) has improved as pharmaceutical companies have focused on harmonizing payment terms along with industry standards. Days sales outstanding (DSO) is managed closely as buyers continue to seek longer payment terms.

Figure 1. Cash Conversion Cycle, S&P Global 1200 Pharmaceuticals Index



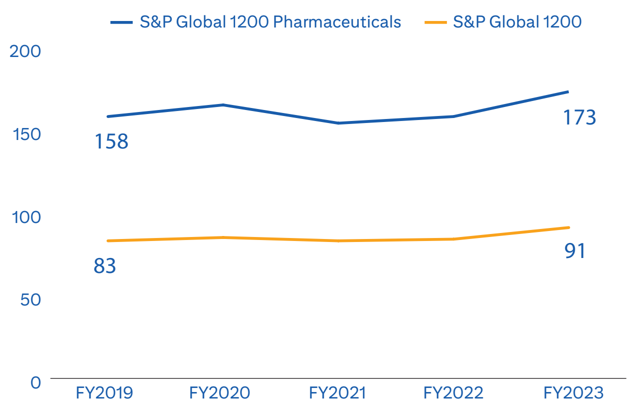
Source: S&P Capital IQ, Citi Treasury and Trade Solutions

Figure 2. Days Sales Outstanding, S&P Global 1200 Pharmaceuticals Index



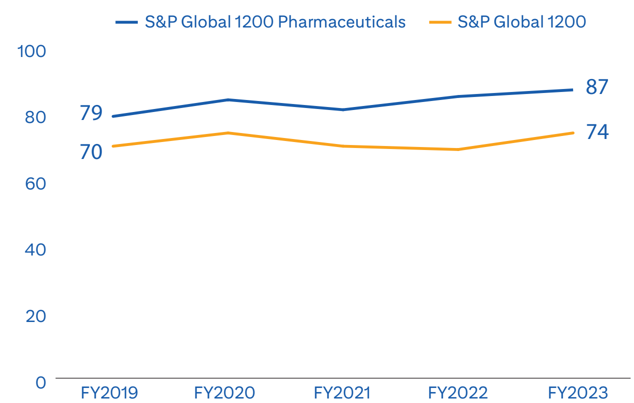
Source: S&P Capital IQ, Citi Treasury and Trade Solutions

Figure 3. Days Inventory Outstanding, S&P Global 1200 Pharmaceuticals Index



Source: S&P Capital IQ, Citi Treasury and Trade Solutions

Figure 4. Days Payable Outstanding, S&P Global 1200 Pharmaceuticals Index



Source: S&P Capital IQ, Citi Treasury and Trade Solutions

Offsetting high DIO through optimizing working capital

One of the world's largest pharmaceutical firms has focused on optimizing working capital through payment terms harmonization to offset high DIO. Viewing its suppliers as strategic partners, this firm also sought a solution that allowed for its suppliers to benefit from its strong credit rating. A supply chain finance program was the logical choice.

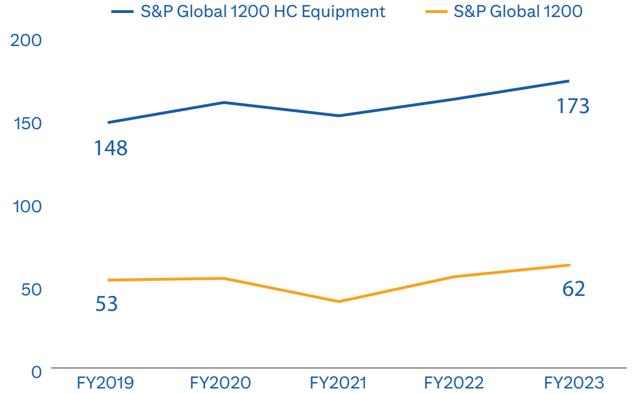
For the client, who's complex buying structure includes over 50 buying entities in over 30 markets, it was imperative that the solution have minimal impact on their payment structure.

To help manage the complexity of the firm's vast network, Citi offered a supply chain finance program on Citi's global platform supporting 30+ markets over 40 currencies. This win-win solution aims to help corporates with their payment structure while suppliers gain access to competitive financing.

Working Capital in the Medical Device Sector

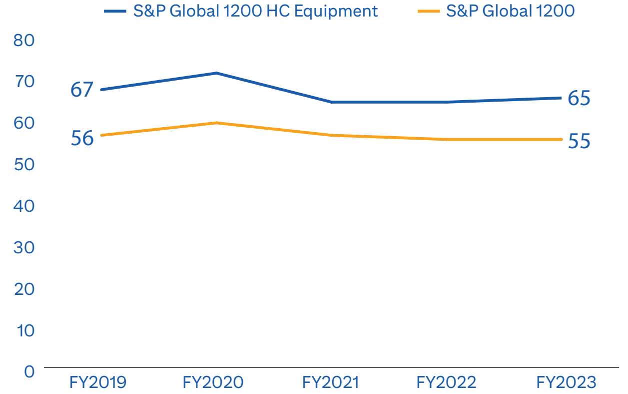
Like pharmaceuticals, medical device firms show high levels of DIO. The medical device industry may use inventory consignment practices, a practice where unused devices sit on a supplier's balance sheets until they are used. DIO has increased meaningfully in recent years, while DPO and DSO were improved modestly due to focused efforts to manage the CCC. Given the levels of trapped liquidity within healthcare companies CCC, treasurers and procurement leaders have an opportunity to release trapped value and optimize performance.

Figure 5. Cash Conversion Cycle, S&P Global 1200 Health Care Equipment Index



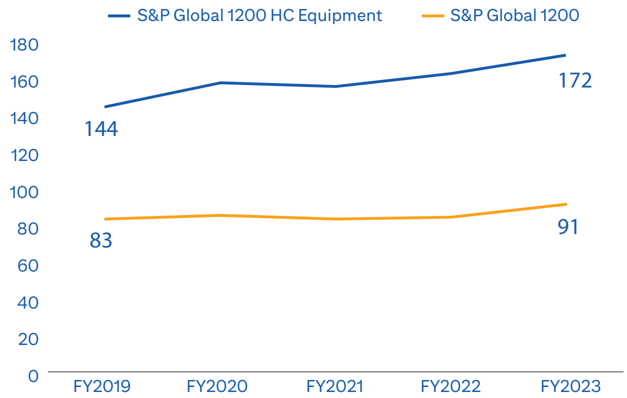
Source: S&P Capital IQ, Citi Treasury and Trade Solutions

Figure 6. Days Sales Outstanding, S&P Global 1200 Health Care Equipment Index



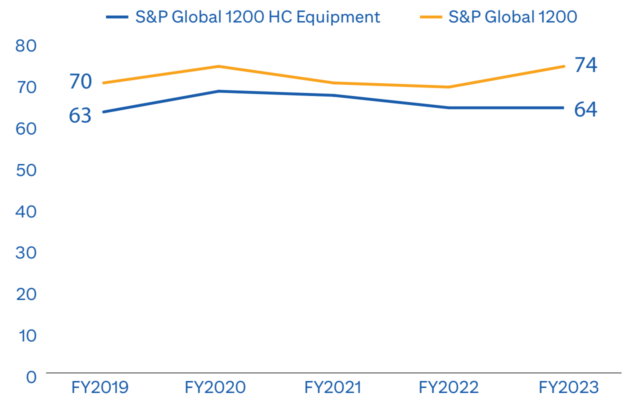
Source: S&P Capital IQ, Citi Treasury and Trade Solutions

Figure 7. Days Inventory Outstanding, S&P Global 1200 Health Care Equipment Index



Source: S&P Capital IQ, Citi Treasury and Trade Solutions

Figure 8. Days Payable Outstanding, S&P Global 1200 Health Care Equipment Index



Source: S&P Capital IQ, Citi Treasury and Trade Solutions

Aligning payment terms with industry peers while cultivating supplier relationships

A global medical device company with a global working capital optimization strategy, initiated a payment term standardization initiative in Asia in order to align terms with industry peers. The company is also focused on cultivating new relationships with local suppliers across Asia capable of supporting each of their manufacturing locations.

The medical device company partnered with Citi for a Supply Chain Finance program providing access to suppliers to monetize their receivables with the bank. The program was rolled out to qualified suppliers across Asia in a systematic manner for local and cross border programs. Many large-volume suppliers were already on the Citi platform, expediting their access to the program. The platform also allows flexibility for change in certain G10 invoice currencies for a fee.

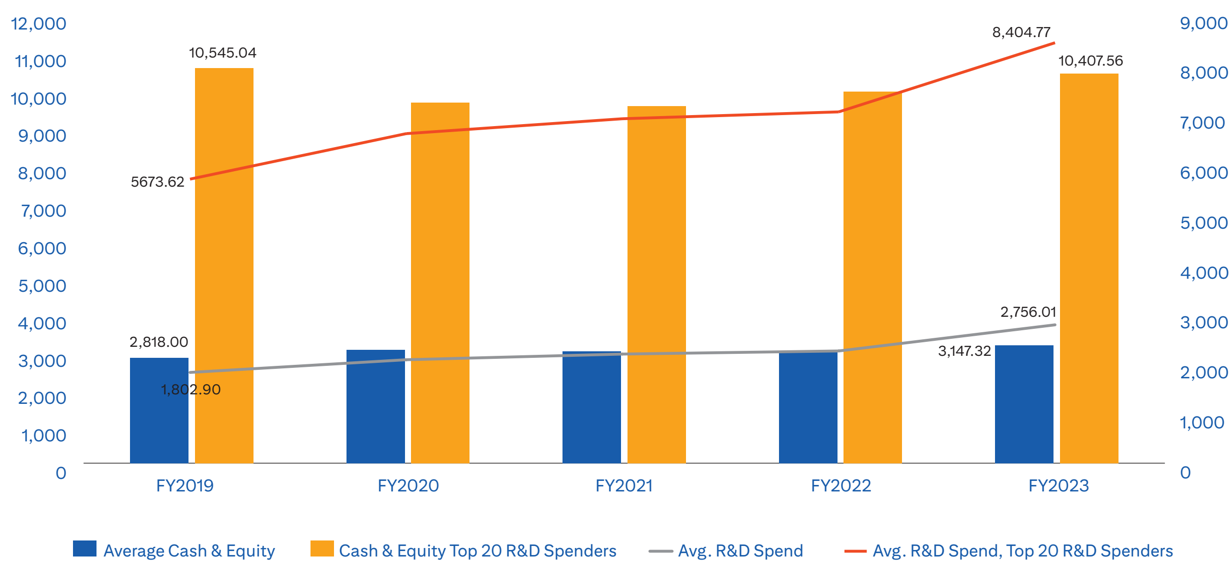
Using Working Capital Management *to Fund R&D*

Few industries can compete with the research and development (R&D) spend that occurs within healthcare as the industry. Research and development (R&D) is a capital-intensive process; in 2022 pharmaceutical companies spent an average of 19.1% of total sales on R&D.[3] The nature of the R&D process means that organizations often face upfront costs with long horizons before realizing any returns. Corporates focused on ensuring long term success must continue to innovate and do so either through in-house research and development or through acquisition. Innovation is at the heart of the healthcare industry and effective working capital management can play an essential role in helping organizations fund their innovation agenda.

Funding the Next Discovery with Working Capital

Since 2019, there has been a 53% increase in R&D spend in the healthcare industry, with the average spend now $2.8b (see Figure 9). While total R&D spend varies within the healthcare industry, in 2023, the top 20 R&D spenders in the healthcare industry spent an average of $8.4bn on R&D. Larger companies also show an increased willingness to spend more on R&D as a percentage of cash than smaller organizations. The role working capital plays in an organization's overall capital structure should not be overlooked. Effective cashflow forecasting may help corporates evaluate how to meet near-term liabilities during any point in the economic cycle, which can be further supported with the right trade finance tool. Leveraging Citi's working capital product offerings with best-in-class solutions may aid corporates in freeing trapped liquidity that can then be used to fund capital expenditures or other strategic pursuits.

Figure 9. Cash and Equivalents and R&D Spend (Right-hand Side) for S&P Global 1200 Healthcare Companies, $USD



Source: S&P Capital IQ, Citi Treasury and Trade Solutions

[3] PhRMA, 2023 PhRMA Annual Membership Survey, July 2023

Fueling Growth Strategy with Working Capital

Healthcare companies, including those in the pharmaceutical and medical device sectors, may strategically acquire companies to bolster their long-term stability and jumpstart research and development efforts in a new product. Experts from Citi Research find that more than any other sector, healthcare companies are least likely to target acquisitions in other sectors. The research suggests that when healthcare companies consider acquisitions, the primary focus is on adding capabilities rather than increasing exposure up or down the supply chain.[4]

Many in the pharmaceutical industry face a looming patent cliff, which may require accretive product acquisitions, while medical device names are looking to expand their value by adding service offerings. Efficient working capital management may increase liquidity available to help fund opportunities when they arise.

Corporates can consider utilizing a trade financing solution to increase their liquidity. Monetizing accounts receivable is one of the types of financing structures available to corporates. The availability of trade credit insurance for credit-approved clients has expanded the use of single-name or a portfolio of receivable structures.

Post closure and during the integration phase, organizations will aim to create working capital efficiency by aligning payment terms across venders. Citi's supply chain finance solutions aim to support supply chains by offering suppliers early payment options.

Optimizing your liquidity funding mix at competitive rates

A pharmaceutical industry corporate explored solutions to increase liquidity at competitive rates. The client required an accounts receivable finance solution that could meet their multi-seller, multi-currency needs. In total, they needed a solution capable of covering 30+ obligors across five currencies for six different seller entities. With Citi's guidance, the client elected to use a Credit Insured Accounts Receivable (CIAR) financing structure.

By electing this structure and securing trade credit insurance, the client, efficiently sourced credit approved funding and added diversification to their funding mix, while also managing risk.

Reducing Tension *in the Supply Chain*

Following the vast global supply chain disruptions, corporates will continue to explore supply chain management strategies. Shifting supply chains continues to emerge as a strategy for mitigating supply chain risk. Governments may play a role in redirecting supply chains as structured by export credit agencies in their product offerings.

To contextualize what the global healthcare cross-border supply chain looks like, Citi Working Capital Advisory (WCA) in partnership with Citi Global Data Insights (GDI) examined a range of data sources as proxies to some of the unique attributes of the supply chain. For this analysis WCA and GDI have examined international shipping data,[5] which includes active pharmaceutical ingredients (API) trade data by value and weight. While the resulting analysis is robust, it is important to note that it is limited to the extent which data is available.

[4] Citi Velocity, Searching for Alpha: M&A - Identifying Potential Takeover Target, 2022

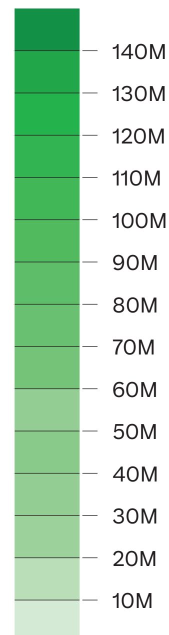
[5] Shipment data is provided by Dun and Bradstreet. D&B collects and provides maritime shipment data from the USCBP and global industry partners which captures granular shipment details such as shipper, consignee, date of shipment, port locations and product details on a daily basis.

Understanding the Pharmaceutical Cross-Border Supply Chain

For pharmaceutical organizations, maintaining a resilient supply chain hinges on their ability to procure the active pharmaceutical ingredients (APIs) that power their therapeutics. The pharmaceutical industry traditionally operated under a contract manufacturing centric business model. The pandemic shed light on the limited options for substitution pharmaceutical manufacturers may face, and the additional risks associated with having single suppliers. This can include location specific risks such as climate risk, geopolitical risk, and interest rate risk.

Figure 10. API Suppliers by Countries Over Time, Total Trade Value ($USD), as of Year End 2023[6,7]

Country	2019	2020	2021	2022	2023
United States	35.81	98.69	157.02	63.75	97.40
United Kingdom	6.34	15.10	7.34	7.00	3.20
Taiwan	2.10	11.04	16.31	36.09	61.04
Switzerland	5.43	11.63	12.37	9.18	10.92
Spain	8.41	23.88	17.52	12.72	25.59
Singapore	.41	2.40	.92	7.58	18.74
Netherlands	4.46	9.72	22.29	19.49	19.77
Mexico	.69	1.95	1.87	7.09	3.54
Japan	20.89	39.09	50.91	32.45	90.40
Italy	9.62	11.43	21.33	16.00	12.89
Israel	.46	1.69	3.84	3.12	1.79
Ireland	64.90	128.85	46.75	36.24	36.22
India	31.35	70.19	79.64	104.97	109.28
Hong Kong	3.38	6.48	6.48	14.57	8.62
Germany	25.15	47.87	51.18	31.03	25.29
France	2.59	3.65	9.77	7.91	8.56
Czech Republic	9.44	16.02	6.02	1.48	2.35
China	81.87	107.01	73.74	65.25	71.55
Belgium	6.29	9.35	17.70	18.92	9.35
Austria	1.98	4.19	10.75	12.32	6.65



Source: Dun & Bradstreet, World Customs Organization, Citi Global Data Insights

Since 2019 traditional players in the space emerged as top producers, led by India, the United States, Japan, and China. The US appears to peak in 2021, amid the mass roll out of Covid-19 vaccines globally. China's presence appears mostly consistent through 2023 (see Figure 10). It is worth noting the relative growth of India's capacity, showing over 37% growth from 2021 to 2023, illustrating a potential shift in supply chain strategy.

[6] Based on an analysis of data from Dun & Bradstreet and World Customs Organization, data as of Sept. 2023

[7] The pharmaceutical component of the analysis was derived using a list of Harmonized System (HS) codes that aligns to the International Nonproprietary Names (INNs) of nearly 6,000 active pharmaceutical ingredients.

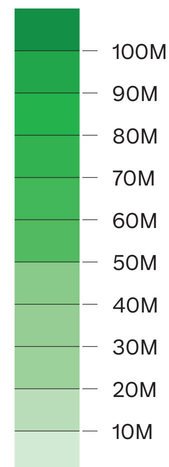
Understanding the Medical Device Supply Chain

Medical devices, like other areas of medicine, continues to evolve in ways previously unimaginable. What makes the medical device supply chain particularly unique is the number of materials used by the sector including a vast number of alloys and polymers.[8] Also, a key difference in today's devices is that many now feature connected capabilities, exposing products to the dynamics of an evolving semiconductor industry.[9]

Our cross-border supply chain analysis for the medical device industry is driven by first identifying a population of the world's largest medical device suppliers by revenue.

Figure 11. Medical Device Suppliers by Countries Over Time, Total Trade Value ($USD), as of Year End 2023[10]

Country	2019	2020	2021	2022	2023
United States	1.63	13.54	17.33	6.45	5.22
United Kingdom	6.07	20.93	10.08	6.07	8.33
Taiwan	1.24	6.83	7.34	18.11	10.93
Switzerland	8.34	5.70	.75	.46	4.62
Singapore	N/A	1.39	.29	14.02	20.22
Poland	5.60	15.56	10.13	15.77	3.23
Netherlands	31.23	44.32	20.64	9.14	14.71
Mexico	.43	.26	.21	.35	8.33
Malaysia	3.27	10.22	10.64	18.90	25.89
Japan	7.62	8.06	5.32	8.50	19.34
Italy	17.12	20.18	26.53	15.53	11.59
Ireland	18.08	42.28	22.54	19.96	3.96
India	10.84	28.20	21.04	2.40	5.59
Hong Kong	3.02	1.98	5.53	18.24	18.17
Germany	13.66	31.99	33.68	40.19	19.61
France	4.98	8.34	6.28	7.24	2.33
Costa Rica	N/A	.75	.63	1.94	20.42
China	41.31	69.90	95.50	100.76	59.69
Brazil	N/A	N/A	22.06	51.22	37.85
Austria	3.79	3.27	4.84	6.00	8.27



Source: Dun & Bradstreet, Citi Global Data Insights

[8] FDA, Safety of Metals and Other Materials Used in Medical Devices, 2022
[9] NIH, An Overview About Connect Medical Devices and Their Risks, 2023
[10] Based on an analysis of data from Dun & Bradstreet and World Customs Organization, data as of September 2023

China's overall dominance as a supplier to the medical device industry is expected as the country is home to much of the world's smelting capacity for a diverse range of alloys, critical to their manufacture, including titanium, aluminum, and copper. Following China is Brazil, which is home to a sizable biomaterials industry with a projected compound annual growth rate (CAGR) of 10.7%.[11] European suppliers appear to have ceded some share with Poland, Netherlands, Italy and Germany all posting declines from the year prior. Costa Rica, whose leading export is medical devices[12] saw a near 10-fold increase from 2022 to 2023 while Malaysia continues to experience sustained growth focuses on attracting investment.[13]

Limiting risk on cross-border imports while maximizing efficiency

Most large multinational companies operate with a complex global network of buyers and suppliers that spans a wide range of countries. To help offset the risk of unknown parties or new markets, parties may request a bank guarantee or letter of credit for an added level of assurance. For instance, local tax authorities required a bank guarantee that Citi issued for a credit-approved global pharmaceutical corporation needing an import license.

In order to satisfy the taxing authority's pre-license requirement, Citi's global team, in conjunction with the parties' due diligence, approved a €500mm bank guarantee in two business days and issued on third. With taxing authority satisfied by the bank guarantee the client was pleased to import the critical goods needed without delay.

[11] Journal of Materials Research and Technology, Short review on the use of graphene as a biomaterial – prospects, and challenges in Brazil, 2022

[12] PR Newswire, PROCOMER promotes advanced manufacturing ecosystem in MD&M West fair to bring more investment to Costa Rica, 2024

[13] Malaysian Investment Development Authority, Malaysia's Medical Devices Industry: Immense Growth Potential, 2023

Supporting Customers and Distribution Channels

Taking steps to reduce tension in the supply chain requires understanding the dynamics of both upstream suppliers as well as downstream consumers. Healthcare distributors fill key supply chain and logistical needs between producers and patients. In the pharmaceutical industry, it is estimated that nearly 80% of total receivables come from the health distributor industry.[14] For the medical device industry, it is estimated that roughly 60% of total receivables is attributed to the healthcare industry.[15]

As trade corridors and distribution partners shift and grow, healthcare corporates can learn how Citi's experienced trade finance professionals will aim to structure Accounts Receivable (AR) finance solutions that can help improve liquidity management while supporting customers' need for longer payment terms.

Corporates may work with Citi to establish commercial letters of credit or bank guarantees to help mitigate the risk of new trading partners. Healthcare supply chain partners have an important role to play, bolstering access to essential therapeutics and devices in both their home and foreign markets.

Citi's Global Working Capital team can help firms active in the healthcare space assess how to benefit from working capital improvements and support clients in undertaking comprehensive working capital management solutions.

[14] Based on an analysis of Bloomberg data of top pharmaceutical companies by revenue; data current as of Sept. 2023
[15] Based on an analysis of Bloomberg data of top medical device companies by revenue; data current as of Sept. 2023

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