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SUPPLY CHAIN FINANCING

Building Resilience as the New Definition of “Global” Emerges

Citi GPS: Global Perspectives & Solutions

January 2024



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SUPPLY CHAIN FINANCING

Building Resilience as the New Definition of “Global” Emerges



Jane Fraser
CEO
Citi

In my position as CEO, I have the privilege of running one of the world’s most global banks. We move \$4 trillion in volume — equivalent to the GDP of Germany — for 5,000 of the most important multinational companies, every single day. This represents a constantly innovating network that helps underpin the global financial system and international trade.

With clients operating in nearly 160 countries and jurisdictions, we’ve had a front-row seat to the evolution of globalization over the course of our bank’s more-than-200-year history. Today, we are witnessing a monumental shift towards another new era — and trade and supply chains are at the heart of these changes.

A year ago, Citi published a comprehensive Citi GPS report examining global supply chains, and many of those elements, especially those focused on geopolitical and macroeconomic challenges, still ring true today. For the last several decades, there was a strong emphasis on sourcing and moving manufactured goods as efficiently as possible to cut costs. But the geopolitical and macroeconomic shocks of late have upended this approach, and we’re now reaching a critical tipping point.

This latest report, published by Citi experts leading our thinking on the evolution of global supply chains and backed by survey responses from the world’s most complex multinationals and SMEs around the world, highlights the profound challenges many corporates are actively navigating.

Today, amidst the backdrop of transformative technological innovations, increasing resilience is the clear and resounding call. We see nearly every country and company focused on security — be it food, water, energy, cyber, financial, or operational security. And consequently, they’re reconfiguring supply chains to meet the demands of customers and other stakeholders. It took too long but we’ve all woken up to the fact that concentrating the sourcing or production of any good — let alone essential goods — in one part of the world can have dire consequences.

This heightened focus on resilience has given birth to a new era of diversification, and as businesses and countries adapt to this era, we’re starting to see clear benefits in economic growth.

- First, as demand for resilience and diversity grows, so too does the opportunity for smaller players to engage in global trade. That includes last-mile suppliers in developing countries.
- Second, increased focus on resilience and investments in supply chains are creating diversified economies. Malaysia, Thailand, and Vietnam are early examples of this in the Indo-Pacific. Elsewhere, in the Middle East, Saudi Arabia, the UAE, and others are undergoing their own transformations as they look to diversify from oil. We’re also seeing countries and companies diversifying their supply chains in specific sectors. This is particularly evident in Mexico as a result of the United States-Mexico-Canada Agreement. Citi has been supporting clients seeking to reduce risk and increase efficiencies through nearshoring in Mexico. In some cases, it’s North America-based automakers bringing supply chains closer to home. In other cases, it’s European and Asian companies moving closer to their end-consumers in North America.

- Third, diversification is creating new trade corridors. Brazil is trading more with India and China than it is with Argentina. The Middle East is now more connected to Asia than Europe. And those connections will be further strengthened by a proposed economic corridor connecting the Middle East to India. Nearly 30% of multinationals surveyed for this year's report indicated they were pursuing a "China Plus One" strategy as they build more resilience, with Vietnam and Thailand being the primary countries named for expansion plans.

As the old system continues to be disrupted, the new era of diversification will evolve to meet new demands. But we should be clear-eyed that these changes won't happen overnight. Any significant movement, especially deeper in supply chains, is much easier said than done. Supply chains and trade relationships take years to build. And in some cases, it will take a decade for new players to achieve the scale and manufacturing quality that traditional production hubs developed over the last half-century.

Still, the demand to make these new connections and foster new relationships is palpable. And we anticipate the movement will continue to gain more and more momentum in the years to come.

We are far from the end of globalization, but it is changing. And with those changes, we're seeing tremendous opportunities for all our economies to work together to tackle the unique challenges of the 21st century.

Resilience doesn't mean retreating to our corners. In some sectors, national security requires us increasing our domestic production capabilities. But excessive self-reliance, in the name of national security, won't make us more secure. True resilience comes from open markets and robust and diversified supply chains. A decoupling of the world's dominant economies is neither possible nor prudent. De-risking — or diversification, as we prefer to call it — has become the name of the game.

The new era of diversification offers a new way forward for globalization, not a reversing of course. We mustn't lose faith in the tools that have enabled growth and progress over these past decades. And we should be conscious to avoid policies that swing the pendulum too far towards resilience and away from affordability and economic growth. Security and resilience go hand-in-hand in most cases — and we ought to seek enhancements to both through more global cooperation, not less.

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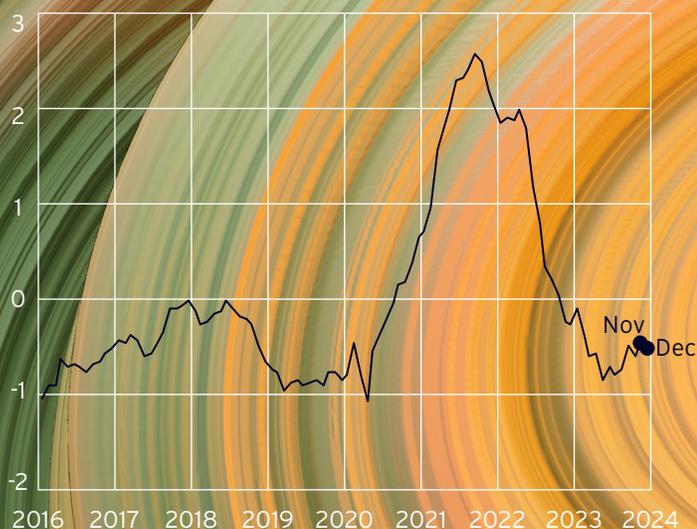
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FORTIFYING SUPPLY CHAINS FOR FUTURE OPPORTUNITIES

GLOBAL SUPPLY CHAINS HAVE NORMALIZED – WHAT'S NEXT?

Global supply chains look to have normalized, with pressures in 2023 hovering near pre-pandemic levels. Consumer rotation away from goods back to services has helped, as has improvements in shipping costs, global Purchasing Manager Indices, and inventories. However, debates around supply chain management strategies are still important to avoid disruption and ensure a consistent and reliable production process.

Citi Global Supply Chain Pressure Index



Source: Citi Research, Bloomberg

Areas of Potential Supply Chain Management Improvement

1

Inventory Management Strategies: Balancing the trade-offs between just-in-time and just-in-case inventory management



2

Digitalization: Increasing digitalization of monitoring, maneuvering, and maintaining supply chains



3

Geographical Reconfiguration: Reshoring and nearshoring along with supply chain diversification



SOLUTIONS TO BOOST SUPPLY CHAIN RESILIENCY

1

Optimize working capital to help preserve and maximize liquidity

2

Buyers can implement **supply chain finance programs** that provide suppliers with a channel to access reliable funding at an efficient rate

3

Facilitate new trade opportunities with **trade finance** solutions

4

Support sales and customer resiliency while managing days sales outstanding with **account receivable finance** solutions

THE STATE OF SUPPLY CHAINS: WHAT ARE SUPPLIERS SAYING?

A global survey of corporate suppliers participating in Citi's supply chain finance programs confirmed an easing of supply chain pressure and challenges globally, but higher interest rates and inflation continue to create uncertainty, especially for small- and medium-sized enterprises.

13%

stated they had not faced any supply chain challenges, up from 4% in 2022

33%

said they were having difficulties forecasting and planning for customer demand

14%

noted shipment delays vs. 34% in 2022

27%

cited prohibitive financing costs and/or difficulty accessing financing

Most important supply chain decision priorities for suppliers:

29%

Just-in-case vs. just-in-time inventory strategies

20%

Nearshoring/reshoring of downstream manufacturing

12%

Supply chain resilience

7%

Digitalization of paper-based trading

3%

AI and data-driven decision making

THE STATE OF SUPPLY CHAINS: WHAT ARE LARGE CORPORATES SAYING?

Citi partnered with East & Partners to conduct primary, voice-of-the-corporate research on supply chain challenges, resiliency, and the future of supply chains for the world's largest and most complex organizations.

50%

had debt-linked interest expense rise at least 100%



56%

see an increase in export volumes in next 6 months



56%

already had or were considering adopting a "China Plus One" strategy



34%

expect to increase their number of supply chain partners



48%

expect to increase spending allocation on new technology, such as generative AI



Normalization in Global Supply Chains Raises Questions of What's Next

Nathan Sheets

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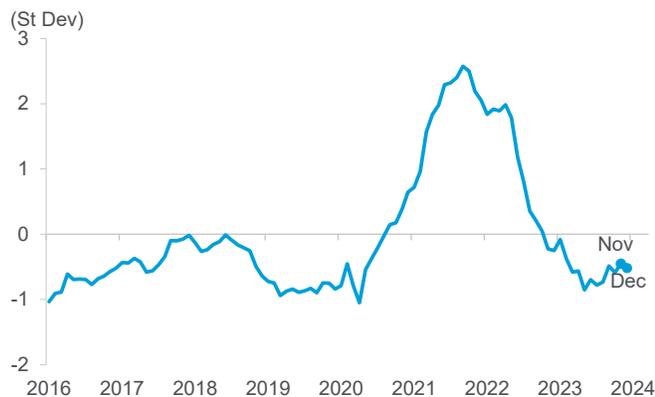
Global Economist
Citi Research

Global supply chains have been on a rollercoaster over the last few years. Early in the pandemic, consumers rotated much of their spending towards goods, as many types of services could not be consumed easily. This strong rotation into goods spending also coincided with COVID-19-induced production disruptions. The combination of strong demand and limited supply markedly ratcheted up pressures on global distribution, and our own measure of supply chain pressures rose almost without interruption from the onset of the pandemic to mid-2021 (see Figure 1).

These pressures have subsided significantly over the last couple of years. For much of 2023, pressures in supply chains were hovering near pre-COVID-19 lows. By December of 2023, pressures had picked up modestly but remained relatively limited, running near the pre-COVID-19 average.

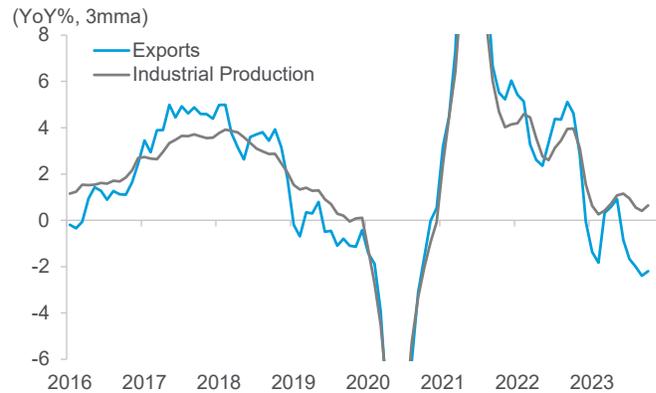
We view the normalization in supply chain pressures as largely reflecting an easing in the global consumer's demand for goods. As the pandemic receded, consumers rotated their spending away from goods and back towards services. This rotation strengthened services sectors but weighed on manufacturing, as well as hampering global trade and production (Figure 2).

Figure 1. Citi Global Supply Chain Pressure Index



Source: Citi Research, Bloomberg

Figure 2. Global Export Volumes and Industrial Production Growth



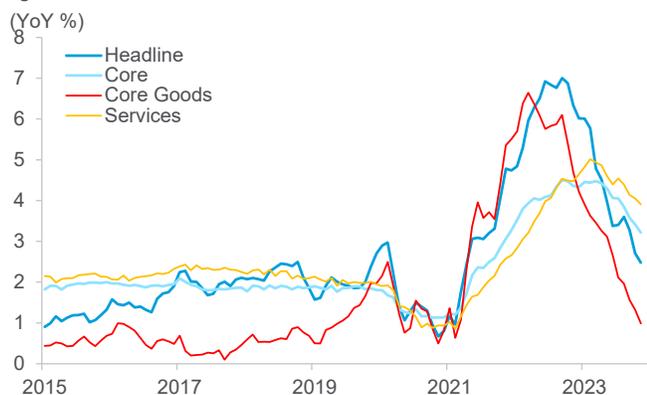
Source: Citi Research, Netherlands Bureau of Economic Analysis, Haver Analytics

The good news is that heightened supply chain pressures were a central driver of price pressures in global goods industries, and the unwinding of these forces has helped quell global goods inflation. As shown in Figure 3, global headline inflation has fallen from a peak of over 7% in 2022 to under 3% in early 2024 as pressures on food, energy, and other goods prices have cooled. Global core goods inflation (i.e., excluding food and energy) has fallen even more sharply, from over 6.5% to near 1% at the beginning of 2024 — not far removed from pre-COVID-19 levels. At current levels, our Supply Chain Pressure Index suggests that goods inflation should hover near or just above pre-pandemic readings.

The easing of goods inflationary pressures has been significant, but the global consumer’s rotation away from goods and towards services also intensified pressures on services prices. Post-COVID-19 spending on labor-intensive services has buoyed the demand for workers, which has tightened labor markets and pushed up wage growth. High wage growth has then been passed into services prices. Global services inflation fell somewhat at the end of 2023 but is still running at nearly double the pre-COVID-19 pace.

Following a resilient 2023 where global growth came in at 2.6%, well above our expectations from earlier in the year, we expect a stepdown to just 1.9% in 2024 as high interest rates bite further and services momentum continues to fade (see Figure 4). Growth in most economies is projected to slow, particularly in developed markets — we expect several will fall into recession, including the U.S., in mid-2024.

Figure 3. Global Inflation



Source: Citi Research, National Statistical Sources, Haver Analytics

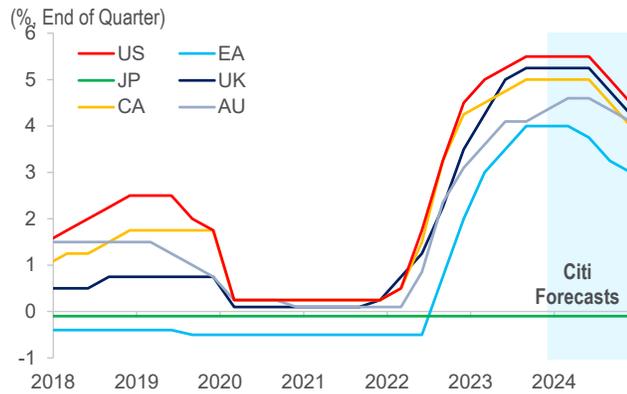
Figure 4. Evolution of Citi Global Growth Forecast



Source: Citi Research

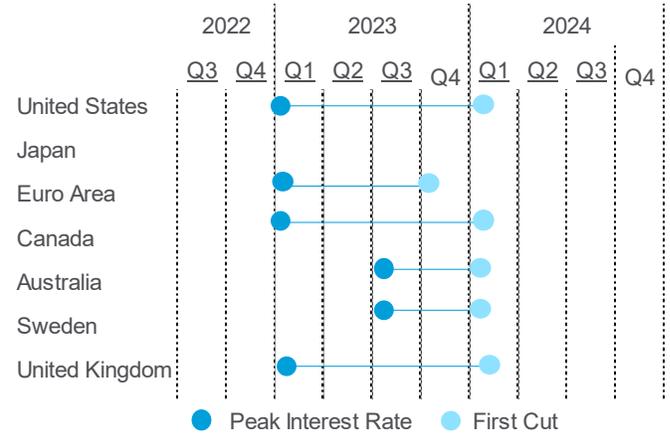
Against this backdrop, major central banks are looking at (or near) peak rates. The U.S. Federal Reserve (the Fed), European Central Bank (ECB), Bank of England (BoE), and Bank of Canada (BoC) all have reached their terminal rates, while the Reserve Bank of Australia (RBA) and Sweden’s Riksbank are nearing peaks (Figure 5). The Fed, ECB, and many other developed market central banks are likely to begin easing around mid-2024 (Figure 6). The December Fed meeting, however, hinted that cuts could come even sooner. Several emerging markets, such as Brazil, Chile, and Poland, have already started cutting rates. Given high inflation and developed market rates, easing cycles in emerging markets will also likely be gradual.

Figure 5. Developed Market Policy Rates



Source: Citi Research, Haver Analytics

Figure 6. Developed Market Policy Rate Forecasts



Source: Citi Research

A Closer Look at the Components of the Index

As highlighted in Figure 7, all three key components of our Supply Chain Pressure Index — shipping costs, global purchasing managers' indices (PMIs), and inventories — have improved markedly since early 2022. Of the three, the relaxation in the PMI component has been particularly pronounced.¹

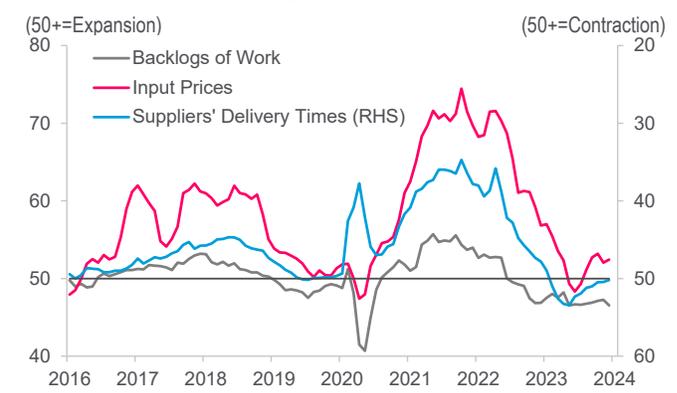
For the PMIs, all components of the index — backlogs of work, suppliers' delivery times, and input prices — are markedly improved from the pressures observed earlier in this cycle and are running well-below pre-COVID-19 averages (see Figure 8).

Figure 7. Citi Global Supply Chain Pressure Sub-Indices



Source: Citi Research, Bloomberg, Haver Analytics

Figure 8. Global Manufacturing PMI: Selected Components



Source: Citi Research, S&P Global, Haver Analytics

¹ Our index is the first principal component (PC) of these three sub-indices. Each of the subindices is, in turn, the PC of relevant underlying data series. For more detail regarding the construction of the index, see Citi Research, [Global Economics: Global Supply Chains — How Intense Are the Pressure?](#), January 19, 2022.

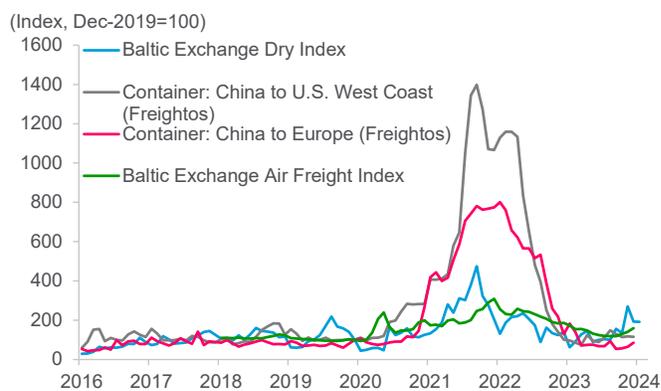
Figure 9 shows some key inventory data that feeds into the Supply Chain Pressure Index. The German Ifo component for finished goods inventories turned positive in mid-2022 and continued to rise for several quarters, suggesting a replenishing of inventories. The most recent readings are among the highest in the last decade, in line with both the weakness in global goods demand and, relatedly, the ongoing growth struggles in Germany. The U.S. inventory-to-retail sales ratio, meanwhile, is much higher than the pandemic lows but still a fair amount below the pre-COVID-19 norm.

Figure 9. Inventory Indicators



Source: Citi Research, U.S. Census Bureau, Ifo, Haver Analytics

Figure 10. Transportation Costs



Source: Citi Research, Freightos, The Baltic Exchange, Bloomberg, Haver Analytics

As for shipping costs (see Figure 10), the cost of shipping a container from China to the U.S. West Coast — which once contributed prominently to supply chain tensions — has fallen sharply from its peak of about \$20,000 in this cycle back to below \$2,000. Other shipping cost data have also improved markedly since their pandemic stresses. More recently, shipping costs have been boosted by disruptions in major canal routes, including conflict in the Red Sea. While it is unclear how long these disruptions will last, shipping costs are still far below levels reached during the pandemic and are not far removed from typical pre-COVID-19 levels.

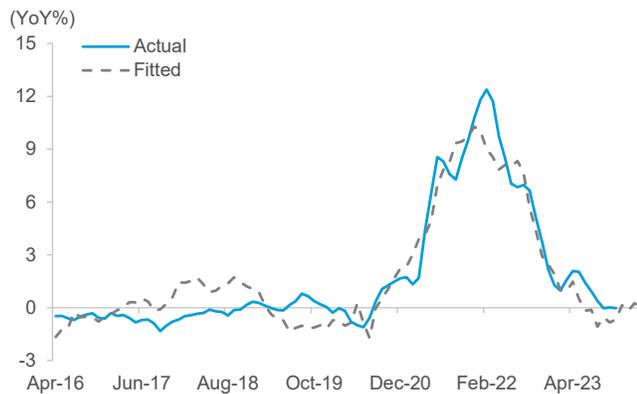
Implications for Goods Inflation

In our previous work, we found a statistically significant relationship between our Supply Chain Pressure Index and core goods inflation (i.e., excluding food and energy). For data samples including the pandemic, this relationship held both in the U.S. and globally. The relationship was particularly strong with a three-month lag.²

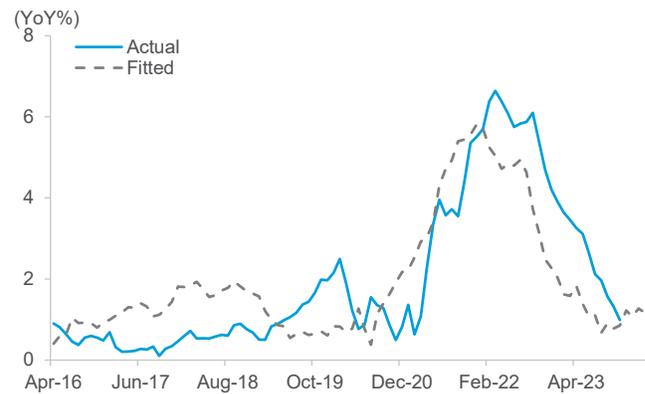
Figure 11 shows the results for our U.S. core goods inflation model. The model has tracked the contours of inflation in this episode closely, with the most recent data remarkably consistent with our model's output. For global inflation, our model has also tracked developments, although there has been a little more of a gap between actual inflation and the model (see Figure 12). More recently, the global model and actual global core goods inflation have been closely in sync.

Our forecasts suggest that goods inflation is likely to continue running near current levels. For the U.S., our model looks for core goods inflation in coming months of roughly 0% on a year-over-year basis. Global core goods inflation is expected to run in the 1%-1.5% range in the coming months, close to the pre-COVID-19 pace.

² For more details on the models, see Citi Research, [Global Economics: Global Supply Chain Pressures Ease Further](#), September 2022.

Figure 11. U.S. Core Goods Inflation: Actual vs. Regression Model

Source: Citi Research, Bureau of Labor Statistics, Haver Analytics

Figure 12. Global Core Goods Inflation: Actual vs. Regression Model

Source: Citi Research, National Statistical Sources, Haver Analytics

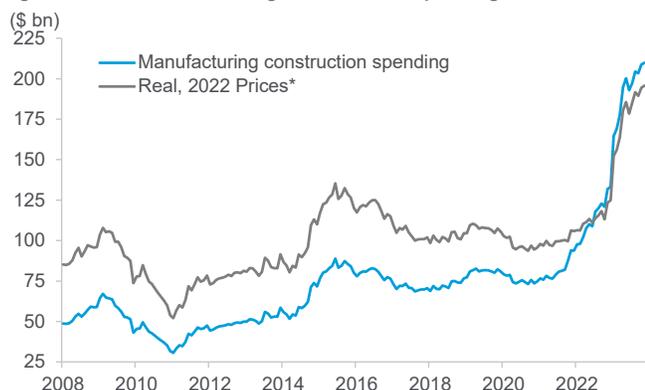
Concluding Thoughts: Looking Ahead

The key takeaway from our Supply Chain Pressure Index is that conditions have largely normalized. Still, firms are unlikely, in our view, to move back to pre-pandemic business as usual. This cycle has highlighted a range of areas where supply chain management can be improved to avoid disruptions and ensure a consistent and reliable production process.

For one, there will be changes to inventory management strategies. Pre-pandemic, firms largely held a just-in-time inventory approach, which looked to keep inventories lean to contain costs. Alternatively, just-in-case inventory management focuses on not running out of stock in the event of a sizable pickup in demand or disruptions in input supply and may require larger inventory holdings. The pandemic showed the benefits of just-in-case strategies, as many firms were not prepared for the surge in goods demand that followed the initial lockdowns. The trade-offs between the two strategies will be more deeply debated by firms going forward. At a minimum, firms are likely to hold larger inventories than they did previously for components that are hard to source.

Two, digitalization will likely play an increasingly important role in monitoring, maneuvering, and maintaining supply chains. Firms will increasingly collect and harness data at each stage of the supply chain and use tools such as artificial intelligence (AI) and machine learning (ML) to improve their processes. The scope for improvements is vast and may include better tracking of goods in transit, improving warehouse operations, and choosing suppliers more effectively.

Third, there will be some type of geographical reconfiguration in supply chains. Firms have seen in this cycle that having far-flung supply chains can come with high risks. Moreover, the current political environment in the U.S. as well as other countries may reinforce incentives to diversify supply chains away from China. Governments will also likely continue to help redirect supply chains for both domestic economic and security reasons. The U.S. CHIPS Act of 2022, for example, very much underscored this point, as it aims to increase U.S. tech production largely at the expense of China.

Figure 13. U.S. Manufacturing Construction Spending

* Manufacturing construction spending deflated by PPI: new industrial building construction.

Source: Citi Research, Bureau of the Census, Haver Analytics

Figure 14. Share of U.S. Trade: China and Mexico

Source: Citi Research, Bureau of the Census, Haver Analytics

There is increasing evidence that reshoring and nearshoring are already occurring at a large scale. For one, U.S. construction of manufacturing facilities has picked up appreciably over the last year (see Figure 13). Several factors have likely driven this strength, but reshoring clearly looks to be in play. Additionally, China's share of U.S. trade has now fallen to a decadal low (see Figure 14). Countries in Latin America, particularly Mexico, as well as other emerging Asian economies such as Vietnam and India, have benefited from this reconfiguration.

Asian economies are likely to continue to benefit from "China Plus One" strategies. ASEAN countries look set to gain more prominence in technology supply chains due to strong pre-existing infrastructure. India, meanwhile, has made impressive gains in cell phone manufacturing, and its government has policies in place to attract businesses to other sectors including semiconductors, renewable energy, and autos. Latin America, as well as Central and Eastern European (CEE) economies, meanwhile, may continue to reap benefits from nearshoring and friendshoring. Of note, the value of announced greenfield foreign direct investment (FDI) has fallen sharply in China, while it has picked up notably relative to historical trends in India, Mexico, CEE, and segments of Africa.³

However, these points do not change the fact that China is, and will likely remain, an integral part of the global supply chain complex — a role that took decades to establish. Moreover, there are many reasons that firms moved production to China in the first place, including lower costs and supportive infrastructure, which are still likely to remain factors in the years ahead. Additionally, there are some spaces, such as autos, where China has been gaining global market share in recent years. Going forward, firms may adopt "China Plus One" or "China Plus Many" strategies, but China is likely to remain a central hub in many production and sourcing chains.

Ultimately, the extent to which firms implement structural changes in their supply chains will depend on their assessment of the risks of material disruptions in the future. Undoubtedly, various firms across different industries will have diverging views about the nature of supply chain risks and will respond in different ways. Still, by our reckoning, the overall direction of travel here for most firms is clear.

³ See Citi Research, [Emerging Markets Economic Outlook & Strategy: Prospects 2024 — Sunny with a \(Good\) Chance of Showers](#), December 2023.

Working Capital Across the Supply Chain: Resilience Is Key

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In our third Citi GPS [Supply Chain Finance](#) report, published in January 2023, pandemic and supply chain disruptions had largely receded as corporates' attention shifted to managing higher energy prices and inflation.

Credit conditions remained tight throughout 2023 for borrowers of all sizes and levels of creditworthiness. In the U.S., three high-profile bank failures in the first half of the year — the first since 2020 — highlighted the potential impact of restrictive monetary policy on the marketplace. Simultaneously, geopolitical tensions continued to remain elevated.

Resiliency — particularly financial resiliency — is a topic of interest for many corporates. As in previous periods of stress, working capital is a focus for entire organizations, and boosting efficiency while limiting expenses is on many treasurers' strategic agendas. Additionally, as noted in the publication [Working Capital Efficiency Generates Significant Value](#), published by Citi Trade & Treasury Solutions in October 2023, corporates that efficiently manage their working capital can improve total shareholder return (TSR), among other benefits.

Supplier resilience remains a key focus, as SMEs and companies in emerging markets face limited access to capital. Solutions such as purchase order financing, deep-tier financing, and partnerships with government and multilateral agencies can help boost resiliency across the supply chain.

Technology is at the heart of many new developments in trade finance. Innovations such as artificial intelligence and the internet of things can enhance corporate operational efficiency, cut costs, reduce fraud, and augment transparency throughout supply chains. Transparency and mitigation of risk should help improve access to efficient capital for corporates around the world.

What Is Happening to Global Flows?

Globally, Citi's Services division processes an average of more than \$4 trillion in payment flows daily. Payment and receivable flows through the Citi payment network reveal that despite economic headwinds, global trade flows remain strong and have continued to normalize in 2023 following the pressures experienced in 2022 after the onset of war in Ukraine.

Payment Flows in January to September 2023 vs. January to September 2022

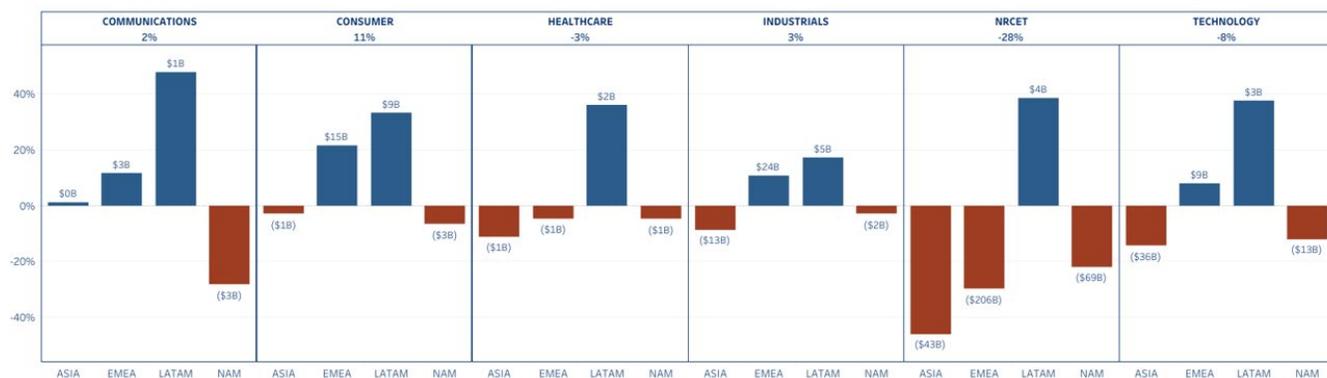
Overall payment flows in the period from January to September 2023 fell by 13%, recovering slightly from the period ending in August (which saw flows down 17%). The Natural Resources and Clean Energy Transition (NRCET) segment exhibited the biggest drop in flows, posting a decline of 28% for the same period compared to the prior year as the impact of sanctions against Russia began to permeate through markets.

Latin America payment flows increased by 29%, benefiting from a growth in flows across all industries. Growth in domestic flows within Mexico and Brazil also illustrates the economic resilience of both countries.

The Consumer segment showed notable growth, increasing 11% compared to the previous year, followed by the Industrials segment, which grew 3% from the prior year. Growth in flows into Mexico (up 40%), Great Britain (up 71%), and Poland (up 108%) accounted for much of the Consumer segment flow growth, while overall growth of flows into EMEA (up 11%) drove much of the growth in Industrials.

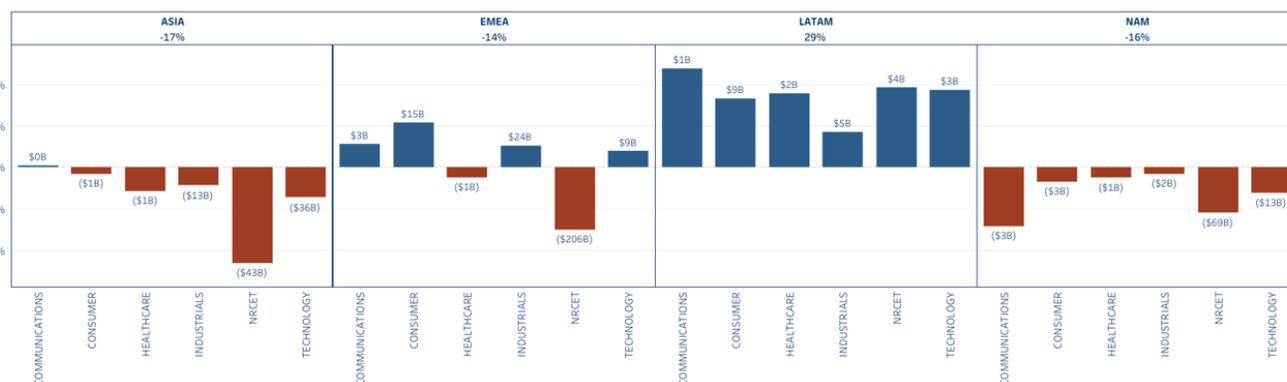
Communications flows were up 2%, albeit down nearly 28% in North America. Technology flows were down 8% as a whole, led by a 14% decrease in flows into Asia. The pressure on Technology segment flows stems from inventory challenges the industry continues to face. Healthcare rounds out the industry segments, down 3%, with flows in all regions (except Latin America) decreasing.

Figure 15. Supply Chain Shift Analysis by Sector (% Change in Payment and Receivable Flows YTD 2023 vs. YTD 2022, as of September 2023)



Source: Citi Services

Figure 16. Supply Chain Shift Analysis by Region (% Change in Payment and Receivable Flows YTD 2023 vs. YTD 2022, as of September 2023)



Source: Citi Services

Quarterly Analysis (July to September 2023 vs. April to June 2023)

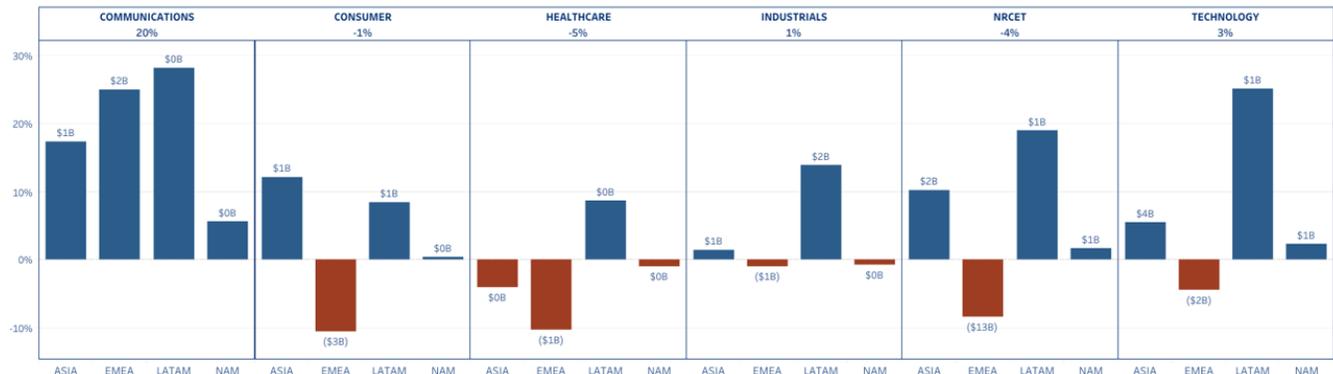
Payment flows in the third quarter of 2023 were nearly flat compared to the second quarter, down marginally by 0.4%. There was growth in quarter-over-quarter flows for Communications (up 20%), Technology (up 3%) and Industrials (up 1%). Decreases in flows were seen in Consumer (down 1%), NRCET (down 4%) and Healthcare (down 5%). Again, Latin America led other regions in growth (up 14%), while Asia and North America increased 5% and 1%, respectively. EMEA posted a decline of 5% on a quarter-over-quarter basis.

From the second to the third quarter of 2023, Communications was the only segment to show growth in all four regions, led by growth in Latin America (up 28%), EMEA (up 25%), Asia (up 17%), and North America (up 6%). Additionally, growth in the Great Britain-to-Ireland corridor and the Great Britain-to-Germany corridor ranked as the most significant.

Despite impressive year-to-date growth (January to September 2023) of 11% in the Consumer segment, quarter-over-quarter growth saw a marginal drop of 1%. Decreases in domestic flows in Portugal, Lebanon, and Great Britain were responsible for the drag in the third quarter.

In the Industrials segment, Latin America was strong, growing 14% from the second to the third quarter. The decrease in domestic flows in Germany, home to a considerable Industrials sector, was the largest single decrease of any country-to-country corridor.

Figure 17. Supply Chain Shift Analysis by Region (% Change in Payment and Receivable Flows Q3 vs. Q2, as of September 2023)



Source: Citi Services

Figure 18. Month-on-Month Growth in Flows Across Regions



Source: Citi Services

Why Working Capital Matters and How to Improve It

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While there is speculation that U.S. Federal Reserve interest rates have peaked and may begin declining in mid-2024, rates are currently at a two-decade high, and the landscape faced by corporates is starkly different from 18 months ago. The need for accessible financing during the pandemic highlighted the importance of working capital management for supply chain resilience. For much of 2023, the Fed's message was "higher for longer" as it pertained to rates, pivoting later in the year to a message of not holding onto high rates for too long.

Since the Global Financial Crisis of 2008 and the subsequent challenges presented by the 2020 global pandemic, working capital management has become a strategic imperative for corporate treasuries. The focus on preserving capital is increasingly paramount, prompting corporations to rethink their reliance on commercial paper issuance and revolving credit lines.

To counter the current high cost of capital, corporations are seeking to optimize their cash conversion cycle (CCC). Buyers are negotiating to extend payment terms, while sellers are quickening the pace of receivables collection. Improving working capital management not only frees trapped liquidity but also allows companies to fuel operations, invest in strategic plans, and embrace new technologies and sustainability initiatives. At the same time, it delivers a higher total shareholder return (TSR) and return on invested capital (ROIC), ultimately enhancing a company's valuation.

Boosting Shareholder Returns

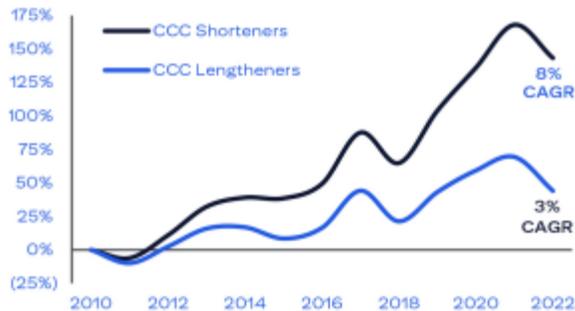
Citi's Financial Strategy Group (Citi FSG) analyzed the relationship between working capital management and investor benefits for MSCI All Country World Index (ACWI) constituents. The conclusion was clear: Those companies that consistently shortened their CCC more than the sector median achieved superior cumulative sector-adjusted total shareholder returns compared to peers that lengthened their CCC. CCC shorteners achieved a TSR of 143% from 2010 to 2022, with a compound annual growth rate (CAGR) of 8%. In contrast, lengtheners only managed a TSR of 44% with a CAGR of 3% during the same period.

The impact extends to ROIC, where consistent CCC shorteners demonstrated a 0.4% average increase relative to their sector, while lengtheners experienced a 0.4% decrease. Furthermore, companies with shortened CCCs exhibited superior median annualized sales growth of 7.4%, outpacing lengtheners at 5.9%.

Industries with complex supply chains typically have the greatest opportunity for working capital savings. Within industries, working capital practices vary widely given unique sales cycles and supply chain challenges, particularly in the post-COVID-19 era. This means that many companies have scope for improvement. According to analysis by Citi's FSG, in 2022 there was a 91-day difference in the CCC of the top-quartile firms compared to the bottom-quartile firms across all industries.

Figure 19. Companies that Reduced CCC had Superior TSR

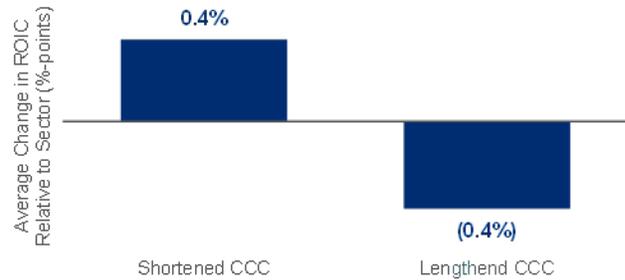
Median cumulative sector-adjusted TSR by change in CCC



Source: FactSet, Citi Financial Strategy Group

Figure 20. Companies that Reduced CCC Experienced ROIC Outperformance

Average change in ROIC, relative to sector, for companies by change in CCC (% points)



Source: FactSet, Citi Financial Strategy Group

How to Shorten the Cash Conversion Cycle

To enhance their CCC, corporations should analyze the components of the cash conversion cycle: days payable outstanding (DPO), days sales outstanding (DSO), and days inventory outstanding (DIO).

To better understand how best-in-class corporates have improved their cash conversion cycles over time, Citi Global Trade Working Capital Advisory examined the evolution of different components of the cash conversion cycle for S&P Global 1200-listed corporates (representing roughly 70% of global market capitalization) that shortened their CCC from 2010-22.⁴

The leading driver of shortened CCC is improved DPO, with consistent CCC shorteners showing a median increase of 18 days. To improve DPO, corporates are standardizing payment terms in line with their CCC and industry peers. Many are partnering with banks for supply chain finance (SCF) programs, offering early payment of suppliers' invoices at an attractive rate, leveraging the buyer's often higher credit rating, while extending payment terms. Dynamic discounting works in a similar way to SCF but enables the buying company to use its excess short-term cash to fund early payment of approved supplier invoices, rather than using the balance sheet of the bank providing the SCF-liquidity management solution. Another lever to aid DPO improvement is letters of credit with extended terms and bank confirmations, which can mitigate counterparty risk as well as maximize working capital.

According to Citi's Working Capital Advisory Team, the median DSO for consistent CCC shorteners improved by six days from 2020 to 2022.⁵ Shortening DSO requires corporates to collect on sales faster. At the same time, customers are seeking ways to extend their payment terms, putting upward pressure on DSO.

⁴ Citigroup is not acting in any advisory role in relation to Legal, Tax, or Accounting issues relating to this structure or otherwise. All companies should obtain their own Legal, Tax, or Accounting advice in relation to your evaluation.

⁵ Citi Treasury & Trade Solutions, "[Working Capital Efficiency Generates Significant Value](#)," September 2023

A way to address this dilemma is accounts receivable (AR) financing solutions, which aims to monetize receivables and remove trapped cash from DSO. The availability of trade credit insurance has broadened the range of AR structures available, helping corporates to cut DSO while simultaneously supporting their customers with extended payment terms. Sales finance programs can be structured to help expand sales abroad without tying up capital.

Despite pandemic pressures, DIO — the time it takes a company to convert its inventory into sales — has improved by two days for S&P Global 1200-listed corporates that shortened their CCC from 2010-22. Sound inventory management is critical to working capital efficiency. Corporates may improve DIO by utilizing deep-tier financing to reach further down the supply chain to support the working capital needs of suppliers' suppliers. Similarly, purchase order finance supports suppliers through the pre-shipment phase and bolsters their ability to hold inventory on their balance sheets to meet the buyer's needs.

The Time Is Now

In a world of elevated funding costs and growing operational complexity, a focus on efforts to improve working capital management can reduce dependence on external funding, unlock trapped liquidity, and ultimately give corporations additional strategic flexibility. It can:

- **Boost TSR and ROIC:** Maximizing cash flow can benefit investors by supporting superior TSR and ROIC.
- **Improve liquidity:** Better working capital management provides an added buffer against changes in demand by reducing the amount of cash trapped within an organization.
- **Expand dry powder for acquisition finance/capital expenditure:** Enabling corporates to be opportunistic when it comes to their growth strategy.
- **Diversify funding sources:** Through trade financing arrangements, qualified corporates may add additional sources of capital to their funding mix, reducing reliance on existing sources.
- **Promote supply chain stability:** Proactively assess and support the working capital needs of the supply chain and sales channels for resilience and growth.

To achieve these benefits, corporates should consider:

- Setting high but realistic working capital goals by designing an optimization strategy based on their business model, capital needs, and industry benchmark.
- Implementing a working capital program with a best-in-class governance structure that includes a champion at the senior executive level (such as CFO).
- Harmonizing payables terms by utilizing solutions such as SCF, virtual cards, and corporate and purchasing cards.
- Accelerating receivables via sales financing and portfolio AR finance.

2023 Supply Chain Supplier Survey

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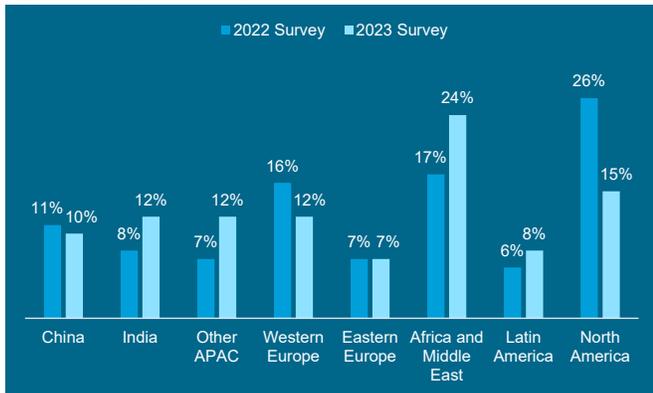
Over the past few years, Citi Treasury & Trade Solutions has worked closely with supply chain finance suppliers to capture their perspectives through several surveys. The objective continues to be to understand the challenges and opportunities facing suppliers and to develop best-in-class offerings to satisfy their evolving needs. The breadth of Citi Supply Chain Finance (SCF) programs offers the ability to capture perspectives across a diverse global supplier base.

In 2022, Citi Treasury & Trade Solutions sent global survey to a subset of suppliers enabled on Citi SCF programs. The goal was to understand changes in perspective amid the turmoil that had rattled global supply chains for the prior two years. These results were summarized and published in our January 2023 Citi GPS report titled [Supply Chain Finance: Uncertainty in Global Supply Chains is Going to Stay](#).

One year later in October 2023, we shared a refreshed survey with 29,000 suppliers enrolled in Citi SCF programs, most of whom were SMEs. The survey serves as a pulse check on supply chains, with 2023 largely demonstrating a return to normal for many industries, regions, and businesses. Although many questions in the survey were identical to those in the 2022 version, we introduced new questions to capture fresh perspectives and themes, particularly those relating to onshoring and nearshoring, adoption of artificial intelligence (AI) business tools, and the impact of rising rates and inflation.

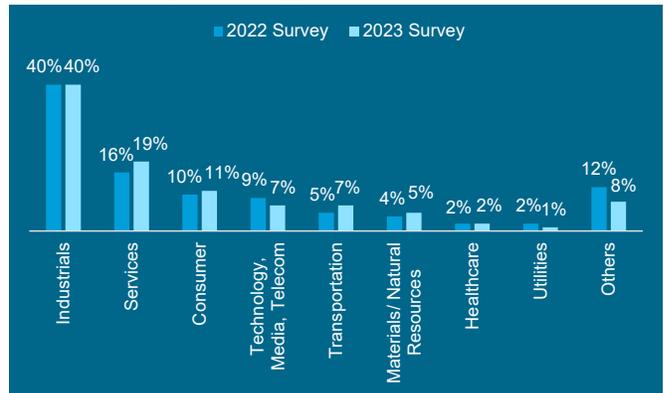
Supplier demographics in the 2023 survey largely mirror those from 2022, although there was a noticeable increase of responses from the Africa and Middle East region in 2023 (Figure 21).

Figure 21. Supplier Headquarters Location



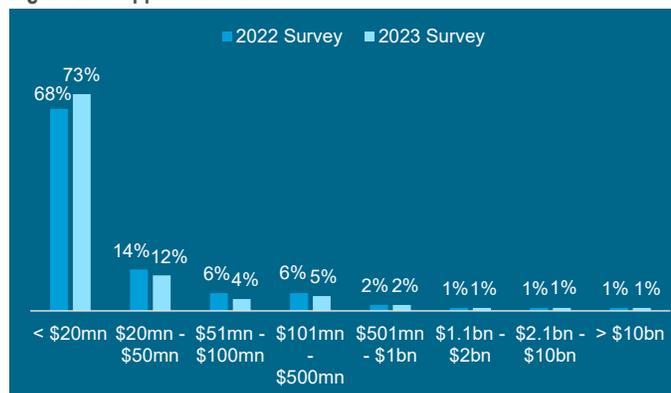
Source: Citi Treasury & Trade Solutions

Figure 22. Primary Sectors Supplied



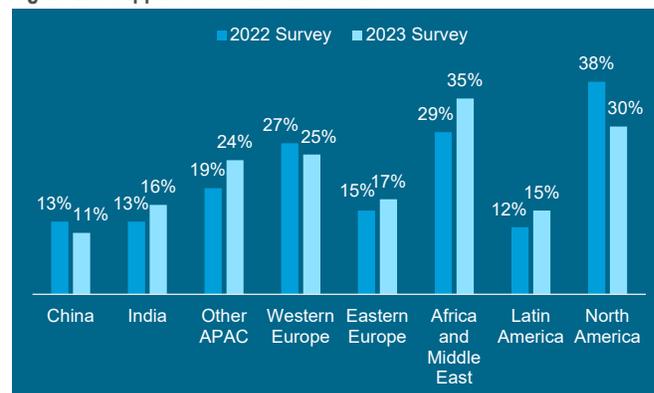
Source: Citi Treasury & Trade Solutions

Figure 23. Supplier Revenues



Source: Citi Treasury & Trade Solutions

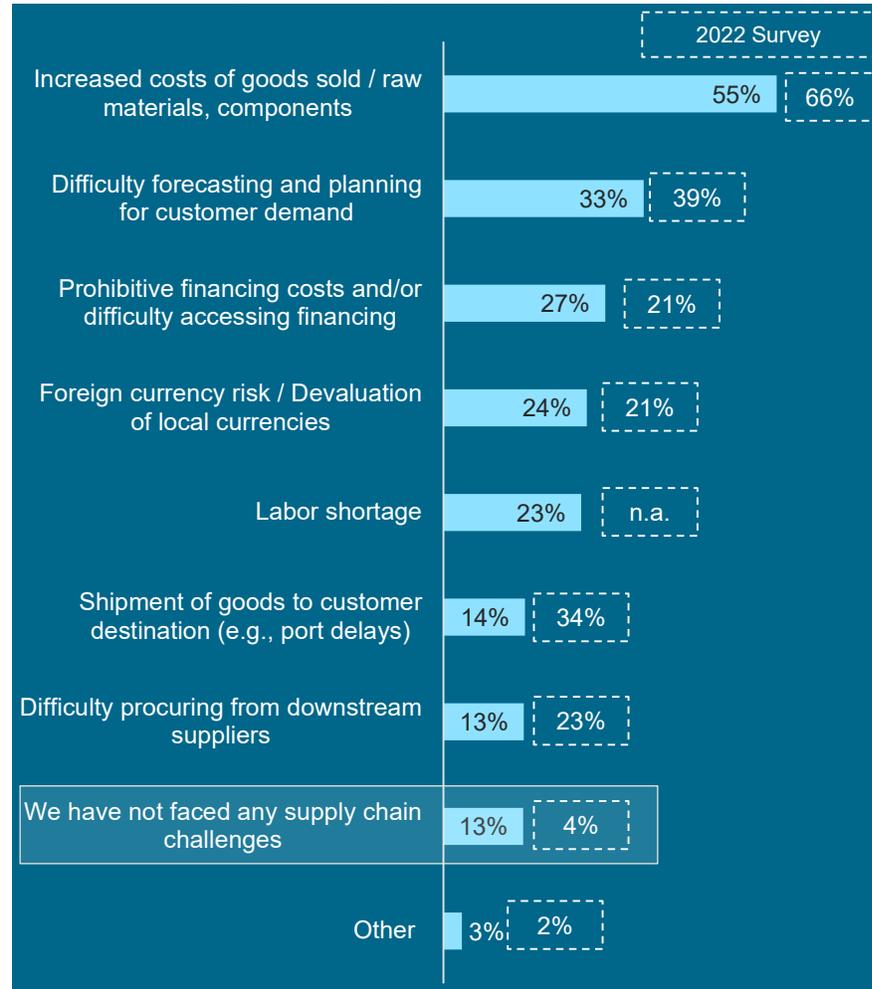
Figure 24. Supplier Customer Locations



Source: Citi Treasury & Trade Solutions

The latest survey confirms our understanding that there has been an easing of supply chain pressures and challenges globally. As shown in Figure 25, when asked about the challenges facing their businesses in 2023, 13% of respondents stated they have not faced any supply chain challenges — over triple the share of respondents answering similarly in 2022. Moreover, 14% of respondents listed shipment delays as a challenge in 2023, down from 34% in 2022. Difficulty forecasting and planning for customer demand remained the second-most common challenge faced in 2023, cited by 33% of respondents. While this share is smaller compared to 2022 levels, it remains substantial, as businesses operate with uncertain global economic forecasts, influenced by monetary policy decisions and global geopolitical turmoil.

Figure 25. What Challenges Has Your Organization Faced in 2023?

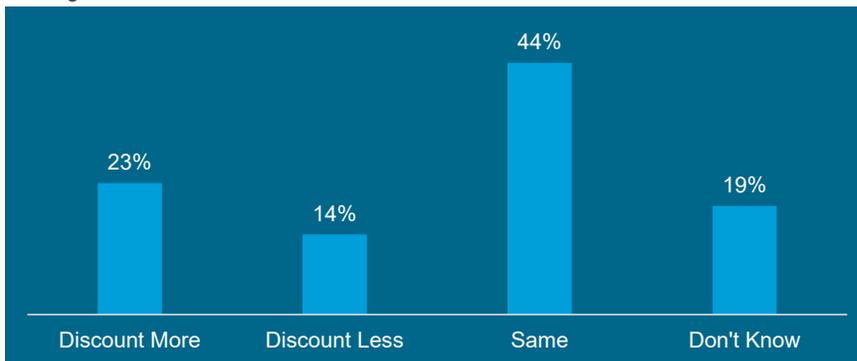


Source: Citi Treasury & Trade Solutions

In 2023, a higher percentage of suppliers noted they were struggling with prohibitive financing costs and/or were having difficulty accessing financing. This was mentioned by 27% of suppliers, up from 21% in 2022. We note that in the time between the two surveys, the U.S. Federal Reserve hiked rates six times — bringing the federal funds rate up to 5.25%–5.5% from 3%–3.25%, as well as bringing the total number of rate hikes to 11 since March 2022. When asked how rising rates have influenced capital investment decisions, 63% of suppliers said they elected to be more cautious. This is particularly true for suppliers based in Asia, excluding India. Companies headquartered in India answered most frequently with “No Change” and “More Aggressive About Capital Expenditure” responses. One potential reason for this regional nuance is discussed later in our examination of regionalization and “China Plus One” strategies.

In the January 2023 Citi GPS report [Supply Chain Finance](#), we highlighted the attractiveness of SCF to suppliers from a cost of credit perspective. Even so, we asked suppliers if they elected to discount more or less in SCF offerings in 2023 compared to 2022.

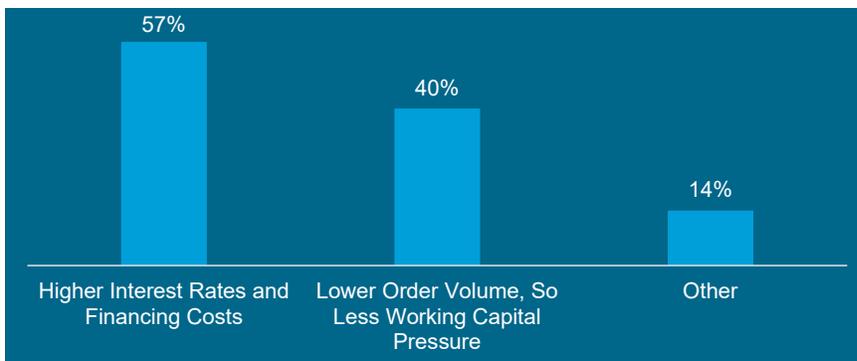
Figure 26. Has Your Company Elected to Discount More or Less in Supply Chain Financing Offerings in 2023 vs. 2022?



Source: Citi Treasury & Trade Solutions

Sixty-seven percent of respondents said they discounted more or the same as in 2022 (Figure 26). Among the 14% who indicated discounting less, the most commonly cited reason was higher interest rates, followed by less working capital pressures due to lower order volumes (Figure 27). As observed earlier in the report, suppliers have seen normalization in lead times and ordering cadences. Companies are now better capitalized for production and are experiencing fewer “order booms” that can put immense stress on production and working capital, leading to potential backlogs and delays.

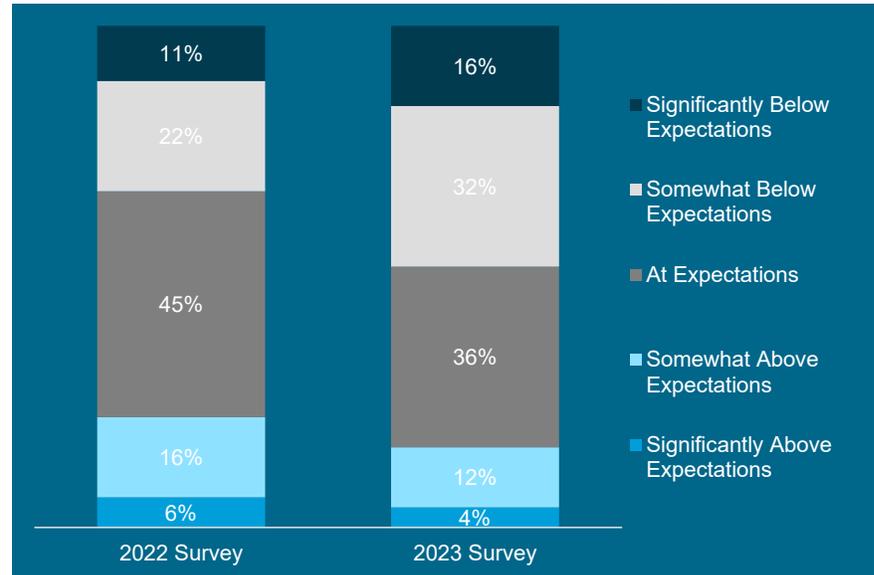
Figure 27. Why Are You Discounting Less in Supply Chain Financing Offerings in 2023 vs. 2022?



Source: Citi Treasury & Trade Solutions

Signs of easing pressures were also evident from suppliers’ comments on their new sales order volumes. In 2023, 48% of suppliers indicated new orders were either somewhat or significantly below expectations, compared to 33% in 2022 (Figure 28).

Figure 28. How Do Customer New Sales Order Volumes Compare to Expectations?



Source: Citi Treasury & Trade Solutions

The effects of regionalization and nearshoring/onshoring of supply chains are evident when we break down the data by region. As shown in Figure 29, suppliers headquartered in China reported new sales order volumes falling below expectations most often. This comes at a time when the appeal of China as a manufacturing destination has weakened amid strained Chinese relations with the West, higher interest rates, and lessons from COVID-related supply chain disruptions. Conversely, Latin American suppliers reported the strongest new sales order volumes versus sales expectations, demonstrating the region's increasing presence in the global trade arena.

Figure 29. Customer New Sales Order Volumes vs. Expectations by Region

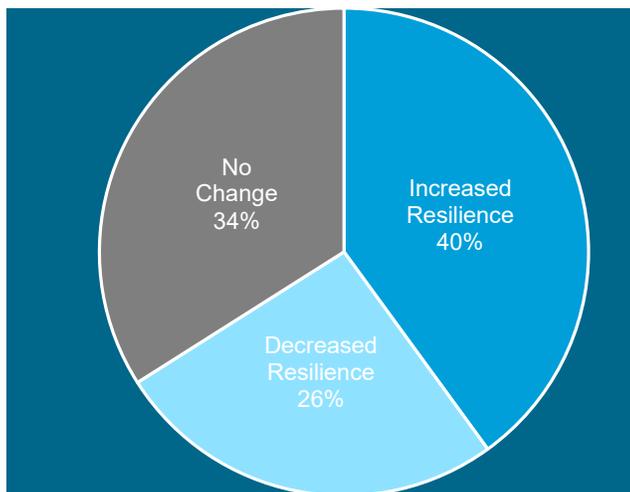
		Significantly Below Expectations	Somewhat Below Expectations	At Expectations	Somewhat Above Expectations	Significantly Above Expectations
Headquarters Location	China	13%	43%	37%	6%	1%
	India	15%	28%	40%	11%	6%
	Other APAC	16%	38%	30%	11%	6%
	Western Europe	13%	26%	45%	13%	4%
	Eastern Europe	11%	35%	41%	10%	3%
	Africa/Middle East	24%	31%	29%	11%	4%
	Latin America	10%	21%	39%	23%	7%
	North America	16%	31%	35%	16%	3%

Source: Citi Treasury & Trade Solutions

Regionalizing supply chains is a well-documented business practice and a growing priority for many companies in recent years. Over one-third of respondents said their organization has focused on nearshoring and onshoring, with a greater percentage of larger suppliers opting for regionalization. For these suppliers, we asked a series of questions to better understand the perceived benefits and challenges associated with this practice.

Notably, 40% of suppliers perceived regionalization as leading to increased resilience (Figure 30), with 55% of North American suppliers sharing that view. However, a significant portion of suppliers noted there was either “No Change” or “Decreased Resilience” with regionalization. Chinese suppliers were most likely to respond with “Decreased Resilience” (44%), demonstrating the divergence in views across regions.

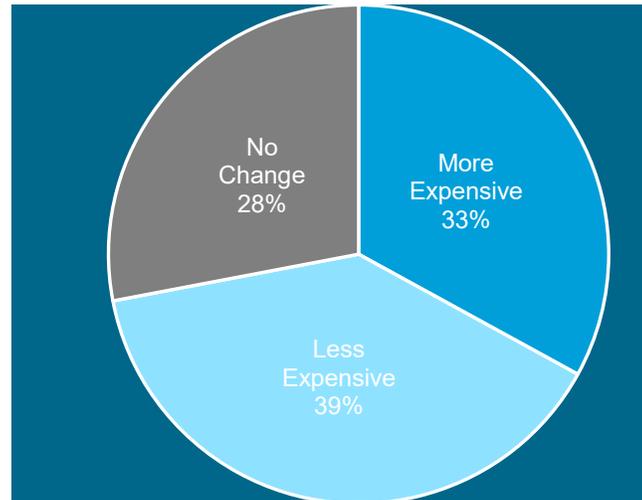
Figure 30. How Do You Perceive the Impact of Regionalization on Supply Chain Risk and Resilience?



Source: Citi Treasury & Trade Solutions

When asked how regionalization will impact transportation and logistics costs, respondents gave mixed answers (Figure 31). However, larger suppliers were more likely to say regionalization has led to a reduction in costs, potentially showing their scale, influence on vendor relations, and ability to leverage existing infrastructure and processes. Latin American and North American suppliers were most likely to say regionalization has increased transportation costs. This highlights the regional differences between areas with established low-cost production-to-shipment infrastructure and areas that historically have imported many goods and services.

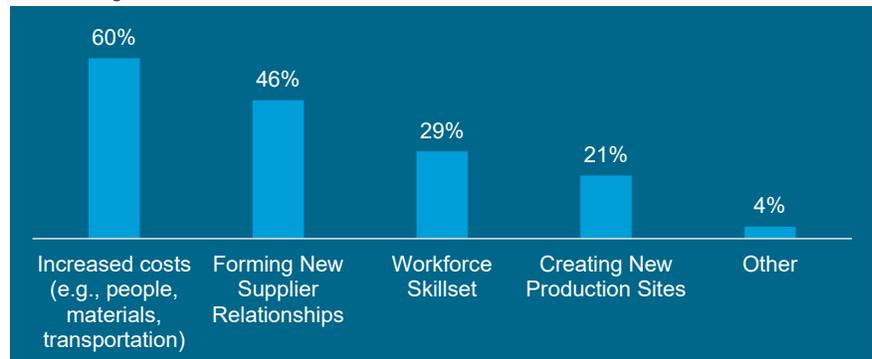
Figure 31. How Have Regionalized Supply Chains Impacted Your Logistics and Transportation Costs?



Source: Citi Treasury & Trade Solutions

An overall increase in costs was the top challenge associated with regionalization, followed by difficulties in forming new supplier relationships and obtaining workforce skills (Figure 32).

Figure 32. What Are the Biggest Challenges You Have Faced With Onshoring and Nearshoring?



Source: Citi Treasury & Trade Solutions

Specifically regarding regionalization, many organizations are implementing a “China Plus One” strategy to diversify production and supply chain activities across more locations. Figure 33 highlights the countries to which suppliers have either already moved production or considered doing so. India was the most frequently mentioned country. Interestingly, when Indian-headquartered suppliers were asked about their biggest challenges faced with onshoring, they reported the highest levels of difficulty in finding a workforce with an appropriate skillset. This could potentially foreshadow a tougher-than-expected transition away from China and into India for certain companies, depending on the industry and expertise required for production.

Figure 33. Countries Selected or Under Consideration as Alternative Locations to China



Source: Citi Treasury & Trade Solutions

As in 2022, suppliers were asked to rank a number of supply chain-related decisions and themes on a scale from one (most important) to six (least important). As shown in Figure 34, just-in-case versus just-in-time inventory was the highest priority among respondents in 2023, whereas resilience was the top priority in 2022. AI and data-driven decision-making proved to be the lowest priority.

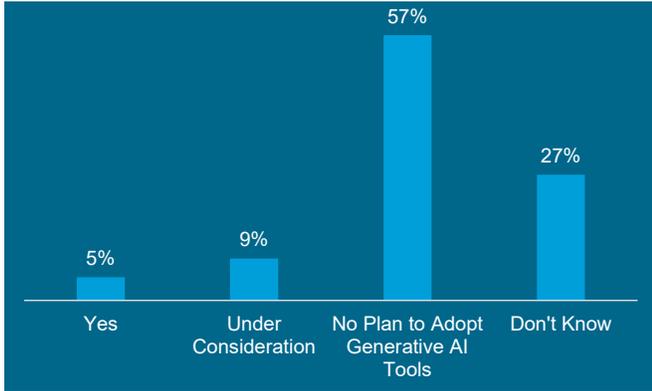
Figure 34. How Would You Rank the Following Supply Chain Decisions in Terms of Your Organization's Priorities?



Source: Citi Treasury & Trade Solutions

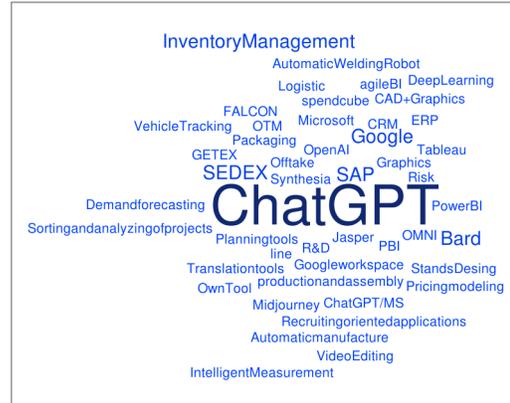
Looking further into technology deployment, only 5% of respondents reported having adopted some sort of generative AI tool, with 9% saying it was under consideration (Figure 35). 2023 proved to be a breakthrough year for generative AI, both in terms of applications and social awareness. We believe this technology will be a key metric to monitor in the coming years as business use cases and adoption rates continue to grow.

Figure 35. Has Your Organization Adopted Any Generative AI Tools?



Source: Citi Treasury & Trade Solutions

Figure 36. Tools Implemented or Under Consideration



Source: Citi Treasury & Trade Solutions

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2023 Large Corporate Survey

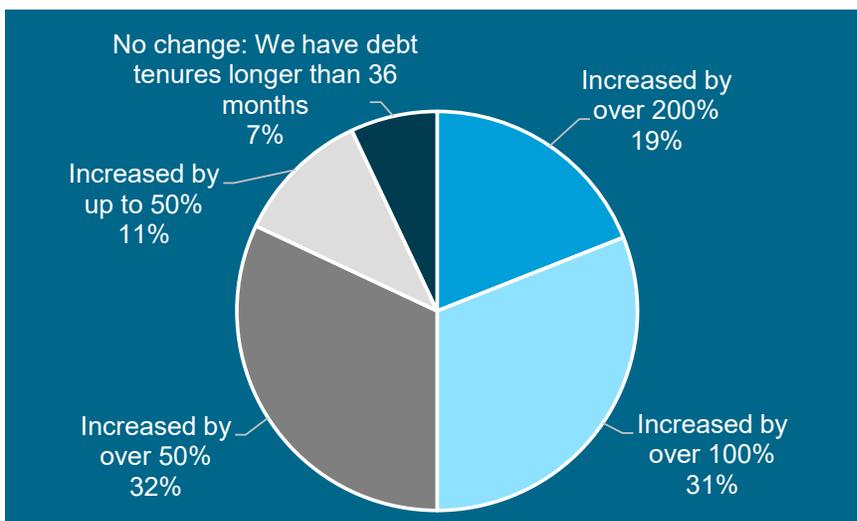
Diversification and Digitalization Are Priorities

In 2022, Citi partnered with East & Partners, a global B2B financial markets research firm, to conduct primary voice-of-the-corporate research on the challenges, resiliency, and futures of large companies' supply chains. The insights were compelling, providing a view into the challenges corporates faced related to their supply chains. In 2023, Citi continued its partnership with East & Partners, surveying over 700 respondents in December from the world's largest and most complex organizations. Some questions were retained from the previous survey to allow for comparison, and new questions were added that were relevant to the current supply chain landscape.

More than a quarter of survey respondents in 2022 shared that the war in Ukraine and the U.S.-China relationship were top of mind. Hence, geopolitical tensions ranked as one of the largest risks to supply chain funding stability. At the same time, having just seen the U.S. Federal Reserve deliver its fourth consecutive jumbo 75-basis-point rate increase, 45% of respondents were concerned about economic headwinds: 18% feared the collapse of major suppliers in their supply chain network, 17% saw an economic recession as a threat, and 11% identified rising inflation and interest rates as their main concern.

One year later, the effects of prolonged elevated rates continue to permeate different areas of operations, particularly interest expense, as preexisting debt continues to mature and corporates have to borrow at higher costs. Debt-linked interest expense has at least doubled or tripled for 50% of global respondents, while interest costs have more than doubled for 60% of respondents across EMEA and the Americas. Asia Pacific stands out as an exception: Only 35% of respondents saw interest costs more than double, as the low-rate environment insulated the region from dramatic debt finance cost increases.

Figure 37. How Much Has Your Total Debt-Linked Interest Expense Changed in the Last 6-12 Months?

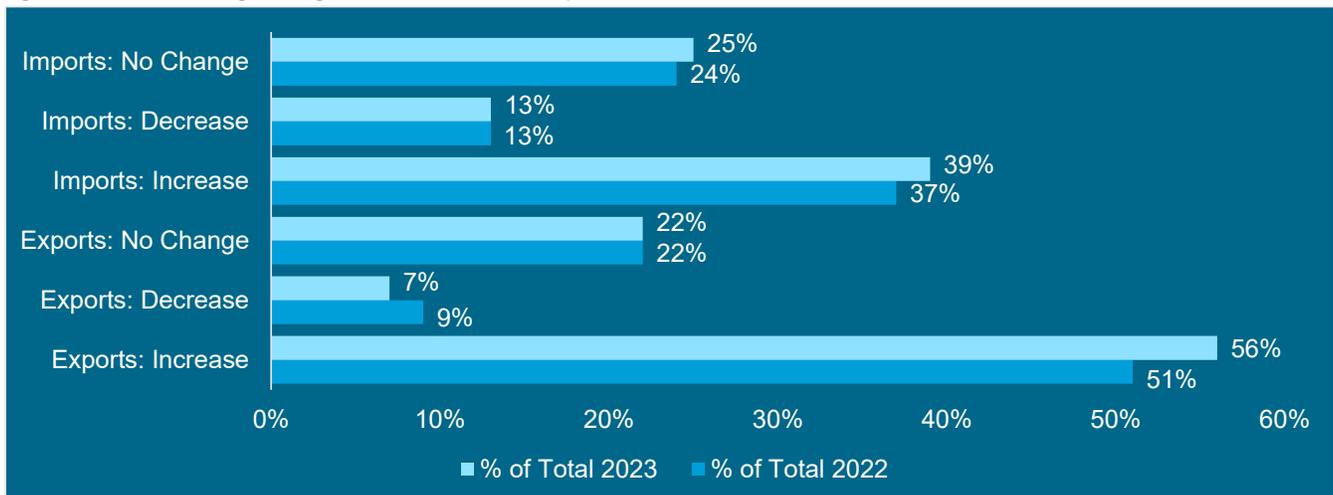


Note: Charts are for illustrative purposes only, and subject to change.
 Source: East & Partners Large Corporate Survey 2023, Citi Services

When asked about how their total cost of debt was being managed, some corporates responded they were renegotiating terms with their major lenders (35%) and/or investigating off-balance sheet financing (34%). Larger corporates sometimes seek to pursue one or both of these measures. However, smaller corporates — which ordinarily have weaker credit profiles — often do not have the same options available to them.

Respondents to this year's SME supplier survey appeared less optimistic than in the previous year regarding their outlook on sales order volume, with 48% confirming that sales order volume fell slightly below expectations compared to 33% in 2022. Responses from the large corporate survey offer an interesting juxtaposition, as 56% indicated that they anticipate an increase in export volumes in the next six months, compared to 51% in the year before (Figure 38). Overall, based on survey results, large corporates may be better positioned to weather changes in the economic cycle. Moreover, their optimistic outlook also comes at a time when many believe rates have peaked in the U.S. and in Europe. These findings underpin the importance of buyer-led financing programs and their role in supporting suppliers, especially those with limited access to capital.

Figure 38. What Percentage Change in Volume Do You Anticipate in the Next Six Months For:



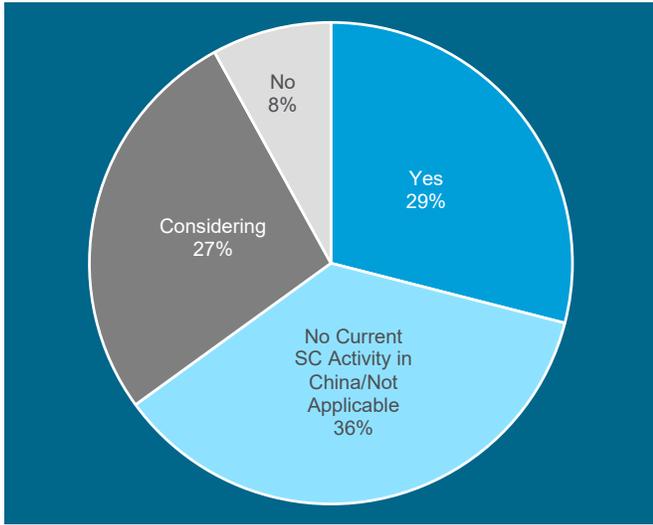
Note: Charts are for illustrative purposes only, and subject to change.

Source: East & Partners Large Corporate Survey 2023, Citi Services

Diversification

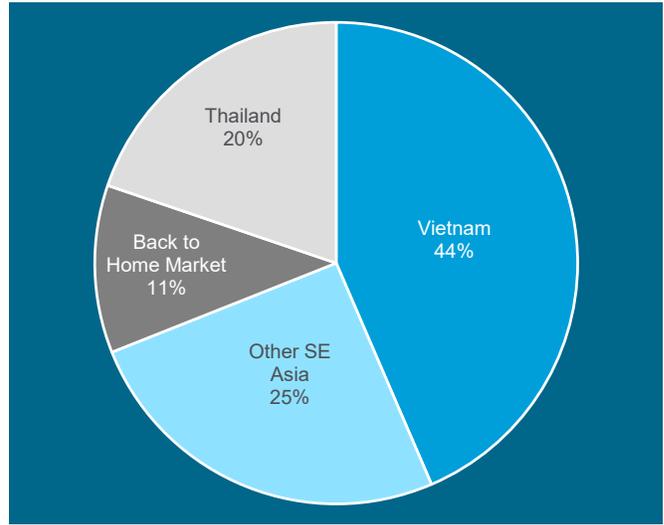
In 2023, we asked large corporate respondents if they were considering adopting a “China Plus One” strategy as a way to diversify their supply chains: 56% of global respondents indicated they already had or were considering adopting such a strategy; North America led the other regions with 63%. Outside of China, Vietnam was the preferred secondary destination, except in Latin America, where respondents were more likely than those in other regions to express a preference for bringing production back to their home market.

Figure 39. Has Your Organization Implemented a “China Plus One” Strategy (Diversifying Production and Supply Chain Activities Outside China)?



Note: Charts are for illustrative purposes only, and subject to change.
Source: East & Partners Large Corporate Survey 2023, Citi Services

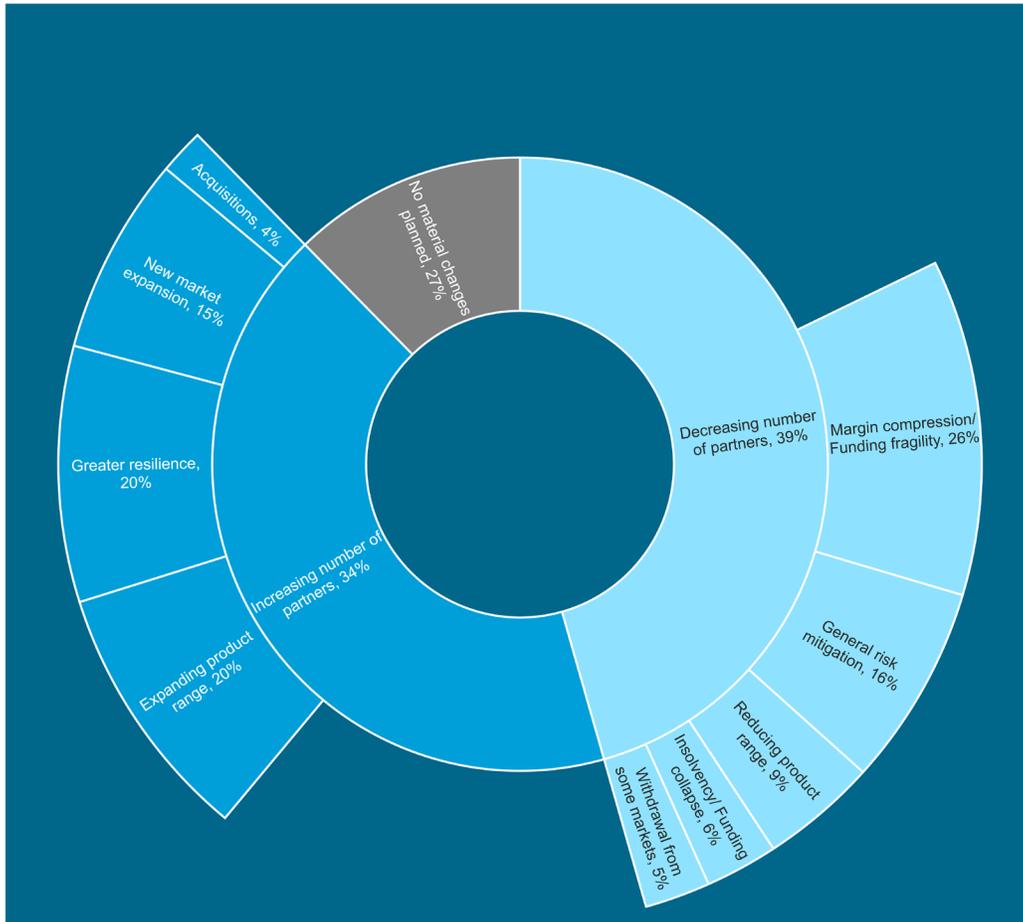
Figure 40. If You Answered "Yes" or "Considering," to Which Country?



Note: Charts are for illustrative purposes only, and subject to change.
Source: East & Partners Large Corporate Survey 2023, Citi Services

Many corporates appear to be exploring diversification options to increase resiliency while satisfying new demands. When asked whether they were increasing or decreasing their number of supply chain partners, respondents were more likely to indicate they were decreasing the number of partners (39%) than increasing them (34%). Among those who indicated an increase in supply chain partners, rationales for the action were evenly divided between increasing resiliency and expanding product range. For those decreasing their number of supply chain partners, margin compression and funding fragility was the favored reason, followed by general risk mitigation.

Figure 41. Specifically, Why Are You Planning to Increase/Decrease the Number of Supply Chain Partners in Your Network?



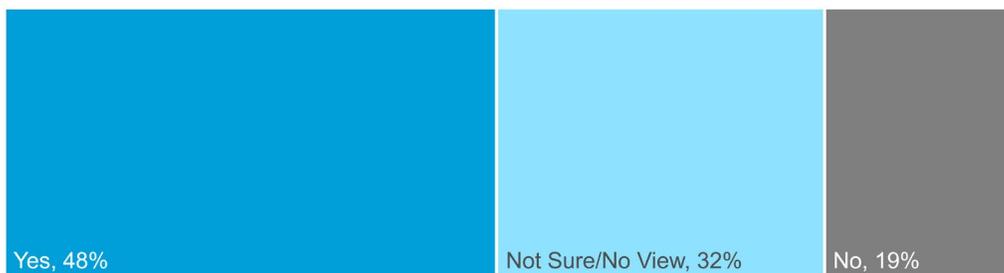
Note: Responses sum to over 100% due to multiple responses being enabled. Charts are for illustrative purposes only and subject to change.

Source: East & Partners Large Corporate Survey 2023, Citi Services

Digitalization

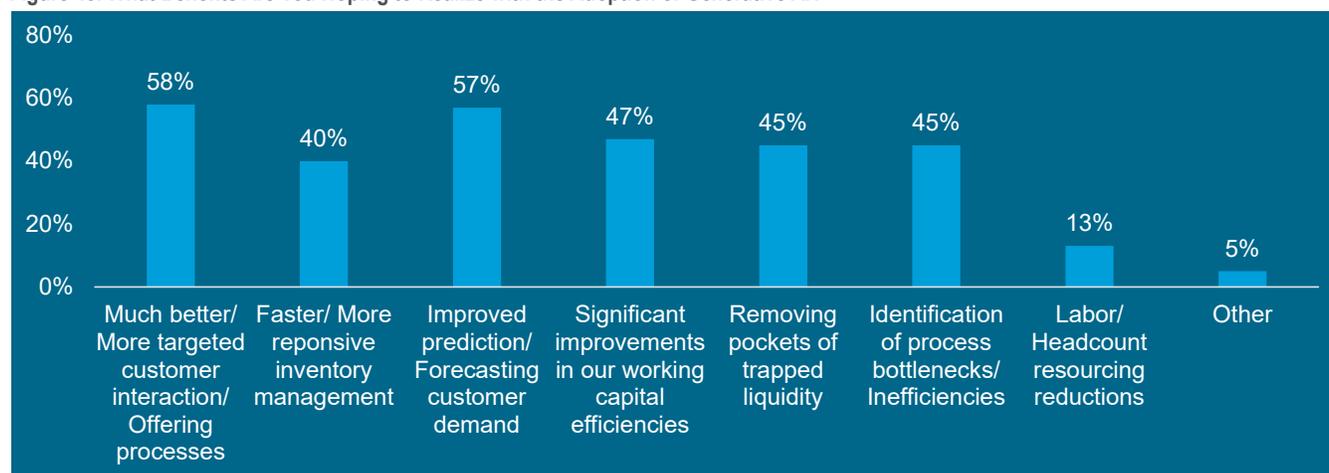
This pattern of supply chain diversification comes at a time when global trade participants are increasingly embracing new technological and digital capabilities. Historically, trade has been a paper-based, labor-intensive process, making the industry an excellent candidate for innovation. As shown in Figure 42, 48% of large corporate respondents said that they will increase their spending allocation for newer technologies such as generative AI (with an average intended increase in spend of 26%). The potential rewards derived from generative AI are perceived to be significant: 58% of respondents expect better customer interactions, while 57% anticipate improved customer demand forecasting (Figure 43). Interestingly, in a question where respondents could select multiple answers, only 13% of the total responses indicated an expectation that generative AI would facilitate reductions in headcount.

Figure 42. Will You Be Increasing Your Spend Allocation for Newer Technologies, Such as Generative AI?



Note: Charts are for illustrative purposes only and subject to change.
 Source: East & Partners Large Corporate Survey 2023, Citi Services

Figure 43. What Benefits Are You Hoping to Realize with the Adoption of Generative AI?



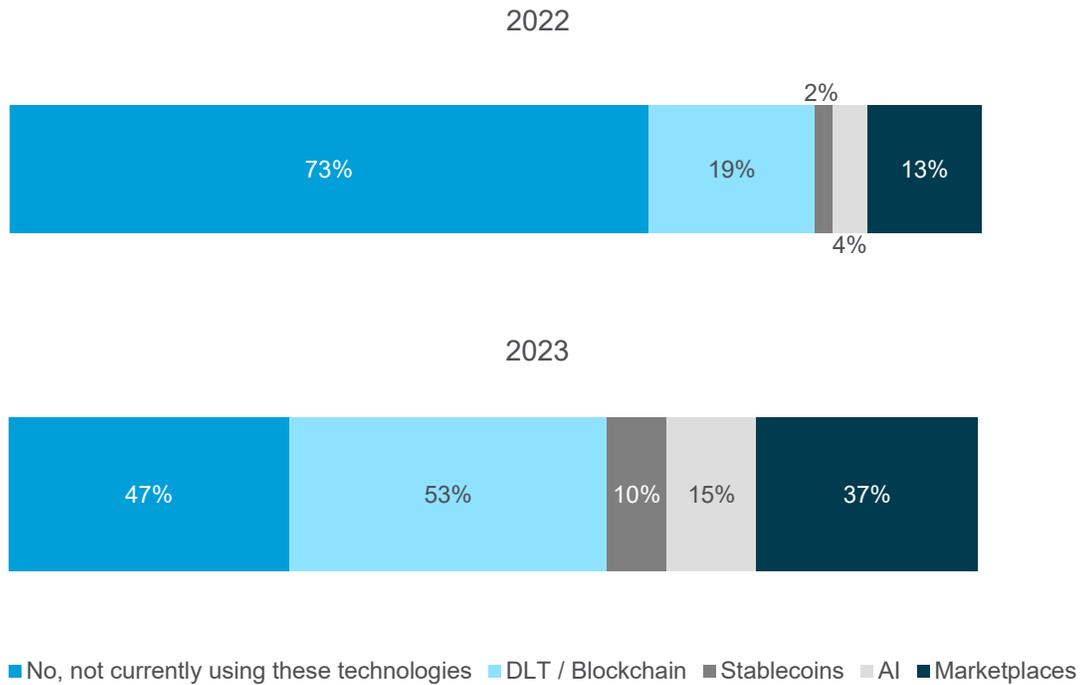
Note: Responses sum to over 100% due to multiple responses being enabled. Charts are for illustrative purposes only and subject to change.
 Source: East & Partners Large Corporate Survey 2023, Citi Services

In 2022, respondents were asked if they were using new digital technologies, such as blockchain, distributed ledger technology (DLT) or marketplaces, for trade: 73% indicated they were not. This share dropped to 47% in 2023 (Figure 44). Specifically, 53% used DLT and blockchain, up from 19% in 2022.

Reflecting the paper-based, labor-intensive nature of legacy supply chain financing solutions, smart contracts were selected by the largest share of respondents (29%) as the function yielding the greatest bottom-line benefit to large corporates (Figure 45). Smart contracts represent an exciting use of DLT and blockchain within trade. By defining programable business rules, users can codify, inspect, and execute financing 24/7 while simultaneously reducing human error and fraud. Furthermore, internet of things (IoT) capabilities, such as the ability for devices to transmit and receive data, can amplify these benefits by providing information about measurable elements, such as temperature and geolocation, that could determine whether the terms of a contract are satisfied.

Looking to the future, respondents identified smart contracts as their main investment priority in the coming six to 12 months (62%), as shown in Figure 46. Another important focus for investment was foreign exchange (FX) risk management (31%). FX risk is ever-present in global trade, and effective management remains a chief area of importance for multinationals, especially as many are considering how they might reconfigure their global supply chains.

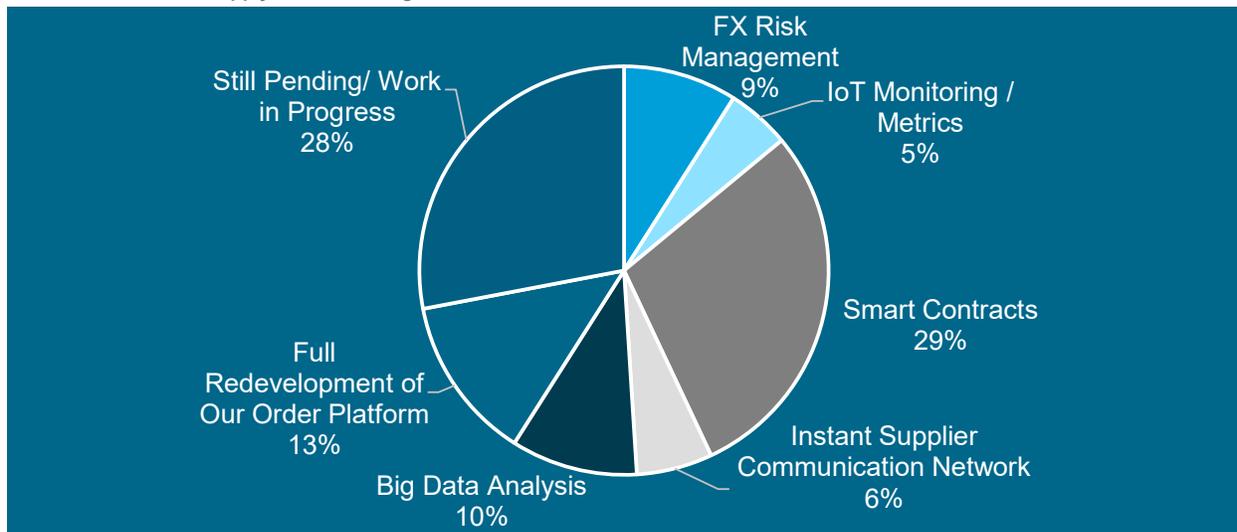
Figure 44. Are You Using New Digital Technologies for Trade, Such as Blockchain, DLT, or Marketplaces?



Note: Responses sum to over 100% due to multiple responses being enabled. Charts are for illustrative purposes only and subject to change.

Source: East & Partners Large Corporate Survey 2023, Citi Services

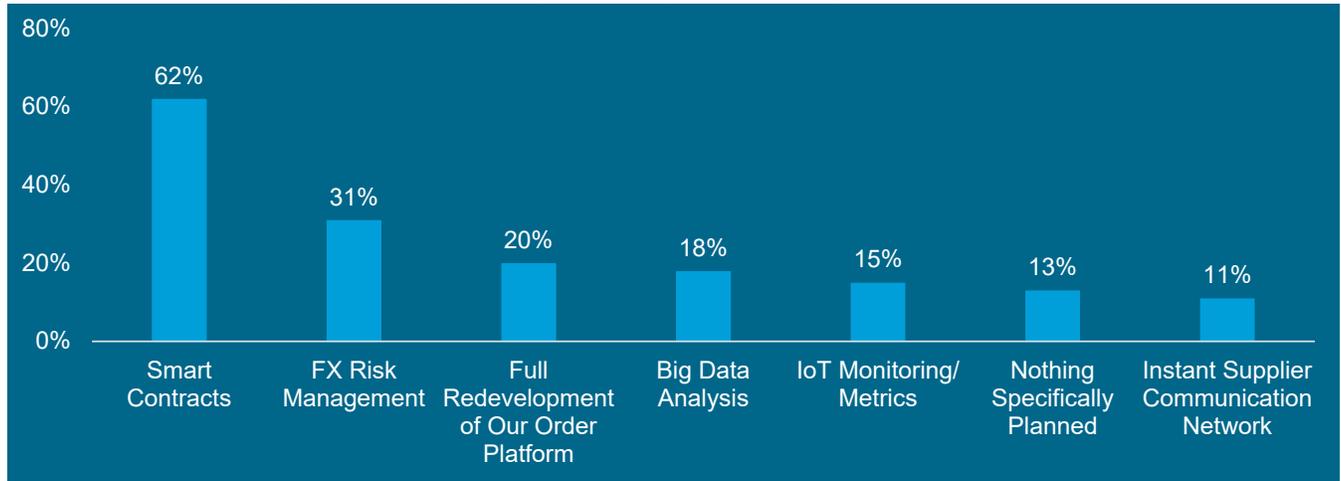
Figure 45. What Real-Time Supply Chain Funding Functions Have Had the Greatest Defined Benefit to Your Bottom Line?



Note: Charts are for illustrative purposes only and subject to change.

Source: East & Partners Large Corporate Survey 2023, Citi Services

Figure 46. What Real-Time Supply Chain Funding/Visibility Functionality Are You Planning to Invest In Over the Next 6-12 Months?

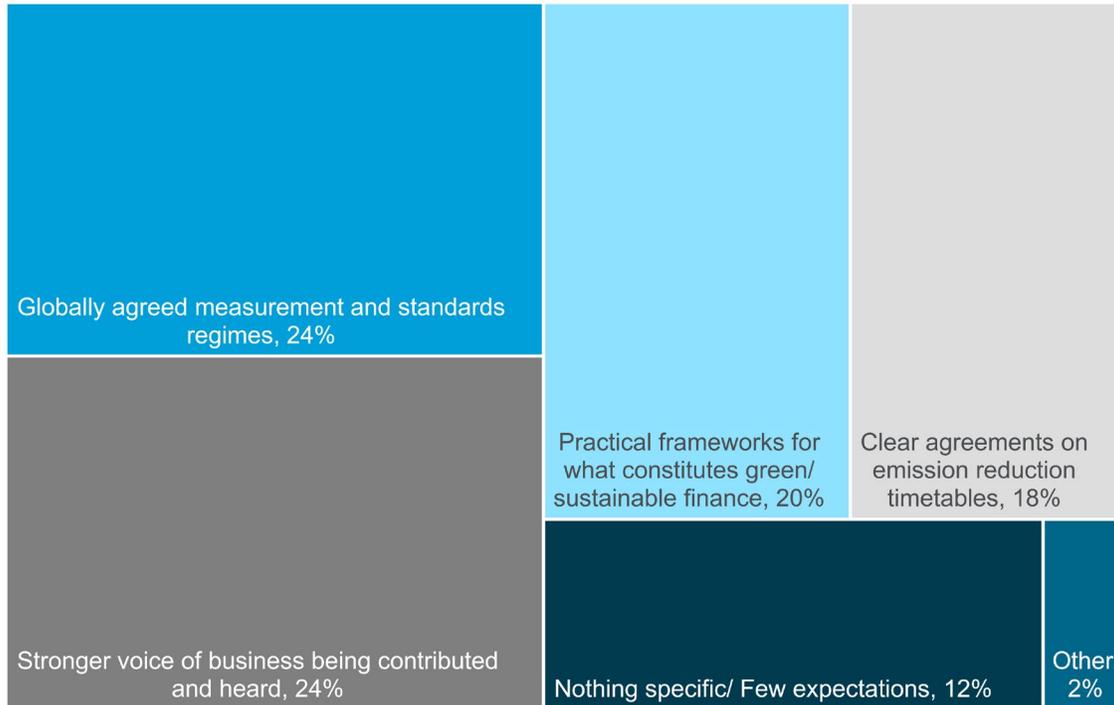


Note: Responses sum to over 100% due to multiple responses being enabled. Charts are for illustrative purposes only and subject to change.
 Source: East & Partners Large Corporate Survey 2023, Citi Services

ESG

The 2023 UN Climate Change Conference (COP28) closed in Dubai with nations agreeing to an unprecedented transition away from fossil fuels. The agreement, known as the UAE Consensus, calls on countries to contribute to transition efforts. For large corporates, meeting and progressing on environmental, social, and governance (ESG) goals and standards is a key focus. Eighty-eight percent of respondents globally provided a response when asked about their most pressing climate or sustainability agenda item, with only 12% indicating that they had no specific or few expectations about the topic (16% of respondents in Asia Pacific gave this answer; perhaps surprisingly given the EU’s focus on addressing sustainability, so did 13% of EMEA respondents). Respondents were focused on the need for a globally agreed-upon measurement and standards regime (24%) and the need for a stronger voice of business to be heard on ESG issues (24%).

Figure 47. With Regards to the UN COP28 Conference in the UAE in November 2023, What Is the Most Pressing Climate/Sustainability Agenda Item Relevant to Your Organization?



Note: Charts are for illustrative purposes only and subject to change.

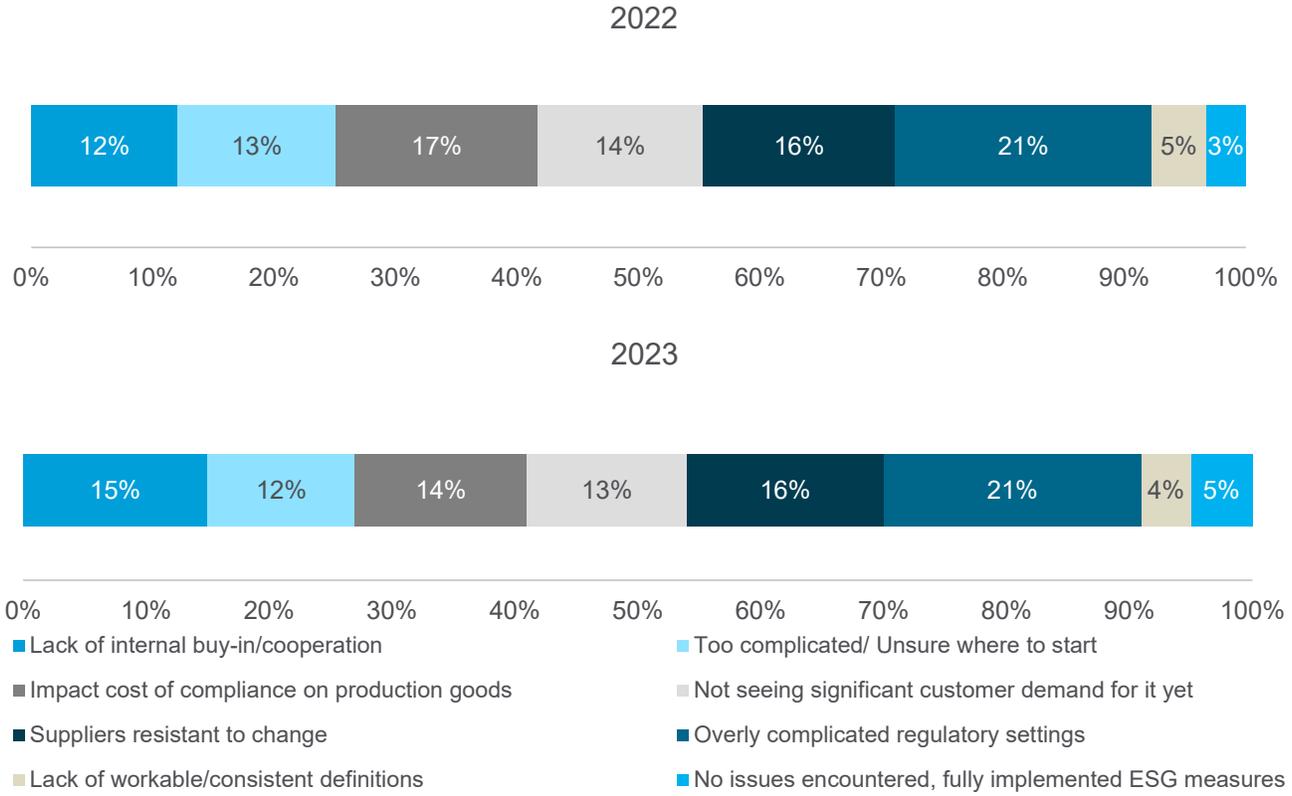
Source: East & Partners Large Corporate Survey 2023, Citi Services

Integrating ESG measures across supply chains can be challenging for large corporates. In 2022, just 3% of respondents reported they had not encountered issues with this and had fully implemented their ESG measures; in 2023, that percentage improved marginally to 5% (Figure 48). The potential main issue preventing greater integration of ESG measures across supply chains — in both years — is the lack of consistency in ESG definitions (21%). Similarly, an important issue for corporates when incorporating green financing into their funding plans is the absence of agreed and clear definitions of green finance (35%), as shown in Figure 49. Meanwhile, 38% of respondents said they encountered limited availability of suitable debt funding products.

In line with these findings, 37% of respondents had no sustainability-linked loan (SLL) or similar borrowings planned (Figure 50). Embedding ESG incentives, particularly within supply chain funding structures, remains an important way for corporates to progress their ESG mandates. Export and Agency Finance can be a driver to help corporates finance their transition strategies, enabling both public and private financing for a defined use of proceeds, which can be green, social, or sustainability-focused.

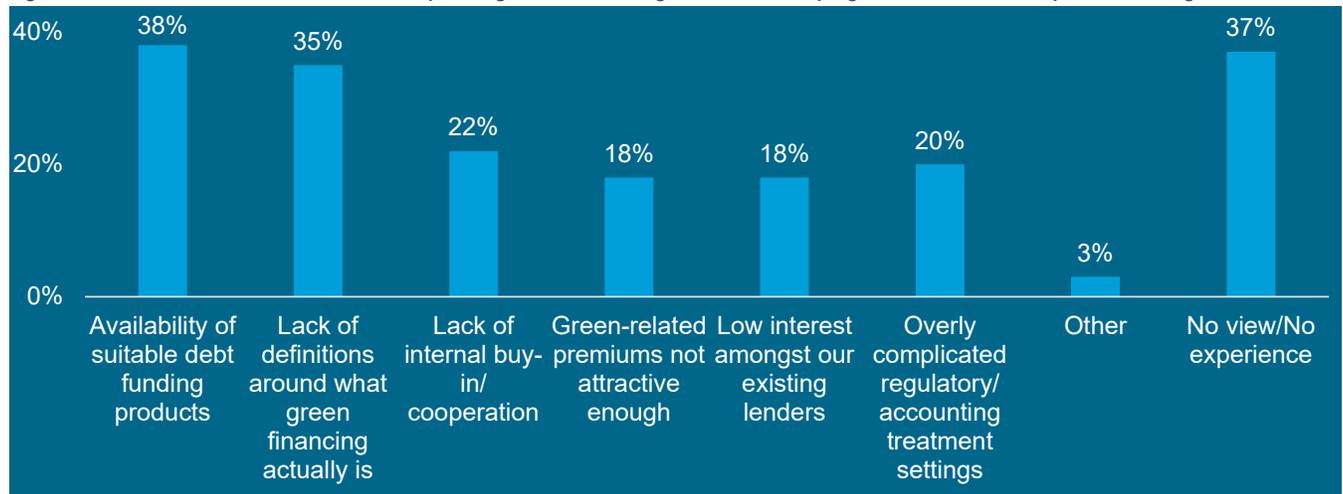
Green-linked supply chain financing was selected by 22% of respondents as a sustainability-linked solution they plan to utilize in the next six to 12 months — second only to term secured loans (24%). Large global relationship banks provide multinational corporates with trade services and potential solutions to meet the organizations' needs.

Figure 48. What Is the Main Issue Preventing Greater Integration of ESG Measures Across Your Supply Chain?



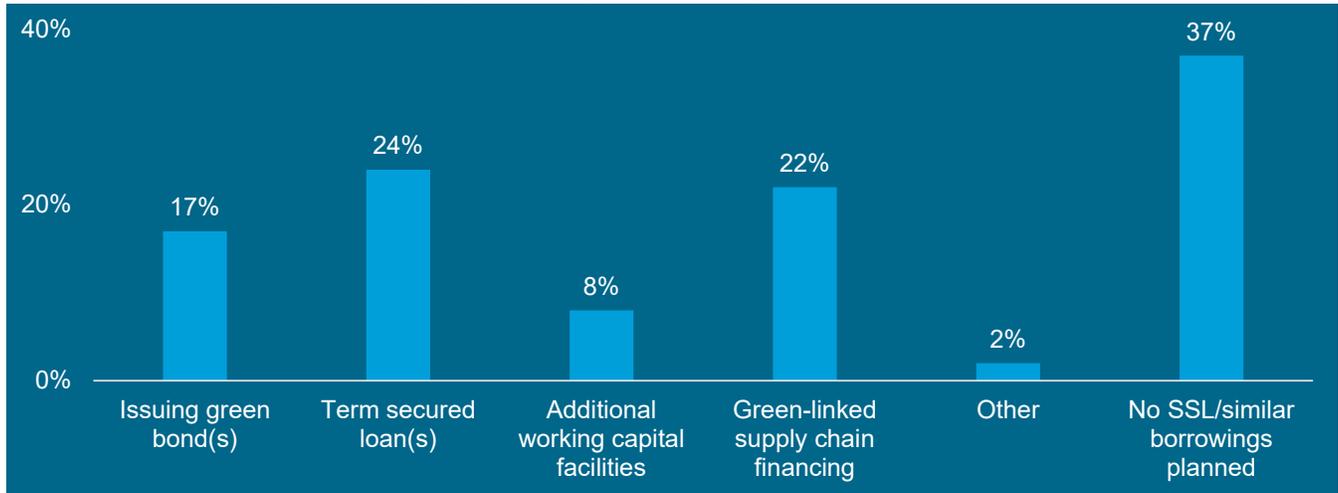
Note: Charts are for illustrative purposes only and subject to change.
 Source: East & Partners Large Corporate Survey 2023, Citi Services

Figure 49. What Issues Have You Faced Incorporating Green Financing in All Its Developing Forms Into Your Corporate Funding Plans?



Note: Responses sum to over 100% due to multiple responses being enabled. Charts are for illustrative purposes only and are subject to change.
 Source: East & Partners Large Corporate Survey 2023, Citi Services

Figure 50. What Sustainability-Linked Loans (SLL) or Financing Are You Planning in the Next 6-12 Months?



Note: Responses sum to over 100% due to multiple responses being enabled. Charts are for illustrative purposes only and are subject to change.

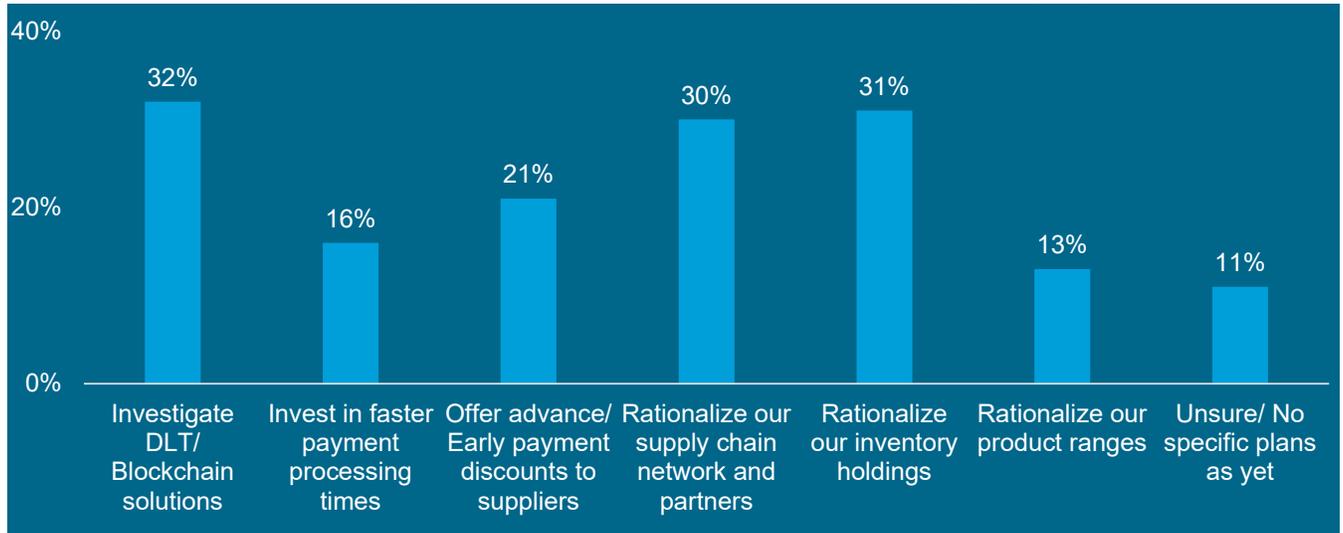
Source: East & Partners Large Corporate Survey 2023, Citi Services

Inventory Management Strategy

A resilient financial supply chain is essential to ensure a resilient physical supply chain. Corporates can find value by examining their cash conversion cycle (CCC) and its components: days sales outstanding (DSO), days inventory outstanding (DIO), and days payable outstanding (DPO). Supply chain disruptions in 2022 had a profound impact on inventory management strategies. Corporates moved from a “just-in-time” to a “just-in-case” inventory strategy by holding additional buffer stock to continue meeting customer demand. In the 2023 survey, 31% of respondents indicated plans to rationalize (i.e., improve the efficiency of) their inventory holdings in the next six to 12 months to relieve cashflow constraints and release trapped liquidity; 32% plan on investigating DLT and blockchain solutions (Figure 51).

DIO metrics have deteriorated for survey respondents, with the percentage of those reporting 40%-60% of working capital tied up in DIO increasing from 23% to 29% (Figure 52). DPO metrics were mixed as corporates, whether successful or not, attempt to manage terms along industry standards. As shown in Figure 53, the percentage of those with 20%-40% of their working capital tied up in DPO decreased by 10 percentage points from 2022, while the number of respondents saying 40%-60% of their working capital is tied up in DPO was five percentage points lower. Those saying more than 60% is tied up similarly increased by four percentage points.

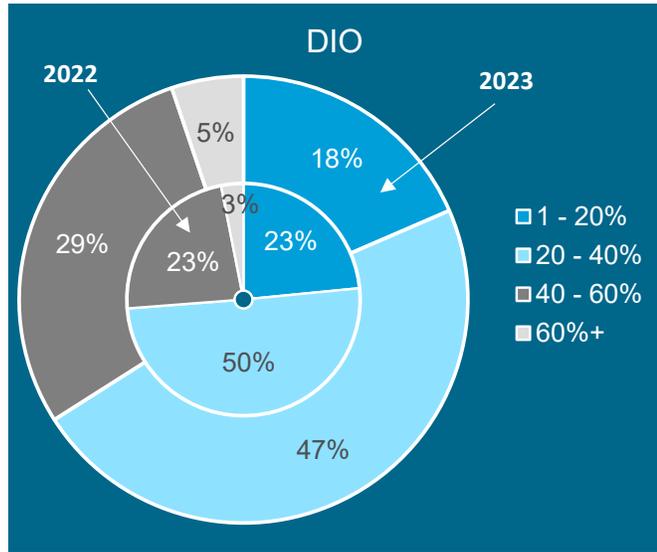
Figure 51. What Measures Are You Planning to Undertake to Relieve Cashflow Constraints/Release Trapped Liquidity in the Next 6-12 Months?



Note: Responses sum to over 100% due to multiple responses being enabled. Charts are for illustrative purposes only and are subject to change.

Source: East & Partners Large Corporate Survey 2023, Citi Services

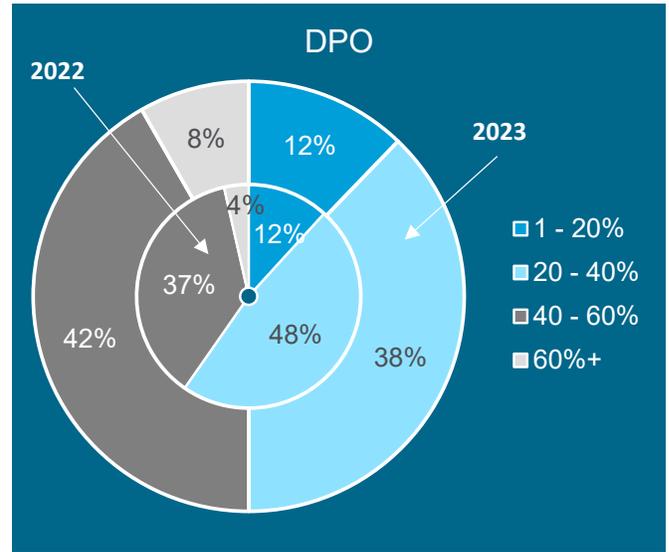
Figure 52. What Percentage of Your Working Capital Is Tied Up in Days Inventory Outstanding (DIO)?



Note: Responses sum to over 100% due to multiple responses being enabled. Charts are for illustrative purposes only and are subject to change.

Source: East & Partners Large Corporate Survey 2023, Citi Services

Figure 53. What Percentage of Your Working Capital Is Tied Up in Days Payable Outstanding (DPO)?



Note: Responses sum to over 100% due to multiple responses being enabled. Charts are for illustrative purposes only and are subject to change.

Source: East & Partners Large Corporate Survey 2023, Citi Services

Pauline Kontos

Global Head of Trade and Working Capital
Advisory
Citi Services

Parvaiz Hamid Husen Dalal

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Boosting Supply Chain Resiliency

For companies of all sizes, and particularly small and medium-sized enterprises (SMEs), working capital is a key component of holistic treasury management, especially at a time when many corporates are facing elevated borrowing costs. Periodically, and through different periods in the economic cycle, corporates can unlock value by revisiting these strategies and adopting solutions that are supportive of both their current business and future goals.

Working Capital Optimization

The intent behind any working capital optimization strategy is the same for both large or small companies — to adopt an efficient working capital operating strategy, which is in line with industry standards, building in resiliency to withstand disruption, and maintain ample liquidity for operations and investment in strategic initiatives for growth. However, SMEs face additional challenges compared to their larger peers. High interest rates have a greater impact on SMEs, which often have more limited access to capital and face higher borrowing costs than larger firms, underscoring the importance of stable access to liquidity for these businesses.

As noted by Citi's economists earlier in this report, economic growth could slow in 2024 as higher interest rates impact the global economy. Improving the efficiency of inventory holdings will therefore continue to be an area of focus: Certain industries can benefit from maintaining lean inventory holdings; for others, maintaining buffer stock outweighs the opportunity cost of having insufficient inventory to meet customer demand. There are many well-known tools available to treasurers to formulate a working capital strategy and improve the resiliency of their supply chains. However, corporates large and small are considering working capital solutions in order to maximizing liquidity.

Supporting Supply Chain Resiliency

Corporates with a global presence have been extremely active in managing payment terms as a way to maximize working capital for some time. While organizations are focused on maximizing working capital efficiency, they also appreciate the fragility of their global supply chains and recognize the importance of maintaining their suppliers' resiliency throughout the economic cycle and especially during times of high borrowing costs.

Buyers can support suppliers by implementing a supply chain finance (SCF) program. SCF has been available for over 20 years and is the preferred tool of global corporates for supporting working capital initiatives while simultaneously embedding resiliency within their supply chains by providing suppliers with a channel to access reliable funding at an efficient rate. Public-sector partners can amplify these programs to reach the most vulnerable suppliers. In the SME supplier survey, increased cost of goods sold and raw materials was the number-one challenge faced by respondents. Dynamic discounting is one way that buyers can counteract these margin pressures by enabling suppliers to receive early payment from their customers at a favorable rate, with the buyer realizing the discount as a cost reduction.

Corporates recognize the detrimental effects a supplier collapse would have on their overall supply chains. Product offerings such as purchase order (PO) finance and deep-tier finance focus on extending financing deeper down the supply chain, ensuring capital reaches those companies that need it most. PO finance is growing in popularity to support the needs of SME suppliers by providing financing at the purchase order stage. It offers pre-shipment financing to support suppliers' upfront working capital needs and their ability to fulfill larger buyers' orders. PO finance is helpful in this environment, as suppliers are tasked with holding higher levels of inventory. Deep-tier finance can support the needs of tier 2 and tier 3 suppliers to ensure that they are able to access financing at an efficient rate.

Aligning ESG and Trade Finance Objectives

Making meaningful progress on sustainability issues remains both a challenge and opportunity for global corporates large and small. As corporates consider their overall working capital strategy, it is important to recognize that trade finance solutions can play a key role.

Corporates can partner with a large global relationship bank, such as Citi, to tailor a potential solution that meets their specific goals. Trade services such as supply chain finance and trade and working capital loans are flexible and well suited for sustainability-related adaptations. Third-party providers can help corporates define the criteria that matters most to them and devise a framework to enable them and their suppliers to gauge their position and progress on these measures.

For example, when a European industrial and consumer conglomerate wanted to accelerate its sustainability journey in Asia, it realized that it needed to join forces with its suppliers, which can also impact relevant sustainability metrics of the producer.

The solution was a sustainable supply chain finance program aimed to increase and incentivize sustainability practices across the ecosystem. Under this system, the buyer worked with Citi to build out a second program for suppliers that could meet its sustainability metrics to apply for and potentially qualify for financing at a preferential rate. The buyer partnered with a sustainability rating provider to provide independent assessments, which are reviewed accordingly.

Facilitating New Trade Opportunities

As corporates reexamine their global supply chain footprint and devise new offerings, SMEs have an opportunity to insert themselves into new and existing global trade corridors. Selecting the right working capital strategy can be accretive to corporates' cross-border ambitions. For corporates operating across borders, trade finance solutions are an important component of a company's holistic financing and risk mitigation structure.

Sovereign governments have long helped manufacturers export goods to the rest of the world. Increasingly, they also play a role in helping their home countries secure access to critical components and materials. Export credit agencies (ECAs) are an important partner to global corporations; many are now embracing new applications for their offerings.

As global trade patterns are reevaluated, companies are trading with new suppliers and new customers. To help mitigate cross-border risk and counterparty risk, letters of credit (LCs), one of trade financing's oldest tools, are an important solution for corporates of any size to facilitate trading activities. Through features such as extended payment terms and LC discounting, these traditional trade financing products can also enhance the efficiency of working capital management.

ECA Financing Supports Groundbreaking Manufacturing Facility

To help meet the fast-growing demand for electric vehicles (EVs) in North America, Solus, a major producer of copper foil used in EV batteries, sought to build a copper foil manufacturing facility in Canada, the first of its kind in North America.

To bring Solus' ambition to fruition, it wanted to employ an export credit agency (ECA) financing structure. The transaction was supported by a consortium of financial services firms and was unique in that it involved a partnership between Korea Trade Insurance Corporation (K-SURE) and Export Development Canada (EDC), a first for the two ECAs.

In Canada, copper foil is a key component in EV battery production and the plant provides a stable supply of an essential component with growing demand. The transaction also resulted in substantial foreign direct investment in Canada and will support the creation of high-skill and high-wage jobs.

Supporting Sales and Customer Resiliency While Managing DSO

Companies are looking for ways to satisfy their customers' requests for longer payment terms while simultaneously limiting the impact to days sales outstanding (DSO). Treasurers place a premium on liquidity given the uncertain economic outlook and are keen to collect on sales faster. Enhancing liquidity can not only help organizations weather volatility, but it also allows them to exploit opportunities as they emerge.

Accounts receivable (AR) finance solutions are already utilized by corporates of all sizes around the world as a way to supplement liquidity while managing DSO. Increasingly, savvy treasurers are using structured solutions, such as portfolio accounts receivable finance, which can be tailored to a corporate's specific needs and offers an efficient mechanism for infusing sales channels with liquidity.

Trade credit insurance has existed for some time and has been an effective tool to mitigate risk on a single customer and portfolio basis. Governments in many countries, including India and Bahrain, have adapted their trade credit insurance policies to enable their local corporates to seize opportunities.⁶ By securing insurance coverage and digitalizing the receivables monetization process, global corporates and their banks have been able to reshape AR finance into a modern offering that provides efficient funding.

Where jurisdictions permit, corporates are enhancing their AR finance programs through the inclusion of tax receivables, such as the ones offered by countries' research and development (R&D) incentives.⁷ The windfall from the monetized tax receivables can give organizations, especially smaller ones, an important source of liquidity, especially when looking for ways to finance R&D and strategic investments.

⁶ [IRDAI Issues Revised Trade Credit Insurance Guidelines](#), The Times of India, September 10, 2021; [Export Bahrain Signs MoU with ICIEC to Broaden Export Credit Insurance Solutions](#), Bahrain News Agency, June 5, 2022.

⁷ Citigroup is not acting in an any advisory role in relation to Legal, Tax, or Accounting issues relating to this structure or otherwise. All companies should obtain their own Legal, Tax, or Accounting advice in relation to your evaluation.

For corporates operating in jurisdictions with restrictive capital controls, rather than committing their own capital to a region, trade and working capital eLoans offer a valuable alternative that can help organizations avoid cash pooling in jurisdictions with strict currency controls. By using a lender's capital for working capital as opposed to their own, corporates can avoid having to inject liquidity into countries where they cannot easily repatriate funds.

AR Solution Leverages R&D Incentive to Provide Cost Efficient Liquidity

For many corporates, research and development (R&D) accounts for a significant portion of their capital expenditure. For governments, incentivizing R&D can be a significant contributor to economic activity, yielding quality jobs within their country, among other benefits. While several countries offer some form of R&D tax incentive, few are as generous as France.

For one major global original equipment manufacturer (OEM), France's R&D tax incentive programs yield a refund in excess of €100 million annually. To prevent these medium-term receivables from pooling on its balance sheet, the OEM chose to partner with a financial services intermediary and discount these receivables in the market.

Since the obligor is the French government, Citi was able to structure an accounts receivable financing arrangement that provides the OEM with a cost-efficient diversified source of liquidity. The transition enables the clients to tap an efficient source of liquidity that it can then reinvest back into its business.

Empowering Growth: How to Unlock Supply Chain Finance for Emerging Market SMEs

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International Finance Corporation (IFC), a member of the World Bank Group, supports the private sector in developing countries with the goal of promoting sustainable economic development by encouraging private investment and entrepreneurship.⁸ It launched a Global Trade Finance Program to facilitate bank trade financing in 2004, and a Global Trade Supplier Finance Program to provide short-term, post-shipment capital to emerging market suppliers in 2010.

Despite the availability of these programs, suppliers in emerging markets continue to face a number of challenges in accessing cost-effective finance as well as a number of perceived high risks. In addition, there is often insufficient company financial performance data, which makes risk assessment and compliance difficult for financial institutions. A third challenge is the high cost of supplier onboarding by banks. Buyers encounter similar problems in accessing stable liquidity because of limited credit information and concerns about macro risk and country ratings.

The confluence of these factors creates an environment where banks and other financial institutions are unwilling or unable to provide finance. Due to high interest rates, finance options are limited for many small and medium-sized enterprises (SMEs) in emerging markets. As a result, these companies may not be able to obtain the financing needed for new business opportunities (such as the reconfiguration of trade corridors now underway), and increased growth to spread prosperity.

Leveraging IFC's Capacity to Mitigate Risk

Supply chain finance (SCF) is based on a simple principle: By using the (stronger) credit rating of the buyer, suppliers have the option to access liquidity based on agreed-upon pricing. This model works well in developed markets, but it is still uncommon in developing markets. As a result, while the potential market for SCF is estimated to be worth around \$17 trillion globally, most of this is untapped.⁹ Many emerging market banks barely engage in SCF. For example, a recent joint 2023 IFC-World Trade Organization report found that SCF currently supplied by local banks in Cambodia and Vietnam accounts for just 2% available trade finance.¹⁰

IFC estimates that globally, as much as 80% of eligible SCF assets could be financed by banks.¹¹ But for this to happen, especially in emerging markets, a risk mitigation mechanism is required. IFC is well-placed to provide that mechanism. Over the past year, it has been working on overcoming some of the hurdles associated with channeling finance to SMEs in emerging markets.

⁸ International Finance Corporation, "[Who We Are](#)," Accessed January 11, 2024.

⁹ International Finance Corporation, "[Supply Chain Knowledge Guide](#)," December 22, 2019.

¹⁰ International Finance Corporation and World Trade Organization, "Trade Finance in Mekong Region," December 13, 2023.

¹¹ International Finance Corporation, "[Supply Chain Knowledge Guide](#)," December 22, 2019.

“As so much economic activity in emerging markets is linked to global supply chains, extending our risk mitigation support to facilitate supply chain finance was a natural next step for IFC,” says Nathalie Louat, Global Director of Trade and Supply Chain Finance at IFC. To this end, IFC has now established a Global Supply Chain Finance Program (GSCF) for suppliers and buyers in emerging markets. As well as having a broad focus on SMEs in emerging markets, the GSCF specifically seeks to support women-owned businesses, which typically find it harder to access finance. In addition, the program will support suppliers committed to improving their sustainability credentials (which count towards buying companies’ Scope 3 targets in the case of carbon emissions) by offering preferential access to financing. Suppliers seeking to qualify must have their sustainability commitments independently verified on a regular basis.

IFC is leveraging the power of the private sector and amplifying the impact of its financial commitment to developing countries. However, there are thousands of suppliers and buyers around the world. IFC therefore needs partners to bring the GSCF to life, enabling buyers to build relationships with reliable suppliers and aiding suppliers to source dependable financing.

Citi supports IFC in its objectives to incentivize sustainable supply chain financing and the diversification of economic activity. The GSCF leverages Citi’s supply chain finance leadership and global network to support business origination from Citi clients’ supply chains. “Our strategic partnership with IFC will facilitate last mile financing to the smallest suppliers in the most difficult markets,” says Parvaiz Hamid Husen Dalal, Global Head of Payables Finance at Citi. “It will enable Citi clients to grow their supply chains in emerging markets all over the world by leveraging IFC’s emerging market expertise and ability to mitigate the risks associated with these suppliers.”

A Transformative Impact on Businesses and Communities

IFC has now launched a \$300 million GSCF pilot with Citi (initially in Mexico) to test the concept; this is expected to be expanded to other countries in Latin America and also in Asia shortly. “The program will cover both investment grade buyers and non-investment grade buyers,” says Makiko Toyoda, Global Head of the Global Trade Finance Program and the Global Supply Chain Finance Program at IFC.

“In addition to working with large providers of supply chain finance such as Citi, we would also like to introduce the product to smaller banks that currently have no supply chain offering or knowledge of the product,” adds Toyoda. “To enable this to happen, we are working with regulators worldwide to help develop rules that would facilitate supply chain finance.” Ultimately, IFC believes this program could be as sizeable as its traditional trade finance programs, which reached \$10 billion in the past year.

In today’s environment of high interest rates, low credit availability, and economic uncertainty, the support offered by GSCF could be monumental in the immediate term, says Louat. “But in the longer term, by enabling these small suppliers to play a more significant role in the global economy and enhancing their resilience, it could have a transformative effect on businesses and communities in developing countries around the world. The GSCF can aid job creation and poverty reduction, and boost efforts to improve sustainability and reduce the worst impacts of climate change.”

How to Expand Credit Capacity and Boost Global Trade

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As the world emerges from the unprecedented disruption of the pandemic, geopolitical tensions are rising.

The broader macroeconomic landscape has also become more complex. Many of the certainties associated with the international order of the post-World War II era, such as open markets and free trade, have been challenged. A backlash against globalization combined with U.S.-China trade tensions has resulted in a more fragmented economic system.

While fragmentation is an ongoing process, there has already been a substantial reallocation of trade flows between the U.S. and China, with the U.S. becoming less reliant on imports from China following the imposition of bilateral tariffs in 2018. At the same time, the share of Chinese imports sourced from the U.S. has fallen. It is important to note, however, that trade patterns are dynamic: The EU has increased its reliance on China over the same period, as measured by import share.¹²

Nevertheless, the long-term costs of these trends could be significant. The International Monetary Fund (IMF) calculates that new trade barriers introduced annually nearly tripled since 2019 to almost 3,000 in 2022.¹³ It estimates that international trade restrictions could reduce global GDP by as much as 7% in the long run, or about \$7.4 trillion in current dollars.¹⁴

In response to this increasingly complex and challenging environment, companies of all sizes are seeking tools to facilitate trade and mitigate risk. Around 80% to 90% of global trade volumes of \$25.3 trillion in 2022 mitigated risk in some way, either through the use of letters of credit (LCs), factoring, credit default swaps (CDSs), or trade credit insurance.¹⁵

Many of these tools have long existed — LCs were first used in the 18th century, and factoring began in England as far back as the 13th century. However, some are not applicable in all circumstances. For instance, LCs are only available for short tenors, while CDSs cover only a limited range of buyers. Tools and markets that have broader applicability have therefore flourished. Most notably, trade credit insurance volumes are soaring and the market is rapidly innovating; the factoring market is also evolving in response to global demand. Ultimately, these developments are likely to benefit the broader trade industry and global economy.

¹² Justin R. Pierce and David Yu, "Assessing the Extent of Trade Fragmentation," Board of Governors of the Federal Reserve System, FEDS Note, November 2, 2023.

¹³ IMF, "[The High Cost of Global Economic Fragmentation](#)," The IMF Blog, August 28, 2023.

¹⁴ Ibid.

¹⁵ Antoine Gillioz and Arnaud Vanolli, *Credit and Surety in the Age of Economic Uncertainty*, Swiss Re Institute, September 2023; World Trade Organization, *Global Trade Outlook and Statistics*, April 5, 2023.

Trade Credit Insurance Is Rising to the Challenge

In the years before the pandemic, the use of trade credit insurance was primarily focused on single names that were perceived to pose a particular risk. During the pandemic itself, trade credit insurance dwindled as widespread government intervention and support largely replaced credit insurance's risk mitigation role in trade. Since the pandemic ended, trade credit insurance has once again come to the forefront — but in a different form. Rather than a focus on risk defeasance for single names, there is now widespread adoption of portfolio-based solutions. The reasons for this are many and varied.

First, the disruption to trade patterns caused by the pandemic and geopolitical tensions have prompted a reconfiguration of trade routes and roles as many corporates reconsider regional and global opportunities. Faced with political and other risks they have potentially never encountered before — including the growing risk of counterparty insolvency in many countries as rates have risen — corporates have sought more widespread risk mitigation. They are now considering monetizing their entire portfolio by using trade credit insurance. The changing treasury environment may also be encouraging CFOs and treasurers to seek off-balance sheet solutions to mitigate risk and potentially improve their financial metrics.

Second, insurance companies have considered offsetting their high fixed costs by ramping up business in the wake of the pandemic. Many insurance companies have significant amounts of capital that they are eager to deploy. They are therefore considering insurance coverage across a wider range of industries than in the past (e.g., including retail and airlines, which were previously off limits). They have also extended their horizons when it comes to tenors. In the past, insurance generally only covered shorter tenor receivables, but long tenor receivables are now becoming more common.

Third, most banks have sought to maintain wallet share as their clients have expanded regionally and globally. However, banks' credit capacity is generally regulated and therefore limited. Consequently, they have turned to the trade credit insurance market, which — as described above — now covers a wider range of industries and tenors. Consequently, certain banks have deployed structures such as synthetic securitization that use portfolio-based approaches. For banks, these structures may significantly lower risk. Typically, an insurance wrap will offer indemnity coverage of 90%-95% across a mixed portfolio of investment-grade and non-investment grade names, resulting in more attractive blended pricing for clients. Ordinarily, the seller has a small percentage as a so-called deductible (representing the first loss on the portfolio).

As the market has evolved, banks have also become increasingly innovative. In 2022, Citi became the first bank to launch a long-tenor insurance policy facilitating longer-term business contracts, which may extend to four or five years. Citi has also developed multi-seller insurance policies so that rather than a policy being created for each individual seller — which is not viable for small sellers — an umbrella portfolio groups together multiple small-ticket sellers.¹⁶

¹⁶ These products are subject to Citi's internal requirements and available to qualified institutional clients.

Unlocking U.S. Bank Capacity

Today, European banks may benefit from offering synthetic securitization structures, as European regulators allow probability of default (PD) substitution — the risk of the obligator can be substituted with that of an insurer.¹⁷ Consequently, European banks may benefit from a lower risk weight and more attractive capital treatment, which results in a more efficient asset base. In addition, the sale of receivables on a “true sale” basis may lead to their derecognition from the corporate balance sheet and their replacement with cash.¹⁸

In an effort to level the playing field — and unleash their balance sheets to the benefit of the global economy — U.S. banks, insurance companies, insurance brokers, regulatory lawyers, and trade associations have partnered together through the International Trade and Forfeiting Association (IFTA) and International Association of Credit Portfolio Managers (IACPM).

Specifically, the IFTA and IACPM are encouraging PD substitution changes similar to those taken in Europe in three specific areas:

1. Insurance companies should be included under the eligible guarantor definitions given their robust balance sheets and highly supervised and regulated nature.
2. Insurance policies should be allowed as an eligible guarantee, as they meet all nine Basel requirements, such as unconditionality and timeliness of payment.
3. By including insurance companies under the eligible corporates or eligible financial institutions category, they would receive a risk weighting of 20% to 40% rather than the current 100%.

The ITFA and IACPM industry forum is seeking some form of no-objection from U.S. regulators so that U.S. banks can play a more extensive role as the global trade insurance market grows. Leveling the playing field would benefit U.S. banks’ capital treatment of trade insurance products in particular.

The global trade insurance market was estimated to be worth approximately \$13.9 billion in 2022, covering 13.16% of global trade, based on World Bank data.¹⁹ Today, Europe, the Middle East and Africa (EMEA) represent the largest share of the market at around 59% (compared to 80% two decades ago).²⁰ The fall in EMEA’s share of the overall market is largely a consequence of growth in Asia’s share to around 26%.²¹ In contrast, growth in the Americas, which represent around 12% of global trade insurance, has been tepid. If the capacity of U.S. banks is unlocked by adopting similar capital treatment rules to those in Europe, companies across the Americas could enjoy a welcome increase in the availability of finance.

¹⁷ Ben Roberts, “The Development of the U.S. Credit Insurance Market,” Global Trade Review, November 4, 2022.

¹⁸ IMF Committee on Balance of Payment Statistics, “[F.14 Treatment of Factoring Transactions](#),” October 18, 2022; Citigroup is not acting in any advisory role in relation to Legal, Tax, or Accounting issues relating to this structure or otherwise. All companies should obtain their own Legal, Tax, or Accounting advice in relation to your evaluation.

¹⁹ International Credit Insurance & Surety Association, “[Estimating the Impact of Trade Credit Insurance in World Trade](#),” November 11, 2023.

²⁰ Antoine Gillioz and Arnaud Vanolli, *Credit and Surety in the Age of Economic Uncertainty*, Swiss Re Institute, September 2023.

²¹ Ibid.

The Role of Factoring

While trade insurance has a crucial role to play in facilitating global trade, the off-balance sheet benefits afforded by synthetic securitization are not a priority for the SMEs that contribute up to 40% of GDP in emerging economies.²² Instead, these companies require liquidity and have traditionally sold their receivables to factors on a full recourse basis at loan-to-value (LTV) ratios of 60% to 80%. While the cost of finance associated with factoring is relatively high at 8% to 10% (due to the potential insolvency risk of SMEs), it provides a lifeline for many sub-investment grade companies that are often unable to access traditional bank financing.

There are now more than 1,000 factors globally, with volumes reaching €3.7 trillion in 2022 as many banks have created their own factoring subsidiaries.²³ Factoring typically has two components: providing capital to the client (which requires a line of credit from banks) and collections.

One key historical barrier to growth is the technology infrastructure needed to provide real-time visibility of collections to clients, as well as clear legal frameworks to ensure they are authorized to collect from buyers in multiple countries. The extensive adoption of machine learning, natural language processing, and artificial intelligence is expected to lower technology infrastructure costs significantly and unlock lucrative expansion opportunities for factoring in the years to come. The Brainy Insights, a market intelligence firm, forecasts an increase in the value of the global invoice factoring market from \$2.7 trillion in 2022 to \$6 trillion by 2032.²⁴

Factoring clients are also becoming savvier. Many now shop around between multiple factors to find attractive pricing. Indeed, some companies now obtain insurance coverage of their own accord in order to lower costs, as factors typically add a margin over the cost of the insurance cover that they utilize.

²² The World Bank, "[Small and Medium Enterprises \(SMEs\) Finance](#)," accessed January 3, 2024.

²³ FCI, *Annual Review 2023*, June 2023.

²⁴ Brian Canup, "Global Invoice Factoring Market Poised for Exponential Growth by 2032," Trade Finance Global, last modified December 7, 2023.

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Digitalization and Innovation

Trade Digitalization: Why Data Reigns Supreme

Trade finance is a crucial facilitator of global commerce, providing essential financing and risk mitigation to a broad spectrum of supply chain participants. Historically, trade finance has been anchored in manual, paper-based processes with protracted transactional periods. Now, it is undergoing a transformation driven by a confluence of technological advancements, changing organizational structures, market demands, new entrants, and regulatory developments.

The importance of technological developments to this transformation cannot be overstated. Trade finance processes are being enhanced — or, in some cases, replaced entirely — by a combination of technologies such as artificial intelligence (AI) and machine learning (ML), robotics, application programming interfaces (APIs), cloud computing, the internet of things (IoT) such as the ability for devices to transmit and receive data, optical character recognition (OCR), and blockchain. These digital innovations can bolster operational efficacy, cut costs, reduce fraud, and increase transparency.

Key to utilizing innovative technologies —like digitalization, and data-centric strategies — is the more effective use of data. The ability to use these technological developments and data in trade has the potential to empower stakeholders to make more informed decisions, refine their processes, and mitigate risks. However, until recently, the effective use of data and these technologies has been hindered not only by paper-based processes but also due to data's fragmentation throughout the trade ecosystem.

The Data Imperative

There is an urgent need across trade and trade finance needs to capture data more efficiently and accurately. Data needs to be aggregated and stored in accessible locations and formats, enriched (where appropriate), and made available both internally (to optimize the business and operating model) and externally (to supply chain partners and the wider trade ecosystem).

Better acquisition and utilization of data opens the doors to improvements in trade finance such as:

- **Enhanced risk assessments:** Data-driven analytics can provide financial institutions with additional tools to assess a borrower's creditworthiness and evaluate the risks involved in trade transactions. By having access to both real-time and historical data, institutions can create sophisticated credit scoring models, which greatly improve risk management strategies and contribute to better-informed lending decisions. This advanced technological approach to credit analysis highlights the essential role of data in shaping the future of financial prudence and decision-making.

- **Elevated efficiency through automation and data integration:** The harmonious blend of data integration and automation can revolutionize trade finance operations, ushering in a new era of efficiency. By reducing the need for manual inputs, these advancements significantly reduce errors and accelerate transaction cycles. Data-driven trade finance platforms are at the heart of this transformation, facilitating a seamless flow of information, automating the verification of documents, and expediting transaction processes. The combined power of automation and data has the potential to profoundly enhance overall operational efficiency in trade finance.
- **Augmented transparency and regulatory conformity:** Data-centric approaches in trade finance may significantly elevate transparency and compliance, by offering a clearer view into transactional activities, supply chain dynamics, and regulatory obligations. This enhanced visibility plays a crucial role in mitigating, but not eliminating risks associated with fraud, money laundering, and terrorist financing, while ensuring strict adherence to international trade norms. The focus is on pioneering proactive solutions, rather than simply reacting to events.
- **Enhanced supply chain finance through data mastery:** Supply chain finance is being transformed by the amalgamation of data analytics and IoT technologies. This fusion enables real-time scrutiny and analysis of intricate supply chain data, empowering financial institutions to offer nuanced financing solutions aimed at providing solutions. These solutions are based on verifiable metrics such as inventory levels, production outputs, and delivery efficacy and may help support much-needed liquidity into the supply chain. On the back of analysis on deep-tier financing and working capital within supply chains, Citi launched a novel digital interface for trade operations, prioritizing data-driven digitalization to enhance processing speeds and reduce response times. This digital transformation not only aims to provide tools for risk management, but also brings a level of transparency to traditionally opaque processes.
- **Exploring new horizons in trade finance:** The abundant data available from trade finance processes has the potential to shed light on market dynamics, consumer behavior, and other Citi Trade Services opportunities. This rich data reservoir is a treasure trove for financial entities and stakeholders, seeking to unlock previously uncharted markets, use innovative products, and elevate their trade services. Banks and corporates' ability to use and input data through technological integrations help banks offer tailored trade finance solutions to address its clients' unique challenges.

Navigating Data's Dual-Edged Sword

Data and analytical technologies are becoming increasingly vital for leading trade finance business processes. The vast majority of trade finance data offers valuable insights, but significant and multifaceted challenges remain. To truly benefit from this data, a comprehensive approach is imperative.

- **Elevating data fidelity and conformity:** The quest for data precision, integrity, and standardization across diverse systems and global participants presents a formidable challenge. Technologies such as IoT and OCR generate massive volumes of often unstructured data due to standardization issues.

Multiple technologies may offer solutions. For instance, big data analytics can play a crucial role in organizing and interpreting data, enhancing customer understanding across various products and markets as well as aiding decision-making by improving transparency and providing deep insights into client behavior. Blockchain, and the distributed ledger technology (DLT) that underpins it, have the potential to serve as a foundational framework, enhancing the efficacy and security of data utilization. The industry is engaged to encourage standardization in international frameworks, fostering broader adoption and integration.

- **Safeguarding data sanctity and privacy:** As trade finance evolves, the growing reliance on data brings to the fore concerns surrounding privacy, security, and the risk of data breaches. Implementing robust cybersecurity measures, establishing comprehensive data protection frameworks, and adhering to secure data-sharing protocols are essential to sustain trust and assurance within the trade finance ecosystem.
- **Cultivating skills and expertise:** Trade finance demands a cadre of expert professionals who are proficient in data analytics, machine learning, and the latest technological innovations. Cultivating a pool of talent endowed with these essential skills and knowledge is paramount to moving to a data-centric trade finance landscape. It is essential to evolve traditional skills to align with contemporary demands; proficiency in data comprehension and management is now indispensable for roles across the spectrum, from sales to operations. Mastery of data is now a cornerstone of effective leadership and management in a modern trade finance department.

Banks' Data Challenges and Opportunities

Digital transformation in trade finance extends beyond traditional banking entities to include innovative startup players. Furthermore, this digital shift is increasingly propelled by small and medium-sized enterprises, as they modernize internal processes and engage in trade on specialized digital platforms, thereby enhancing their access and position within the trade and supply chain finance landscape.

Nevertheless, banks remain at the heart of trade finance, and overcoming the industry's data-use challenges will benefit the broader trade finance industry. Namely, the quantity of accurate and relevant trade information available to banks and their clients is fundamental to improving broader access to trade information. A digitally-focused data approach, using digital tools, can facilitate reciprocal information sharing, helping banks to quickly and accurately assess a client's risk profile and thereby increase the client's chances of obtaining finance.

Analytical technologies are also potentially valuable to banks and their clients, not only in managing huge volumes of data but also in working with data that is sparse. They are particularly useful for clients with an insufficient credit history: These technologies can generate accurate credit scores based on actual risk profiles, not just credit history.

The ability to organize and analyze vast datasets allows for the incorporation of non-traditional data sources such as logistics; inventory; and sustainability metrics, enabling financial institutions to more accurately assess clients' creditworthiness, and obtain verification on sustainability matters. This comprehensive data analysis enhances clients' prospects of securing finance by enabling them to present accurate financial information to a variety of potential lenders.

The main hurdles to implementing big data analytics in trade finance revolve around acquiring quality data and aligning resources. Banks face difficulties in digitizing vast quantities of paper-based trade finance data, for instance. OCR is a key tool to address this problem.

Another challenge with implementing and using data-driven technology involves the various data privacy laws around the globe and differentiated requirements, regarding data collection and use in a commercial setting. Additionally, using alternative data, such as logistics and e-commerce data, to assess risk raises issues around data relevance and regulatory coordination. Beyond data acquisition, the effective transformation and analysis of data hinges on skilled personnel and interdepartmental collaboration.

There are multiple use cases where banks and clients can work together to harness the power of data, leveraging AI/ML and other technologies to overcome many of the challenges outlined above. These include:

1. Leveraging ML methodologies to create predictive models that assess risk, business creditworthiness, delinquency risk, timeliness in making repayments, and dilution of transactions.
2. Client onboarding, enhancing Know Your Customer (KYC) capabilities using entity resolution, and relationship mapping.
3. Eliminating transaction risk through goods data, commodity prices, and vessel-tracking information.
4. Automating market intelligence to support decision-making and identify opportunities, allowing banks to cross-sell services more effectively.
5. Using data-driven solutions to manage supplier-enablement processes more effectively in the supply chain.
6. Facilitating the more seamless sharing of data digitally by adopting structured data instead of unstructured data across the trade ecosystem. The International Chamber of Commerce's Digital Standards Initiative has been critical in driving document digitization efforts and facilitating this shift.
7. Using large language models to generate new client experiences for traditional trade finance products.
8. Leveraging automation to deliver insights into the trade compliance process, eliminating human process errors and risks.

Banks must enhance, contextualize, and link data to provide actionable insights to their clients, using automation and digitization to deliver unique user experiences. Comprehensive trade data may allow banks to more effectively and efficiently evaluate counterparty, operational, and other credit or institutional risks, and advise on trade finance strategies and services. While process automation, AI/ML, DLT, and other emerging technologies are important, banks must also leverage external and internal data sources to fully equip themselves to provide comprehensive client insights and decisively bring trade finance into the digital era.

Digital Assets: How Tokenization Can Transform Trade

Cashless systems and digital assets are playing an increasingly important role in finance. Digital assets' unique features — immutability, programmability, and composability — have prompted the finance industry to invest in new and emerging technologies and that investment is now beginning to bear fruit.

A comprehensive approach to digital assets with regulatory input, focuses on building readiness in areas where digital assets and DLT can be potentially transformative for the financial industry. Citi has considered how certain technologies may expand choice and create payment ubiquity, delivering real value and efficiency for clients.

To this end, Citi has created and is piloting Citi Token Services, which uses blockchain and smart contract technologies to deliver digital asset solutions for institutional clients. Citi Token Services integrates tokenized deposits and smart contracts into Citi's global network, upgrading the core cash management and trade finance capabilities. The services are fully integrated into Citi's existing global network infrastructure, providing clients with a secure experience without the need to host their own blockchain node.

Integrating Smart Contracts to Streamline Trade

Today's trade instruments are often paper-based and require manual time-intensive processes that can often only be conducted during traditional banking hours — sometimes taking three to five days to complete. In addition, these processes can be error-prone and subject to the risk of forgery and fraud, which in turn limits counterparty trust. Clients have a need for always-on, 24/7, real-time financial services to support their evolving business models in the digital age.

Citi Token Services for Trade offers trade-related services that leverage tokenized liabilities and adds a smart contract to enable an automated conditional payment mechanism. (A smart contract is a program that runs when predetermined conditions are met.) Smart contracts reduce errors and risks of forgery and fraud. They also enable a shift from a paper-based and manual processes to a truly digital process. This will create operational efficiencies for clients, result in lower costs, and mitigate risks associated with manual processes. The digital asset solution is available 24/7.

In 2023, Citi worked with a client to conduct successful pilot token transactions using Citi Token Services for Trade across a canal ecosystem. These tools were used to digitize and modernize various trade finance structures, such as bank guarantees and letters of credit, and enable the programming and transfer of tokenized deposits that provide instant payments to sellers or service providers via smart contracts. The technology used in the pilot provided both buyers and sellers with a completely digital process and instant payment capabilities; this is expected to reduce transaction processing times from days to minutes.

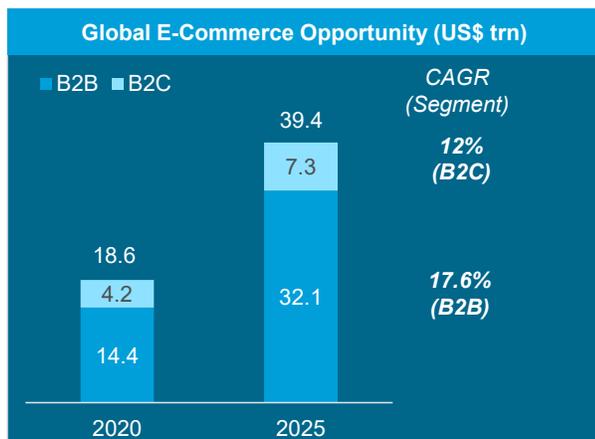
Driving B2B E-Commerce Growth

The Role of Trade Finance

E-commerce is one of the most dynamic sectors within the global economy, and the speed with which it is transforming the business-to-business (B2B) world is profound. Since the COVID-19 pandemic, e-commerce channels have gained importance for both buyers and suppliers.

The massive success of business-to-consumer (B2C) e-commerce in the past two decades has changed the way that business buyers expect to conduct business, with many looking for the convenience, speed, and flexibility of a digital experience that they themselves enjoy as online consumers. Although this requires B2B sellers to refocus resources towards digital experiences and marketplaces, they also benefit in kind, leading to a B2B e-commerce ecosystem that is both sizeable and growing.

Figure 54. Growth Trends and Drivers in the E-Commerce Ecosystem²⁵



- B2B e-commerce likely to lead growth due to growing contribution from SMEs in global trade.
- B2C e-commerce likely to grow, aided by rising internet and mobile penetration, as well as improvement in personalization and product mix.
- B2B e-commerce is comprised of both direct and marketplace-based selling. The latter has gained more traction in the recent past as it:
 - Creates a **level playing field for SMEs**
 - **Reduces technology and marketing costs** of operating standalone B2B sales channels
- **Marketplace model is likely to grow to ~\$10 trillion by 2025**, driven by growth in vertical marketplaces catering to specific industries, increased penetration by large brands, and B2C contribution.
- Asia represents about 80% of global B2B gross merchandise value.

B2B trends:

1. B2C-ification of B2B
2. Creation of own marketplaces
3. Omnichannel sales strategy to cater to changing purchasing behaviors

B2B (Marketplace) trends:

1. Embedded services on marketplaces
2. Rise of BNPL for B2B buyers
3. Rise in B2B marketplaces across industries

B2C trends:

1. mCommerce to drive growth
2. Growth in alternate payment methods
3. Cross-border e-commerce slows
4. Social commerce grows

Source: eMarketer, Statista, Ibe Research, Finextra, Citi Services

²⁵ Disclaimer: The descriptions, categorizations and illustrations are dynamic in nature and Citi continues to monitor key developments and are for informational purposes only. Citi makes no representation or warranty whatsoever as to the accuracy, completeness or timeliness of any information contained herein or otherwise provided. The information contained herein does not constitute and shall not be construed to constitute investment and/or accounting advice by Citi. Recipients of this communication should obtain guidance and/or advice, based on their own particular circumstances, from their own legal, investment, tax or accounting advisor.

Although e-commerce (and especially B2B e-commerce) is relatively new compared to other industries that have traditionally been served by trade finance — such as manufacturing, industrials, commodities, and maritime shipping — its meteoric growth has created a significant concentration of global monetary flows in just a few decades.

As a result, other industries have been forced to adapt to the sector's requirements. Take, for example, the logistics industry. Prior to e-commerce, same-day delivery was unheard of, but advances in data, shipping, and inventory planning have made it more common. Online marketing has also been reinvented to adapt to the data-driven, algorithm-centric approaches needed to capture consumer attention and drive sales conversions.

Trade Finance Opportunities and Challenges

Online buyers, sellers, and marketplaces have the same liquidity and working capital needs as their offline counterparts. However, providing trade finance for e-commerce requires different capabilities than those needed for relatively traditional clients.

Typical e-commerce clients are technically savvy and have high expectations of API-driven technical integration and frictionless user experiences. E-commerce clients often expect real- or near-real time decision making. Underwriting online transactions requires credit models that leverage alternative forms of data such as real-time transactions, forward-looking revenue forecasts, and even client satisfaction scores.

Citi proprietary research, conducted via interviews with more than 30 multinational clients in multiple industries and over 200 SME merchants globally over the course of 2021, found that the financing needs of many e-commerce stakeholders are underserved, especially for SMEs. For larger corporates, several unmet needs and unfulfilled expectations also remain, including:

- The provision of trade credit (available via omnichannel access) to support payment terms.
- A convenient B2C e-commerce purchasing and selling experience that is flexible and straightforward.
- The ability to identify creditworthy customers and ensure protection in the event of a default.
- The need to improve working capital — days sales outstanding (DSO) and days payable outstanding (DPO) — without sacrificing the seamless experience of e-commerce.

The Best of Both Worlds

Given the regulatory framework within which banks operate, it will take time to develop the capabilities necessary to fully satisfy the needs of online buyers and sellers. Fintechs have captured this market opportunity and quickly developed solutions to address unmet needs.

Examples include SellersFi, which offers various lending products to online merchants, and Hokodo, which provides buy-now-pay-later (BNPL) solutions for online business buyers. Citi analysis covering more than 50 fintechs and investors (addressing 22 financing sub-segments) shows that venture capital funds are heavily investing in fintech providers servicing the e-commerce space, underscoring the secular growth in e-commerce flows and momentum in e-commerce lending.

While fintechs can be nimbler than banks, the cost of capital offered by their solutions is typically higher, and sometimes meaningfully so. This is particularly true in a high interest rate environment, as fintechs' balance sheets are typically more limited than banks'.

Given the constraints on both banks and fintechs in servicing the needs of e-commerce, clients are now demanding solutions that provide the best of both worlds — the relatively low cost of capital of banks coupled with the real-time technical savvy of fintechs.

This demand is likely to increase the number of bank-fintech partnerships to satisfy the new and demanding needs of trade finance in an ever-expanding e-commerce economy. To be able to meet clients' needs, Citi has forged partnerships targeted at helping e-commerce clients.

One such alliance is with Hokodo via a strategic partnership and investment. The strategic collaboration will deliver best-in-class and frictionless B2B BNPL solutions that enable large global businesses to offer trade credit on e-commerce platforms and marketplaces.

In order to support working capital access to online merchants (often SMEs), Citi partnered with and invested in SellersFi, a fintech offering financial products to B2C merchants. SellersFi's comprehensive suite of financial tools provides quick and easy access to working capital and cash management solutions, utilizing AI-driven credit scoring models and offering extensive integration with leading e-commerce platforms.

Conclusion

Beyond the Shocks: Navigating Challenges on the Horizon

In recent years, both suppliers and buyers in the supply chain industry have dealt with long-term challenges and more immediate uncertainties. Geopolitical fragility has again been elevated this year, with conflicts in the Middle East and Ukraine adding to supply chain challenges. Most recently, attacks on merchant ships off the coast of Yemen have prompted widespread trade disruption, while a drought in Panama has reduced capacity on the canal, resulting in shipping delays. Meanwhile, a broader reconfiguration of supply chains is underway.²⁶

On the economic front, a key issue for most companies large and small is today's high-rate environment and tight credit conditions, which have caused stress, especially among SMEs. While there is a broad consensus that inflation has peaked in many markets, the timing of rate cuts remains a topic of feverish market speculation. In such an environment, companies of all sizes are increasing their focus on financial resiliency, with working capital efficiency a priority for organizations.

Potential key options for companies include reducing dependence on external funding and unlocking trapped liquidity to optimize the cash conversion cycle. At the same time, innovative solutions such as deep-tier financing are required to boost resiliency across the supply chain, especially for SMEs and companies in emerging markets. Creative thinking that boosts multilaterals' firepower will also be important in this regard.

Technology is pivotal for many new developments in trade finance. Innovations such as artificial intelligence and the internet of things can enhance companies' operational efficiency, cut costs, reduce fraud, and augment transparency throughout supply chains. One caveat is that all parties must commit to improving the quality and accessibility of the data that underpin these solutions. In the fast-growing e-commerce world, partnerships between banks and nimbler fintechs are critical to meeting the needs of buyers and sellers.

The good news is that our surveys suggest supply chains are no longer in crisis mode. The unprecedented disruption of COVID-19 and the immediate pandemic period is now behind us. The more chastening insight — both from suppliers and large corporates — is that global trade is undergoing a period of transformation unsurpassed for several decades, with a growing focus on new trade corridors and diversification of supply chain partners. The final outcome of this reshaping remains to be seen — though the broad outlines are now becoming apparent.

What is certain is that information, communication, and collaboration will be more important than ever before. We hope that this report has provided valuable insights that will help foster greater cooperation throughout the supply chain to improve global trade, economic growth, and benefit communities around the world.

²⁶ Jason Douglas and Stella Yifan Xie, "Countries Compete to Lure Manufacturers from China," *The Wall Street Journal*, March 23, 2023.

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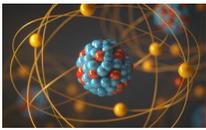
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Key Insights regarding the future of Supply Chain Financing



INFRASTRUCTURE

The supply chain disruptions brought on by the pandemic and the Russia-Ukraine war highlighted how far-flung supply chains can come with high risks. / **There is increasing evidence that reshoring and nearshoring are already occurring at a large scale.** U.S. construction of manufacturing facilities has picked up appreciably over the last year, and China's share of U.S. trade has fallen to all-time lows and is continuing to decline.



POLICY

The effects of rising prices, rising interest rates, and high inflation are impacting supply chains globally. / **Working capital management has become a strategic imperative for corporates for supply chain resilience and optimization of cash conversion cycles.**



TECHNOLOGY

Historically, trade finance has been anchored in manual, paper-based processes with protracted transactional periods. / **Today, trade finance processes are being transformed by a combination of technologies such as artificial intelligence and machine learning, robotics, application programming interfaces, cloud computing, the internet of things, optical character recognition, and blockchain.**



