

## 2 The Singapore Economy

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- The Singapore economy slowed discernibly in Q4 2022 and into the first quarter of this year, weighed down by its trade-related activities amid the global manufacturing and trade downturn. However, the domestic-oriented sectors have remained generally firm thus far, as the poorer performing trade-related sectors have limited spillovers given their relatively low inter-dependence with the rest of the economy. In addition, strong wage and consumption growth, as well as the ongoing recovery in tourism inflows, have lent support to the consumer-facing activities.
  - A broadening downturn in the global electronics industry and the recent banking stresses in the US and Europe have dampened Singapore's growth prospects, given its relatively large exposure to the tech and finance sectors. Singapore's GDP growth for 2023 is expected to come in at 0.5% to 2.5%, a step down from 3.6% in 2022. The near-term outlook remains uncertain and fragile, with risks to growth skewed to the downside. Should other latent vulnerabilities in the global financial system manifest in the coming months, consumer and investor confidence will take a further hit, with wider adverse implications for the economy beyond the current manufacturing-led downturn.
  - This chapter also analyses the impact of geoeconomic fragmentation on global trade flows, focusing on the electronics industry. The study finds evidence of trade diversification and reconfigurations in supply chains through alternative production nodes, even as Asia has retained its dominance in global electronics exports. Recent investment flows also point to greater insourcing among the major countries, which could reduce their import intensity and dampen trade flows over the longer term.
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### 2.1 Recent Economic Developments

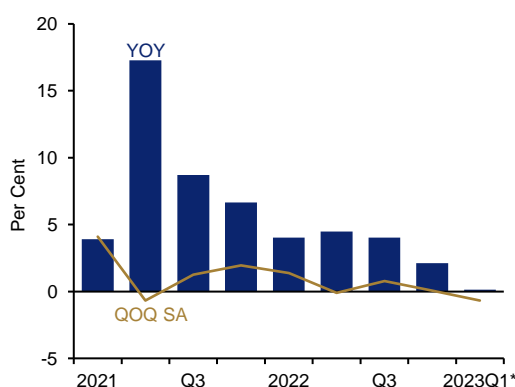
#### The Singapore economy continued to be weighed down by the weakness in trade-related activities in early 2023

The Singapore economy has decelerated considerably since the end of last year. Following the 0.8% q-o-q SA growth in Q3 2022, GDP expanded only marginally by 0.1% in Q4, and, according to the *Advance Estimates*, slipped into a contraction of 0.7% in the first quarter of 2023 (**Chart 2.1**). On a y-o-y basis, growth in the economy slowed to 2.1% in Q4, half the average pace recorded in the preceding quarters of 2022, before decelerating further to 0.1% in Q1 this year. The global manufacturing and trade slowdown, especially in electronics, that started in late 2022, intensified at the start of this year, despite the better-than-expected outturn in the estimated GDP of several key trading partners. Electronics production and trade have a more direct and significant impact on the Singapore economy compared to the

broader global economic cycle, given the deep and extensive trade linkages and electronics supply chains in the region. As a result, Singapore's trade-related cluster contracted on a y-o-y basis in Q1 this year for the second consecutive quarter (**Chart 2.2**).

**Chart 2.1** The Singapore economy has slowed considerably since the end of last year...

Singapore's GDP growth

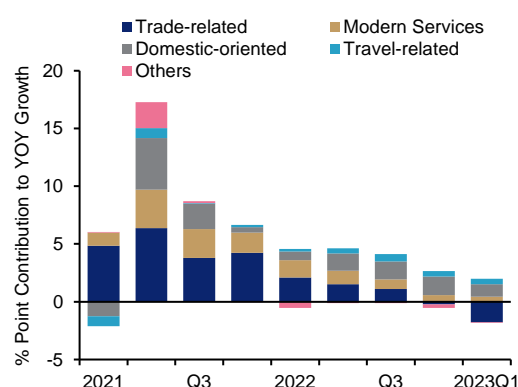


Source: DOS

\* Advance Estimates

**Chart 2.2** ...with contractions in the trade-related cluster and growth moderation in modern services

Contribution to GDP growth



Source: EPG, MAS estimates

There has been some divergence in performance between the external-oriented sectors (i.e., trade-related and modern services) and the domestic-facing ones in recent quarters. The trade-related cluster<sup>1</sup>—with the highest export intensity at around 70% of its own output—was adversely hit by the weakness in global final demand and trade in goods, contracting by 2.2% y-o-y on average across Q4 2022 and Q1 2023. The modern services cluster<sup>2</sup>, with export intensity at around 45% of output, saw VA growth averaging 2.2% over the same period. In comparison, the domestic-oriented cluster<sup>3</sup>, which is less exposed to export demand, fared relatively better, expanding by 6.5%. Meanwhile, the travel-related sectors<sup>4</sup> recorded strong double-digit growth as they continued to benefit from the recovery in tourism demand (export of travel services) as countries around the world removed their remaining pandemic restrictions (**Chart 2.3**).

<sup>1</sup> The trade-related cluster comprises manufacturing, wholesale trade and water transport, storage and other support services.

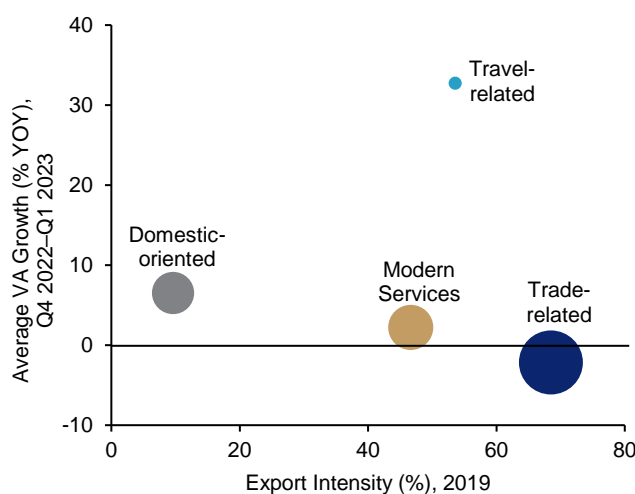
<sup>2</sup> The modern services cluster comprises finance & insurance, information & communications, and professional services.

<sup>3</sup> The domestic-oriented cluster comprises construction, real estate, retail trade, food & beverage services, land transport, administrative and support services, other services (excluding AER), utilities and other goods industries.

<sup>4</sup> The travel-related sectors comprise accommodation, air transport and AER.

### Chart 2.3 Sectors with higher export intensities were more adversely affected by the external headwinds

Export intensity & VA growth by cluster



Source: DOS and EPG, MAS estimates

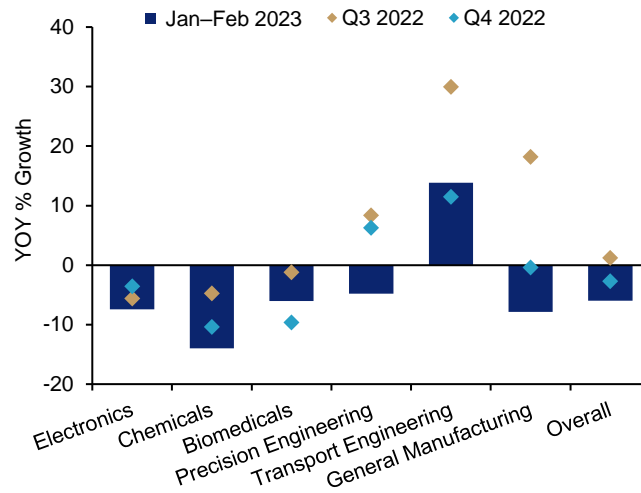
Note: The size of the bubble denotes the cluster's nominal VA share in 2022.

### The trade-related cluster saw a further deterioration in Q1

The manufacturing sector contracted by 6.0% y-o-y in Q1, worsening from the 2.6% decline in Q4 2022. On a q-o-q SA basis, the sector shrank by 5.2% in Q1, reversing the 1.0% growth in the preceding quarter. The Index of Industrial Production (IIP) for the first two months of 2023 showed that output in all clusters except transport engineering fell from a year ago (**Chart 2.4**). Electronics output contracted by 7.4% y-o-y in Jan–Feb, extending the 3.5% decline in Q4 last year, as semiconductor and infocomms & consumer electronics production fell amid lacklustre global demand. In the precision engineering cluster, output slid by 4.8% in Jan–Feb in tandem with weaker electronics demand, with lower production of plastics and metal precision components. The chemicals cluster also contracted at a faster pace of 14% y-o-y in Jan–Feb compared to 10% in Q4, reflecting weak demand from the region for petrochemicals and specialty chemicals, as well as plant maintenance shutdowns in the petrochemical segment. Output in the biomedical cluster shrank by 6.0% in Jan–Feb on a year-ago basis, on account of a decline in the pharmaceutical production. In contrast, the transport engineering cluster provided some support to growth, as both the marine & offshore engineering and aerospace segments continued to recover.

**Chart 2.4** Industrial production declined over the past two quarters, due mainly to weakness in the electronics, chemicals and biomedical clusters

Index of industrial production

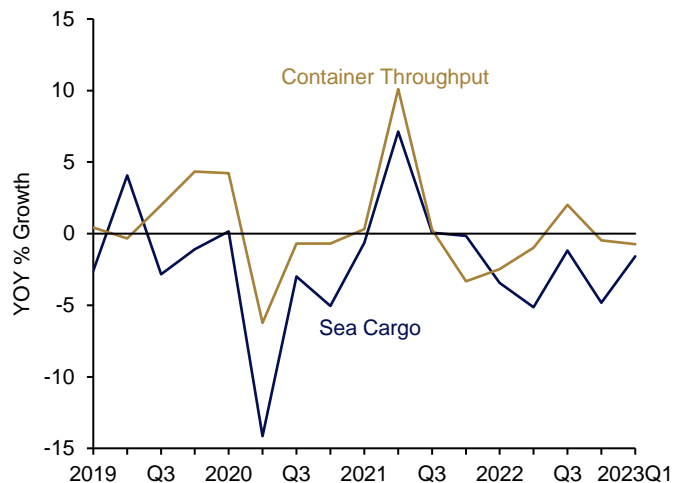


Source: EDB

Various other trade-related industries also turned in weaker performances over the last two quarters. Activity in the water transport, storage & other support services sector was weighed down by contractions in both sea cargo handled and container throughput (**Chart 2.5**). Similarly, the performance of the wholesale trade sector was lacklustre across all subsegments.

**Chart 2.5** Both container throughput and sea cargo contracted since late last year

Sea traffic

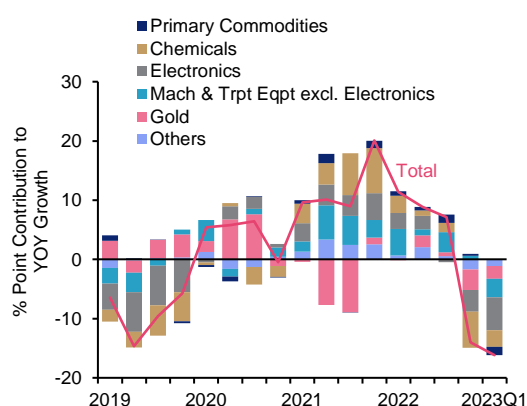


Source: MPA

Singapore's export performance continued to weaken in the first quarter of the year. Non-oil exports shrank by 9.4% y-o-y in Q1, following the 6.5% decline in Q4. By product group, contractions were recorded for chemicals, electronics and gold domestic exports (NODX) over the past two quarters, while the fall in non-oil re-exports (NORX) was led by electronics (Charts 2.6 and 2.7). By destination, the decline in NODX was broad-based across markets, while Hong Kong and China were major contributors to the reduction in NORX (Charts 2.8 and 2.9).

**Chart 2.6** The decline in NODX was broad-based across products over the past two quarters...

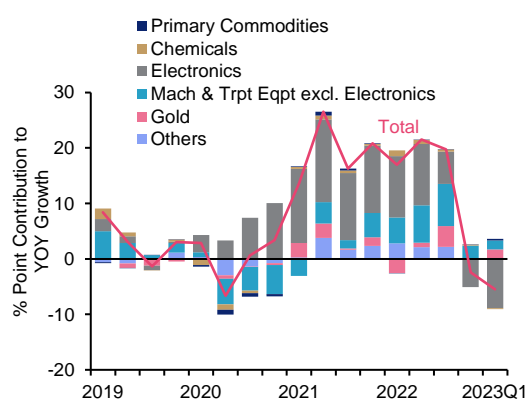
Non-oil domestic exports by product



Source: ESG

**Chart 2.7** ...while NORX was adversely affected by a pullback in electronics

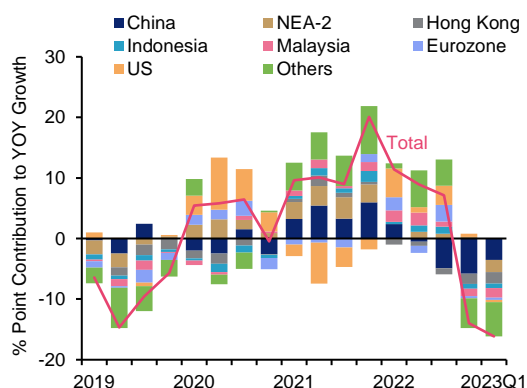
Non-oil re-exports by product



Source: ESG

**Chart 2.8** The decline in NODX was broad-based across markets over the past two quarters...

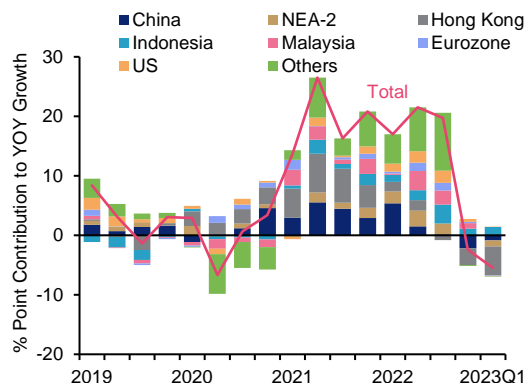
Non-oil domestic exports by market



Source: ESG

**Chart 2.9** ...while Hong Kong and China contributed largely to the fall in NORX

Non-oil re-exports by market



Source: ESG

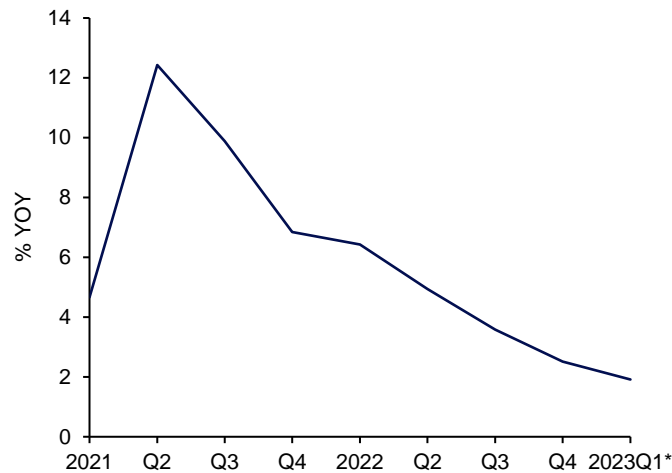
### Growth in the modern services cluster decelerated, weighed down by the financial sector

The modern services cluster expanded by 1.9% y-o-y in Q1 2023, slowing from the 2.5% expansion in Q4 2022 (Chart 2.10). On a q-o-q SA basis, the cluster contracted by 1.0%, reversing the 1.1% growth in the previous quarter. The subdued performance in Q1 reflected weakness in financial sector performance. Within the banks segment, net fees & commissions continued to shrink, as wealth management and investment banking fees

remained lacklustre. Credit growth also slowed—on a sequential basis, loans to residents fell by 1.2% in February relative to December, extending the 3.0% decline in Q4 (Chart 2.11). Corporate loans were sluggish, especially to the manufacturing and general commerce sectors. The former exerted the biggest drag, mirroring the general slowdown in manufacturing activities. Lending to non-residents also saw a broad-based decline of 1.0%, led by loans extended to East Asia (Chart 2.12).

**Chart 2.10** Modern services growth continued to decelerate

VA growth of the modern services cluster

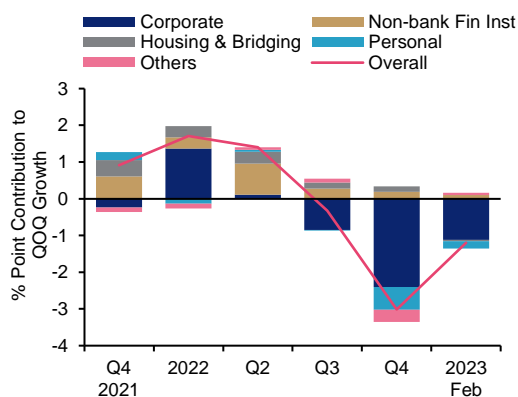


Source: DOS

\* Advance Estimates

**Chart 2.11** The stock of non-bank loans to residents and...

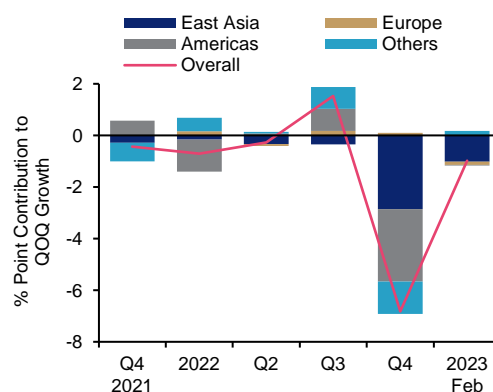
Non-bank loans to residents by loan type



Source: MAS

**Chart 2.12** ...non-residents continued to contract sequentially

Non-bank loans to non-residents by region



Source: MAS

Meanwhile, the insurance segment remained lacklustre in Q1, extending the weakness from the previous quarter. Sales of single-premium life insurance products fell, as investors

pivoted to competing products such as fixed deposits and treasury bills that paid comparable yields with shorter tenures. The fund management segment also weakened in Q1, in tandem with the decline in global equities in recent months. In comparison, other auxiliary activities (comprising mainly payment processing players) saw card fees grow strongly, benefiting from the continued uptick in travel spending.

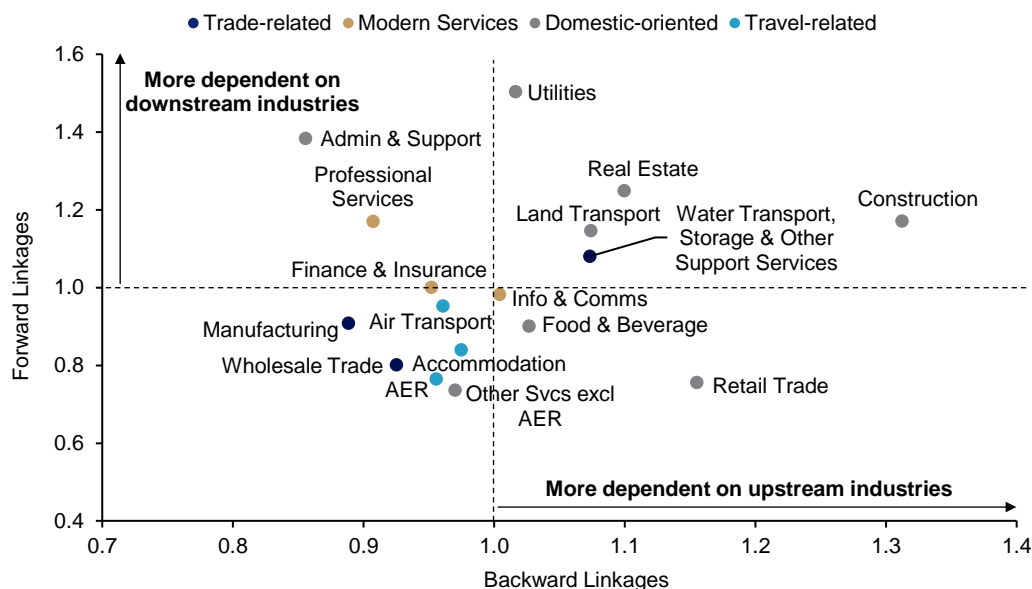
Elsewhere in modern services, growth in the information & communications and the professional services sectors remained firm over the last two quarters. The former was underpinned by data hosting-related activities, while the latter received a boost from firms' ability to engage with overseas clients amid the improved ease of travel.

### Domestic-oriented services growth remained firm

The manufacturing and trade slowdown since late last year does not appear to have had a significant knock-on effect on the domestic-oriented activities thus far. The relative strength could be attributed to a few factors. First, both the manufacturing and wholesale sectors do not have strong inter-dependence with the rest of the economy as they rely more on imports. Based on the 2019 input-output tables, the measures of backward and forward linkages of these two sectors were less than one, implying that they do not depend heavily on production by other upstream industries for intermediate inputs, or on purchases by other downstream industries (Chart 2.13). In terms of backward linkages, these sectors rely largely on inputs from within their own cluster. For instance, 80% of inputs required by the manufacturing sector are sourced from within the trade-related cluster, with another 12% from modern services, and only 5% from the domestic-oriented cluster (Table 2.1).

**Chart 2.13** The external-facing manufacturing and wholesale sectors do not rely heavily on upstream industries for intermediate inputs or on purchases by other downstream industries

Industry linkages



Source: Singapore Input-Output Tables 2019 and EPG, MAS estimates

**Table 2.1** Supplying industries to manufacturing and wholesale trade sectors

Cluster	Manufacturing		Wholesale Trade	
	Value (\$ million)	Per Cent	Value (\$ million)	Per Cent
<b>Trade-related</b>	<b>73,868</b>	<b>79.5</b>	<b>27,296</b>	<b>49.6</b>
Manufacturing	59,483	64.0	4,744	8.6
Wholesale Trade	11,884	12.8	5,534	10.1
Water Transport, Storage & Other Support Services	2,501	2.7	17,019	31.0
<b>Modern Services</b>	<b>10,901</b>	<b>11.7</b>	<b>13,956</b>	<b>25.4</b>
Finance & Insurance	3,506	3.8	6,635	12.1
Information & Communications	1,031	1.1	2,788	5.1
Professional Services	6,364	6.9	4,533	8.2
<b>Domestic-oriented</b>	<b>4,628</b>	<b>5.0</b>	<b>10,159</b>	<b>18.5</b>
Construction	540	0.6	88	0.2
Retail Trade	57	0.1	558	1.0
Food & Beverage	245	0.3	635	1.2
Land Transport	291	0.3	1,409	2.6
Real Estate	1,277	1.4	2,702	4.9
Administrative & Support Services	1,971	2.1	4,099	7.5
Other Services (excl. AER)	247	0.3	667	1.2
<b>Travel-related</b>	<b>388</b>	<b>0.4</b>	<b>3,052</b>	<b>5.6</b>
Accommodation	111	0.1	194	0.4
Air Transport	249	0.3	2,790	5.1
AER	27	0.0	68	0.1
<b>Others</b>	<b>3,108</b>	<b>3.3</b>	<b>523</b>	<b>1.0</b>

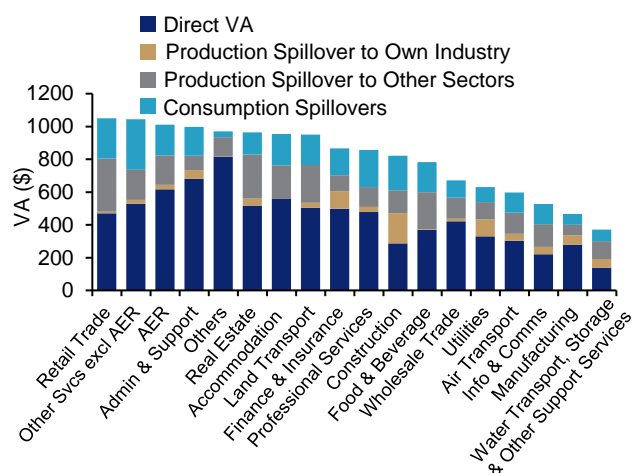
Source: Singapore Input-Output Tables 2019 and EPG, MAS estimates

As a result, a fall in final demand in the trade-related cluster has limited spillovers to value added (VA) in the other sectors whether via the production or consumption channels. Based on estimates derived from the I-O Tables, every \$1,000 decline in final demand in the manufacturing sector would result in a \$65 loss in VA in other sectors via the production channel. This is smaller than the spillovers for a similar fall in final demand in the domestic-facing sectors such as retail, F&B and construction (see grey bars in **Chart 2.14**). The consumption-induced effect (light blue bars) of a fall in final demand in manufacturing and wholesale trade is also generally weaker than that in the domestic-facing sectors. The trade-related industries tend to be more capital-intensive, accounting for 24% of total employment in the economy, much smaller than its almost 50% share of GDP. A loss in final demand in these industries would thus generate lesser spillovers to employment, wages and household consumption, compared to the domestic-facing sectors.



**Chart 2.14** The production and consumption effects induced by a fall in final demand in the external-facing sectors are generally weaker than that in the domestic-facing sectors

VA spillovers per \$1,000 of final demand by industry, 2019



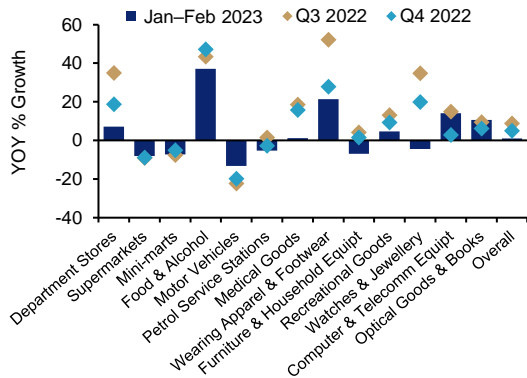
Source: Singapore Input-Output Tables 2019 and EPG, MAS estimates

Note: Direct VA refers to the VA generated from producing the output to meet the initial \$1,000 of final demand.

Second, the consumer-facing sectors have generally been supported by firm wage growth and the continuing recovery in consumption following the removal of COVID-19 restrictions earlier last year. Retail sales volume grew by 4.9% y-o-y in Q4 last year and further by 1.0% in Jan–Feb 2023. Sales of wearing apparel & footwear, department stores and food & alcohol saw relatively strong growth (**Chart 2.15**). Meanwhile, F&B sales volume expanded by 18.1% y-o-y in Q4, followed by a 13.8% increase in Jan–Feb this year (**Chart 2.16**). In particular, the sales volume of food caterers registered the largest increase, of 90% in Jan–Feb, due mainly to higher demand for both event and in-flight catering with the relaxation of restrictions on large-scale events, international travel and social gatherings. Sales volumes of cafes, food courts & other eating places, restaurants and fast-food outlets increased between 5.0% and 10.0% in Jan–Feb (**Chart 2.16**).

**Chart 2.15** Retail sales was supported by wearing apparel, department stores and food & alcohol

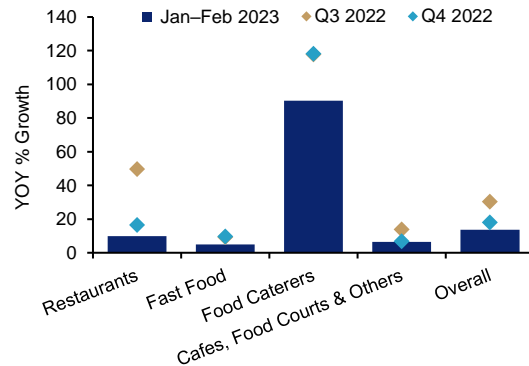
Retail sales



Source: DOS

**Chart 2.16** F&B services saw broad-based growth

F&B services

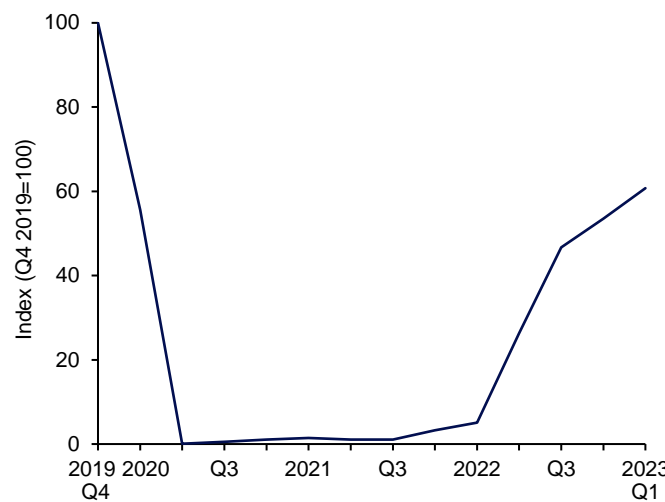


Source: DOS

Third, the consumer-facing sectors were supported by significant increases in visitor arrivals. Average monthly visitor arrivals jumped twelvefold in Q1 2023 compared to the same period a year ago as tourism flows gathered momentum, reaching 61% of its Q4 2019 pre-COVID level (**Chart 2.17**). This has directly boosted the air transport, accommodation, and AER sectors, as well as other more domestic-facing industries, such as retail and F&B. In the travel industry, hotel occupancies increased to 77% in Jan–Feb this year, from 61% a year ago. Hotel revenue per available room also rose by nearly 90% to \$213 in Jan–Feb 2023. The improved tourism performance provided a further fillip to administrative & support services for travel-related activities and MICE events.

**Chart 2.17** Visitor arrivals rebounded in Q1 2023 to 61% of pre-COVID levels, from 5% a year ago

Visitor arrivals



Source: STB

Fourth, the construction sector continued to record firm growth. The construction sector grew by 8.5% y-o-y in Q1, extending the 10% expansion in Q4. Certified payments data of Jan–Feb 2023 showed that both public and private payments contributed to growth, with public civil engineering and private non-residential works being key contributors.

## 2.2 DOMESTIC OUTLOOK

### Singapore's economic outlook is uncertain, with downside risks

The outlook for the Singapore economy has become more uncertain, as global financial conditions continue to tighten and weigh on final demand. The global electronics industry remains in the doldrums. Meanwhile the recent banking stresses in the US and Europe are likely signalling that the sharp tightening of monetary policy is starting to bear on certain segments of the economy and financial system, particularly entities with balance sheet mismatches. The transmission of interest rate hikes through banks' balance sheets is arguably riskier and could be easily amplified, compared to the more traditional channel through the income effect. At the same time, China's consumption-led reopening is likely to benefit its domestic services more than merchandise trade, limiting the positive spillovers to Singapore whose linkages with China are more significant in the trade-related industries.

Against this backdrop, Singapore's GDP growth is estimated to come in at 0.5% to 2.5% in 2023, moderating from the 3.6% growth in 2022. The risks to growth are tilted to the downside. Disorderly market adjustments and the exposure of latent vulnerabilities among corporates and households could increase financial stability risks. Should there be a contagion in financial markets, with further hits to sentiment and confidence, it could exacerbate the current trade downturn, with greater spillovers to domestic services through the income/consumption channel, thus dampening or even eliminating any recovery in the second half of the year.

### Prospects in the financial sector have weakened further amid turbulence from the US banking industry

Growth in the financial sector is expected to remain subdued in 2023, weighed down by the slowing external outlook, persistent inflation and restrictive financial conditions. The collapse of Silicon Valley Bank (SVB) and Credit Suisse has also fanned fears of a broader contagion in the banking system and increased downside risks to growth. Although regulators have intervened decisively to limit the fallout, the outlook remains uncertain as latent vulnerabilities could emerge among under-capitalised banks globally in the coming quarters.

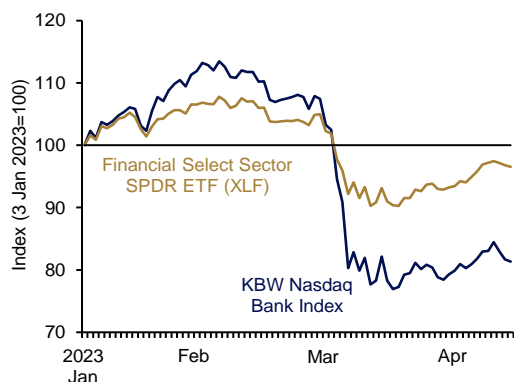
Unlike in previous episodes of interest rate shocks where households and businesses responded by curbing consumption and investment, the nature of the current shock could permeate through the banking sector's balance sheet and amplify destabilising dynamics through interlinkages with other financial institutions and the broader economy.

The sentiment-sensitive segments of the financial sector could bear the brunt of negative confidence effects arising from the banking stresses, with the fall in global banking stocks compounding the already-weak sentiment. As of mid-March, US\$465 billion in market value had been wiped out from global banks, with various sector-specific indices reflecting tepid sentiment (**Chart 2.18**). The fall in confidence would not only crimp demand for fund

management, underwriting and security dealing activities in the near term, but also delay firms' longer-term capital expenditures. In addition, the balance sheets of various venture capital (VC) funds could take a hit from indirect exposures to the affected US banks.

**Chart 2.18** Financial sector indices have remained in the doldrums following the banking stresses

Financial sector indices

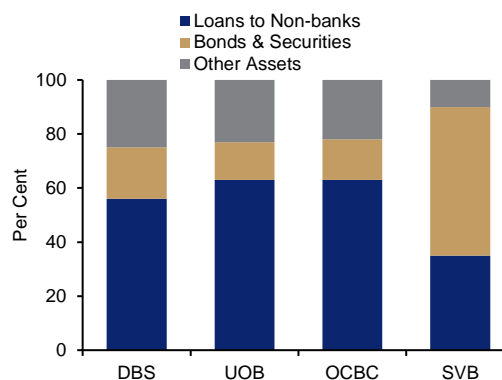


Source: MarketWatch and EPG, MAS estimates

Note: The KBW Bank Index tracks the prices of 24 banking stocks, which represent the large US national money centres, regional banks, and thrift institutions. The XLF is an equities price index of the broader US financial sector, consisting of payments processing firms, insurance, banks, capital markets, real estate investment trusts and consumer finance.

**Chart 2.19** Local banks are less impacted by duration risk from their bond portfolios

Share of banks' assets



Source: Banks' 2022 annual reports and EPG, MAS estimates

The local FinTech industry, which comprise mainly micro-enterprises, could also face headwinds as VC firms restrain funding. There could be negative spillovers to the information & communications sector, given that a substantial proportion of firms in the FinTech industry provides IT services as their principal activity, with most of them specialising in software development (e.g., blockchain). However, as such activities only account for a small fraction of nominal VA in the information & communications sector, any adverse impact through this channel is expected to be limited.

At this juncture, the domestic banking system appears to be well-insulated from the shock. Singapore's local banks have diversified, large corporate-heavy and Asia-centric loan books with minimal exposure to the tech start-up ecosystem. While Singapore's banks could also face losses on their bond holdings amid the sharp rise in interest rates which led to the repricing of assets, less than 20% of their total assets are in bonds, compared to around 55% of SVB's total assets (**Chart 2.19**). With the bulk of their assets in floating rate loans, the domestic banks have been able to pass on the higher funding costs to its customers. Further, the takeover of Credit Suisse by UBS is not expected to impact the stability of Singapore's banking system. The local banks have insignificant direct exposures to Credit Suisse. In addition, both UBS and Credit Suisse do not serve retail customers and their primary activities here are confined to private and investment banking.

Still, the high interest rate environment will continue to exert a broad-based drag on the financial sector in the coming quarters. Credit demand is likely to weaken, while the stock of loans could also shrink further as corporates look to reduce interest expenses by repaying

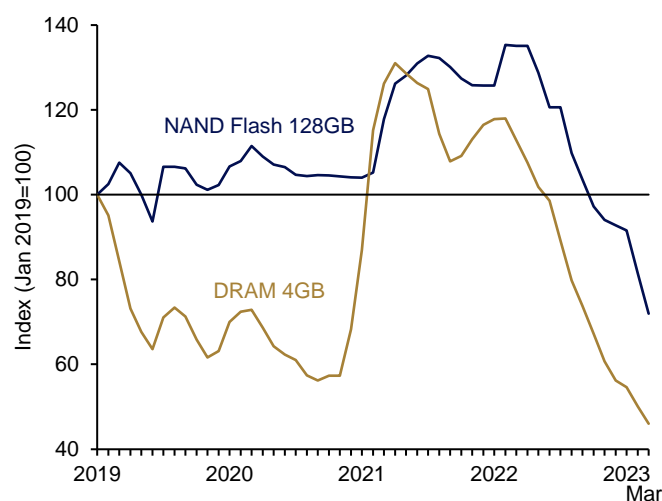
loans earlier. Similarly, outturns in the insurance industry could stay tepid, as the pullback in purchases of single-premium insurance products in favour of treasury bills and fixed deposits, is likely to persist. In comparison, the payments industry should remain supportive of growth, lifted by the continued pickup in travel spending.

### The outsized adjustments in the global electronics industry are expected to weigh on the trade-related cluster at least till the middle of the year

Having entered a consolidation phase since H2 2022, the global electronics industry is set to remain in a downturn in the first half of 2023. Semiconductor research houses have been progressively cutting their global chip sales forecasts in recent months, with Objective Analysis and Semiconductor Intelligence predicting a double-digit decline for 2023. In the memory segment, which has led the downturn since last year, weak consumer demand for smartphones and PCs further depressed prices for both DRAM and NAND chips in March, to 65% and 47% below their respective peaks (**Chart 2.20**). More recently, firms producing other types of chips (e.g., logic, analog, etc.) are also coming up against slowing demand for enterprise IT products (e.g., servers, storage, etc.) as businesses become more cautious with their investment plans amid rising interest rates.

**Chart 2.20** Global chip prices have continued to fall sharply amid the tech downturn

Global memory chip prices



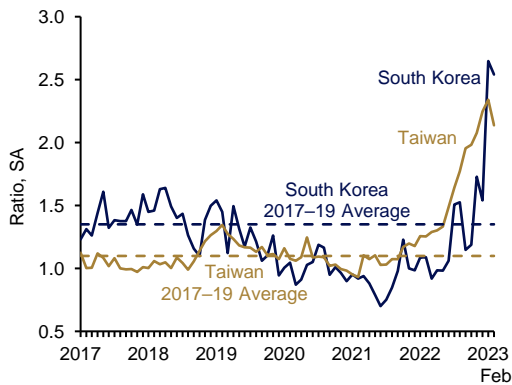
Source: Bloomberg

Consequentially, chipmakers in Taiwan and South Korea—the global leaders in the logic and memory segments—have seen a sharp spike in chip inventory relative to sales in recent months, as their clients reduced orders for chips used in production (**Chart 2.21**). Weaker demand has led to a worsening in chip exports from these economies (**Chart 2.22**). Singapore, too, has not been spared from the pullback in global chip demand, with semiconductor exports falling by around 24% y-o-y in March, its sixth consecutive month of decline, dragged down by exports to China, Hong Kong and Taiwan. Singapore saw an earlier and sharper fall in semiconductor exports than Taiwan, as the latter was initially supported by the resilient demand for advanced logic chips from its leading foundries. The contraction in

semiconductor exports in Singapore was however milder than that in South Korea which bore the brunt of the sharp downturn in the memory segment.

**Chart 2.21** Semiconductor inventory-to-shipment ratios have risen sharply in recent months...

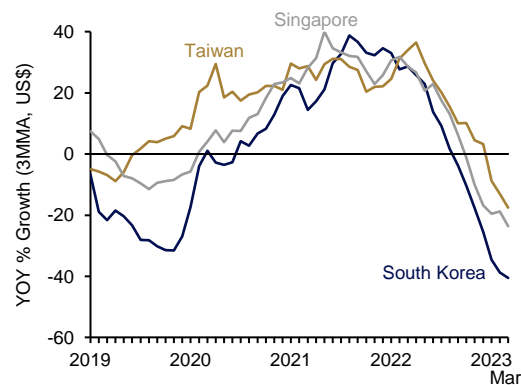
Semiconductor inventory-to-shipment ratio by economy



Source: Haver Analytics

**Chart 2.22** ...as semiconductor exports have fallen

Semiconductor exports by economy



Source: Haver Analytics

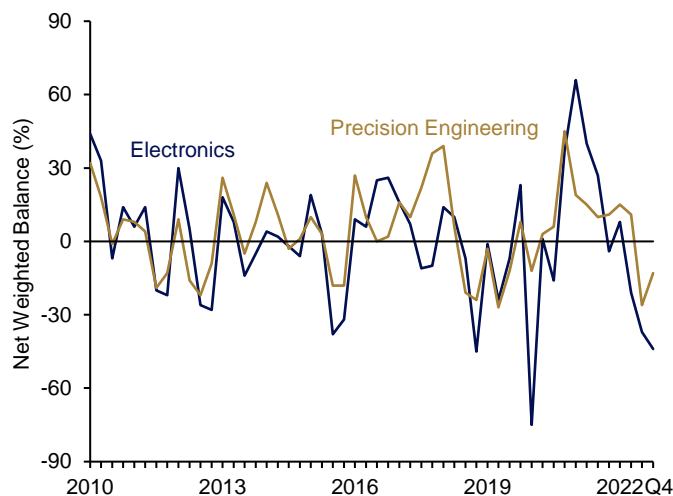
Note: For Taiwan, electronic components exports are used as detailed semiconductor exports are not published.

Looking ahead, the outlook for the global tech sector remains subdued. Notably, rising interest rates could deal a further blow to end demand for consumer and enterprise IT products. In addition, there are increased risks of fragmentation in global tech supply chains, especially in advanced chipmaking.

EDB’s latest Business Expectations Survey of the Manufacturing Sector showed that an increasing number of local electronics and precision engineering firms expect their business to worsen in H1 2023 (**Chart 2.23**). Firms have attributed this to the rapidly softening consumer demand for electronic products alongside the recently imposed technology export restrictions by the US. Meanwhile, Singapore’s electronics PMI remained in negative territory for the eighth consecutive month, but the pace of contraction may be slowing given the modest improvements in new orders and new exports, compared to the sharp deterioration in H2 2022. Nonetheless, near-term uncertainties remain in the local electronics industry, with a more discernible recovery predicated on a pickup in global demand in the second half of this year.

**Chart 2.23** Electronics and precision engineering firms maintained their subdued business outlook

General business outlook for next six months



Source: EDB

Note: Net weighted balance refers to the difference in the weighted percentages of positive and negative responses. It is commonly used to reflect the direction and extent of business sentiments.

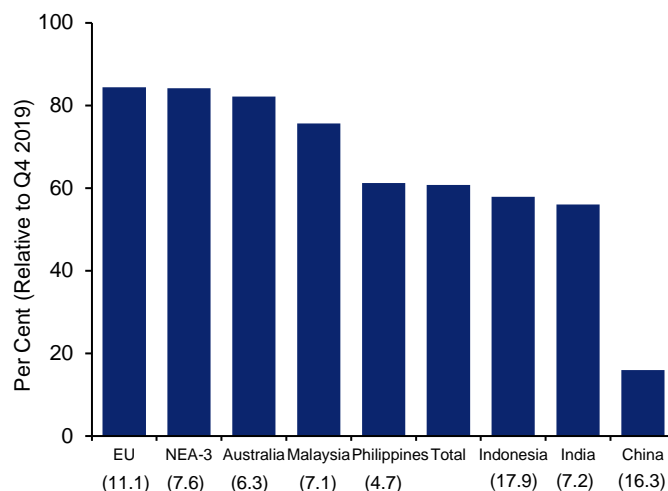
### Recovery in the travel and consumer-facing sectors should continue for the rest of this year, bolstered by the return of Chinese tourists

Singapore's tourism recovery has been faster than expected. The number of international visitor arrivals to Singapore came in at 6.3 million in 2022, exceeding STB's forecast of between 4 to 6 million. In line with this, SIA has reported sustained strong demand with group passenger capacity reaching 80% of pre-COVID 19 levels in December 2022. SIA also projects strong forward sales across all markets for both leisure and business travel. With the reopening of China's borders, average monthly arrivals from the country rose around 2.5 times from Q4 2022 to 41,521 visitors in Q1 2023, 16% of pre-pandemic (Q4 2019) levels. Meanwhile, arrivals from other markets such as Europe, NEA-3 and Australia improved further to around 80–85% of pre-COVID levels (**Chart 2.24**). Currently, Indonesia, Australia and Malaysia are the biggest source of travellers to Singapore, accounting for 35% of all arrivals.

For 2023, STB expects international visitor arrivals to double from 2022 to around 12 to 14 million visitors, around 70% of pre-COVID levels. This will be supported by a more meaningful contribution from Chinese tourists from H2, amid a significant ramp-up in flight connectivity with Chinese cities. The tourism industry will be rolling out new and refreshed places of interest this year, while also launching the SingapoRewards programme which will offer complimentary experiences such as free guided tours and workshops for international visitors. Tourism activity is expected to recover to pre-pandemic levels by end-2024.

### Chart 2.24 Visitor arrivals are gradually recovering to pre-COVID levels

Monthly visitor arrivals in Q1 2023 from top markets in Q4 2019



Source: STB

Note: Data in parentheses refers to visitor arrivals from the country/region as a percentage of total arrivals in Q4 2019.

In the accommodation sector, manpower shortages had prompted hotel operators to cap occupancies until late 2022. However, with the gradual easing of labour constraints and the continued recovery in international travel, hotel occupancy rates should pick up further in 2023, from an average of 74% in 2022. Business travel and meetings are expected to provide some of the heavy lifting for the tourism segment this year, with major MICE events scheduled to occur, including Supercomputing Asia 2023, Aviation Festival Asia, the Herbalife APAC Extravaganza 2023 and the 25th World Congress of Dermatology 2023. Singapore is also on track to cater to newer and potentially higher-value market segments, with STB positioning the country as an urban wellness destination. Increased visitor arrivals will also impart positive spillovers to the consumer-facing domestic sectors. However, the pace of expansion in these sectors should moderate from last year as higher consumer prices and interest rates restrain spending.

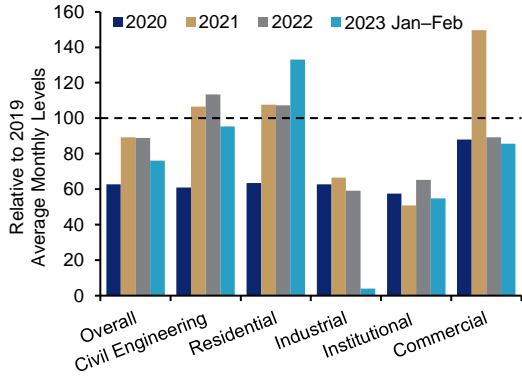
### The construction sector will be supported by major ongoing and upcoming public sector projects, as supply side constraints ease

Activity in the construction sector continues to be well-supported by a strong pipeline of projects. In particular, contracts awarded in the civil engineering and residential segments have largely returned to pre-COVID levels (**Chart 2.25**). HDB's public housing projects remain on track to be progressively completed over the next few years. Other major public sector and infrastructure projects in the pipeline include the Cross Island Line (Phases 2 & 3), Downtown Line Extension to Sungei Kadut and Brickland North South Line station, Toa Payoh Integrated Development and the Woodlands Checkpoint redevelopment. Moreover, supply side constraints have shown signs of easing. On the cost front, prices of some construction materials, particularly steel reinforcement bars, have declined (**Chart 2.26**). Meanwhile, the shortfall in skilled construction labour has progressively eased, as the migrant workers who arrived in 2022 would have received the training necessary to be deployed.



**Chart 2.25** Contracts awarded remained robust, particularly in civil engineering and residential works

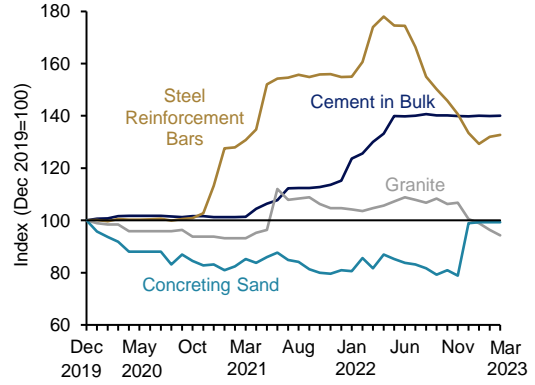
Contracts awarded by sector



Source: BCA

**Chart 2.26** Prices of some construction materials have fallen from their peaks

Prices of construction materials



Source: BCA

## 2.3 Identifying the Shifts in Global Electronics Trade

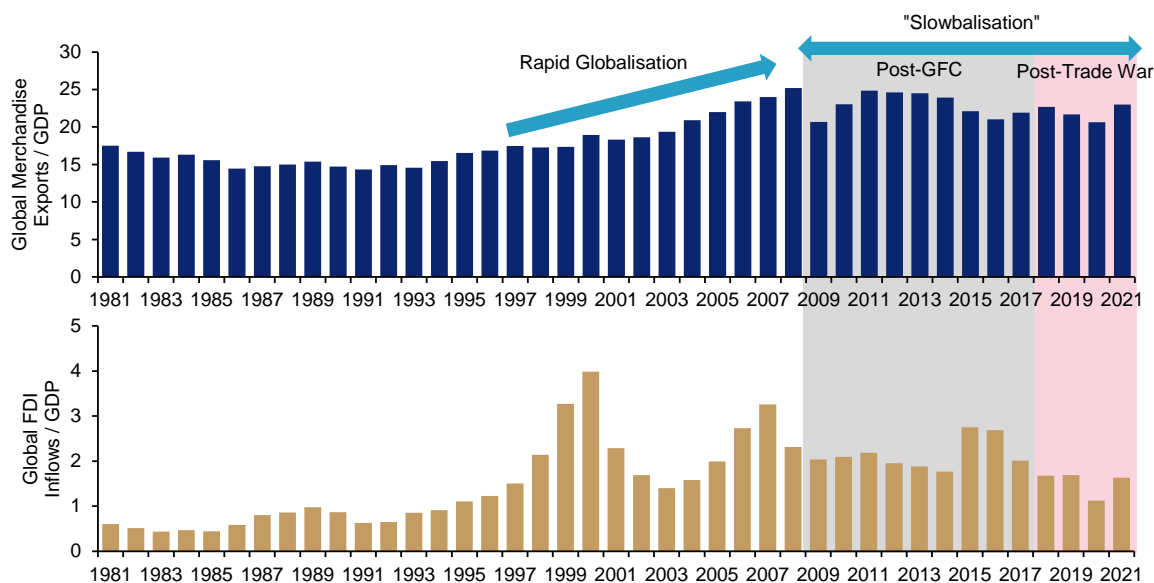
This section takes an empirical lens to assess the impact of geoeconomic fragmentation on trade and investment flows in the electronics global value chain (GVC) thus far, and draws some preliminary inferences for regional production networks.

The world has been in a “slowbalisation” phase in recent years, with increasing trade frictions impeding the flow of goods and capital

There have been concerns in recent years that global economic integration across countries is plateauing, amid rising geopolitical tensions and protectionism. The “rapid globalisation” phase took place from the mid-1990s until the GFC in 2009, with the global merchandise exports to GDP ratio rising from 15% in 1994 to a peak of 25% in 2008 (Chart 2.27). This was led by multinational companies diversifying their production bases in line with relative cost advantages. Since then, the world has entered a “slowbalisation” phase characterised by a weaker expansion of cross-border trade and investment flows, which has been compounded by the onset of the US-China trade war more recently from 2018. During the “slowbalisation” period from 2009 to 2021, the global merchandise exports to GDP ratio levelled off at an average of 22%, while the global FDI to GDP ratio hovered around 2%.

**Chart 2.27** Global merchandise exports and FDI inflows have generally plateaued since 2009

Global merchandise exports and FDI inflows as a share of GDP (%)



Source: WTO, World Bank, IMF and EPG, MAS estimates

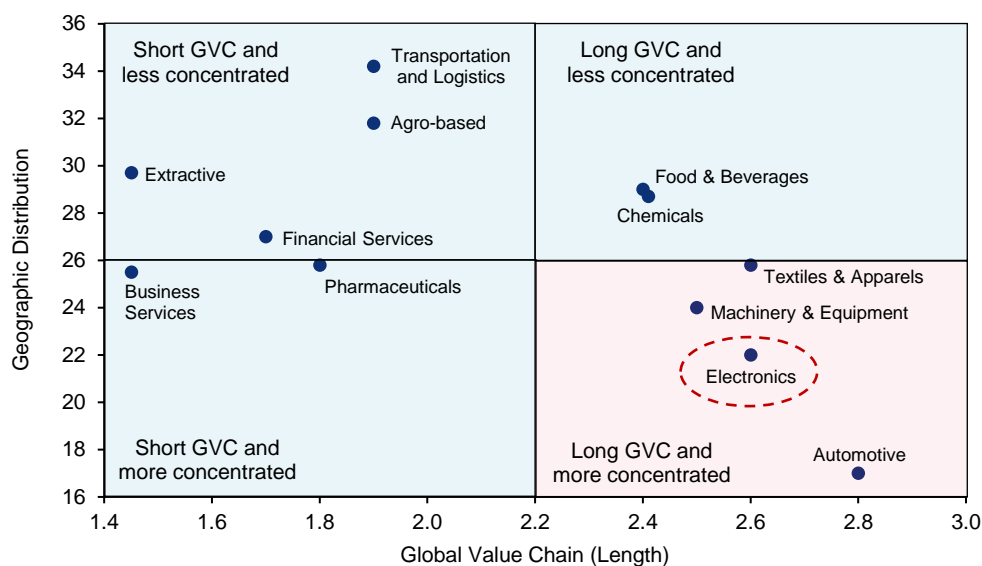
Trade frictions have already led to some reconfigurations in the global electronics supply chain, through trade diversification and insourcing

Given that aggregated global trade and FDI data could mask sectoral level differences, it might be more insightful to study cross-border trade interlinkages and shifts occurring in GVCs within a specific industry. Accordingly, this analysis focuses on the electronics industry, which is characterised by an extended GVC (many cross-border nodes of production), and a

relatively low geographic distribution (the bulk of production activity is concentrated in a few economies) (**Chart 2.28**). The electronics industry is thus vulnerable to reconfigurations in the supply chain, driven by increased trade diversification and insourcing. The importance of these trends for Singapore is clear—electronics is its largest manufacturing cluster, accounting for 42% of manufacturing output and 10% of nominal GDP in 2022.

**Chart 2.28** The electronics GVC has many cross-border nodes of production, and activity is concentrated in a few economies

Length and geographic distribution of global value chains



Source: UNCTAD World Investment Report 2021

Note: GVC length is measured by the number of cross-border intermediate production steps. Geographic distribution reflects the degree of concentration of value added, based on the number of countries that account for the bulk of global value added in gross exports.

## There has been some diversification away from the bilateral US-China trade in the electronics GVC

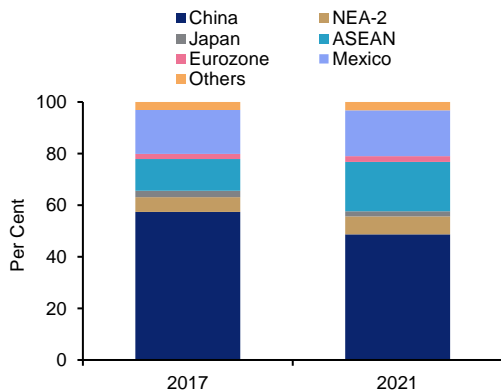
Trade diversification has been evident in the electronics GVC since the US-China trade war in 2018. Bilateral electronics trade (sum of imports and exports) between these two countries shrunk by 5.6% between 2017 and 2021 (prior to this period, there was a steady increase of 2.7% between 2012 and 2016). During this period, the US reduced its electronics imports from China and substituted mainly towards ASEAN for final electronics goods (**Chart 2.29**) and NEA-2 (South Korea and Taiwan) for intermediate products, mainly semiconductors (**Chart 2.30**). In comparison, China's import of electronics from the US was already relatively small as its sources remained stable and anchored in Asia, with the majority of its inputs from NEA-2 and ASEAN (**Charts 2.31 and 2.32**).

Asia's electronic exports to the US have continued to expand but there is some evidence that the associated trade routes may have been diverted through alternative regional production nodes. Although the US share in China's electronics exports fell by 4.1% points between 2017 and 2021 to 17.5%, China's overall electronics exports continued to trend higher. This was achieved by diversifying its export markets towards geographically closer

markets, such as Vietnam, Taiwan and Thailand. Over the same period, the US share in the exports of these Asian economies increased, particularly for Vietnam, which saw a 14% point rise in its exposure to the US market.

**Charts 2.29 and 2.30** The US has reduced its electronics imports from China and diversified towards ASEAN for final electronics goods and NEA-2 for intermediate electronics goods

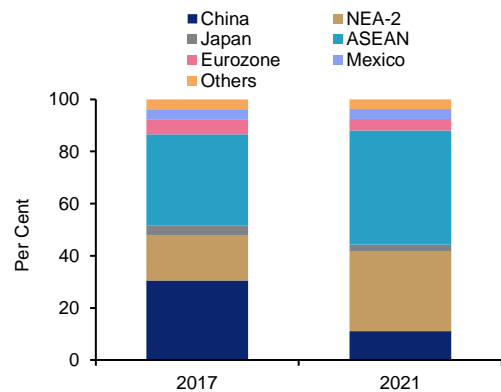
Market shares of US' imports of final electronics goods



Source: UNComtrade

Note: Final electronics goods comprise SITC codes 751, 752, 761, 762, 763 and 764.

Market shares of US' imports of intermediate electronics goods

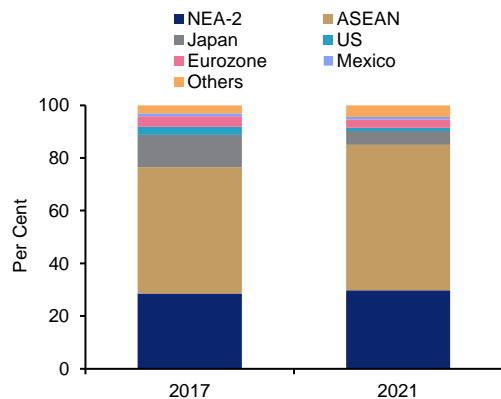


Source: UNComtrade

Note: Intermediate electronics goods comprise SITC codes 759 and 776.

**Charts 2.31 and 2.32** China's imports of final and intermediate electronics remained stable and anchored in Asia

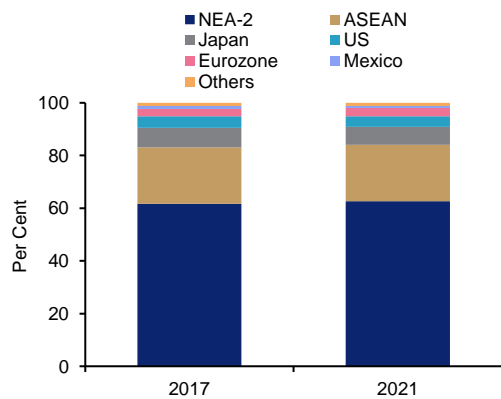
Market shares of China's imports of final electronics goods



Source: UNComtrade

Note: Final electronics goods comprise SITC codes 751, 752, 761, 762, 763 and 764.

Market shares of China's imports of intermediate electronics goods



Source: UNComtrade

Note: Intermediate electronics goods comprise SITC codes 759 and 776.

There is also a rising trend of insourcing of global electronics products, especially for semiconductors

Apart from trade diversification, trade frictions could also result in greater insourcing of electronics inputs in the major economies such as the US and China, which could in turn dampen cross-border trade flows. While this trend has not been evident in overall merchandise trade and production data thus far, there have been some incipient signs of insourcing in the global electronics industry (**Table 2.2**). A broad indication is seen in the faster growth of global production of electronics, by an average of 8.7% per annum from 2018 to 2021, with the slower 7.2% growth of electronics imports, unlike in the earlier periods when imports rose more rapidly.

**Table 2.2** Average annual growth (%) in global merchandise and electronics imports and output

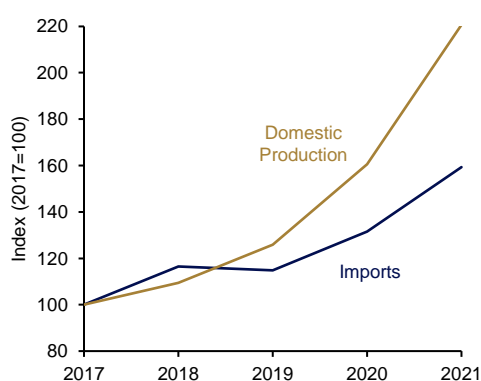
	Global Merchandise		Global Electronics	
	Imports	Output	Imports	Output
Rapid Globalisation (1998–2008)	10.9	5.2	8.7	5.5
Post-GFC (2009–2017)	1.8	3.1	4.1	3.2
Post-Trade War (2018–2021)	6.4	5.3	7.2	8.7

Source: World Bank, UNComtrade, OECD TiVA, and EPG, MAS estimates

The insourcing trend is even starker in the semiconductor industry, given its importance in a wide range of electronics applications. While China's import of semiconductors (accounting for about three quarters of its electronics imports) grew strongly by 17.8% on average in 2020 and 2021 in part due to pandemic-induced demand, its domestic chip output posted an even faster pace of expansion of 32.5% (**Chart 2.33**). In comparison, semiconductor import growth outpaced that of domestic production in the US over the same period (**Chart 2.34**).

**Chart 2.33** China's semiconductor production growth outpaced that of its imports...

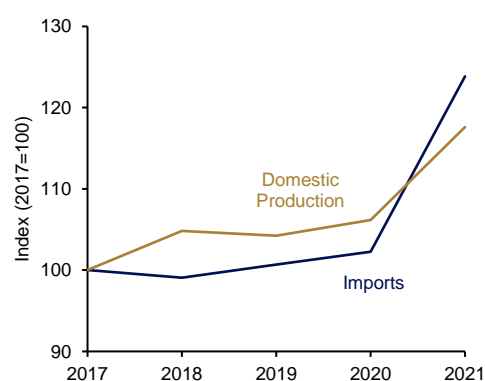
China's semiconductor production and imports



Source: China National Bureau of Statistics, UNComtrade and EPG, MAS estimates

**Chart 2.34** ...while the US' semiconductor imports grew at a faster pace than production

US' semiconductor production and imports

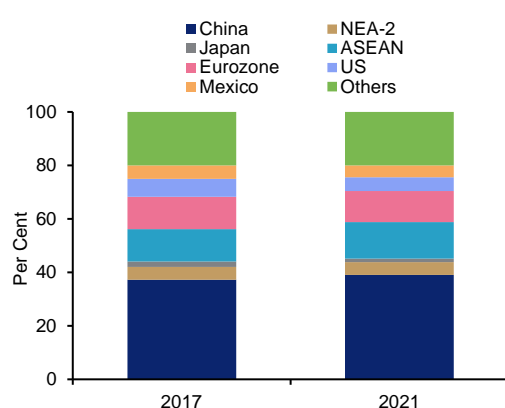


Source: US Census Bureau, UNComtrade and EPG, MAS estimates

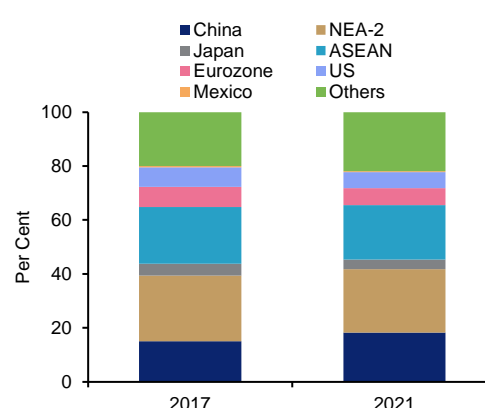
Despite these tentative shifts in the global electronics industry, Asia remains dominant in the global electronics trade, accounting for two-thirds of the world's final electronics exports and 85% of its intermediate electronics exports in 2021 (**Charts 2.35 and 2.36**). This could reflect the “stickiness” of GVCs, especially for the semiconductor industry where the cost of diverting or reshoring established supply chains could be substantial, due to the enormous capital expenditure required to build new plants and invest in equipment and R&D. In addition, expertise and innovation are concentrated in certain markets, creating a web of entrenched interdependencies along the value chain. For example, there is no one production node with all the capabilities for end-to-end semiconductor design and manufacturing.

**Charts 2.35 and 2.36** As of 2021, Asia accounted for about two-thirds of global final electronics exports and 85% of intermediate electronics exports

Global market shares of final electronics exports



Global market shares of intermediate electronics goods



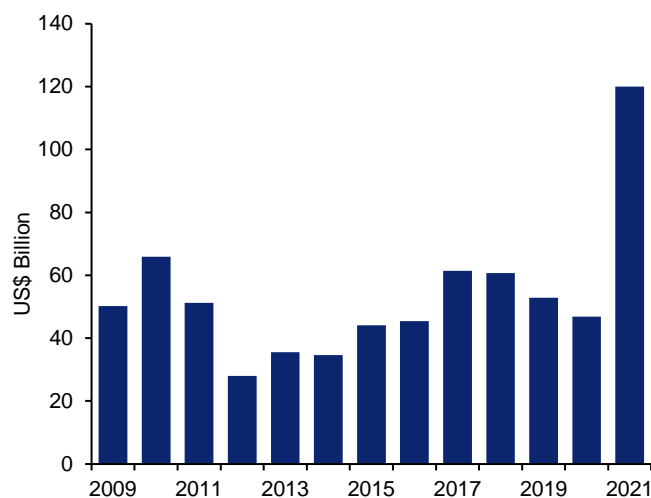
Source: UNComtrade

Note: Market share refers to exports by each economy to the world. Others also include economies in Asia such as India, United Arab Emirates (UAE) and Hong Kong.

The insourcing trend could intensify over time, as seen by direct investment flows. This will in turn have an impact on Asia. In 2021, the global electronics sector saw a sharp revival in FDI, with the value of announced greenfield investments more than twice pre-COVID levels (**Chart 2.37**). Most electronics investments were focused on the semiconductor industry, as countries pursued national resilience in their strategic sectors. In particular, the US and China appeared to be among the largest recipients of global foreign and domestic semiconductor investments since 2020. Based on EPG's estimates, they accounted for more than 70% of total semiconductor investments, underpinned by domestic investments amid the push for greater insourcing. Notably, about two-thirds of the US' total investment in chips and wafers were in advanced chipmaking, including cutting-edge foundry, logic and memory fabs being built by leading firms over the next few years. Greater insourcing among the US and China could have an adverse impact on electronics and overall output in the rest of Asia.

**Chart 2.37** The value of announced greenfield investments into the global electronics sector more than doubled in 2021 from pre-COVID levels

Global greenfield electronics investments



Source: UNCTAD World Investment Report 2022

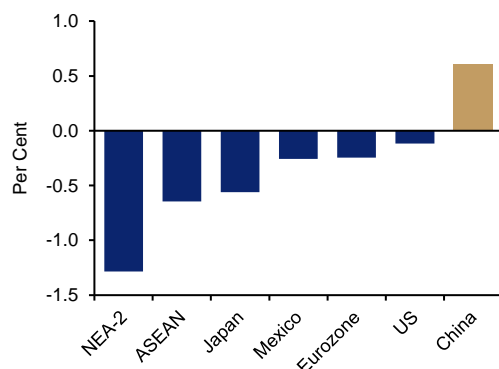
Note: UNCTAD investment data is based on only greenfield projects in the electronics & electrical equipment sector.

Using the OECD Global Input-Output tables, a simulation was conducted to assess the impact on electronics and overall output across regions, should China and the US increase their insourcing of electronics inputs in the medium term. As investments in both countries are projected to increase strongly over the next few years, the expanded domestic capacity in electronics production (mostly in semiconductors) would reduce their consumption of imported inputs. This would likely lead to a decline in the import intensity (defined as the percentage of imported intermediates in total intermediate consumption) of the electronics industry in China and the US, which stood at 15% and 23% on average in the five years prior to the 2018 trade war.

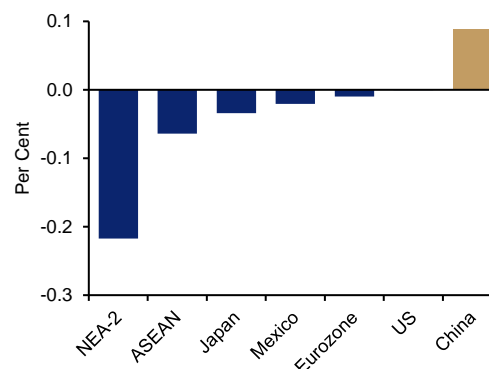
The simulation results suggest that for every 1% point reduction in the import intensity in both China and the US, China's electronics output could rise, as the increase in intermediate products used in its large domestic production base would likely outweigh the fall in such products exported to the US (**Chart 2.38**). In comparison, the US could see a decline in its electronics output, as the rise in demand for inputs used for domestic production would not be able to compensate for the reduction in intermediate inputs sold to China. Likewise, other regions could face a decline in their electronics output, with a greater incidence of the impact falling on economies that have strong trade and production interlinkages with China and the US, such as NEA-2 and ASEAN. Electronics output in ASEAN, for example, could decrease by about 0.6% point relative to the baseline with no decline in import intensity. The fall in electronics output would also have negative spillovers to the rest of the region's economy through the production and consumption channels, resulting in a 0.06% point decline in overall gross output (**Chart 2.39**).

**Charts 2.38 and 2.39** Increased insourcing by the US and China would reduce their import intensity, weighing on other economies' electronics output and overall output

Change in electronics gross output from a 1% point decrease in both US' and China's electronics import intensity



Change in overall gross output from a 1% point decrease in both US' and China's electronics import intensity



Source: OECD Input-Output Tables and EPG, MAS estimates

Note: The values are expressed as the percent change in output in the counterfactual scenario relative to the original output level.

However, the dynamic complexities in the global electronics GVC likely confound the above results. First, free trade agreements with the US and/or China could help mitigate or even reverse the output loss in major electronics exporters arising from the shift towards insourcing. For instance, Mexico could benefit from being in a free trade area with the US, as American firms may prefer nearshoring as compared to insourcing in order to control costs. Second, the market power of upstream suppliers of crucial inputs in the electronics GVC could cushion the adverse effects of insourcing. The technological leadership and strong ecosystems in Taiwan and South Korea in advanced chip fabrication could shield their exports from rapid substitution by domestic suppliers in the US and China.

### A more fragmented global electronics GVC presents both challenges and opportunities to Singapore

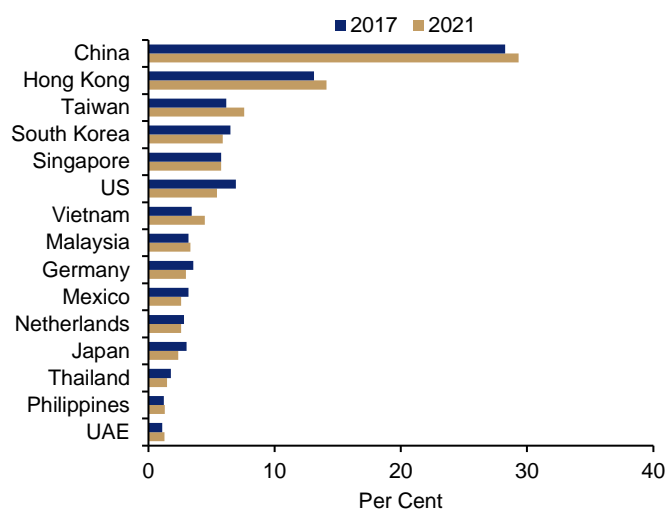
The foregoing analysis suggests that global electronics trade is likely to slow further in the coming years, as increased insourcing in the US and China is likely to take place at the expense of imports. Meanwhile, the electronics GVC could become increasingly fragmented as trade diversification occurs according to geopolitical relationships.

Singapore has remained a critical node in the electronics GVC, having maintained its share of around 6% in global electronics exports from 2017 to 2021 (**Chart 2.40**). It has remained an attractive location for semiconductor production, with upcoming projects by United Microelectronics and GlobalFoundries, as leading chipmakers sought to reduce concentration risks amid geopolitical developments. While the G3 has stepped up competition for investments in advanced chipmaking activities, Singapore has continued to draw investment interests, including from firms in mature technology nodes which remain the critical backbone across the electronics GVC.



**Chart 2.40** Singapore was the fifth largest electronics exporter worldwide in 2021, with its share of global electronics exports broadly unchanged at 6% between 2017 and 2021

Share of global electronics exports



Source: UNComtrade

To navigate the increasingly narrow and fragmented electronics trade corridors, Singapore could strengthen and entrench its role as an entrepôt hub, by leveraging its geographical advantage and efficient trade-logistics ecosystem. With the rising importance of ASEAN and India particularly in assembly, testing and packaging activities, it could be desirable for upstream producers in Singapore to forge stronger links with these emerging nodes in the electronics GVC. Maintaining Singapore's relevance in the major electronics trade corridors will not only ensure long-term growth in the manufacturing sector, but also generate positive spillovers to the services sectors such as wholesale trade, transportation, finance & insurance and professional services. In addition to trade, Singapore would also benefit from the growth potential in the new emerging nodes by seeking a greater role in capacity investments to these economies.