Economics & Strategy

Singapore in 2030: BAU, reinvention, or decline

Group Research

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Taimur Baig
Chief Economist

Irvin Seah
Senior Economist

David Skilling
Director
Landfall Strategy

Please direct distribution queries to
Violet Lee +65 68785281
violetleeyh@dbs.com

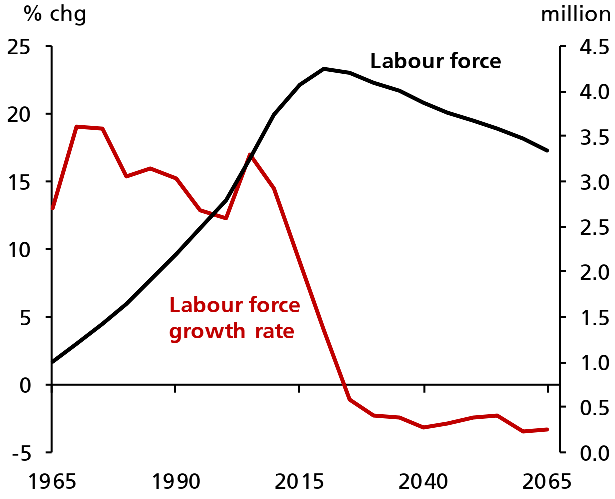
- *In the decade ahead, to 2030, a series of structural dynamics will impact on the outlook for Singapore. For example, factors such as medium-term demographic and productivity trends, the impact of technology and regional integration, and the international trading system.*
- *Singapore's economic performance over the past several decades has been exceptional, and the country now sits at the income frontier. However, recent GDP growth rates are markedly lower than in the past few decades. This is consistent with the experience of small advanced economies that are close to the income frontier.*
- *Taking into consideration productivity and demographic trends and ongoing structural reforms, a baseline of ~2-2.5% GDP growth on average over the period to 2030 is a reasonable starting point: 1.5% labour productivity growth plus 0.5-1.0% labour force growth. This is low by Singapore standards, but is healthy compared to other countries at the income frontier.*
- *Strategies pursued by both China and the US are causing challenges to Singapore's traditional growth model, with trade frictions rising and regional supply chain facing risks of disruption or fragmentation.*
- *An ongoing wave of technological change, impacting a wide range of activities, from production to finance, will have a profound impact on Singapore. Policies to harness these changes are critical for the long-term prospect of Singapore, something the authorities are keen to pursue.*
- *Regional integration is a win-win for Singapore, and it should take a leadership role in the region to facilitate it.*
- *With aging and slowing of growth, considerable investment needs to maintain a tech-ready and environmentally sustainable infrastructure, fiscal resources need to be managed judiciously.*
- *We consider three possible scenarios for the next decade: (i) business as usual; (ii) reinvention, and (iii) global regime change. Under the first scenario, efforts to improve productivity continue, but rising costs and adverse demographics keep firm level profitability below-par and the fiscal position under pressure. Growth slows toward 2%, in line with advanced economies at the income frontier. The second scenario envisions Singapore leveraging new opportunities from disruptive technologies, becoming an incubator of innovation and global best practices, with its firms expanding rapidly into international markets. Singaporean capital and knowhow place it in between China and India as a regional conduit of business, finance, and talent flow. Consequently, Singapore takes the top slot in global income rankings. In the third scenario, a series of setbacks in global trade and political order causes reduced market access, superpower rivalry, global market volatility, leaving Singapore with few viable options to maintain competitiveness. Growth slows, and per capita income growth stagnates.*
- *Given its buffers and a nimble economic model, Singapore should be well-positioned to deal with forthcoming challenges and opportunities.*

Ten key charts

The Singapore economy continues to undergo structural transformation. As we look to the next decade, there are several underlying dynamics at play. We have selected ten:

1. ***Singapore is at a demographic tipping point:*** The working age population will start to gradually decline. This transition to negative working age population growth reinforces the importance of a shift to productivity-led growth

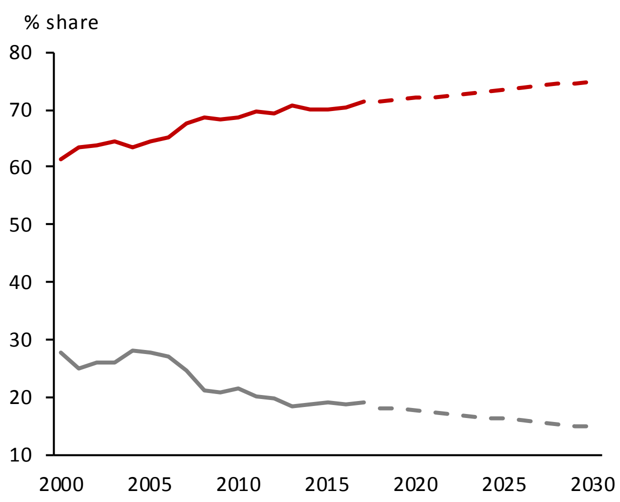
Workforce will shrink from 2025 onwards



Source: United Nations

2. ***The declining share of manufacturing*:** Although Singapore's manufacturing share of GDP is one of the highest in the advanced economies group, at 20% of GDP, it has been steadily declining due to automation. Such trend will only continue to exacerbate.

The declining share of manufacturing

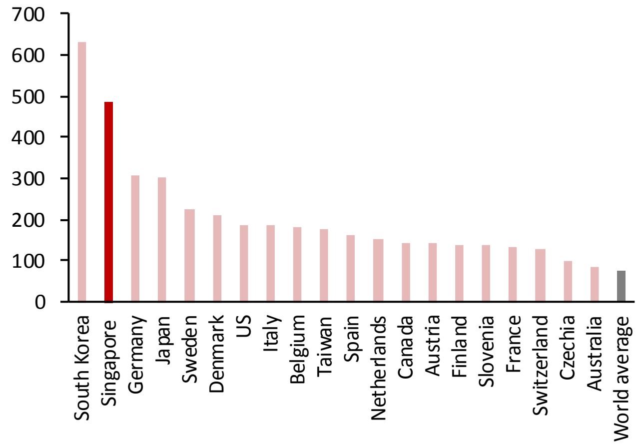


Source: Department of Statistics

3. ***Leading on automation*:** Singapore has one of the highest densities of industrial robots in the world, allowing for more to be produced in industrial sectors with less workers. This leadership position will support Singapore's growth as the working age population begins to shrink.

Leading on automation

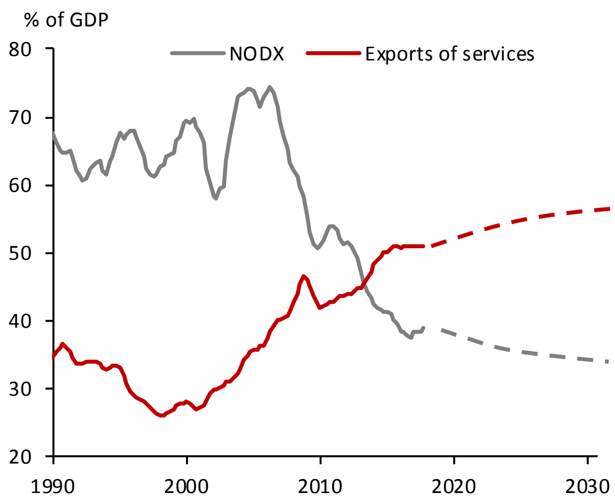
No. of industrial robots per 10,000 workers, 2016



Source: International Federation of Robotics

4. ***Transformation to a services-led economy*:** Singapore's exports of services (finance, business services, tourism) overtook (NODX) exports of goods in 2013. This gap looks set to widen further over the next decade as the economy becomes more services driven

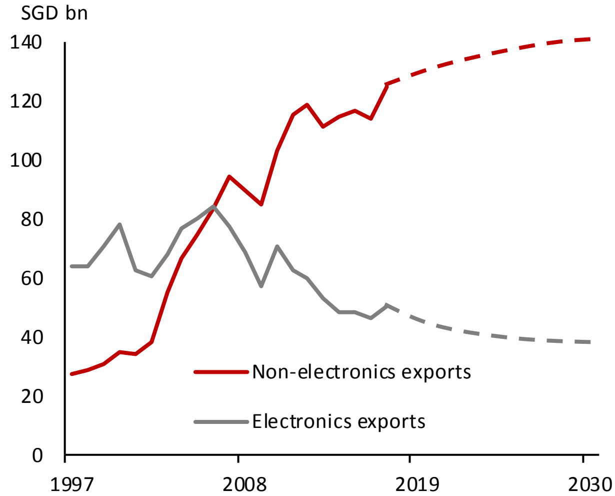
Singapore becoming more services-led



Source: Department of Statistics

5. ***The diminishing importance of electronics*:** Singapore's export base used to be reliant on exports of electronics. But about a decade ago, exports of non-electronics (pharmaceuticals, petrochemical) overtook electronics. Non-electronics are now over 2.5x as large and this gap will continue to widen.

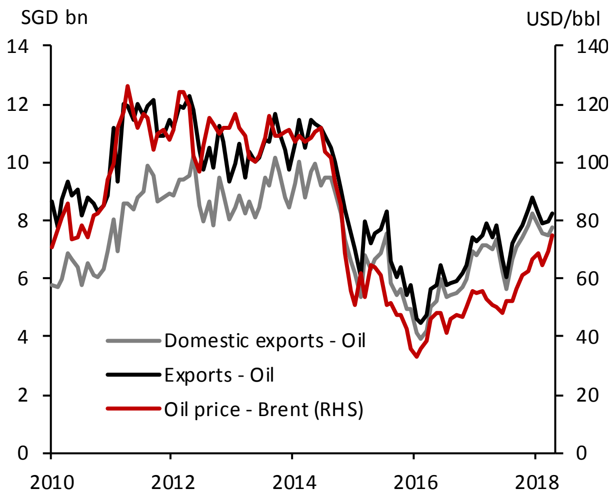
Electronics exports in decline



Source: Department of Statistics

6. ***Singapore as a commodities hub*:** Singapore has positioned itself as a hub for commodities. This is reflected in oil exports: currently over $90b on 130m barrels of oil – and this will likely increase on both higher volumes as well as recovering oil prices.

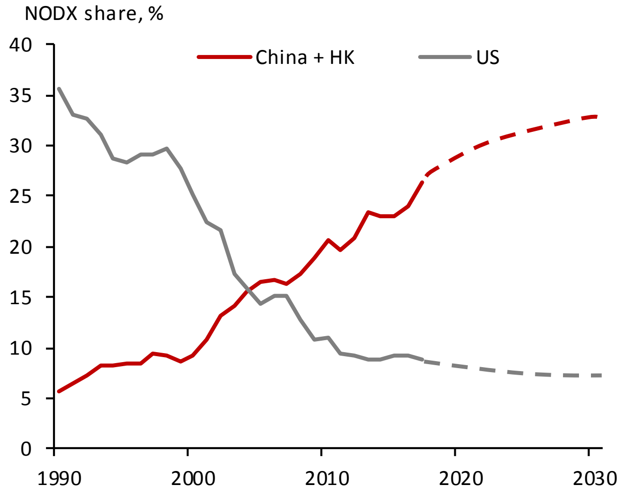
Singapore is vulnerable to the commodity cycle



Source: Department of Statistics, CEIC

7. ***From west to east*:** The US was the dominant export market for Singapore into the early 2000s. But the combined China and Hong Kong market overtook the US in around 2005, and is now the largest export market for Singapore. Singapore will become more dependent on China going forward.

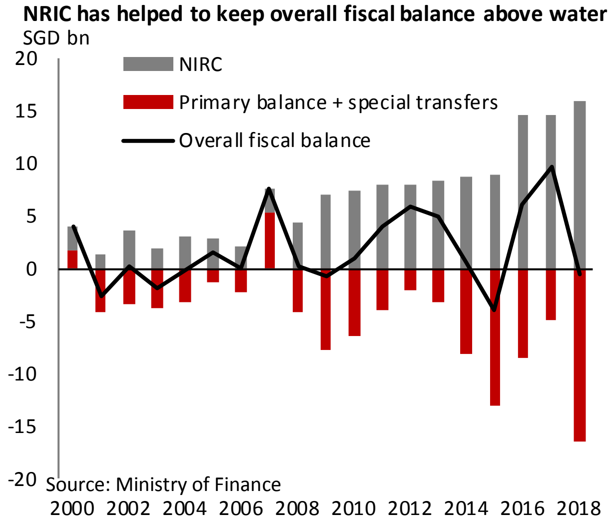
China has surpassed the US as the largest market



Source: Department of Statistics

8. ***A growing fiscal challenge*:** Increased pressures are being placed on government revenues in the context of an aging population. The government is increasingly relying on income from reserves to meet these demands.

NRIC has helped to keep overall fiscal balance above water

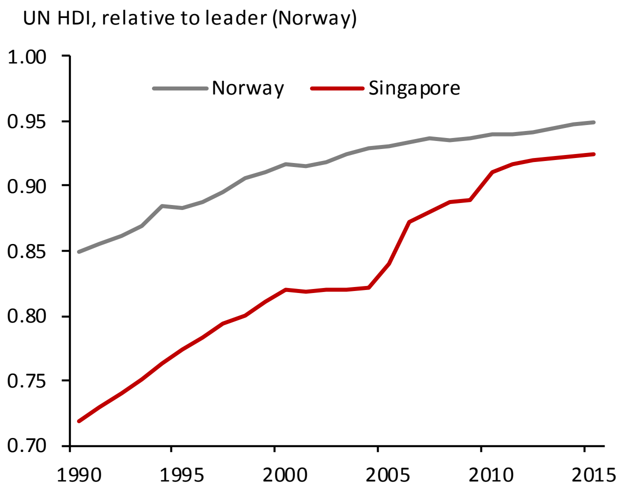


Source: Ministry of Finance

9. ***Singapore at the social frontier***: Along with Singapore's economic transformation from third world to first, there has been an accompanying transformation in human development. Singapore has progressively closed the gap to the frontier on the UN's Human Development Index, reflecting strong social outcomes.

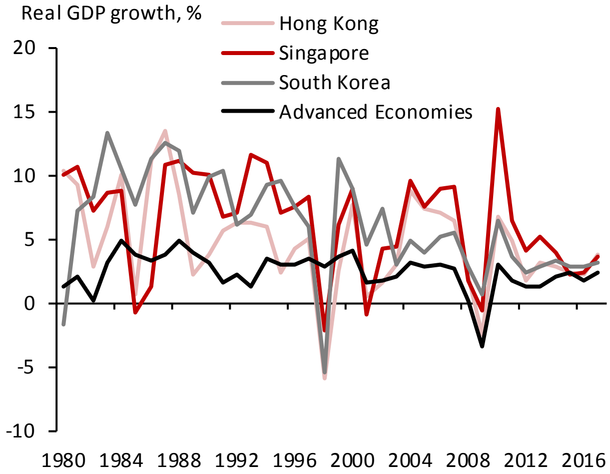
10. ***Slower growth at the income frontier:*** As Singapore has converged to the per capita income frontier, its GDP growth rates have slowed, in a similar way to that seen in other previously high growth economies at the frontier. Slower GDP growth rates should be expected in the years ahead.

Singapore at the social frontier



Source: United Nations

Slower growth at the income frontier



Source: CEIC

Introduction

The Singapore economy continues to undergo structural transformation. Over a horizon of a decade or more, to 2030, there are a series of structural dynamics that will impact on the outlook for Singapore. For example, factors such as the medium-term demographic and productivity trends, the impact of technology and regional integration, and the international trading system.

To consider the impact of these emerging dynamics, this paper proceeds in three steps. Part I describes the key drivers of Singapore's growth and how these are expected to evolve over the period to provide a baseline view on the outlook through to 2030. Part II then considers several emerging challenges and opportunities that will shape Singapore's economic outlook. Part III builds on these dynamics to construct three scenarios for Singapore in 2030: 'business as usual', 'reinvention', and 'global regime change'.

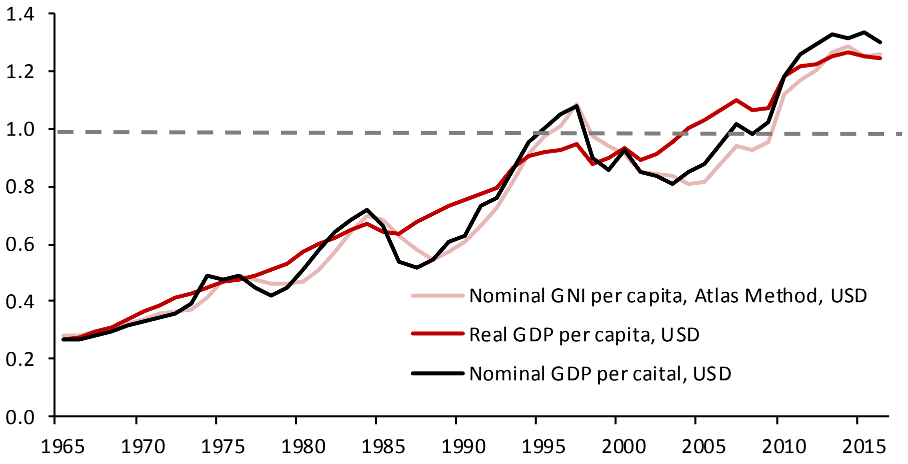
The key drivers of Singapore's economic growth

Singapore leapfrogged ahead from third world to first world

Singapore's economic performance over the past several decades has been exceptional, with Singapore moving from third world to first. In 1965, Singapore's per capita income was about one third of the global per capita income frontier (defined as the 90th percentile of all countries). By the 1990s, Singapore had reached the income frontier, and is now sitting over 20% above the frontier.

Singapore well above the average

Ratio of high income group average



Source: World Bank

Along with other Asian tigers (Hong Kong, Taiwan, and Japan), Singapore moved very quickly through the middle-income level. Singapore has achieved this economic transformation through a combination of growth in the labour force (including sustained levels of immigration), substantial capital accumulation (i.e., inward FDI), as well as productivity catch up growth.

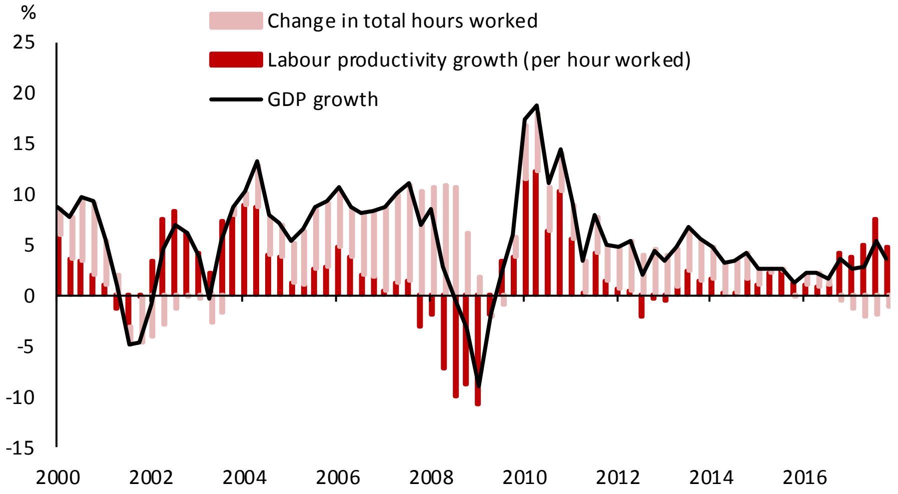
However, recent GDP growth rates are markedly lower than in the past few decades. This is consistent with the experience of small advanced economies that are close to the income frontier: as countries become richer, their growth rates tend to slow. This is not an iron-clad law, but 5% growth at the income frontier would be unusual.

Growth model

In order to develop a structural view on Singapore's GDP growth outlook in the period to 2030, it is useful to describe Singapore's existing growth model. The drivers of Singapore's GDP growth can be described in terms of the contribution from growth in hours worked and labour productivity growth. Since 2000, about 60% of Singapore's headline GDP growth has come from growth in hours worked and the remaining 40% from productivity growth.

Growth was driven much by increase in labour / hours worked

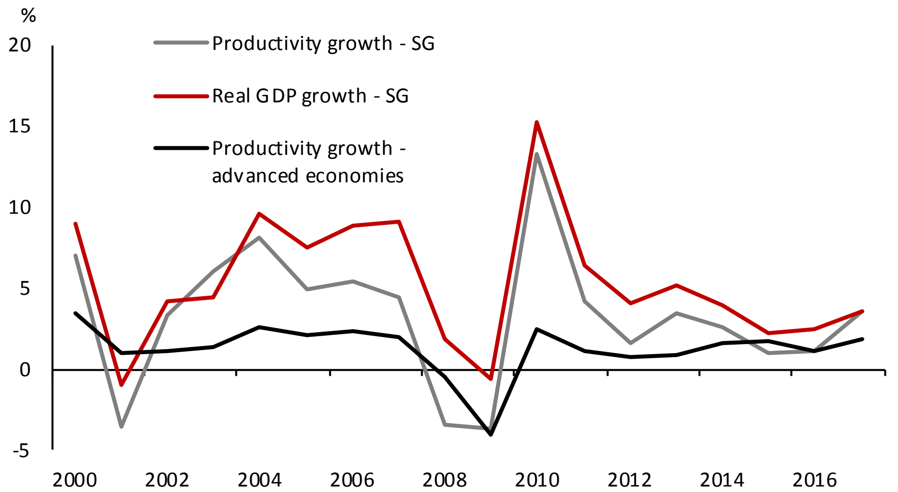
Decomposition of GDP growth



Source: Department of Statistics

Singapore's GDP growth has benefited from both favourable demographics as well as significant migration inflows. However, this has meant that per capita GDP and labour productivity growth has been lower than headline GDP growth, significantly so in the several years prior to the global financial crisis. However, Singapore's productivity growth has been better than that of the advanced economies group for most part of the past two decades.

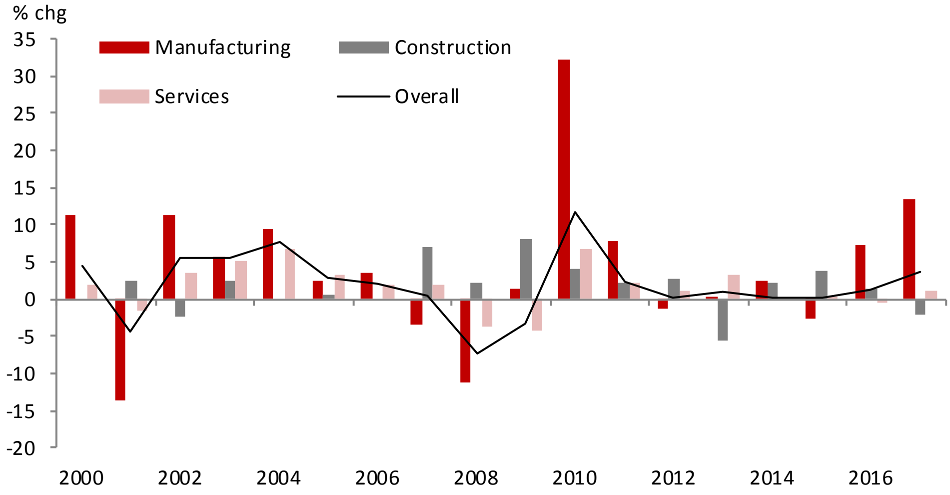
Singapore's productivity growth in line with advanced economies



Source: World Bank, Department of Statistics

Sustained productivity growth has been more elusive for Singapore; and more so as Singapore reached the income frontier, where there are limited catch-up opportunities. This became more acute in the post-crisis period, as Singapore's external sectors were impacted by the weak global growth. This is now improving, as global growth picks up. But productivity growth in the domestically-oriented sectors remains modest.

Productivity growth across sectors, 2000-2017

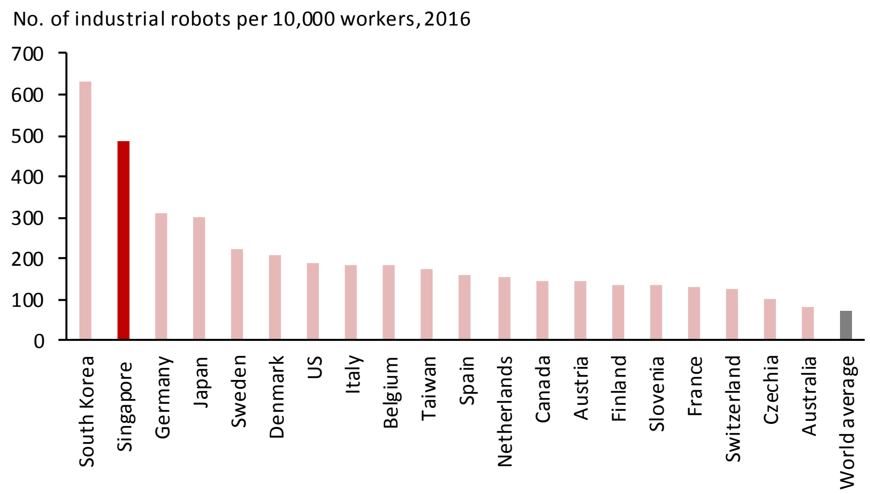


Source: Department of Statistics

Domestic sector underperformed in productivity growth

There is significant variation across the Singapore economy in terms of productivity growth. As is also the case in many other small advanced economies, Singapore's externally oriented sectors (such as manufacturing) tend to have high levels of labour productivity as well as strong productivity growth rates. In fact, Singapore has one of the highest densities of industrial robots in the world, allowing for more to be produced in industrial sectors with less workers.

Singapore has one of the highest densities of industrial robots



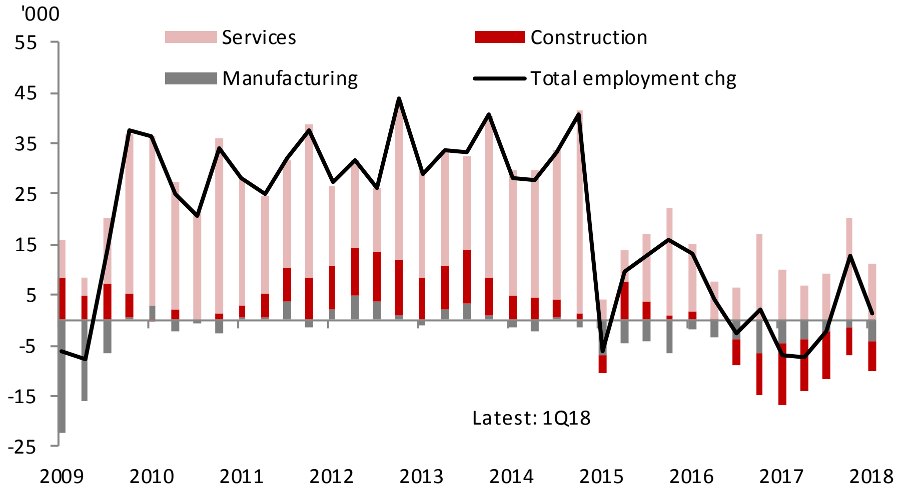
Source: International Federation of Robotics

In contrast, domestically oriented sectors (retail, construction) frequently have low productivity levels – because they are constrained by the relatively small size of the domestic market.

One of the productivity challenges for Singapore is that much of the employment growth has been in domestically-oriented sectors with low levels of labour productivity. This dynamic is likely to continue, given the increasing capital intensity of many internationally-oriented sectors: for example, employment in manufacturing contracted through 2017 even as output grew strongly.

Productivity gains has reduced labour demand in manufacturing

Employment growth has fallen



Source: Ministry of Manpower

The need to transform Singapore to a productivity led growth model has been consistently identified by economic officials, including by the recent Committee for the Future Economy (CFE) [1]. This is partly about identifying new growth opportunities in the tradables sector; as well as to strengthen the productivity performance of sectors in the domestic economy.

CFE's 7 key strategies

1. Deepen and diversify our international connections
2. Acquire and utilise deep skills
3. Strengthen enterprise capabilities to innovate and scale up
4. Build strong digital capabilities
5. Develop a vibrant and connected city of opportunity
6. Develop and implement Industry Transformation Maps (ITMs)
7. Partner each other to enable innovation and growth

Medium term growth outlook

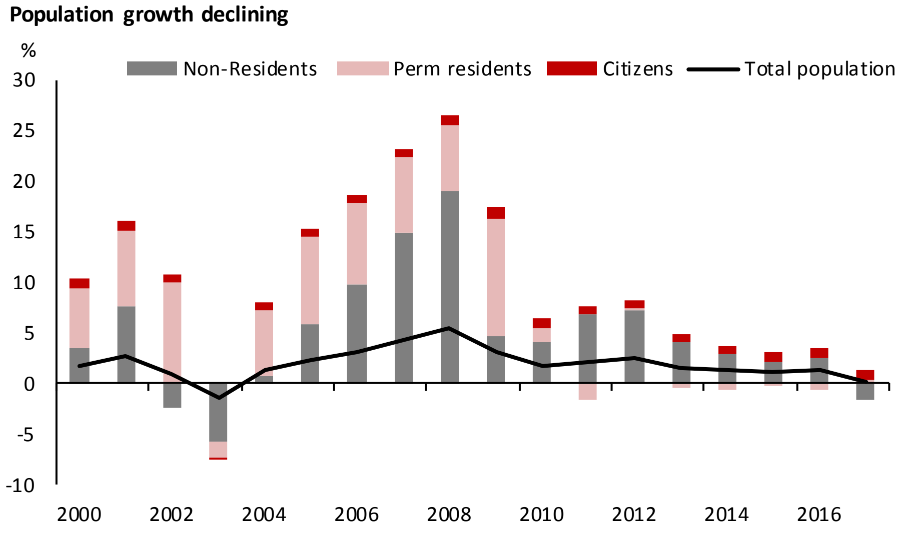
This structure provides a framework for developing a view on the Singapore outlook. Taking baseline demographic and productivity estimates, we can construct a baseline economic outlook for Singapore through to 2030.

First, consider the contribution from growth in the labour force. This will likely grow less rapidly than the average over the past 20 years. Indeed, hours worked and employment contracted through 2017. And the number of work permits (and other

[1] https://www.gov.sg/~/media/cfe/downloads/mtis_full%20report.pdf

forms of foreign entry into the workforce) has been reducing. Singapore's overall population grew by just 0.1% in 2017 (or about 5000 people), the lowest since 2003.

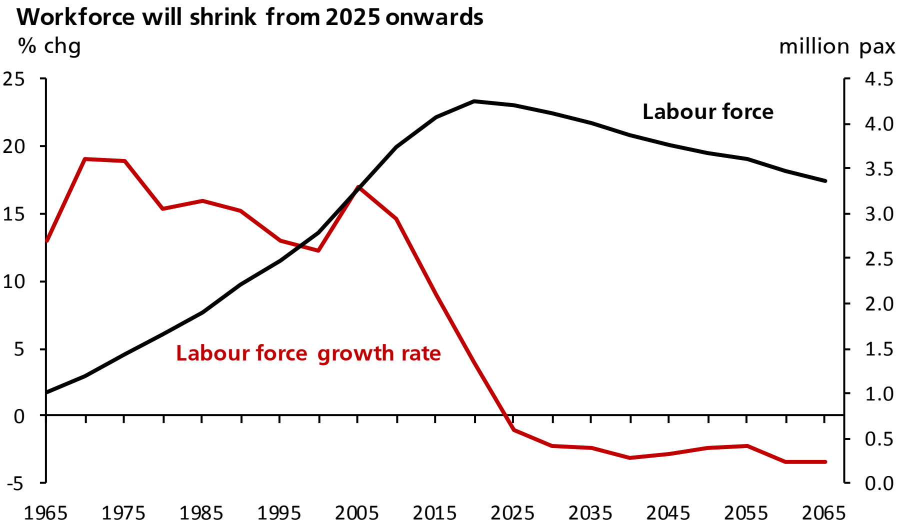
Population will start declining



Source: Department of Statistics

The working age population outlook to 2030 will be based on two factors. First, domestic demographic factors. Over the horizon to 2030 this can be forecast with a high level of confidence as the people who will be in the workforce in 2030 are largely in the current workforce or in education. The UN forecast that Singapore's working age population (aged between 15 and 64) will be 4.1 million in 2030 down from 4.2 million in 2020. This suggests a growth rate of about zero over the full period to 2030, markedly down from the previous decades.

Labour force will shrink after 2020



Source: United Nations

MAS estimate that the resident working-age population – citizens and permanent residents between the ages of 15–64 – will begin to shrink from around 2020 and may decline by a cumulative 3.5% by 2035 [2] Singapore's labour force participation rates

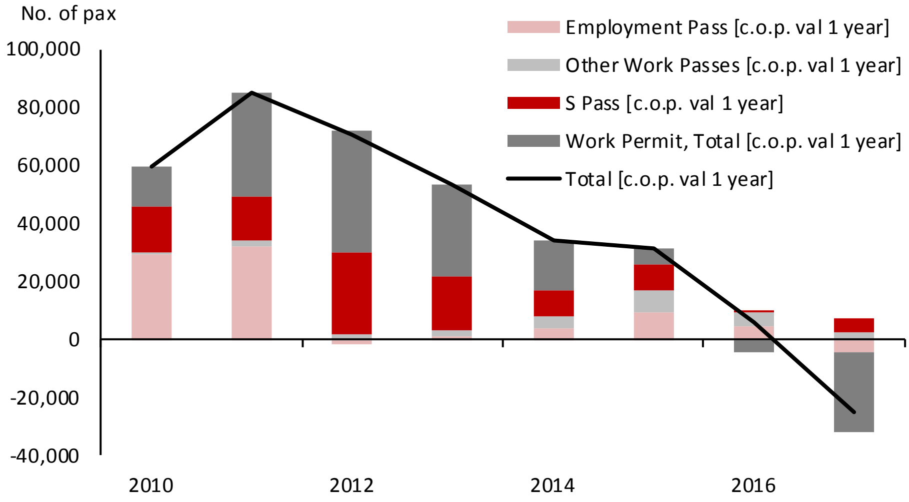
[2] http://www.mas.gov.sg/News-and-Publications/Speeches-and-Monetary-Policy-Statements/Speeches/2018/Economic-Dynamism-Amidst-Demographic-Change.aspx

are already reasonably high, and unemployment rates are low; there is only limited scope to increase performance on these measures.

The second factor is the contribution from foreign workers as well as net migration (new citizens and permanent residents). Net migration has been roughly flat since 2012, and the number of new foreign workers has been steadily declining over the past several years. If foreign worker inflows were to register closer to the average of the post-2011 period of around 40,000, this would result in growth of around 1% of the labour force (which is currently 3.7 million).

Foreign labour force is also declining

Foreign labour force declining



Source: Ministry of Manpower

Overall, assuming labour force growth of 0.5% to 1.0% in the period to 2030 seems reasonable, with the number gradually trending towards the bottom of this range over this period. To increase GDP growth, particularly on a per capita basis, there is a need to substantially raise labour productivity.

On labour productivity growth, the average over the past several years has been around 1.5% a year. This is similar to the labour productivity growth rates that are generated by other small advanced economies. Note that there has been a structural decline in labour productivity growth rates across advanced economies over the past few decades.

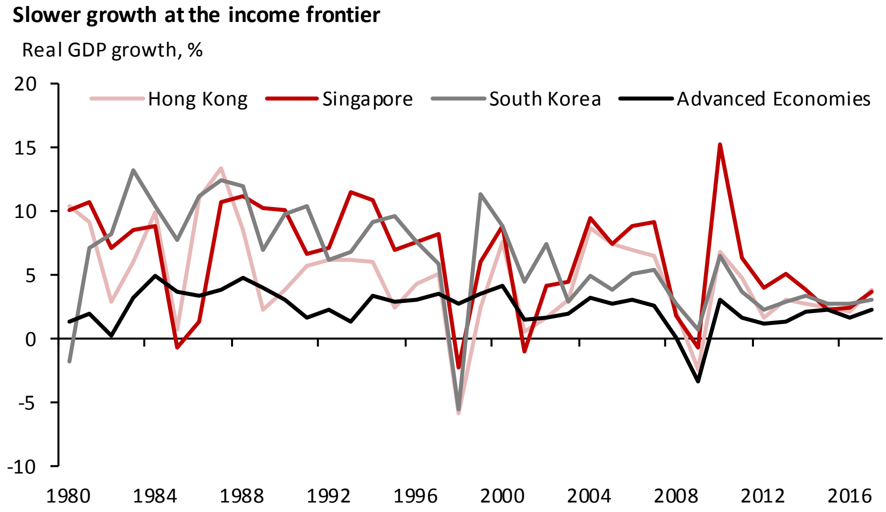
Of course, labour productivity growth in small open economies like Singapore tends to be cyclical in nature. In good times, labour productivity growth rises sharply (as happened through 2017) as output expands without any immediate increase in the number of workers. For Singapore, this means that the rate of labour productivity growth is sensitive to the strength of external demand; labour productivity growth was 3.7% in the year to December 2017, up from a post-crisis average of around 1%, because of strong growth in externally-oriented sectors. This baseline assumption assumes stronger external demand than through much of the post-crisis period, but not as strong as through 2017.

Medium term potential growth rate estimated to be around 2-2.5%

Overall, a baseline of ~2-2.5% GDP growth on average over the period to 2030 is a reasonable starting point: 1.5% labour productivity growth plus 0.5-1.0% labour force growth. This is low by Singapore's historical standards, but is healthy compared to other countries at the income frontier.

Source: CEIC, DBS forecast

If anything, this estimated baseline growth will be slightly higher than Singapore's advanced economy peers. Singapore on this basis can expect to remain close to the frontier.



Source: CEIC

This outlook to 2030 is broadly consistent with other projections for Singapore. For example, the IMF forecast average GDP growth rates for Singapore of 2.6% through 2022.

Emerging challenges and opportunities

There are a range of structural challenges and opportunities that will impact Singapore in the period through to 2030. Some are positive, like regional integration and new technologies, while others present challenges, such as risks to globalisation and growing fiscal pressures. The effects of these dynamics will have a substantial bearing on the economic outcomes that are realised through to 2030; and whether the baseline projection is appropriate or not.

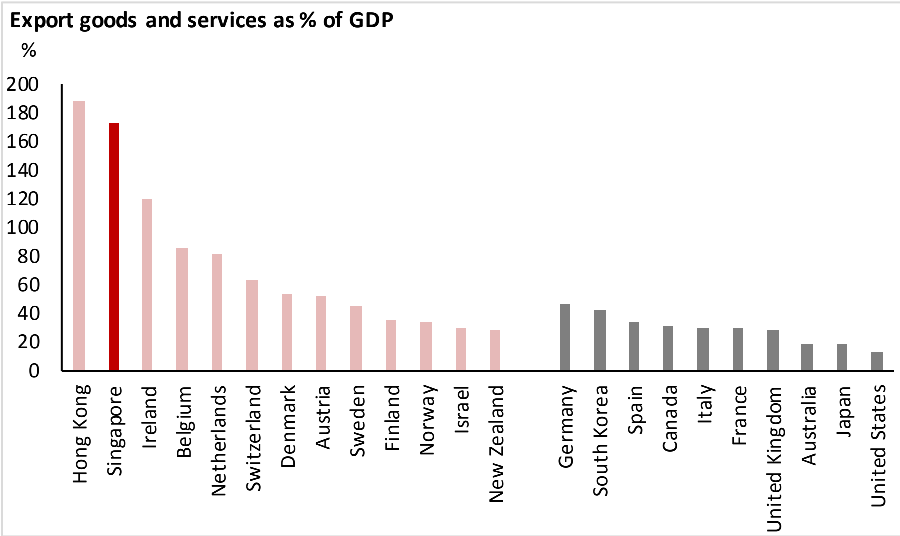
The key issues that are identified are: risks to globalisation; opportunities from regional integration; the emergence of disruptive technologies; and fiscal pressures associated with an aging population.

Risks to globalisation

Since independence, Singapore has benefited substantially from a supportive international economic and political environment: intense globalisation supported by the rules-based system as well as relative geopolitical stability in the Asian region. Singapore has benefited in terms of strong export growth, the deepening of its hub status, and being able to attract FDI from MNCs who were establishing a regional presence. Singapore has also been active in positioning itself to benefit from globalisation, signing FTAs and engaging on regional integration efforts. Most recently, Singapore has signed the TPP-11 agreement.

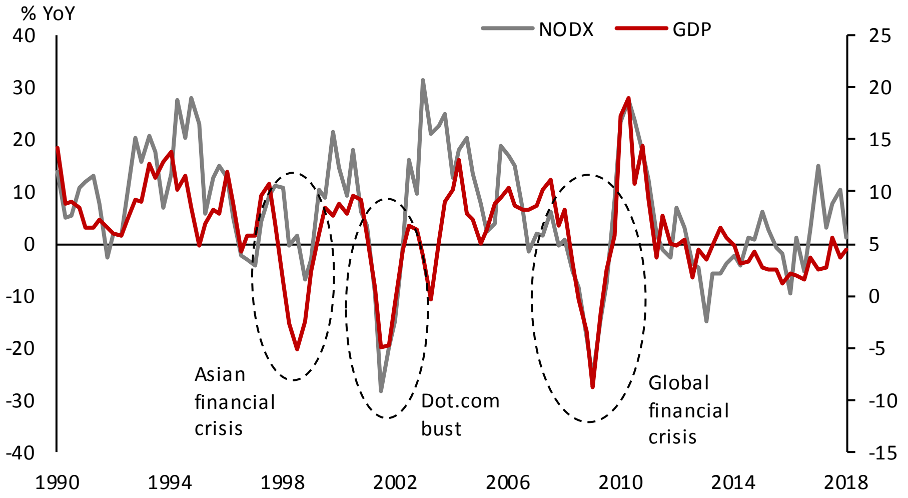
Globalisation is under threat

Singapore is deeply exposed to changes in the external environment because of its high external share. The economic time series of Singapore clearly shows the sensitivity of Singapore to the external economy: it was hit by various shocks such as the Asian financial crisis in 1997/98 and the global financial crisis of 2008, just as it benefited from strong global growth over much of the past few decades.



Source: World Bank

GDP vs NODX growth



Source: Department of Statistics

But there are deep pressures emerging on the international economic and political system that has supported Singapore's growth. The 'America First' approach of the Trump Administration is sceptical of the international rules-based system, and is less prepared to support this system – pursuing a more bilateral approach, pulling out of agreements like the TPP, and questioning the value of institutions such as the WTO. In the first quarter of 2018, numerous actions have been taken by the US that have raised the risk profile around the international trade system.

Singapore is deeply exposed to global business cycle

And China's approach to economic policy is also causing stresses in the system, from the nature of market access of foreign firms into China to the industry policy described in the Made in China 2025 Plan. Emerging trade tensions between China and the US are a clear case in point.

More broadly, there is growing evidence of a greater intersection between geopolitical choices and economic outcomes. Note, for example, recent Chinese economic pressure on countries such as South Korea and Norway, after bilateral diplomatic tensions. And the exemptions granted by the US to the steel and aluminium tariffs (imposed on national security grounds) were related to the political relationship with the US.

These tensions may not lead to a full-blown trade war, but it is increasingly likely that the open, rules-based system will weaken. There will likely be additional barriers and restrictions on international trade and investment flows, and a tighter link between economic and political relationships. This may lead to a more fragmented, multi-polar global trade and economic system. This would reduce the intensity of cross-border trade and investment flows, and make the environment more challenging for small economies like Singapore.

In addition to these political risks, there are also economic risks associated with the potential for an unwinding of global value chains, as technology and weakening opportunities for labour cost arbitrage cause firms to 'reshore' production activity. To the extent that there is an unwinding of global value chains, and firms become more local rather than regional or global, Singapore could be particularly exposed.

However, some of these risks are mitigated by Singapore's exposure to Asian markets, where the appetite for protectionism is most limited. TPP has been signed, and there is also progress underway on a variety of trade measures, such as the AEC and RCEP.

Regional integration

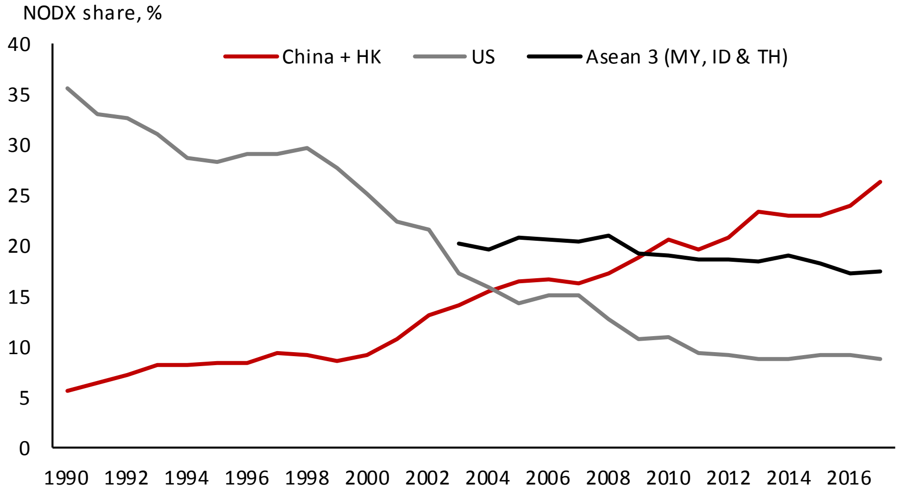
One of the characteristics of successful small advanced economies is deep regional economic integration; they are deeply embedded into regional production networks and sell extensively into proximate markets. For example, many EU countries sell 60-70% of their exports to other EU markets: partly due to physical proximity, partly due to the absence of barriers within the EU.

Regional integration will benefit Singapore

Singapore has a range of valuable options in this regard. Singapore's geographic location in South East Asia, and its position between China and India (on major transport routes), places it at the centre of global growth.

The shift in the centre of global economic gravity can be seen in the nature of Singapore's export profile. In 1990, the US was the dominant export market (at about 40% of NODX exports). But China and Hong Kong overtook the US share in 2005, and is now Singapore's largest NODX export market (with a 25% share).

Growing importance of China in terms of NODX share

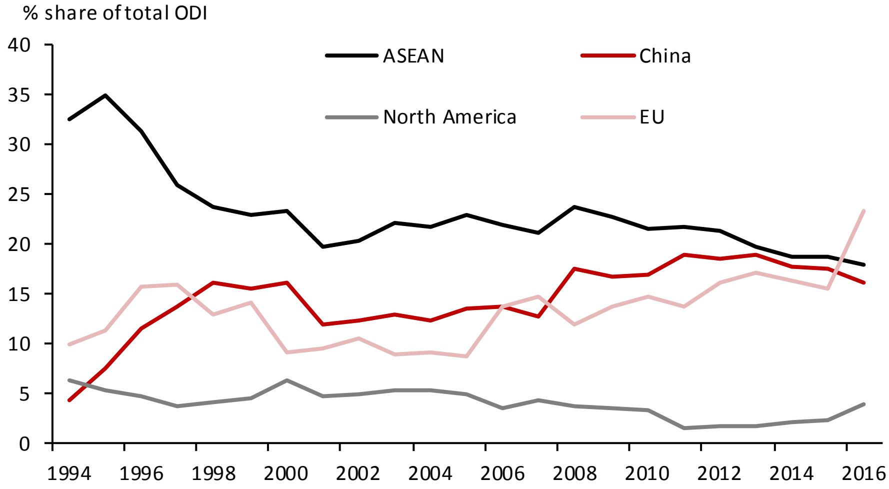


Source: Department of Statistics

There are some additional opportunities for Singapore in its region as well. While Singapore has a diversified export profile, it's exposure to ASEAN is relatively limited. The NODX share to ASEAN has been stable at around 20% for the past 15 years. This is partly because of Singapore's export structure (which is heavily shaped by MNCS, often not producing for regional markets) as well as differences in per capita income. But while the export market share into ASEAN countries has been roughly flat over the past 15 years, the export share into China and Hong Kong has risen strongly.

There is a similar profile in terms of outward direct investment (ODI) by Singapore firms into ASEAN too. ODI share to ASEAN has been falling while investment into China has risen over the years. Note that these numbers are likely distorted a little because of the high proportion of FDI outflows that are coming from MNCs based in Singapore.

ODI to Asean has been falling



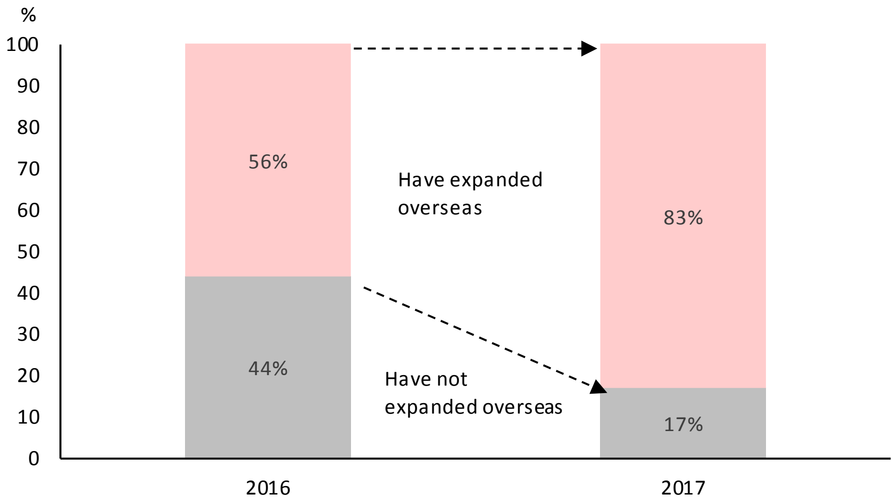
Source: Department of Statistics

Singapore can tap on emerging opportunities in ASEAN

These dynamics are perhaps not surprising given the scale and speed of China's growth, and its central place in regional and global value chains. But deeper regional integration into South East Asia will offer additional opportunities for Singapore. An increasing share of global GDP growth will be within a few hours' flight of Singapore. ASEAN is the 5th largest economic region in the world, with a collective population of over 600 million people. The emerging middle class in the region would imply significant business and export opportunities for Singapore.

There are evidences to suggest that Singapore companies are increasingly more encouraged to internationalise. Survey from the Singapore Business Federation (SBF) shows that 83% of the companies surveyed have expanded overseas, up from 56% in 2016. And among the companies, 69% are planning to intensify their Southeast Asia footprint; and the top three markets are Myanmar (27%), Vietnam (25%) and Indonesia (21%). Such trend could likely continue in the longer term.

Internationalisation efforts taking root



Source: National Business Survey, Singapore Business Federation

Of course, there are also economic and political risks in the ASEAN region. But these would likely be mitigated by the gradual moves toward greater regional integration

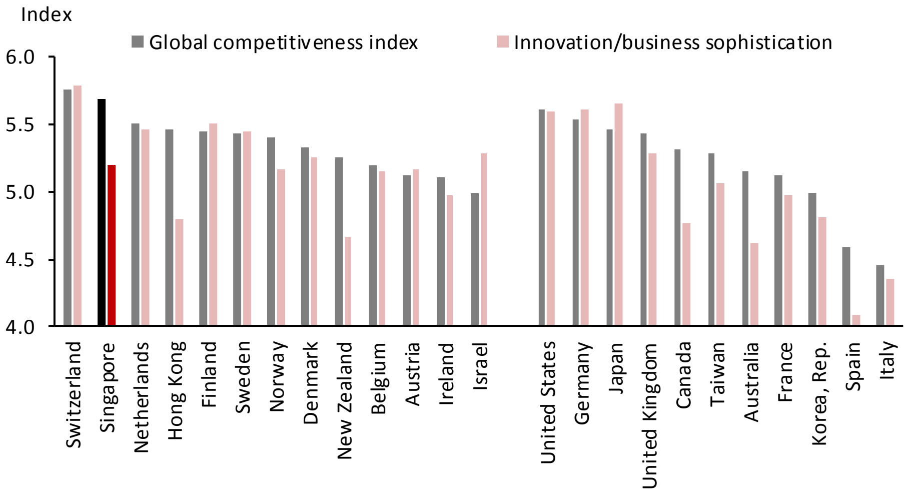
(AEC, RCEP, TPP), as well as stronger connectivity. Policy measures by the Singapore government to provide greater support for companies in their internationalisation efforts would likely yield positive outcomes too.

Disruptive technologies

A wide range of emerging technologies – from robotics, autonomous vehicles, 3D printing and the internet of things – are expected to be enormously disruptive to labour markets, to firms, and to entire economies. Disruptive technological change is not new, but this is now happening at a scale and speed that is unprecedented. Several Asian countries, including Singapore, are estimated to be particularly exposed to automation – which will bring both opportunities as well as challenges. For example, the McKinsey Global Institute estimates that the widespread use of these technologies could contribute to a substantial lift in labour productivity growth around the world.

Singapore is well-placed to take advantage of these opportunities as well as to manage the risks. The World Economic Forum recently ranked Singapore as one of the best positioned economies to capture value from disruptive technology.

Singapore is ranked highly in competitiveness and innovation



Source: Global Competitiveness Report, World Economic Forum

Singapore is in a strong position to leverage on new technologies

Singapore has high levels of human capital and skills, with workers able to upgrade and adapt to new ways of working. This is supported by active government initiatives around skills upgrading (Skills Future, as well as through the formal education system). There is a strong record of R&D spending and innovation, and uptake of new technology.

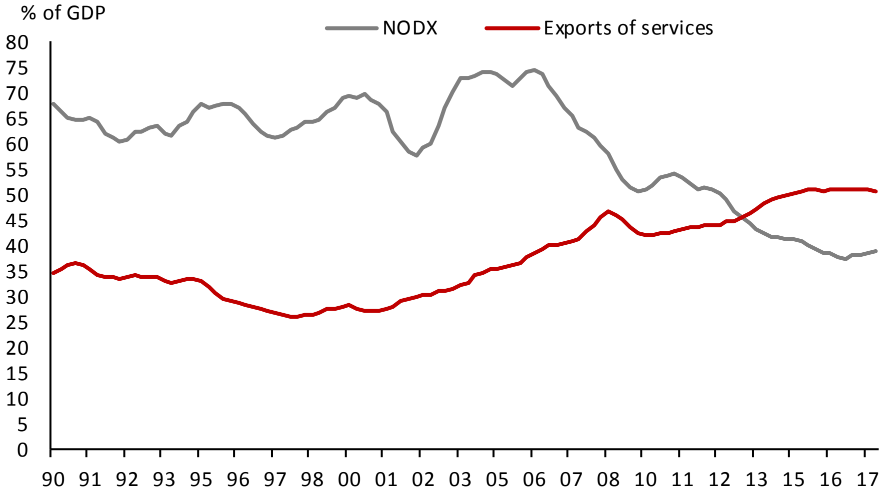
And the Singapore government has identified various elements of disruptive technology as a strategic policy priority; for example, through the Smart Nation initiative. Singapore is leading with policy and regulatory innovation in areas such as fintech, autonomous vehicles, and drones.

Singapore's economic structure means that these technologies will provide a particularly valuable way of pursuing the productivity agenda. Many small advanced economies have high cost structures, which is placing pressure on their competitive position. Technologies such as automation and the internet of things provide ways for firms to strengthen their competitive positions in international markets.

Disruptive technologies will also have a meaningful impact on the services sector, from e-commerce in retail to fintech. Productivity in Singapore's domestically-oriented services sectors is low, constrained by the absence of domestic scale and a lack of competitive intensity. This means that there are disproportionately large gains from deploying best practice technologies and business models. Consider the opportunities provided in the business, retail, and financial services sectors from new technologies such as blockchain, AIs, online shopping, and digital services. These would further transform Singapore's economic structure to become even more services-led. Singapore's exports of services overtook non-oil domestic exports in 2013. This was driven mainly by exports of transport / shipping services (27.8%), business services (24.9%) and financial services (17.7%). With new technologies, this gap looks set to widen further over the next decade.

Singapore will become even more dependent on services

Singapore becoming more services-led



Source: Department of Statistics

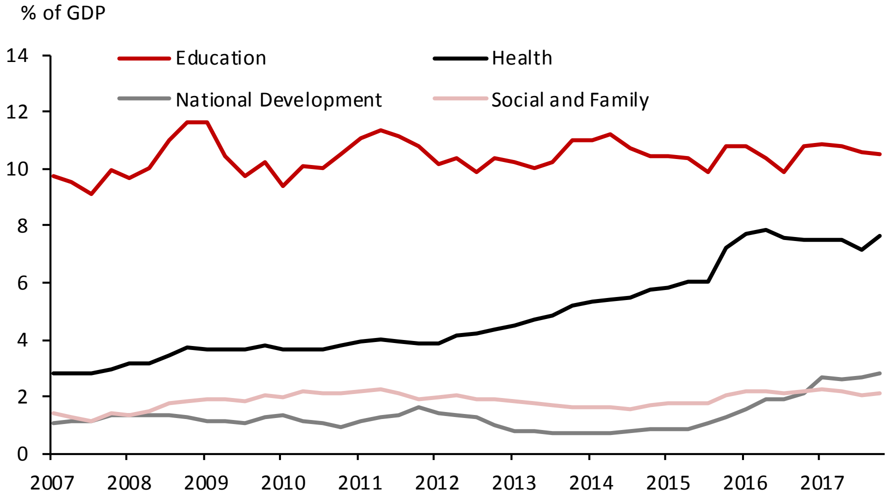
This will make a significant contribution to the productivity agenda, both in the tradables and non-tradables sector. This is a way for Singapore to strengthen the competitive position of existing sectors, to grow new activities, to improve productivity in the domestic sector, as well as helping to offset the impact of an aging population (by reducing the labour intensity of activity).

Fiscal challenges

One of the distinctive features of the Singapore policy model has been its low tax rates and relatively lean public provision of services such as health and education. This has been partly because of the benefits of a young population, as well as because the primary responsibility is borne by individuals and families through personal saving. However, as the Singapore population continues to age, and as public expectations with respect to public goods and services increases (a common trend across countries as they develop), there will be growing fiscal pressure.

This is increasingly apparent in the government budget. Overall government spending (operational as well as development) has more than doubled within a decade (from SGD 30bn to SGD 70bn between 2007 and 2018). And in terms of operational spending, healthcare spending has increased markedly. Between 2007 and 2017, operational spending on health increased by a factor of 4 – from about SGD 2bn (2.8% of nominal GDP) to more than SGD 8bn (7.6% of nominal GDP). Upward pressure on health spending, as well as other forms of social spending, will likely continue to escalate.

Healthcare and social expenditure rising

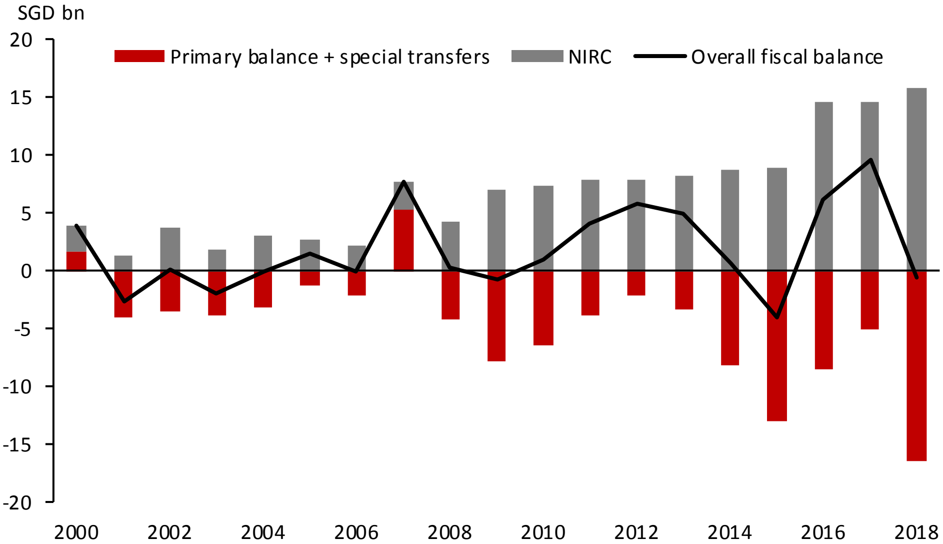


Source: Ministry of Finance

Fiscal strain will intensify with demographic shift

These pressures are reflected in the budget balance. Although Singapore has enjoyed years of overall fiscal surplus, this is largely due to strong support from the Net Investment Return Contributions (NIRC). In fact, the primary and basic balances have been in the red for several years, and are projected to deepen further. Budget for FY18 could possibly see the primary deficit widened to SGD 7.3bn and the basic deficit could register SGD 9.2bn. These would be the deepest shortfall since 2000.

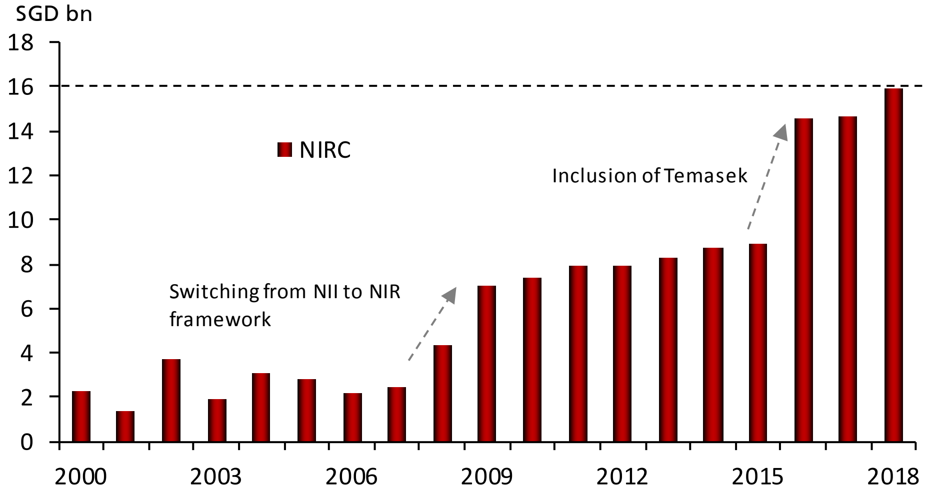
NRIC has helped to keep overall fiscal balance above water



Source: Ministry of Finance

The government has already been tapping more on the return from the reserves over the years. The government's Net Investment Return (NIR) framework allows it to spend up to 50% of the expected long-term real returns (including capital gains) from the net assets managed by the country's investment entities (including Temasek from FY 2016). The NIRC is already the largest single revenue item on the government's budget. The trade-off going forward will be between raising the contribution rate from the NIRC instead of growing the reserves more rapidly to meet future fiscal needs.

Limited upside on NIRC unless adjustment made to guideline



Source: Ministry of Finance

Discipline will be required to manage the fiscal pressure

The announcements made in the 2018 budget, such as the commitment to raise the GST rate between 2021 and 2025, was a response to some of these pressures. But more tough choices will be needed to maintain the balance between spending, tax, and the drawdown of returns from the reserves. Increased discipline will be required to manage some of these pressures, and to ensure that public monies are being used efficiently.

These fiscal challenges have broader economic implications as well. Higher tax rates, for example, may reduce the relative attractiveness of Singapore and increase the overall cost structure facing Singapore's firms. The challenges on the fiscal position and the associated trade-offs would have to be weighed carefully to ensure fiscal sustainability.

Three scenarios for 2030

These challenges and opportunities will combine with each other, and can generate a wide range of outcomes. To put some structure around this, three illustrative scenarios are developed to give a sense of the range of outcomes for Singapore 2030.

BAU

The agenda of upgrading productivity continues to progress, with improved performance. But there are headwinds from the fiscal costs of an aging population and cost pressures more broadly. Singapore's current policy and firm behaviours continue, with ongoing upgrading contributing to an improved productivity performance.

However, Singapore firms are less responsive, buffered by a comfortable domestic market with muted incentives for transformational investments. Internationalisation efforts move at a modest pace, with investment only in selective new technologies. There is also a slower pace of upgrading in domestically-oriented sectors, where much of the employment growth is happening, than in internationally-oriented sectors. Yet, there will be ongoing competitive pressures (a relatively high wage and cost structure, increasing tax rates), offset by the gradual adoption of new technologies to drive better productivity in some sectors.

Singapore will continue to serve as a good platform for MNC activity. There will be some incremental areas of innovation (e.g. fintech), and there will be ongoing expansion by Singapore firms into ASEAN and beyond.

Singapore from great to just good

The global environment continues to evolve, with Asia becoming an increasingly important part of the global economy. However, there are increasing frictions around cross-border trade and investment that have an impact on the intensity of globalisation. Global flows continue to grow, but not at the same levels seen in the 15 years before the global financial crisis.

The outcomes will be roughly in line with the baseline forecast described in Part I. Singapore will continue along with GDP growth rates of 2-2.5% on average, constrained by reducing working age population growth. Singapore will become a more 'normal' country, with performance and behaviour roughly in line with other advanced economies at the income frontier. **Singapore will be good, but no longer distinctive**.

Reinvention

Singapore firms aggressively leverages new opportunities provided by disruptive technologies (automation, AI, cloud, block-chain) in both externally and domestically-oriented sectors to drive much improved productivity growth – and to create new growth engines. Firms also engage creatively with ASEAN to seize opportunities in one of the most rapidly growing region in the world.

Three things happen over the next decade to drive a transformation of the Singapore economy.

First, **Singapore firms become global leaders in adopting new technologies** to drive productivity and growth opportunities – in both the domestic economy as well as to develop new products and services to sell into international markets. Many of the policy and regulatory features have been put in place – regulatory sandboxes, investment in skills, substantial commitment to knowledge and innovation. This gets traction as Singapore firms seize the opportunities.

Singapore can reinvent itself and continue to outperform

Substantial gains are obtained in domestically-oriented sectors such as construction (3D printing, modular construction) and retail (automation, AI); while also reducing the need for labour in these sectors. This enables a rebalancing of the labour force towards more productive activities; and for the migrant population to be tilted towards higher skills. And new technologies provide a competitive edge for Singapore firms.

Second, partly on the basis of this leadership position, **Singapore firms expand more aggressively into the international markets** – with a particular focus on regional markets in Asia, including ASEAN. New technologies and business models remove some of the constraints currently facing Singapore firms that want to scale up into global markets. And government efforts to better support high growth potential firms pay off, with many more Singapore firms growing to scale – supported by vibrant, risk-taking capital markets in Singapore. Indeed, Singapore's capital markets are also re-energised, becoming the New York or London of Asia; with a distinctive position in financing innovation.

Third, **Singapore continues to navigate the changing international environment, playing a key role between the West and China** – and being seen as an attractive platform between China and India. A key dimension of this is much more active engagement with the growth opportunities in ASEAN; for example, deploying increased capital to the region (perhaps creating new funding vehicles).

As a consequence of these changes, **Singapore's GDP growth rates increase to over 3-3.5% on a sustained basis**, even as population growth remains modest. The stronger growth helps to finance the greater government spending pressures of an aging population. **Singapore continues to outperform many of the advanced economies that are at the income frontier**.

Global regime change

A changed international economic and political regime creates serious headwinds for the Singapore growth model. A combination of trade protectionism, a weakening of the rules-based order, and more explicit geopolitical rivalry, reduces Singapore's competitive strength and makes Singapore less distinctive. This is compounded by the economic and fiscal costs of an aging population.

The rules-based system that enabled intense globalisation weakens along with geopolitical instability. These factors have been central to Singapore's successful economic model since 1965, and its unwinding will similarly have a negative impact. Although Singapore has been resilient to specific cyclical shocks, such as the Asian financial crisis, SARS, and the global financial crisis, it becomes susceptible to external regime change due to its declining domestic dynamism (e.g., aging population and lower productivity growth).

Negative development in the external environment could undermine Singapore

The trade tensions that have become apparent between the US and China in the early part of 2018 escalate steadily over the next several years – because of a persistent bilateral trade deficit, ongoing concerns about the nature of China's trade and investment approach (i.e., Made in China 2025), as well as national security concerns. After an initial round of tariffs, more widespread trade and investment sanctions are imposed on China (including by the EU).

This reorients the global trading system into a more regional model, which limits Singapore's options. Singapore faces pressure to rotate away from the US and European markets, and to organise itself around an Asian economic bloc. Economic and political relationships become increasingly disintegrated. Large countries are increasingly inclined to squeeze smaller countries.

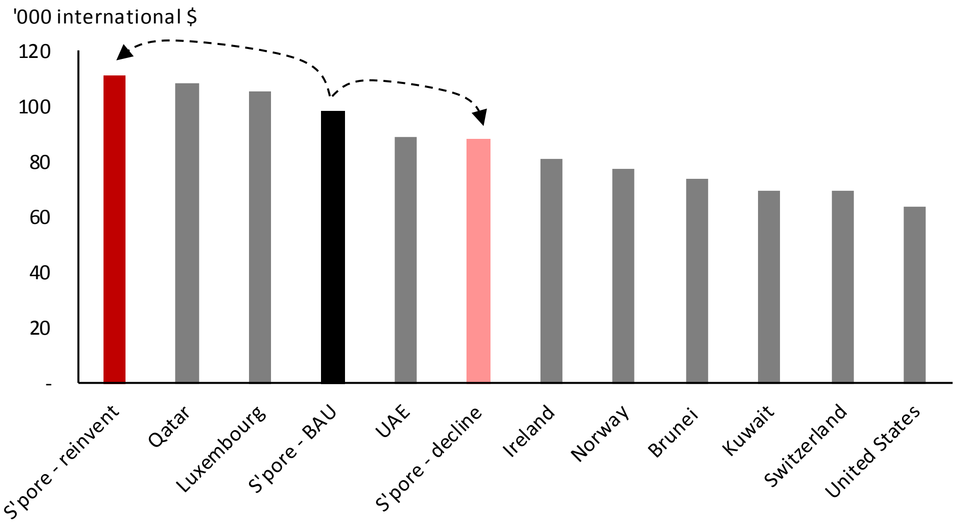
In addition, there is growing volatility in exchange rates and investment flows as great power rivalry spreads into other domains. This also has a negative impact on Singapore's external sector, through weaker export growth and as the intensity of MNC expansion.

With the negative changes in the external environment Singapore's **GDP growth could slow to less than 2% on a sustained basis through to 2030.** This would amount to per capita GDP growth of around 1%.

Concluding thoughts

Without change, Singapore is on the road to becoming a normal developed country: from great to good. Growth is harder to generate now that Singapore is at the income frontier, and it will need to be driven by innovation and productivity. In global standing, Singapore will continue to remain the third highest in the world in terms of GDP per capita (PPP, international $), behind Qatar and Luxembourg by 2030.

Top 10 countries in the world in terms of GDP per capita, PPP (2030)



But it could turn out worse. Growth in Singapore's working age population could dip into negative; world trade growth could slump; risks of a regime change in the global economic system are increasing markedly; a range of disruptive technologies are emerging and affecting industries; and public spending pressures are rising rapidly. These factors could weigh down on Singapore's growth prospects, and the economy could see itself slipping down the pecking order, by one rank to fourth in the world.

But there are opportunities to reinvent Singapore again. The weakening growth in the working age population creates a productivity imperative for Singapore. To respond, priority focus areas include: aggressively growing Singapore's externally oriented firms into regional and international markets; capturing value from new disruptive technologies. **If Singapore could succeed in reinventing itself, it could potentially become the "richest" country in the world by 2030, in per capita GDP basis**.

Relative to other advanced economies, Singapore is well-positioned to respond to these challenges and opportunities. And there are a range of possible outcomes amid the influence of both external and domestic factors. But ultimately, much will depend on policy measures, and more importantly, by the quality of actions from companies and Singaporeans today and in the coming years.

Group Research

Economics & Strategy

Taimur Baig, Ph.D.
Chief Economist - G3 & Asia
+65 6878-9548 taimurbaig@dbs.com

Nathan Chow
Strategist - China & Hong Kong
+852 3668-5693 nathanchow@dbs.com

Joanne Goh
Regional equity strategist
+65 6878-5233 joannegohsc@dbs.com

Neel Gopalakrishnan
Credit Strategist
+65 68782072 neelg@dbs.com

Eugene Leow
Rates Strategist - G3 & Asia
+65 6878-2842 eugeneleow@dbs.com

Chris Leung
Economist - China & Hong Kong
+852 3668-5694 chrisleung@dbs.com

Ma Tieying
Economist - Japan, South Korea, & Taiwan
+65 6878-2408 matieying@dbs.com

Radhika Rao
Economist - Eurozone & India
+65 6878-5282 radhikarao@dbs.com

Irvin Seah
Economist - Singapore, Malaysia, & Vietnam
+65 6878-6727 irvinseah@dbs.com

Samuel Tse
Economist - China & Hong Kong
+852 3668-5694 samueltse@dbs.com

Duncan Tan
FX and Rates Strategist - Asean
+65 6878-2140 duncantan@dbs.com

Philip Wee
FX Strategist - G3 & Asia
+65 6878-4033 philipwee@dbs.com

Sources: Data for all charts and tables are from CEIC, Bloomberg and DBS Group Research (forecasts and transformations).