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The case of Singapore

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Monetary and Fiscal Responses during the COVID-19 Crisis: The Case of Singapore

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Abstract:

The infrastructure and capabilities for outbreak management, strengthened after the 2003 SARS outbreak, have contributed to the competent handling of the Covid-19 pandemic in Singapore except the blind spot at the migrant workers' dormitories, which was swiftly corrected, preventing a spread to the community at large. Overall, the concerted whole of government approach along with clear communication and the cohesive response of the public to intervention measures were key factors in the effective management of the crisis, in addition to timely monetary and fiscal responses.

Responding to a fall in real GDP of 6.5%, and a reduction of 171,000 in total employment in the first three-quarters of 2020, the MAS lowered the level and reduced the slope of the S$NEER policy band simultaneously for the first time. The accommodative monetary policy stance was maintained at the following half-yearly policy cycle. Such a stable monetary policy response helped avoid inducing market volatility and economic uncertainty. In addition, the provision of ample liquidity in the banking system as well as the establishment of a new MAS SGD Term Facility and a new USD facility both with an expanded collateral pool helped to reinforce financial stability. In view of the healthy prevailing capital positions of financial institutions incorporated in Singapore, some of these measures were pre-emptive to ensure credit support to firms and individuals should the crisis be prolonged. The central bank also worked with financial institutions to provide relief measures to individuals and SMEs facing financial difficulties. These measures were well received as they helped reduce debt obligations and lowered funding costs. The S$125 million support package offered by the MAS to financial institutions would be useful to enhance long term skills

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and build long term capabilities, particularly the acceleration of digital transformation in the financial industry.

With the supporting public health measures put in place to contain effectively the virus spread within the community, fiscal support seemed to be appropriate and effective to protect jobs and support businesses, especially with targeted measures for specific sectors most hit by the pandemic. The unprecedented huge amount of fiscal outlay to combat the pandemic, backed by sufficient past reserves, provided not just immediate reliefs, but also prepared the economy for transformation post pandemic. The eventual effectiveness of these fiscal measures for Singapore, a small and highly open economy, depends much on the global containment of the pandemic, the effectiveness and allocation of the vaccine, and the pace of global economic recovery.

Executive Summary:

1. The 2003 severe acute respiratory syndrome (SARS) outbreak in Singapore led to a better appreciation of the threat from infectious crisis resulting in a cohesive public response to intervention measures for curbing transmissions during the Covid-19 outbreak. The infrastructure for outbreak management was also boosted post-SARS which greatly supported Singapore's management of the pandemic crisis.

2. The first case of Covid-19 disease was diagnosed on 23 Jan 2020. Cognizant of the need to combat the crisis on multiple fronts, a multi-ministry taskforce was swiftly convened that provided recommendations of government-wide coordinated responses as well as clear and consistent public communication on the disease. Measures to reduce the risk of infection were adopted early including travel restrictions and deployment of digital technology for contact racing and isolation.

3. As the migrant worker population were initially overlooked, Covid-19 outbreaks occurred at several foreign workers dormitories by end March. To contain the spread of the virus, mandatory quarantine was imposed and thorough testing was carried out. Community health facilities were created for those who were at low risk, while those at higher risk were admitted to the hospitals. All foreign workers living in dormitories were told to stop work except healthy ones in essential services. By 19th August 2020 all dormitories were declared free of the virus.

4. Singapore was placed on "Circuit Breaker" measures that included stay-at-home orders and cordon sanitaire from 7th April 2020 to 1st June 2020. In response to a significant decline in community infection rates, a phased approach to resume activities safely was implemented from 2nd June 2020. To enable further easing of restrictions and resumption of more activities and events, rapid antigen

tests and better digital contact tracing tool were developed. As of 26th November 2020, there were approximately 58,195 confirmed cases out of a population of 5.7 million, with 28 fatalities.

5. Real GDP in Singapore contracted on a year-on-year basis by 0.3%, 13.2% and 5.8% respectively in the first three quarters of 2020 while total employment shrank by 138,400 in the first half of 2020. The contraction is more severe when compared to the GFC. The construction industry, sectors hit by international travel restrictions and customer-facing retail trade and business services shrank. By contrast, the financial services sector expanded as financial activities could be carried out remotely with the use of digital technologies while the manufacturing sector grew helped by the electronics and biomedical industries

6. The MAS eased monetary policy by centering the S$NEER policy band at the lower then-prevailing level and reducing the rate of appreciation of the policy band to 0% at end March 2020. This accommodative stance was maintained in the following half-yearly policy cycle. The calibrated monetary policy responses avoided inducing market volatility and economic uncertainty.

7. The MAS also adopted various measures to reinforce financial stability such as providing ample liquidity in the banking system and offering a new MAS SGD Term Facility to serve as a liquidity backstop. The MAS also entered into a USD 60 billion swap line arrangement with the US Fed to provide USD liquidity to financial institutions. Both new facilities have an expanded collateral pool.

8. The MAS partnered with financial institutions to provide a package of relief measures that support individuals and SMEs facing financial difficulties due to Covid-19 pandemic. The package includes deferring or extending repayment of loans and easier refinancing of loans. To ease cashflow constraints, the MAS offered a new SGD facility to lower the cost of loans to SMEs.

9. The central bank made adjustments to certain regulatory and supervisory programs to enable financial institutions to face pandemic challenges. The MAS offered a S$125 million support package to financial institutions and Fintech firms to enhance long term skills and capability building. This included a digital acceleration grant for the adoption of digital solutions by smaller financial institutions and Fintech firms as well as supporting Fintech firms' access to digital tools.

10. The public finance system in Singapore has the following characteristics: fiscal responsibility, fiscal sustainability, and building up of funds for future generations and longer-term challenges. The Constitution requires the government to balance her budget at the end of each term, and the surpluses will be accumulated as reserves, which in turn are invested. Funds are regularly topped up to prepare for key commitments in the future. Singapore's fiscal prudence over the years, together with sustained economic growth, contributed to past reserves which can be tapped strategically to combat the pandemic.

11. The four special COVID-19 Budgets and two Ministerial Statements addressed not just immediate and short-term concerns of firms and households but planned for the recovery and transformation of the economy in the future. The key fiscal responses aimed to save and create jobs, and to assist businesses, with additional support for sectors hit hardest by the pandemic; to support families and the community; and to build up the infrastructure for long-term needs such as ageing population and climate change. Close to S$100 billion or about 20% of Singapore's GDP will be committed to support Singaporeans, and the overall budget deficit for 2020 will be S$74.2 billion; up to S$52 billion is planned to be drawn from past reserves.

12. Singapore seemed to have managed the Covid-19 crisis well thus far. At the time of writing, there were no resurgence of cases and the number of fatalities was kept very low at around thirty. This could be attributed to pre-existing levels of preparation, high policy capacity and strong public response to containment measures. The eventual effectiveness of the various policy responses in Singapore, a small and highly open economy, depends much on the global containment of the pandemic, the effectiveness and allocation of the vaccine, and the pace of global economic recovery.

Singapore is a densely populated small island city-state with a population of 5.7 million and a total land area of 724.2 square kilometers. The country is also a global travel hub and thus, is susceptible to infectious disease outbreaks. Indeed, in 2003, the severe acute respiratory syndrome (SARS) infected 238 people and killed 33 over 3 months in Singapore. The SARS episode had an impact on Singapore's collective psychology, as the community experienced the health and economic costs of the crisis. This resulted in a better appreciation of the threat from infectious crisis which led to a cohesive public response to preventive measures for minimizing disease transmissions during the Covid-19 outbreak.

Besides, notable infection preparedness efforts were made post SARS (Lin *et al.* 2020). These include augmenting the infrastructure for outbreak management such as stockpiling of personal protective equipment, critical medications and vaccines for up to 6 months as well as boosting intensive care and patient isolation facilities. For instance, a new 330-bed isolation building named the National Centre for Infectious Diseases was built at one of the major hospitals. Regular scenario-based simulation exercises were conducted and evaluated at public hospitals to train professional manpower in outbreak response. The government also adopted Disease Outbreak Response System Condition (DORSCON), a color-coded framework to guide the extent of public health response to different severity levels of threat.

Whilst these preparations were critical in supporting Singapore's management of the Covid-19 outbreak, new lessons emerged and policy responses were adjusted to the evolving situation. The next section traces the course of the Covid-19 pandemic crisis in Singapore and the attendant public health policy responses. This is followed by an assessment of the economic impact of the pandemic crisis on the Singapore economy with comparisons made to the global financial crisis (GFC). Monetary policy responses, financial policies implemented by the central bank to ensure financial stability, as well as unprecedented fiscal policy responses taken by the government are then discussed. A summary assessment of the effectiveness of these policies is provided in the concluding section.

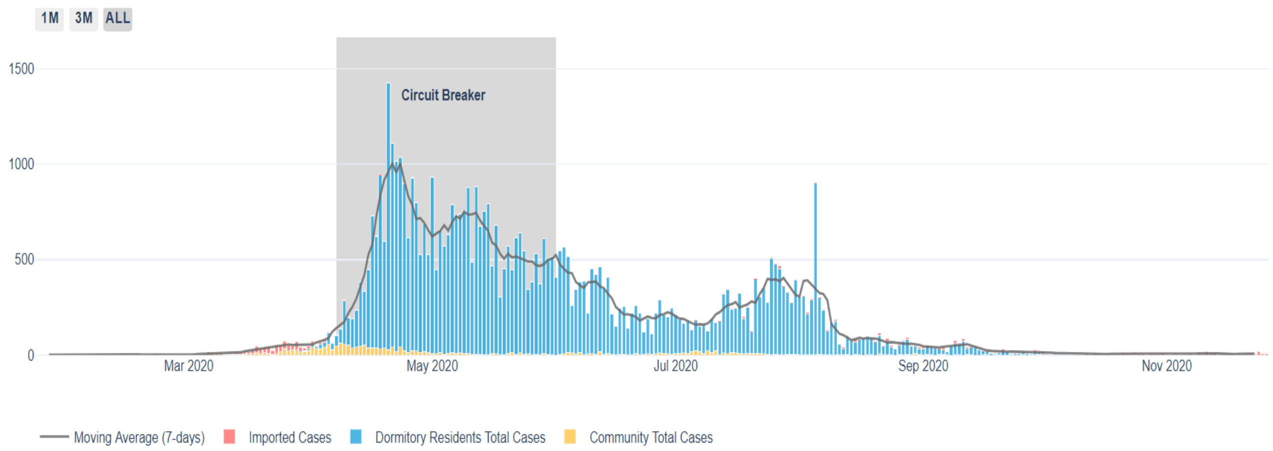
The Covid-19 Outbreak and Public Health Policy Responses

The first case of Covid-19 disease in Singapore was diagnosed on 23 Jan 2020. Cognizant of the need to combat the crisis on multiple fronts, a multi-ministry taskforce was swiftly convened that provided recommendations of government-wide coordinated responses as well as clear and consistent public communication on the disease. Anonymous information on positive cases were shared publicly through the Ministry of Health website while misinformation was quickly dispelled to prevent public anxiety and speculation. The public engagement with daily updates on Covid-19 situation using social media as well as the credibility of specialists involved in the public information campaign helped fostered an environment of trust.

In early February 2020, the government raised the DORSCON risk assessment from yellow to orange which signaled the virus was severe but that there was no widespread transmission. Measures to reduce the risk of infection were adopted early including travel restrictions, widespread testing and quick quarantine/ isolation. Patients with confirmed Covid-19 underwent detailed interviews and digital footprints were used to construct 14-day activity contact maps. Digital technology was effectively deployed for systemic and exhaustive contact tracing and isolation. The early intervention measures and cohesive public responses successfully controlled the community spread of the coronavirus in Singapore.

Nonetheless, there were Covid-19 outbreaks at several foreign workers dormitories by end March 2020. This was a consequence of the migrant worker population being initially overlooked by public health officials and contributed to an overwhelming majority of Covid-19 cases in Singapore. The epidemic curve in Figure 1 records the number of daily confirmed cases in Singapore with a breakdown into three categories namely imported cases, dormitory residents cases and community cases. On 20th April, a daily high of 1,426 cases was recorded amongst migrant workers. To contain the spread of the virus, mandatory quarantine was imposed and thorough testing was carried out. With the exception of healthy ones in essential services, all foreign workers living in dormitories were told to stop work. The government created community health facilities for those who were at low risk, while those at higher risk were admitted to the hospitals.

Figure 1. Epidemic Curve: Daily Number of Onset



Source: https://covidsitrep.moh.gov.sg/

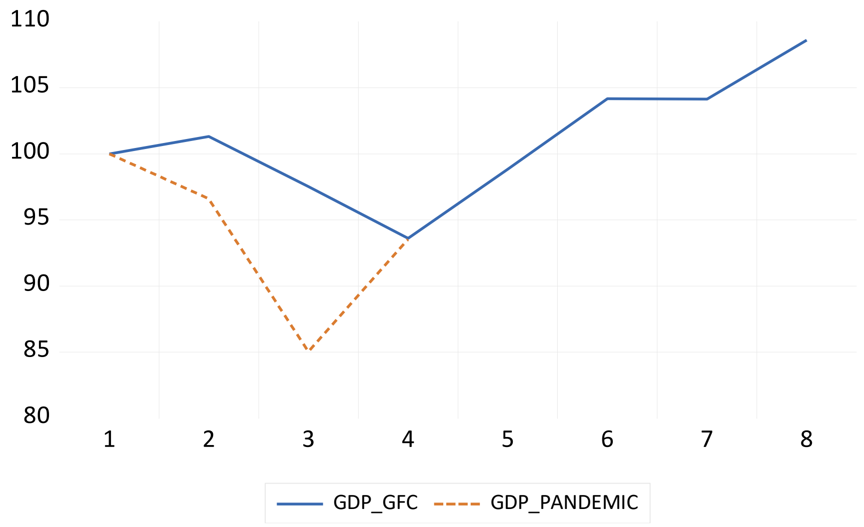
Singapore was placed on "Circuit Breaker" measures that included stay-at-home orders and cordon sanitaire from 7th April 2020 to 1st June 2020. In response to a significant decline in community infection rates, a three-phased approach to resume activities safely was implemented from 2nd June 2020. In phase one, only businesses that do not pose a high risk re-opened and individuals may leave home only for essential activities. As the number of community transmission had remained low and stable, phase two started on 19th June 2020, with more businesses as well as sports and recreation facilities re-opened with safe management measures. All students fully returned to school in phase two. The migrant workers situation was turned around by 19th August when all dormitories were declared free of the virus.

To enable further easing of restrictions and resumption of more activities and events, rapid antigen tests and better digital contact tracing tool were developed. By end of 2020, Singapore is expected to enter phase three whereby gatherings and events could resume with limited crowd sizes. As of 26th November 2020, there were approximately 58,102 confirmed cases out of a population of 5.7 million, with 28 fatalities in Singapore (see https://covidsitrep.moh.gov.sg/).

Impact of Covid-19 Pandemic on the Singapore Economy

The small and very open nature of the Singapore economy means it is highly susceptible to a fallout in the global economy. Due to the pandemic crisis, real GDP in Singapore contracted on a year-on-year basis by 0.3%, 13.2% and 5.8% in quarters one to three of 2020 respectively. In comparison to the GFC period, Singapore posted flat growth of -0.1% in 2008Q3 and then contracted by 3.4%, 7.7%, 1.2% in the following three quarters before posting positive year-on-year growth again. Figure 1 is a plot of Singapore GDP indexed to its value just before the onset of the pandemic crisis and the GFC, in 2008Q2 and 2019Q4 respectively.

Figure 2. Comparison of Singapore GDP index across the two crises



Source: Author's computation; data from Department of Statistics Singapore

We observe that the contraction in Singapore economic output resulting from the pandemic crisis is more severe when compared to the blow from the global financial crisis. After all, domestic efforts to contain the coronavirus outbreak has led to both demand and supply side shocks to the economy.[1] It is also likely that the pandemic crisis will be more protracted than the GFC in view of the unfortunate resurgence in the number of Covid-19 cases experienced by various countries.

We next examine the performance of the major sectors of the Singapore economy during the Covid-19 crisis and the GFC. Table 1 records the three-quarter change in output associated with the two crises i.e. we compare the change in real GDP output between the first three quarters of 2020 and those of 2019 as well as the change between 2008Q4-2009Q2 and 2007Q4-2008Q2. Two of the sectors that were severely affected by the pandemic crisis are (i) accommodation and food services and (ii) transportation and storage. These two sectors which shrank by 29.7% and 25.6% respectively include the tourism-related and air transport industries that were hit by international travel restrictions. Hence, these sectors shrank by a much larger magnitude than during the GFC whose corresponding numbers are 5.5% and 10.6% respectively.

Table 1. Performance of Major Economic Sectors: year-on-year 3-quarter change (%)

Industry	Pandemic	GFC
Overall GDP	-6.5	-4.1
Manufacturing	5.7	-12.2
Construction	-35.4	27.3

[1] The implementation of Circuit Breaker measures requiring the closure of most physical workplace premises from 7 April to 1 June in order to safeguard public health was initially estimated to lower Singapore's annual GDP by 2.2% (MTI, 2020).

Wholesale & Retail Trade	-5.5	-7.5
Transportation & Storage	-25.6	-10.6
Accommodation & Food Services	-29.7	-5.5
Information & Communications	1.3	8.1
Finance & Insurance	4.7	-6.9
Business Services	-13.1	3.9

Source: Author's computation; data from Department of Statistics Singapore and CEIC database.

The construction industry is typically used for pump priming purposes during a downturn so that that it can lend support to the economy, as was the case during the GFC when the sector expanded by 27.3%. However, the pandemic crisis dealt a severe blow to the construction industry shrinking it by 35.4% due to manpower disruptions brought about by containment measures in response to the coronavirus outbreak in the foreign workers dormitories. Meanwhile, the customer-facing retail trade and business services sector were badly affected by the closures of shops and physical workplaces. For instance, output in the business services sector fell by 13.1% during the pandemic but grew 3.9% during GFC.

While the financial services sector is unsurprisingly one of the poor performing sectors during the GFC shrinking by 6.9%, it served as a bright spot in the economy during the pandemic crisis. Indeed, the finance and insurance industry sector grew by 4.7% during the Covid-19 pandemic crisis helped by the ability to carry out financial activities remotely. This was facilitated by central bank's push towards the adoption of digital technologies in finance and the ongoing digital transformation in local banks that started way before the onset of the pandemic crisis. Likewise, the manufacturing sector expanded during the pandemic crisis but shrank during the GFC. The impact from the pandemic crisis is varied across different manufacturing industries in part because exemptions were granted to those critical to local and global supply chains such as to firms in the electronics and biomedical industries.

Turning to the labour market, total employment which stood at around 3.7 million at the end of 2019 shrank by 171,000 in the first three quarters of 2020.[2] This could be attributed to containment measures for curbing disease transmissions and was a much sharper adjustment in the labour market compared to the GFC. The economy experienced only a slowdown in job expansion in 2008Q4, net job losses of 13,900 in the first half of 2009 and an expansion of the job market in the 2nd half of 2009. Across the industries, it is the services sector that bore the brunt during the pandemic crisis shedding 107,200 job in the first three quarters of 2020 with the main drag coming from the accommodation and food services industry. This is compounded by 36,600 and 26,900 job losses over the same period in the construction and manufacturing sectors respectively. By contrast, in the three quarters from 2008Q4 to 2009Q2,

[2] The employment data in this paragraph are extracted from the Singapore Department of Statistic website.

employment grew in the services and construction sectors by 30,700 and 23,000 respectively offsetting the 45,5000 job losses in the manufacturing sector during the GFC.

Easing the Monetary Policy Stance

Singapore uses the exchange rate instead of the usual benchmark interest rate as monetary policy operating instrument. This is a reflection of the openness of the Singapore economy to trade and capital flows. Hence, monetary policy implementation involves the management of the Singapore dollar against an undisclosed trade-weighted basket of currencies denoted by S$NEER (Chow, 2007). Adjustments to the monetary policy stance could take the form one or a combination of changes to the level of S$NEER, the slope of its appreciation path and the width of the policy band. For instance, MAS could ease the monetary policy stance by lowering the level at which the policy band is centered and/ or reducing the slope of the appreciation path of the policy band. The width of the band could be widened when there is excessive volatility in the international foreign exchange markets.

The MAS typically issues its monetary policy statements in April and October each year in its half yearly monetary policy cycle. Meanwhile, interest rates in Singapore are endogenous and follow global interest rates. Figures 2a and 2b provide the time plots of S$NEER around the pandemic crisis and the GFC periods, from 3rd May 2019 to 30th October 2020 and 4th January 2008 to 26th June 2009 respectively. The S$NEER is a weekly average series, indexed at 100 to the average for week ending 8th Jan 1999. The three vertical lines in each figure mark the two monetary policy cycles immediately before and after the onset of the relevant crisis.

Figure 2a. Covid19 Pandemic Crisis

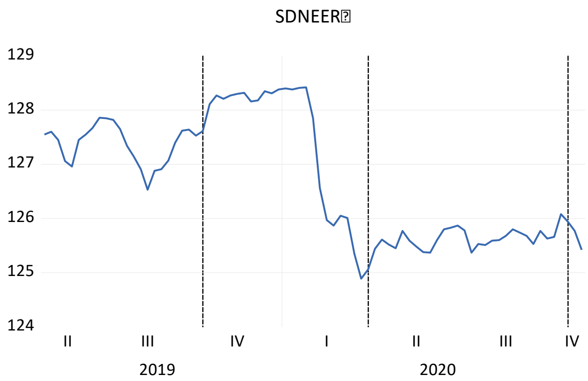
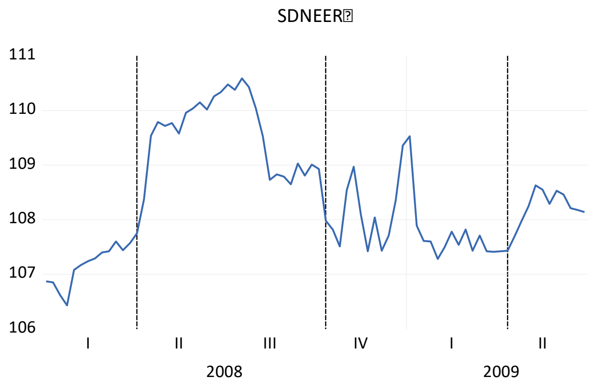


Figure 2b. Global Financial Crisis



Data Source: https://www.mas.gov.sg/statistics/exchange-rates

We observe from Figure 2a that the S$NEER started to plunge in late Jan 2020 with news on the outbreak of coronavirus in Wuhan China. The S$NEER fell by about 2% over February and March but has stabilised since then. In the end-March 2020 monetary policy statement, MAS announced a re-centering of the policy band to the then-prevailing lower level as well as a reduction in the slope of the appreciation path to 0%. However, the width of the band was kept the same. This is the first time that both the level and slope of the policy band were adjusted downwards simultaneously.

The accommodative monetary policy stance was maintained in the following policy cycle. As announced in the 14th October 2020 monetary policy statement, there was no change to the level, slope and width of the policy band.[3] This stance reflects the expectations of weak growth momentum and low core inflation going forward. Following the fall in US$ LIBOR, the domestic three-month interbank rate (S$ SIBOR) declined from 1.8% in October 2019 to about 1.0% as at late March 2020; and fell further to 0.4% in October 2020.

We see from Figure 2b that the S$NEER also weakened in the second half of 2008. In comparison to the pandemic crisis, the depreciation was of a slightly smaller magnitude and more gradual spreading for more than three months. As announced in the October 2008 monetary policy statement, MAS reduced the slope of the appreciation path to 0% but there was no re-centering of the policy band. It was only in the subsequent monetary policy statement in April 2009 that the S$NEER was re-centered at the lower then-prevailing level while the slope of the policy band was unchanged. No adjustments were made to the width of the band in both cycles. Meanwhile, the S$ SIBOR rate fell from 1.9% in September 2008 to 0.7% in March 2009 in tandem with the easing of global interest rates.

As the speed of weakening in the S$NEER is faster in the pandemic crisis vis-a-vis the GFC, a stronger monetary policy response during the pandemic crisis was called for. Hence, both the level and slope of the policy band were adjusted downwards simultaneously. Nonetheless, as explicitly stated in the April 2020 monetary policy statement, “This stable monetary policy stance also reflects the primary role of fiscal policy in mitigating the economic impact of COVID-19…”. By contrast, reliance on the fiscal response to the global financial crisis was not mentioned in the corresponding monetary policy statements.

Central Bank’s Financial Policies

Whilst the global financial crisis can be characterized as a financial shock that adversely affected the real sector, the pandemic crisis is a shock that directly hits the real sector which the authorities tries to insulate the financial sector from. As detailed on its website (MAS 2020a), MAS offered the following slew of support measures in response to the Covid-19 pandemic crisis.

[3] Net purchase of foreign exchange from intervention operations was US$44.4 billion from 1st January 2020 to 30th June 2020 higher than the US$29.9 billion from 1st July 2019 to 31st December 2019 (see https://www.mas.gov.sg/statistics/reserve-statistics/foreign-exchange-operations).

Reinforcing financial stability

The central bank conducted money market operations to provide ample liquidity in the banking system to ensure the funding markets function smoothly.[4] A new MAS SGD Term Facility was established on 28th September to complement the existing overnight MAS Standing Facility and to serve as a liquidity backstop. This new facility offers SGD funds in 1-month and 3-month tenors and accept more forms of collaterals. The broadened collateral pool includes cash and investment-grade (BBB- and above) debt securities issued by governments, central banks, public sector entities, and non-financial corporations, denominated in SGD and G10 currencies. Further, residential property loans are accepted as collaterals for domestic systemically important banks. The MAS raised the asset encumbrance limit imposed on locally-incorporated banks from the current 4% to 10% so that they can have greater leeway to pledge residential property loans as collateral to access funding.

In March 2020, the MAS entered into a USD 60 billion swap line arrangement with the US Federal Reserve till 30th September 2020. This was later extended to expire on 31st March 2021. The new MAS USD facility provided US dollar liquidity to the financial institutions. The eligible collateral pool at this facility is expanded to a wider range of cash and debt securities including investment grade securities in SGD and major currencies.

Helping individuals reduce debt obligation

The MAS partnered with financial institutions to provide a package of relief measures that support individuals facing financial difficulties due to coronavirus pandemic. These measures included deferring or extending repayment of loans; lowering interest on personal unsecured credit; easier refinancing of investment property loans; and waiving fall-below bank service fee. In October 2020, these measures were extended so that individuals with difficulty resuming full repayments of property loans can apply to reduce installment payments pegged at 60% of their monthly instalment. These measures were well-recieved, for instance, the deferment of residential property loans by individuals amounted to nearly S$20 billion by end August 2020 (MAS 2020b).

Easing business cashflow constraints

The central bank also worked with the financial industry to offer a package of measures to ease the financial strain on small medium enterprises (SMEs) facing temporary cashflow constraints. The package included lower short-term repayment obligations for secured loans; and assistance with insurance premium payments. The support measures were extended in October to provide eligible SMEs the option of deferring 80% of principal payments on secured loans.

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[4] See Chow and Wong (2020) for a discussion on the determinants of the amount of liquidity required in the Singapore banking system.

In addition, the MAS established a new Singapore dollar facility with the aim of lowering the cost of loans to SMEs. The facility offered low-cost funding at 0.1% p.a. for a 2-year tenor until 30th September 2021 to participating finance institutions in order to support their lending under *Enterprise Singapore* (ESG)'s Enhanced Enterprise Financing Scheme comprising the SME Working Capital Loan and Temporary Bridging Loan Programme. As stated in MAS' 12 Oct 2020 media release:

"Since its introduction in April 2020, the Facility has disbursed a total of S$5.7 billion to eligible financial institutions in support of their lending to companies under the ESG Loan Schemes. Taken together, the Government's risk sharing through the ESG Loan Schemes and MAS' lower-cost funding through the Facility have helped to lower borrowing costs for local enterprises to a range of 1.5% to 3.0% per annum under the TBLP, from 6% or more for other unsecured working capital loans."

Enabling financial Institutions to face pandemic challenges

The central bank made adjustment to regulatory and supervisory programs to focus financial sector on the pandemic priorities. These included adjusting capital and liquidity requirements for banks; setting accounting loan loss allowances; and extending report timelines amongst others. The MAS encouraged banks and finance companies incorporated in Singapore to have an upper limit on their total dividends per share for FY2020 at 60% of 2019 levels. Further, these financial institutions were urged to provide shareholders the option of receiving the dividends in scrip in lieu of cash. Such "pre-emptive" measures were aimed at boosting the financial institutions ability to support the credit needs of firms and individuals should the Covid-19 crisis be prolonged. In addition, MAS issued guidance and advisories on operational, technological and cyber risks to safeguard management and operational resilience of the financial sector.

Enabling financial and Fintech sectors to build long-term capabilities

Apart from short term measures to face pandemic challenges, the MAS offered a S$125 million support package to financial institutions and Fintech firms to enhance long term skills and capability building. Apart from supporting employee training and manpower cost, this included a digital acceleration grant for the adoption of digital solutions by smaller financial institutions and Fintech firms as well as supporting Fintech firms' access to digital tools. Another S$35 million productivity solutions grant was provided to the financial services sector that co-funds the adoption of digital solutions by smaller financial institutions for regulatory reporting.

In view of the differing nature of the crisis, financial policies in response to the GFC were more focused on confidence building measures. For instance, MAS made an announcement in October 2008 of a blanket guarantee (till end 2010) on deposits of individuals and non-bank customers in financial institutions holding MAS licenses (Sharma, 2013). The assurance given by MAS on deposits during GFC was to ensure the stability of banks and to eschew episodes of bank runs. To ensure businesses had access to credit, the government also took on a significant share of bank lending risks through the Special Risk-Sharing Initiative. There were similar measures taken in both crises. For instance, the MAS maintained a higher level of liquidity in the banking system through its money market operations during the GFC when there was a heightening of frictional liquidity demand. In response to the global USD funding stress, MAS also opened a swap facility with the US Federal Reserve to facilitate USD funding for financial institutions but at a lower amount of USD 30 billion (MAS, 2009).

Government Fiscal Policies

COVID-19 was an unexpected public health crisis with severe economic consequences, which were also partly associated with policy responses such as the Circuit Breaker in Singapore from 7 April to 1 June 2020, effectively a partial lockdown allowing only essential services to continue. The government has responded with fiscal support corresponding to the increasing impact of the pandemic, focusing on immediate assistance to jobs, businesses, and households initially, and later refined to providing more sector-specific assistance as the situation evolved with more detailed information gathered, and to preparing for a post-pandemic recovery and growth, all specified in the four unprecedented consecutive Budgets and two Ministerial Statements by the Minister of Finance from February to October 2020.

Singapore has accumulated sufficient reserves over the years, in fact a strategic asset, enabling her to tackle the negative impact of the pandemic without incurring national debt, thanks to the fiscal prudence and sustainability put in place. Next, we will briefly describe the key features of the public finance system in Singapore, followed by an outline of key fiscal responses of the four Budgets and two Ministerial Statements.

Fiscal Prudence and Sustainability

The Constitution of Singapore requires the government to maintain a balanced budget within her term of government, which is typically five years, and the government being prudent in her expenditure, coupled with economic growth over the years, has registered surpluses on average, which are accumulated as reserves. The reserves are invested by the Government of Singapore Investment Corporation (GIC) and Temasek Holdings, which are investment agencies under the Ministry of Finance (MOF), yielding Net Investment Returns Contribution. Up to half of the annual net investment income from past reserves will contribute towards the annual budget, relieving the government from being pressurized to raise taxes or to incur new debts; the other half of the investment returns will build up the reserves further.

At the same time, there are regular top-ups to various funds such as the GST Voucher Fund (top-up of S$6b in 2020 Budget), Coastal and Flood Protection Fund (top-up of S$5b), National Research Fund (top-up of S$2b), Skills Development Fund (top-up of S$2b), ElderCare Fund (top-up pf S$750m), Special Employment Credit Fund (top-up of S$700m), and the Community Care Endowment Fund (top-up of S$500m) as preparations for key commitments in social spending and infrastructure investment for the future (Heng, 2020a). Furthermore, Singapore's national pension fund—the Central Provident Fund (CPF)—is a compulsory self-funding scheme for retirement, unlike a pay-as-you-go system, relieving the strain on government budget for social spending on the retirees given an ageing population. Special Singapore Government Securities are non-tradable bonds issued primarily to meet the investment needs of CPF and the returns to CPF are guaranteed by the government and fair, being pegged to investments of comparable risk and duration in the market.

The use of past reserves to counter the negative impact of crisis such as the current pandemic or the past Global Financial Crisis (GFC) requires the consent from the President of Singapore. During the GFC of 2008/9, President Nathan approved a draw of S$4.9b from past reserves for the first time.
To combat the current pandemic, President Halimah has given in-principle support to draw up to S$52b from past reserves. The Singapore Government currently issues domestic debt securities for reasons unrelated to fiscal needs and under the Government Securities Act, the borrowing proceeds from the issuance of these securities cannot be spent and are invested.

In summary, the public finance system in Singapore has the following characteristics: fiscal responsibility, fiscal sustainability, and building up of funds for future generations and longer-term challenges. The constitutional requirement of a balanced budget at the end of each term of government sets the foundation of Singapore's fiscal prudence over the years, and together with sustained economic growth, government surpluses are accumulated, invested, and contributed to past reserves which can be tapped strategically to combat the current pandemic.

Unity Budget

The Unity Budget (Heng, 2020a) was delivered on 18 Feb 2020 when the COVID-19 outbreak started to impact Singapore, especially the aviation and tourism industries, as well as a disrupted supply chain. A total of S$6.4b was allocated to tackle the immediate challenges: S$800m to support the frontline agencies in fighting and containing the outbreak, a Stabilization and Support Package, amounting to S$4b, to assist workers and businesses, and a Care and Support Package, amounting to S$1.6b, to support households.

The Jobs Support Scheme (JSS) was introduced, offsetting 8% of wages of 1.9m local employees, up to $3,600 monthly wage cap for 3 months, amounting to S$1.3b. The Wage Credit Scheme was enhanced to support wage increases for Singaporean workers, with a higher wage ceiling at S$5,000, and higher co-funding levels, amounting to S$1.1b benefitting 700,000 Singaporean employees. A 25% Corporate Income Tax Rebate was granted for the financial year 2020, capped at S$15,000 per company, at a cost of about S$400m.

Sector-Specific Assistance was introduced for sectors affected more severely: 30% property tax rebate for licensed hotels, serviced apartments, and MICE venues; 15% property tax rebate for Changi Airport; one month rental waiver to stallholders of hawker centres and markets; half-month rental wavier to commercial tenants of Other Government Agencies such as Housing Development Board (HDB). The planned Goods and Services Tax (GST) rate increase will not take effect in 2021, to alleviate concerns of households and businesses over operation costs and cost of living.

Apart from the immediate fiscal responses to deal with the outbreak, a Transformation and Growth effort focussed on the long-term economic and human capital development of Singapore, amounting to S$8.3b over the next three years. This is to enable stronger partnerships with the world and within Singapore, to deepen enterprise capabilities via innovation, digitalization, and overseas venture, and to develop our people via tertiary education before employment, upskilling during working years, mid-career support, and lifelong learning.

Resilience Budget

As the outbreak escalated further after the Unity Budget Statement, further fiscal responses were needed as public health measures to contain the outbreak caused further economic hardships hitting badly the aviation and tourism sectors, even globally, and the Resilience Budget (Heng, 2020b) was delivered on 26 Mar 2020, to enhance and extend the schemes introduced in the Unity Budget, with an additional outlay of S$48.4b, and the in-principle support from the President to draw up to S$17b from past reserves.

The Jobs Support Scheme (JSS) was enhanced to increase the co-funding of wages from 8% to 25% for most sectors, with higher levels of 50% for food services sector, 75% for aviation and tourism sectors. The monthly qualifying wage ceiling was raised from S$3,600 to S$4,600. The JSS will be extended till the end of 2020. With these enhancement and extension, a total of S$15.1b would benefit 1.9 million local employees under JSS. The Wage Credit Scheme (WCS) will be enhanced with an additional S$500m, from Sep to end-June 2021.

The self-employed will be supported: the Self-Employed Person Training Support Scheme will see the training allowance raised from S$7.50 to S$10 per hour, and it will be extended to Dec 2020, costing a total of S$48m. The Self-Employed Person Income Relief Scheme (SIRS) will provide S$1,000 a month for nine months for eligible self-employed persons, amounting to a total of S$1.2b. For lower-income workers, the Workfare Special Payment will be enhanced to S$3,000 in cash for each eligible worker. The SGUnited Traineeships and SGUnited Jobs were introduced to create 8,000 traineeships and 10,000 jobs.

The unemployed will be supported by allowing more flexibility in their applications for ComCare assistance, and a Temporary Relief Fund will be set up in the month of April to provide them with immediate financial assistance. Furthermore, COVID-19 Support Grant was introduced, from May to September, to help workers who become unemployed due to the pandemic, all amounting to a total of S$145m in the support for the unemployed.

The Care and Support Package announced in the Unity Budget will be enhanced, amounting to a total of S$4.6b: increased cash payouts to adult Singaporeans, ranging from S$300 to S$900; additional cash payout to each Singaporean parent with at least one young Singaporean child, from S$100 to S$300; Grocery Vouchers tripled and given to needy Singaporeans S$300 in 2020 and S$100 in 2021; the grant given to Self-Help Groups to be doubled to S$20m over two years and increased the additional grant given to Community Development Councils (CDCs) to S$75m.

Greater flexibility on fees and loans will be exercised by the government: freezing all government fees and charges from 1 Apr 2020 to 31 Mar 2021; suspending all loan repayment and interest charges of student loans for 1 year, from 1 June 2020 to 31 May 2021. There will be an automatic deferment of income tax payments for companies and self-employed persons, for three months. The Property Tax Rebate will be enhanced: Qualifying commercial properties hit badly by COVID-19 will pay no Property Tax for 2020; other non-residential properties affected by COVID-19 will enjoy a Property Tax Rebate of 30% for 2020.

The Enterprise Financing Scheme (EFS) – SME Working Capital Loan will be enhanced, and the Temporary Bridging Loan Programme (TBLP) was introduced: the enhanced EFS-Trade Loans will see the maximum loan quantum increased from S$5m to S$10m and the Government's risk-share increased from 70% to 80%; the subsidy for Loan Insurance Schemes will be increased from 50% to 80%; the TBLP will be expanded to all sectors, with the maximum supported loan increased from S$1m to S$5m; additional support beyond TBLP via EFS-SME Working Capital Loan will be made available, with the maximum loan quantum increased from S$600k to S$1m; the government will work with Participating Financial Institutions to defer capital payments for one year on the EFS-Working Capital Loan and the TBLP loans when businesses made such requests. A loan capital of S$20b will be set aside in the Resilience Budget.

Sector-Specific Support will be enhanced: an additional S$350m will enhance the aviation support package to fund rebates, and rental relief; S$90m will be set aside to assist the tourism sector; a Point-to-Point Support Package for taxi and private hire car (PHC) drivers will be enhanced and extended, at a cost of S$95m; eligible drivers will continue to receive the Special Relief Fund payments of S$300 per vehicle per month until end-September; a one-year road tax rebate and a six-month waiver of parking charges at government-managed parking facilities for private bus owners will be introduced, at cost of S$23m; the Arts and culture sector will receive an additional $55m support package via saving jobs, upskilling & digitalization.

The following schemes will help build economic resilience: SG Together Enhancing Enterprise Resilience (STEER) programme in which for every S$2 raised by Trade Associations and Chambers (TACs) or business groups for qualifying initiatives, the Government will match S$1, a doubling of the previous matching rate; the SMEs Go Digital Programme, the Productivity Solutions Grant (PSG) and the Enterprise Development Grant (EDG) will be enhanced and extended until Dec 2020; higher course fee subsidies and absentee payroll to 90% for the aviation, tourism, food services, and retail trade sectors, until June 2020; the enhanced training support will be extended to the arts and culture and land transport sectors, starting from 1 April 2020; the 90% absentee payroll rates will be extended to all employers, to provide additional cash flow relief when they send their workers for training, from 1 May 2020; the duration of enhancements to cover eligible courses will be extended, starting before 1 Jan 2021; Singaporeans may use the base S$500 SkillsFuture Credit Top-up for courses, starting from 1 Apr 2020, ahead of the initial date in October 2020.

Solidarity Budget

By the first week of April 2020, the outbreak became a pandemic, and local transmissions in Singapore had increased, triggering a circuit breaker, which was a partial lockdown, allowing only essential services to continue, starting 7 April 200 for four weeks, but it was extended subsequently to end on 1 Jun 2020. With heightened public health measures and more restricted economic activities, the Solidarity Budget (Heng, 2020c) was delivered on 6 Apr 2020 to save jobs and protect the livelihoods of the people, to help businesses preserve their capacity and capabilities, and to help households tide through during the forthcoming period of circuit breaker, with a total fiscal outlay of S$5.1b.

The Jobs Support Scheme will be further enhanced: there will be higher subsidy rates for all firms: 75% of gross monthly wages, for the first paid S$4,600 of wages paid in April; the first JSS payout will be brought forward from May to April 2020. The Foreign Worker Levy will be waived for the month of April, and a Foreign Worker Levy Rebate of $750 for each work permit or S pass holder, based on previous levies paid in 2020, will be provided to the employers. The rental waiver for industrial, office and agricultural tenants of Government agencies will be increased from 0.5 month to 1 month.

The Government's risk share of loans made under the Temporary Bridging Loan Programme, the Enterprise Financing Scheme – SME Working Capital Loan, and the Enterprise Financing Scheme – Trade Loan will be increased from 80% to 90% for loans initiated from 8 April 2020 until 31 March

2021. The Self-Employed Person Income Relief Scheme (SIRS) will be extended automatically to include self-employed persons who also earn a small income from employment work, and the current Annual Value threshold will be raised from S$13,000 to S$21,000 so that more self-employed persons may benefit from the scheme. Households will receive a Solidarity Payment of S$600, increased from S$300 under Care and Support Package, and to be paid starting middle of April; other cash payouts under the Care and Support Package will be brought forward to June instead of August.

Fortitude Budget

The pandemic continued to drag down the global economy, affecting Singapore adversely with rising unemployment rate amid the circuit breaker, and the Fortitude Budget (Heng, 2020d) was delivered on 26 May 2020 to focus on jobs protection and business transformation, with additional support for households and community, and frontline agencies to combat the evolving health crisis, amounting to a total fiscal outlay of S$33b. Together with the earlier Unity Budget, Resilience Budget, and Solidarity Budget, the four budgets had planned for a total of S$92.9b, close to 20% of Singapore's GDP, to support businesses and the people of Singapore. The Fortitude Budget will be funded out of past reserves, with in-principle support from the President, for a further draw of S$31 billion. In the earlier Resilience and Solidarity Budgets, the President had given approval to draw up to S$21 billion from past reserves.

Focussing on jobs, the Fortitude Budget extended the Jobs Support Scheme (JSS) from a seven-month support by one more month, with the additional support to be paid in Oct 2020, continued the wage subsidy rate at 75% until Aug 2020 for firms which cannot resume operations after the end of circuit breaker (from 7th Apr to 1st Jun), refined the classification of some firms in different JSS tiers so that they will receive increased support from 25% to either 75% or 50%. In total, these JSS enhancements will cost S$2.9b, and JSS in total will provide a support of S$23.5b for 10 months.

The Foreign Worker Levy Waiver will be extended for up to two months, with 100% waiver in June, and 50% in July. The Foreign Worker Levy Rebate will be S$750 in June, and S$375 in July. The planned hike in CPF contribution rates for senior workers will be deferred by one year, from 1 January 2021 to 1 January 2022. To assist Small and Medium Enterprises (SMEs), a cash grant will be provided to offset the rental costs of SME tenants, to be disbursed automatically from end-July through the property owner. This cash grant for SMEs will cost about S$2b. Commercial tenants and hawkers using government properties will receive four months of rental waivers, increased from two months; industrial, office, and agricultural tenants of Government agencies will have two months of rental waivers, an increase of one month.

To support promising start-ups, the Fortitude Budget will set aside S$285 million to catalyse and crowd in at least a matching amount of S$285 million from private investments, additional to the S$300m under the Unity Budget for deep-tech start-ups under Startup SG Equity. More than $500 million will be allocated to support businesses in their digital transformation: bonus of S$300 per month over 5 months to encourage stallholders in hawker centres, wet markets, coffee shops, and industrial canteens to use e-payments; Digital Resilience Bonus of up to S$5000 for eligible firms adopting PayNow Corporate and e-invoicing, as well as business process or e-commerce solutions, and other advanced solutions.

The SGUnited Jobs and Skills Package will be expanded, creating more than 40,000 job opportunities (15,000 form the public sector and 25,000 from businesses), and about 25,000 traineeship positions this year (21,000 from the SGUnited Traineeships programme, 4,000 places under a new SGUnited Mid-Career Traineeships scheme). A new SGUnited Skills programme, to be progressively rolled out in July 2020, will expand training capacity for about 30,000 job seekers this year, giving them a training allowance of S$1,200 per month during the course of their training. Employers will receive incentives to hire local workers who completed eligible traineeship and training schemes: for eligible workers aged 40 and above, a doubling of the incentive to cover 40% of their salary over six months, capped at S$12,000 in total; for eligible workers under 40, this incentive will cover 20% of their monthly salary over six months, capped at S$6,000 in total. In total, SGUnited Jobs and Skills Package will set aside about S$2 billion this year.

The Fortitude Budget will set aside another S$800 million for the COVID-19 Support Grant for those who lost their jobs, or were placed on no-pay leave, due to COVID-19. The U-Save rebates will be doubled through a one-off GST Voucher – U-Save Special Payment, for eligible HDB households. A one-off S$100 Solidarity Utilities Credit will be given to each household with at least one Singapore Citizen, to be credited in July or Aug utilities bill.

Two Ministerial Statements

By the middle of August 2020, the COVID-19 situation in Singapore was under control, but the global economy remained weak, and two Ministerial Statements were delivered on 17 Aug 2020 and 5 Oct 2020 to support jobs (especially for sectors worse hit by the pandemic), to create jobs, and to prepare Singapore for the post-pandemic growth.

The Ministerial Statement (Heng, 2020e) on 17 Aug will extend the Jobs Support Scheme (JSS) for up to 7 additional months from Sep 2020 to Mar 2021: 50% wage subsidy for aerospace, aviation, and tourism sectors, for 7 more months; 50% wage subsidy for built environment sector, for 2 more months, followed by 30% wage subsidy for subsequent 5 months; 30% wage subsidy for arts and entertainment, food services, land transport, marine and offshore, and retail sectors, additional 7 months; for the large majority of the remaining sectors, 10% support for 7 more months; for biomedical sciences, financial services, and ICT, 10% wage support for 4 more months. This extension will provide most businesses with wage support ranging from 10% to 75% for 17 months.

The Jobs Growth Incentive (JGI) was introduced in the Ministerial Statement (2020e) on 17 Aug, a S$1b programme to support new hires of local workers over the next 6 months: 24 SGUnited Jobs and Skills Centres will be set up in the heartlands; the government will provide co-payments of 25% (50% for new hires aged 40 and above) of salaries for one year, subject to a cap. An additional S$187m will be used to extend support measures in the Enhanced Aviation Support Package up to March 2021. The government will set aside S$320 million for tourism credits called SingapoRediscovers Vouchers. The Startup SG Founder programme will be enhanced, will additional S$150m to enhance the programme in phases, raising startup capital grant, and providing mentorship.

In the second Ministerial Statement (Heng, 2020f) delivered on 5 Oct 2020, the Minister of Finance outlined the steps in re-opening of the economy and social activities safely in terms of public health measures (securing safe and effective vaccines, enhancing Polymerase Chain Reaction (PCR) testing capability, contact tracing via Trace Together app and tokens and SafeEntry programme, and safe management of social activities) and envisioned the roadmap for the future of Singapore (inclusive and resilient society, dynamic and growing economy).

The Enhanced Training Support Package (ETSP) will be extended for another 6 months, till 30 Jun 2021, to provide enhanced course fee subsidies for firms in our hardest-hit sectors. It will be extended to include the Marine and Offshore sector, and the absentee payroll rates will be lowered to 80% from January 2021, capped at S$7.50 per hour, in view of the gradual economic recovery. The Jobs Growth Incentive (JGI) will provide a higher tier of wage support of 50% to all Persons with Disabilities, applicable for new hires from Sep 2020 to Feb 2021. Various Capability-Building grants will be enhanced or extended: Market Readiness Assistance Grant, the Productivity Solutions Grant, the Enterprise Development Grant, and the PACT programme. The Temporary Bridging Loan Programme (TBLP) will be extended for 6 months, until Sep 2021, at reduced levels. On top of the Baby Bonus Cash Gift, there will be a one-off additional support for newborns, providing eligible parents up to S$10,000 in benefits.

The measures announced in the two Ministerial Statements were partially funded with reallocations from the four earlier Budgets.

Immediate Relief and Long-Term Strategies

The four special COVID-19 Budgets and two Ministerial Statements are holistic and address not just immediate needs of various sectors and households but also the long-term strategies of the nation, covering the community and families, workers and businesses, economic transformation and preparation for growth post pandemic, and long-term security related to climate change, aging population, all backed up by Singapore's past reserves-a strategy asset indeed. Close to S$100 billion or about 20% of Singapore's GDP will be committed to support Singaporeans, and the overall budget deficit for 2020 will be S$74.2 billion; up to S$52 billion is planned to be drawn from past reserves. In comparison, the total fiscal outlay in response to the GFC was S$20.5b, with S$4.9b drawn from past reserves.

The government has been decisive and quick to implement public health measures such as the circuit breaker, which was a partial lockdown allowing essential services to operate, despite its negative impact on the economy. The moving of migrant workers to isolation centres with healthcare facilities away from the hospitals, and border controls (such as compulsory Stay Home Notices and quarantines for returning Singaporean residents and visitors) are critical measures to contain the spread of the virus in the community, contributing to a possible earlier economic recovery, and of course subject to the pace of global recovery. Without effective containment measures, fiscal measures will be futile in the longer run with subsequent waves of infection.

Fiscal responses focussed much on jobs protection at the hit of the crisis, but the Jobs Support Scheme (JSS) started with only 8% of subsidy rate, and was quickly adjusted up when the serve economic impact was felt, and further enhancements and extensions for specific sectors such as aviation and tourism sectors were announced and implemented in a timely manner. The unprecedented and consecutive Budgets and Ministerial Statements demonstrated quick assessment of the evolving situation, updating and fine tunings of appropriate responses with feedback from the community, businesses and the Labour Movement led by the National Trade Union Congress (NTUC), an efficient operation of government services, and perhaps most importantly, the sufficiency of past reserves to combat the pandemic.

The pandemic revealed the urgent need for and hastened the technological transformation of the economy and society. When the COVID-19 situation began to be stabilized in Singapore, the most recent Ministerial Statement (Heng 2020f) envisioned a post-pandemic Singapore as an inclusive and resilient society, and as a Global-Asia node of technology, innovation, and enterprise; in other words, the post-pandemic or long-term fiscal strategies need to tackle potential diverse or unequal recoveries of different groups and to connect with the growth engines in South East Asia.

Conclusion

Singapore seemed to have managed the Covid-19 crisis well thus far. At the time of writing, there were apparently no resurgence of cases and the number of fatalities was kept very low at around thirty. In fact, community transmissions were curbed at low levels throughout the crisis accounting for only 2,271 cases out of 58,102 total number of cases as at 27th November 2020. This can be attributed to pre-existing levels of preparation particularly due to the SARS experience in 2003. In particular, the enhanced infrastructure and strengthened capabilities for outbreak management greatly contributed to the authorities' highly competent handling of Covid-19 pandemic crisis.

However, there was a society blind spot which led to outbreaks at the foreign workers dormitories that contributed to the bulk of the Covid-19 cases in Singapore. Nonetheless, the swift corrective actions taken by the authorities that also paid close attention to the needs of the foreign workers brought the situation under control as well as prevented the spread of these cases to the local community. Overall, the concerted whole of government approach along with clear communication and the cohesive response of the public to intervention measures were key factors in the effective management of the crisis.

Compared to GFC, the pandemic hit the Singapore economy much more severely, and it was primarily a public health crisis with extensive impact on the economy and the society. On a year-on-year basis, real GDP fell by 6.5% while total employment shrank by 171,000 in the first three-quarters of 2020. The MAS responded by lowering the level and reducing the slope of the S$NEER policy band simultaneously for the first time. The accommodative monetary policy stance was maintained at the following half-yearly policy cycle. Such a stable monetary policy response helped avoid inducing market volatility and economic uncertainty.

In addition, the provision of ample liquidity in the banking system as well as the establishment of a new MAS SGD Term Facility and a new USD facility both with an expanded collateral pool helped to reinforce financial stability. In view of the healthy prevailing capital positions of financial institutions incorporated in Singapore, some of these measures were pre-emptive to ensure credit support to firms and individuals should the crisis be prolonged. The central bank also worked with financial institutions to provide relief measures to individuals and SMEs facing financial difficulties. These measures were well received as they helped reduce debt obligations and lowered funding costs. The S$125 million support package offered by the MAS to financial institutions would be useful to enhance long term skills and build long term capabilities, particularly the acceleration of digital transformation in the financial industry.

With the supporting public health measures put in place to contain effectively the virus spread within the community, fiscal support seemed to be appropriate and effective to protect jobs and support businesses, especially with targeted measures for specific sectors most hit by the pandemic. The unprecedented huge amount of fiscal outlay to combat the pandemic, backed by sufficient past reserves, provided not just immediate reliefs, but also prepared the economy for transformation post pandemic. The eventual effectiveness of these fiscal measures for Singapore, a small and highly open economy, depends much on the global containment of the pandemic, the effectiveness and allocation of the vaccine, and the pace of global economic recovery.

References

Chow H.K. (2007). "Singapore's Exchange Rate Policy: Some Implementation Issues," Singapore Economic Review Special Issue on *Exchange Rate Systems and Policies in East Asia*, 52(3), 445-458.

Chow H.K. and Wong F.C. (2020). "Monetary Policy Implementation in Singapore" in *Monetary Policy Execution in East Asia*, F. Rövekamp, M. Bälz, H.G. Hilpert (eds.), Springer: Financial and Monetary Policy Studies (2020).

Heng S.K. (2020a). Unity Budget Statement, 18 February 2020. [Online]. Available: https://www.singaporebudget.gov.sg/budget_2020/budget-speech

Heng S.K. (2020b). Resilience Budget Statement, 26 March 2020. [Online]. Available: https://www.singaporebudget.gov.sg/budget_2020/resilience-budget/supplementary-budget-statement

Heng S.K. (2020c). Solidarity Budget Statement, 6 April 2020. [Online]. Available: https://www.singaporebudget.gov.sg/budget_2020/solidarity-budget/solidarity-budget-statement

Heng S.K. (2020d). Fortitude Budget Statement, 26 May 2020. [Online]. Available: https://www.singaporebudget.gov.sg/budget_2020/fortitude-budget/fortitude-budget-statement

Heng S.K. (2020e). Ministerial Statement-August 2020, 17 August 2020. [Online]. Available: https://www.singaporebudget.gov.sg/budget_2020/AugustStatement

Heng S.K. (2020f). Ministerial Statement-October 2020, 5 October 2020. [Online]. Available: https://www.singaporebudget.gov.sg/budget_2020/ministerial-statement-oct-2020

Lin R, T.H. Lee and D. Chien (2020). "From SARS to COVID-19: the Singapore journey," *The Medical Journal of Australia*, Published online: 6 April 2020.

Ministry of Trade and Industry (2020). "Feature Article: Impact of the Circuit Breaker and Budget Measures in Response to Covid-19", in *Economic Survey of Singapore Second Quarter 2020*.

Monetary Authority of Singapore (2009). Financial Stability Review 2009. [Online]. Available: https://www.mas.gov.sg/publications/financial-stability-review/2009/financial-stability-review-2009

Monetary Authority of Singapore (2020a). MAS' Response to Covid-19. [Online]. Available: https://www.mas.gov.sg/regulation/covid-19

Monetary Authority of Singapore (2020b). Macroeconomic Review, October 2010. [Online]. Available: https://www.mas.gov.sg/publications/macroeconomic-review/2019/volume-xviii-issue-2-oct-2019

Sharma V. (2013). Global Financial Crisis: Impact on Singapore and Policy Measures Taken to Counter It. A Policy Brief. [Online].
Available: https://www.slideshare.net/VikasSharma128/singapore-gfc-vikasmar2013draft