Recent Inflation Dynamics in Singapore

Monetary Authority of Singapore (MAS)

Abstract

This note examines the roles of external price pressures and labour market developments in driving recent high inflation in Singapore. As a small open economy, Singapore has been more affected than most by shocks to global commodity prices over the past two years. Meanwhile, rapid labour market tightening as the economy rebounded in the wake of the pandemic has led to robust nominal wage growth, further contributing to inflationary pressures. This note highlights two phenomena that have contributed to the strongest inflation outturns since 2008 —Singapore's reliance on imported inputs and the sharp contraction of the non-resident workforce during the worst of the pandemic. Overall, this year will see some easing from the surge in imported inflation and very tight labour market of 2021–22, but labour demand is expected to be resilient and exert some continuing inflationary pressures through firm consumer services prices.

Keywords: inflation, labour market.

JEL classification: E31, J21.

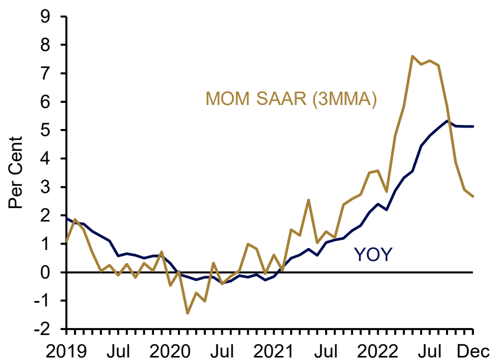
Overview of recent economic developments and outlook

Inflation

Both external and domestic cost pressures led to an increase in MAS core inflation[1] to 5.1% year on year in the third and fourth quarters of 2022, from 3.8% in the second quarter, with year-on-year price increases firming across all broad categories (Graph 1.A). Nevertheless, moderating energy price increases alleviated price pressures somewhat in the final months of 2022, even as conducive domestic demand conditions and a tight labour market led to a continued rise in discretionary goods and services inflation. In December, the three-month moving average (3MMA) of the annualised month-on-month percentage change in seasonally adjusted MAS core consumer price index (CPI) dipped to 2.7%, down further from its peak of 7.6% in May, suggesting that inflation may have peaked. For 2022 as a whole, core and headline inflation averaged 4.1% and 6.1%, respectively, the highest rate of inflation in 14 years.

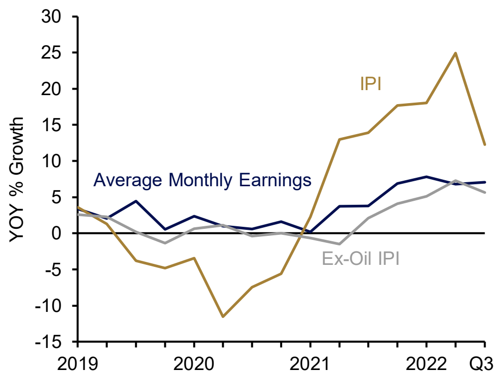
CPI, import and wage inflation in Singapore — Graph 1

A: MAS core inflation



Source: Department of Statistics.

B: Average monthly earnings and import price-indices (IPI)



Sources: Department of Statistics; Central Provident Fund, Singapore.

This year, imported inflation is expected to remain significant across a range of intermediate and final goods. Commodity price levels have come off their peaks but will remain elevated, while higher costs in Singapore's major trading partners – including from tight labour markets – will continue to flow through global value chains. Externally driven inflation in Singapore is therefore forecast to moderate more discernibly only in the latter half of the year.

Domestically, labour market tightness is expected to ease this year even as the labour market on the whole will likely remain strong. Wages, especially for the services sector, will rise at a slower pace than in 2022 but should keep above pre-Covid

[1] The MAS core inflation measure excludes “accommodation” and “private transport” components as these items tend to be significantly influenced by supply side administrative policies that are volatile. Unlike most other economies, the core inflation measure in Singapore includes non-cooked food and energy-related items (electricity and gas).

averages. Rising unit labour costs will therefore continue to drive inflation in 2023, although its contribution should ease, especially in the second half of the year. Consequently, MAS core inflation is projected to stay elevated in the first two quarters of the year before slowing more discernibly in H2.[2]

Labour market

Labour markets across most advanced economies were notably tight during the period 2021–22, amid the resumption of economic activities and constraints on labour supply. Singapore faced broadly similar conditions, with unemployment falling rapidly as Covid-19 social distancing measures were eased, and various labour market indicators pointed to a very tight domestic labour market by late 2021. The seasonally adjusted resident unemployment rate fell from a peak of 4.7% in the third quarter of 2020 to a low of 2.8% in the second quarter of 2022. Meanwhile, job vacancies surged past pre-Covid levels in 2021 and have remained elevated over 2022, partly as a result of the robust labour demand recovery coinciding with a sharp decline in the non-resident workforce, amid Covid-related border restrictions. Consequently, the ratio of job vacancies to unemployed persons surged to an all-time high of 2.5 in June 2022. While it has since retreated slightly to 2.2 in September, the ratio of job vacancies to unemployed persons remained high compared to the pre-Covid average reading of 1.0.

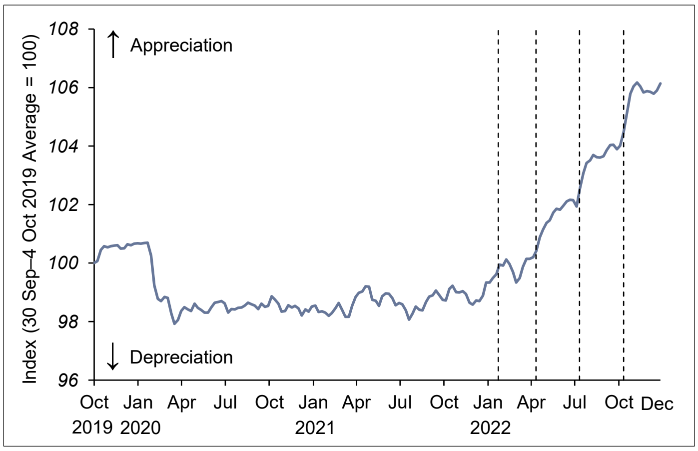
Labour market tightness has led to strong wage pressures, with resident wage growth stepping up to 7.3% yoy on average during the period January–September 2022 (Graph 1.B). High wage growth in part reflects a catch up in wages to its trend level, after relatively slow wage growth in 2020–21. However, even abstracting from base effects, the momentum in wage growth has been strong, reflecting the tight labour market. With Singapore's GDP growth projected to moderate in 2023, the tempering of labour demand, in combination with recovering non-resident labour supply, should further alleviate labour market tightness. Accordingly, nominal wage growth for resident workers is projected to step down in 2023 as demand and supply in the labour market equilibrate. However, some persistence in wage growth momentum and elevated inflation expectations, together with government policies in 2022–23 to raise wages at the bottom of the income distribution, could keep resident wage growth above pre-Covid rates.

Monetary policy

Congruent with the still strong underlying inflation, MAS further tightened monetary policy, by stepping up the level of the exchange rate policy band in October 2022 (Graph 2). The cumulative effects from the five rounds of monetary policy tightening since October 2021 are expected to slow the momentum of inflation and ensure that price pressures do not become entrenched.

[2] Excluding the effects of the hike in the goods and services tax (GST) in 2023, core inflation is projected to be lower on average in 2023 compared with 2022.

Singapore dollar nominal effective exchange rate (S$NEER) Graph 2



------ indicates last four releases of Monetary Policy Statement

Source: MAS

On the whole, MAS's intermediate target of monetary policy, the Singapore dollar nominal effective exchange rate (S$NEER) has appreciated by over 7% as of end-2022, since MAS began withdrawing monetary policy accommodation in October 2021. The strengthening of the Singapore dollar has helped to filter off part of the strong imported inflation. At the same time, amid the considerable appreciation of the real exchange rate, an expected rebalancing of aggregate demand with supply will reduce domestic inflationary pressures.

Two drivers of high inflation in Singapore

Singapore's integration into global value chains

Sharply higher global commodity prices have exerted significant price pressures on the Singaporean economy. Singapore has no natural resources and imports almost all of its food and energy requirements. Higher commodity prices have thus had significant direct effects on the CPI.

In addition, MAS's analysis using global input output tables shows that higher agriculture and energy prices worldwide are raising domestic inflation indirectly via a wide range of imported intermediate inputs. In particular, by raising the costs of energy inputs at every stage of the global value chain, global commodity price shocks lead to broad-based and persistent inflation in Singapore – beyond the first order direct effects on domestic food and energy prices. The commodity price shocks are estimated to have accounted for over two thirds of Singapore's year-on-year core inflation in June, far higher than the 25% increase that can be directly attributable to the weight of food and energy-related components in the core CPI basket.

MAS's analysis suggests that indirect channels are a more important propagator of commodity price shocks to inflation in Singapore relative to other economies, in line with Singapore's exceptionally high dependence on international trade. In particular, inflation in Singapore from global commodity price shocks are primarily transmitted through supply chains involving foreign sectors as intermediaries. In contrast, US and EU inflation appear to be primarily driven by domestic supply chain effects. This suggests that even as the impact of commodity price shocks fade, elevated inflation internationally within industry networks could, via global value chains, keep Singapore's imported inflation firm.

Singapore's non-resident workforce

Similar to most advanced economies, the labour market has been tight in Singapore during the post-Covid economic recovery. However, there have been two salient differences in Singapore's labour market that are relevant for the inflation outlook.

First, total employment has been slow to recover to pre-Covid levels almost entirely because travel restrictions have impeded the return of non-resident workers to Singapore. Labour force participation among the resident population remained high throughout 2020 and rose beyond pre-pandemic rates in 2021–22, in contrast to several advanced economies in which the labour force participation rate declined sharply and was slow to recover. Rather, labour supply constraints in Singapore have primarily been due to restricted inflows of non-resident workers, who saw their share of the total workforce falling from 38% pre-pandemic to 34% by end-2020. Although the inflow of workers has resumed robustly since end-2021 with the relaxation of domestic and international border restrictions, as of September 2022 non-resident employment is still approximately 3% below its pre-pandemic level.

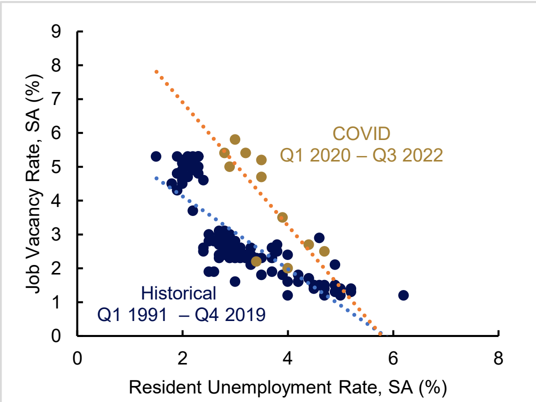
Second, manpower shortages persisted even as resident employment rebounded, as resident workers were imperfect substitutes for non-resident workers in sectors such as manufacturing and construction. Consequently, the shortfall of non-resident workers generated a temporary mismatch between labour demand and labour supply, which in turn led to elevated job vacancy rates. In the United States, the surge in job vacancies has led to suggestions that the Beveridge curve has shifted up, and that the labour market cannot be cooled without a significant increase in unemployment. In Singapore, analysis by MAS finds that non-resident labour supply constraints were an important factor underlying elevated job vacancies during the period 2021–22, in addition to rising matching frictions in the labour market (Graph 3.A).[3] One key implication is that as international travel recovers and non-resident labour supply normalises, excess vacancies should fall and the shift in the Beveridge curve should reverse partially, without requiring a large increase in resident unemployment (Graph 3.B).[4]

[3] The measure of excess job vacancy rate is based on a regression decomposition of the overall job vacancy rate into cyclical demand and foreign labour supply components. The demand component is driven by GDP growth and foreign employment growth in the previous quarter, while the foreign labour supply component depends on the deviation of foreign employment from trend levels.

[4] Using the linear approximation from Ahn and Crane (2020), the recent shifts in the Beveridge curve were decomposed into four components – dynamics, job separations, non-resident labour supply and matching efficiency.

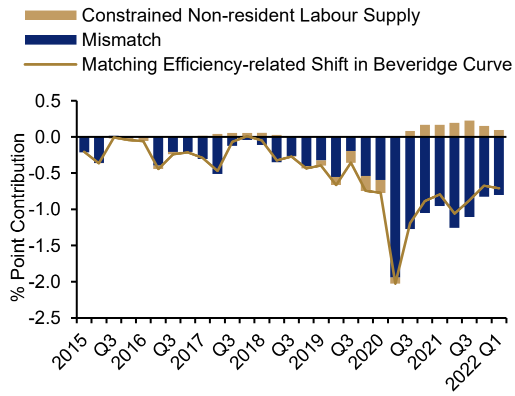
Shifting Beveridge curve in Singapore Graph 3

A: A. Beveridge curve



Sources: MOM and EPG, MAS estimates.

B: Decomposition of efficiency-related shifts in the Beveridge curve



Sources: Source: EPG, MAS estimates.

Wage-price dynamics

With labour supply constrained due to the persistent shortfall of non-resident employment relative to pre-Covid levels, nominal wage growth rose above what would be expected given cyclical demand conditions for the economy in 2022. To estimate the pass-through from wage increases to price inflation, a Phillips curve framework was augmented with a variable for "excess wage growth", a measure of wage growth in excess of demand conditions in the economy, which may have arisen because of impairment to non-resident labour supply. The "excess wage growth" variable was in turn estimated as the residual from a *wage* Phillips curve that uses the output gap as a measure of labour market slack.[5] The modified framework can be summarised by the following equation:

$$\pi_t = \alpha + \sum_{s=1}^{S} \beta_s \pi_{t-s} + \sum_{m=0}^{M} \gamma_m outputgap_{t-m} + \sum_{n=0}^{N} \lambda_m IPI_{t-n} + \sum_{k=1}^{K} \kappa_h \widehat{v_{t-h}} + \epsilon_t$$

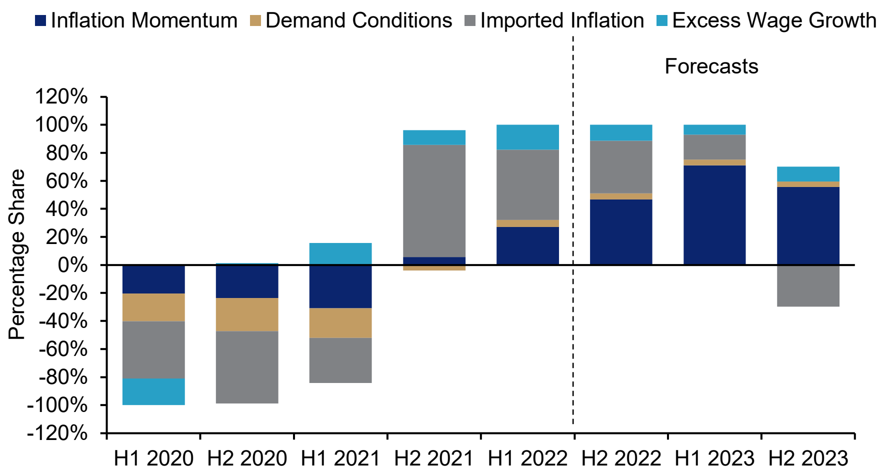
Under this framework, contributions from demand, imported inflation and excess wage growth average zero in the long run. However, they all contributed to core inflation overshooting in 2022. Nonetheless, the estimated coefficient on the excess wage growth variable is relatively small in magnitude, indicating that the pass-through from labour market to prices is likely to be contained.

This year, with labour market tightness expected to ease as short-term labour supply shortages resolve, the contribution of excess wage growth to core inflation

5 In contrast to observations made for a few advanced economies, MAS internal estimates of the wage Phillips curve suggest that a strong link between the degree of economic slack and nominal wage growth in Singapore remains.

should moderate (Graph 4). Similarly, the strong imported inflation over 2022 is also projected to ease, further helping to dampen inflation. These suggest that standard monetary policy tradeoffs should re-establish prominence, as long as inflation expectations continue to be contained.

Contribution of inflation drivers to excess inflation — Graph 4



Forecasts for 2023 exclude the impact of GST hike.

Source: Source: EPG, MAS estimates.

Conclusion

Inflation in Singapore experienced a "perfect storm" in 2022, with resurgent demand coinciding with domestic and external supply side constraints. Looking forward, amid the synchronised tightening of monetary policy globally, Singapore's GDP growth is expected to moderate to a level slightly below trend in 2023. With labour market tightness expected to ease somewhat as short-term labour supply shortages resolve and commodity prices moderate, core inflation is likely to come down in the second half of 2023. For this year as a whole, inflation is likely to step down from 2022, although it will remain somewhat above the historical norm.

References

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