

Box B: A Structural Decomposition of the Supply and Demand Drivers of Singapore's Inflation¹

Understanding the drivers of inflation in Singapore is important for monetary policy purposes. As a small, open economy, Singapore is frequently exposed to external shocks including shifts in global demand, commodity-price shocks and disruptions to supply chains. The effect of these shocks on domestic inflation depends partly on how they interact with domestic demand conditions and capacity constraints. Distinguishing between these channels helps assess whether inflation developments are primarily externally driven, domestically generated or shaped by both.

This study develops a factor-based decomposition of Singapore's core inflation into external and domestic, supply and demand influences. It adapts the framework of Eickmeier and Hofmann (2022) to explicitly account for international spillovers in a small open economy, and uses a large dataset of external and domestic real-activity and price indicators over the period Q1 2000–Q2 2026. The framework provides a way to summarise and characterise Singapore's inflation drivers when several external and domestic shocks are operating concurrently.

This framework can be used to shed light on the current inflation episode. MAS Core Inflation has risen amid a resurgence in external demand while domestic conditions have helped keep overall price pressures contained. The external backdrop bears some resemblance to the high inflation episodes of 2007–08 and 2022–23. However, unlike those episodes, domestic demand and supply conditions are presently exerting a disinflationary influence, which should help limit inflation persistence alongside receding external supply pressures.

Methodology

The approach proceeds in three steps. First, 179 real activity indicators and 159 nominal variables spanning Q1 2000 to Q2 2026 are classified according to whether they capture external macroeconomic conditions or domestic conditions in Singapore. The variables span a broad range of output, production, and labour market measures, as well as consumer, import, export and property-rental prices together with other nominal indicators. Country-specific counterparts for Singapore's key trading partners are included among the external variables, alongside global demand and price measures, such as investment, trade and commodity prices as well as supply-chain and uncertainty indicators.

Following Eickmeier and Hofmann (2022), principal component analysis (PCA) was applied to the external dataset to extract the first three principal components, or common factors. The first three principal components explain 46% of the variables' co-movement but as they lack structural meaning, a rotation algorithm was applied alongside sign restrictions to bridge the gap between the statistical factors and economic theory. The algorithm systematically adjusts these factors until they align with standard economic understanding, classified based on the following criteria:

¹ This Box has benefited from valuable comments and feedback from Denis Tkachenko, Associate Professor of Economics at the National University of Singapore.

- Supply factor: Improvements in supply—for example, from productivity gains, an expansion in labour supply or lower input costs—should raise real activity while lowering inflation. Conversely, adverse supply developments should weigh on real activity while raising inflation.
- Demand factor: Stronger demand should raise both output and prices. Conversely, a decline in demand should exert disinflationary pressures.
- Other common factor: The third factor captures common movements across the data that do not conform neatly with the standard supply-demand patterns. Such movement may reflect a combination of influences—including shifts in inflation expectations, financial conditions and tax or administered-price changes—rather than a separately identified economic driver.

The domestic component of each Singapore macroeconomic variable is then defined as the residual information unexplained by current and lagged external factors and a lag of the S\$NEER.² In the final step, PCA and the sign-restricted rotation are applied to the set of residuals to identify domestic demand, domestic supply and other common domestic factors. Combining the external and domestic factors yields the following specification:

$$X_t^{domestic} = \hat{\Gamma}^{external} \hat{F}_t^{external} + \hat{\Gamma}^{domestic} \hat{F}_t^{domestic} + \beta NEER_{t-1} + \hat{\epsilon}_t \quad (1)$$

where $X_t^{domestic}$ is a vector of domestic variables, the $\hat{F}_t$ are vectors containing up to two lags of the common factors for the external and domestic variables and $\hat{\epsilon}_t$ is the error term. The approach therefore expresses Singapore's macroeconomic variables, such as GDP and core inflation, as functions of external and domestic common factors.

Key Findings

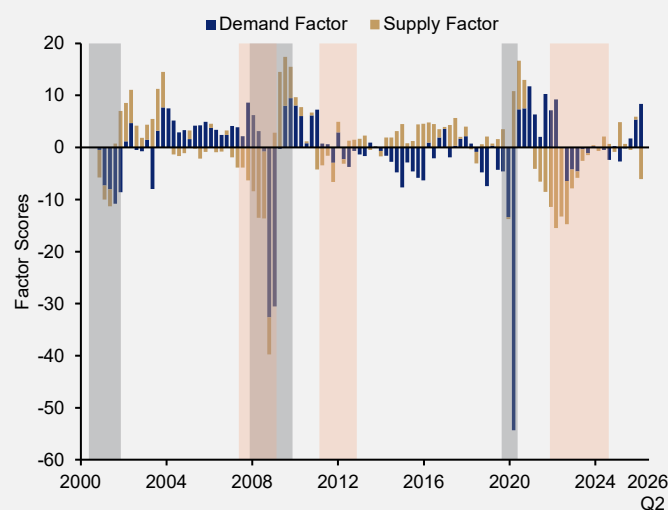
Chart B1 shows the demand and supply factors obtained by applying the original Eickmeier and Hofmann (2022) framework to the full dataset. Together, they summarise the broad demand and supply forces shaping Singapore's economic activity and inflation.³

A few stylised facts emerge. First, major recessions in Singapore have been associated with sharp declines in the demand factor. Second, high-inflation episodes tend to have coincided with strong demand. Third, movements in the supply factor often follow shifts in demand: periods of strong demand tend to precede tighter supply conditions, while demand contractions are often followed by an easing of supply constraints.⁴ This relationship is suggestive of multi-faceted shocks that have evolving demand and supply influences.

² Lagged S\$NEER movements are included to account for the delayed transmission of exchange rate changes to domestic activity and prices, so that the domestic factors capture common movements beyond those associated with the monetary policy instrument. This does not identify an exogenous monetary policy shock, as S\$NEER policy responds endogenously to economic conditions and the inflation outlook. For recent research on the relationship between S\$NEER and inflation, see Monetary Authority of Singapore (2024), "Box B: Exchange Rate Pass-Through to Inflation in Singapore", *Macroeconomic Review*, Vol. XXIII (2).

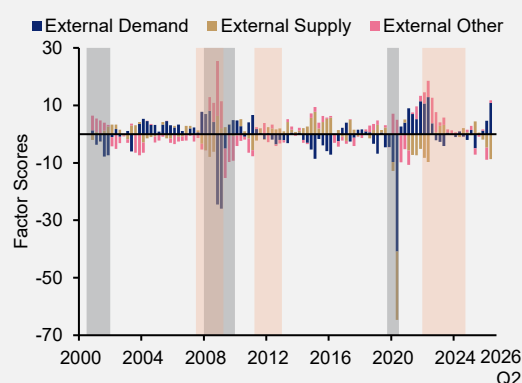
³ The estimated factors describe broad demand and supply conditions inferred from the joint movement of many macroeconomic indicators. As each factor may reflect the combined and persistent effects of several underlying disturbances, it should not be interpreted as a single structural shock.

⁴ Granger causality tests formally confirm this temporal ordering, demonstrating that changes to demand factors systematically lead supply factor adjustments.

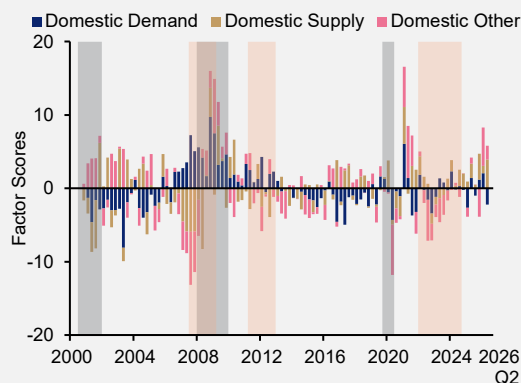
Chart B1 Overall demand and supply factors

Source: EPG, MAS estimates

Note: Grey shaded areas denote recessions. Light orange shaded areas denote high inflation episodes. Factor scores above (below) zero indicate expansionary (contractionary) conditions.

Chart B2 External factors

Source: EPG, MAS estimates

Chart B3 Domestic factors

Source: EPG, MAS estimates

Note: Grey shaded areas denote recessions. Light orange shaded areas denote high inflation episodes. Factor scores above (below) zero indicate expansionary (contractionary) conditions

Charts B2 and B3 separate the demand and supply factors into their external and domestic components.⁵ While the corresponding factors are often positively correlated, they do not always move in tandem. During the Global Financial Crisis (GFC), for example, domestic demand supported the Singapore economy even as external demand contracted sharply. On the supply side, domestic constraints reinforced adverse external supply conditions in 2007–08, contributing to the rise in inflation. By contrast, during the post-

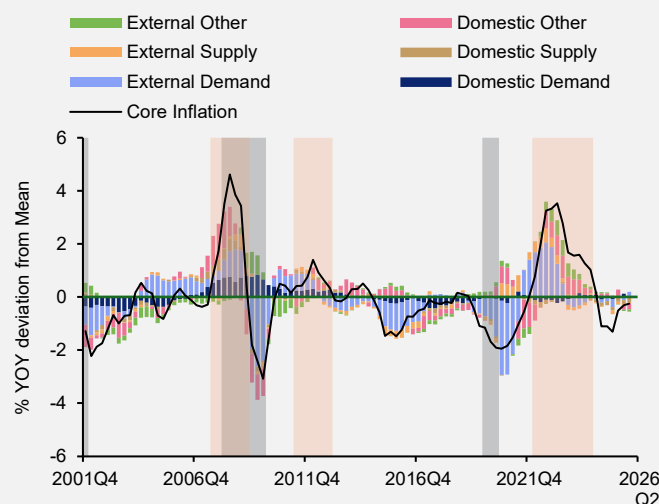
⁵ As the decompositions are estimated using separate PCAs on different subsets of the data, the factor scores do not sum to the aggregate factors in Chart B1 and their raw scales are not directly comparable.

pandemic period, improvements in domestic supply conditions partly mitigated the inflationary effects of external supply pressures.

Drivers of Singapore's Core Inflation

Combining the estimated external and domestic factors with their respective loadings on MAS Core Inflation provides a decomposition of inflation into the contributions associated with each factor.

Chart B4 Core inflation decomposition (% YOY; demeaned seasonally adjusted)⁶



Source: EPG, MAS estimates

Note: Grey shaded areas denote recessions. Light orange shaded areas denote high inflation episodes. Due to the imposed sign restrictions, negative (positive) supply factors in Charts B2–3 will contribute positively (negatively) to core inflation. The “other” factors capture common movements that are not classified as demand or supply and may reflect a combination of influences including uncertainty, expectations and financial conditions. The historical mean of core inflation is about 1.7% y-o-y.

Historically, external factors, especially external demand, have played the dominant role in shaping Singapore's core inflation, while domestic factors have generally made a smaller contribution (**Chart B4**). Across the full sample, external demand (light blue bars), external supply (orange bars) and external “other” factors⁷ (green bars) together account for about 68% of the variation in inflation captured by the model. They contributed to the two major inflation cycles around the GFC and the pandemic period as well as to other episodes where inflation substantially deviated from its mean.

Domestic demand factors have at times amplified externally-driven movements in inflation such as in the low inflation years of 2001–04 and the high-inflation episode of 2007–

⁶ The lagged S\$NEER is included to account for the delayed transmission of exchange rate movements to domestic prices. Its estimated contribution, after controlling for the external and domestic factors, is small in this specification and is therefore not shown separately in Chart B4.

⁷ The estimated contribution of “other” factors was relatively large during episodes such as SARS, the GFC, the 2015 slowdown, the COVID-19 pandemic and the subsequent inflation surge. These episodes were marked by unusual combinations of demand and supply shocks that may not conform to the model's standard supply-demand sign restrictions. The “other” factors should therefore be interpreted as unclassified common variation and could be reflecting a range of financial and uncertainty influences.

08. Conversely, the 2022–23 inflation episode is attributed predominantly to external factors, with smaller estimated contributions from the identified domestic demand and supply components. External supply conditions were a significant contributor to inflation during this period. However, estimates from a factor-augmented SVAR suggest that the inflationary effects of external supply shocks are less persistent than those of external demand shocks. This is consistent with previous empirical research showing that oil supply shocks, for example, result in less persistent inflation than oil demand shocks.⁸

More recently, following the post-pandemic inflation surge, core inflation declined to a trough in 2025 as both external and domestic pressures dissipated. It has gradually picked up since, albeit remaining slightly below its historical mean in Q2 2026 at 1.5%. The decomposition attributes this recent upturn mainly to a resurgence in external demand. While external supply conditions deteriorated in Q2, likely reflecting developments in the Middle East, the inflationary effects had yet to be fully transmitted to domestic consumer prices because of lags in cost pass-through. For example, utility costs were only raised in July following the increase in global energy prices in Q2. Consequently, these effects were not yet evident in the Q2 decomposition.

Meanwhile, other factors continued to weigh on core inflation in Q2. Domestic supply and “other” factors have exerted disinflationary pressure reflecting subdued growth in commercial retail rents and unit labour costs (ULC), alongside capacity expansion. Overall ULC growth averaged only 0.3% in H1 this year, held down by firm productivity growth. Meanwhile, the strong expansion in non-residential gross fixed capital formation since 2024 has likely lifted the economy’s productive potential.

Sum-up

The analysis in this box indicates that external forces—particularly external demand—have played the dominant role in Singapore’s core inflation movements, while domestic factors can amplify or attenuate their effects. In the current episode, external demand is lifting inflation slightly, while the effects of the adverse external supply conditions are becoming more apparent with a lag. Nevertheless, subdued domestic cost pressures, continued capacity expansions and the expected easing of external supply pressures should help limit the persistence of inflation.

Reference

Eickmeier, S and Hofmann, B (2022), “What Drives Inflation? Disentangling Demand and Supply Factors”, *BIS Working Papers*, No. 1047.

⁸ Monetary Authority of Singapore (2022), “Box A: Revisiting the 1970s Inflation Shocks”, *Macroeconomic Review*, Vol. XXI (1), pp 60–65.