Implicit Gross Domestic Product Deflator for the Finance & Insurance Industry

Introduction

The Implicit Gross Domestic Product Deflator (IGD) is an indirect price index derived from Singapore's national accounts, compiled by the Singapore Department of Statistics (DOS). This article introduces the IGD and discusses the recent IGD growth trend for Singapore's Finance & Insurance industry, highlighting the impact of the volatile interest rate environment in recent years.

Deriving IGD

The IGD provides a broad measure of the changes in the overall level of prices of goods and services produced in the economy relative to a base year. The IGD is derived by dividing the nominal value of a component of Gross Domestic Product (GDP) by its corresponding real value, then multiplying the result by hundred. Table 1 illustrates an example of deriving the IGD of an industry.

Nominal GDP measures the value of goods and services produced in an economic territory at prices of the current reporting period. It is an indicator of changes in quantity and price.

Real GDP excludes the effects of price changes (i.e., price effects) from period to period. It is an indicator of changes in volume (i.e., quantity effects over time). Singapore's real GDP is compiled through chain-linking [1].

Table 1: Deriving the IGD of an Industry

	Year 1	Year 2	Percentage Change from Year 1 (%)
Nominal GDP ($ Mil)	29,000	48,000	65.5
Real GDP ($ Mil)	29,000	41,000	41.4
Implicit GDP Deflator	100	117	17.0

Differences Between IGD and Consumer Price Index (CPI)

The IGD serves as a measure of price changes in the economy. Like the Paasche [2] price index, the IGD reflects the quantity weights of the current period rather than the base year. Thus, the IGD not only provides a measure of price movements but also incorporates changes in the composition of goods and services.

Conversely, the CPI reflects price movements in goods and services consumed by households, tracking consumer inflation. Unlike the IGD, the CPI is a direct Laspeyres [3] index which reflects quantity weights of the base year. It is designed to measure changes in the price of a fixed basket of consumption goods and services. The differences between IGD and CPI are summarised in Table 2.

Table 2: Comparing IGD and CPI

	Implicit GDP Deflator	CPI
Coverage	The IGD is a broad measure of price changes. It reflects price movements of the overall economy/ industry. It is derived from both nominal and real GDP estimates.	The CPI is a measure of consumer inflation. It reflects price movements in goods and services consumed by households.
Characteristics	Implicit Paasche price index, i.e., weighted by quantities in the current year. Changes in the IGD could be due to movements in price and/ or changes in the composition of goods and services.	Direct Laspeyres price index, i.e., weighted by quantities in the base year. The CPI compares the prices of a constant basket of goods and services between any two periods.

[1] In compiling chained-linked real GDP, a single fixed base year is not used. Instead, the relative price weights are updated more frequently. DOS compiles these estimates by using the price levels of the preceding year. These annually reweighted estimates are then linked to produce a continuous time series of chain volume measures of GDP. Singapore's real GDP is presented in chained (2015) dollars.

[2] The Paasche price index for period n is computed as P(paasche) = (Σ Pn Qn) / (Σ Po Qn) where Pn and Po are prices in period n and base year respectively, and Qn refers to the quantities in period n.

[3] The Laspeyres price index for period n is computed as P(laspeyres) = (Σ Pn Qo) / (Σ Po Qo) where Pn and Po are prices in period n and base year respectively, and Qo refers to the quantities in the base year.

The Finance & Insurance Industry

The Finance & Insurance industry is the third largest contributor to Singapore's GDP. The industry engages in financial intermediation and related services such as banking & credit intermediation, investment & fund management, auxiliary financial services and insurance services.

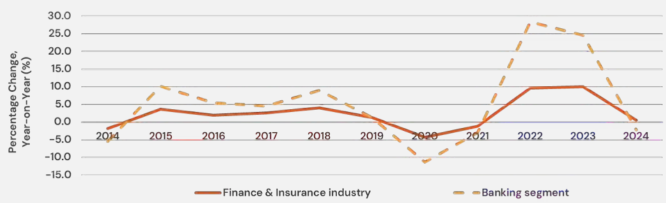
The industry's nominal and real GDP expanded over the past decade at a compound annual growth rate (CAGR) of 8.0% and 5.1% respectively (Chart 1). The divergence in the nominal and real growth trends in recent years primarily stemmed from changes in banks' interest margins on loans and deposits, due to the volatile global interest rate environment.

Chart 1: Nominal and Real GDP of the Finance & Insurance Industry, 2014 - 2024

The IGD of the industry increased at a CAGR of 2.6% from 2016 to 2019, before contracting in 2020 and 2021. It then strongly rebounded in 2022 and continued to expand throughout 2024 at a more moderate pace.

Notably, the IGD of the Finance & Insurance industry is closely tied to the banking segment within the industry (Chart 2).

Chart 2: IGD of the Finance & Insurance Industry and Banking Segment, 2014- 2024



The Banking Segment

Banks in the Finance & Insurance industry primarily facilitate borrowing and lending, in addition to providing banking services such as brokerage and wealth management.

In the national accounts, the output of banks comprises income from explicit and implicit fees.

Explicit fees refer to fees and commissions charged upfront for the provision of banking services. Banks also earn implicit fees from interest margins from the provision of financial services associated with loans and deposits (i.e., financial intermediation services indirectly measured (FISIM)).

Interest margins are derived from the difference between the interest rate on loans or deposits and a service-free reference rate [4]. Changing interest margins in a volatile interest rate environment are price effects, which are reflected in the IGD growth trend.

The Changing Interest Rate Environment

In a highly open economy like Singapore, the central bank – the Monetary Authority of Singapore (MAS) – uses the exchange rate as its primary monetary policy tool to achieve price stability and facilitate free capital flows. This focus inherently positions Singapore as an interest rate taker and thus Singapore is heavily influenced by changes in the global interest rate environment.

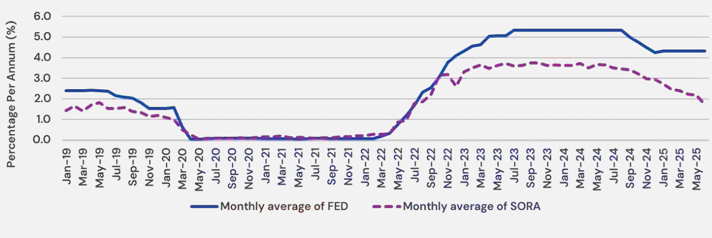
Following the onset of the Covid-19 pandemic in the early 2020, the United States of America (USA)'s Federal Reserve initiated interest rate cuts in a bid to stimulate economic activity. The federal funds rate continued to remain low in 2021.

As inflationary concerns weighed on the economic recovery from the pandemic, further exacerbated by pent-up demand and supply chain disruptions, the Federal Reserve raised interest rates in multiple successions throughout 2022 and the first half of 2023.

From June to August 2024, interest rates remained stable. Subsequently, as inflation eased, the Federal Reserve initiated further interest rate cuts towards the end of 2024.

Chart 3 illustrates the trend of the Singapore Overnight Rate Average (SORA), Singapore's key interest rate benchmark, which closely aligned with the federal funds rate.

Chart 3: Federal Funds Rate vs Sora, 2019-2025



[4] The reference rate is often taken as the inter-bank rate which has no financial intermediation service element.

Impact of the IGD Growth Trend on the Finance & Insurance Industry

The volatile interest rate environment has caused shifts in interest margins, reflecting price changes in the IGD growth trend of the Finance & Insurance industry.

In 2020, the declining interest rates resulted in shrinking interest margins on banks' loans and deposits, consequently contributing to a contraction in the industry's IGD. As interest rates remained low but stable in 2021, the interest margins on banks' loans and deposits decreased at a slower pace. Correspondingly, the IGD saw a smaller contraction (Chart 4).

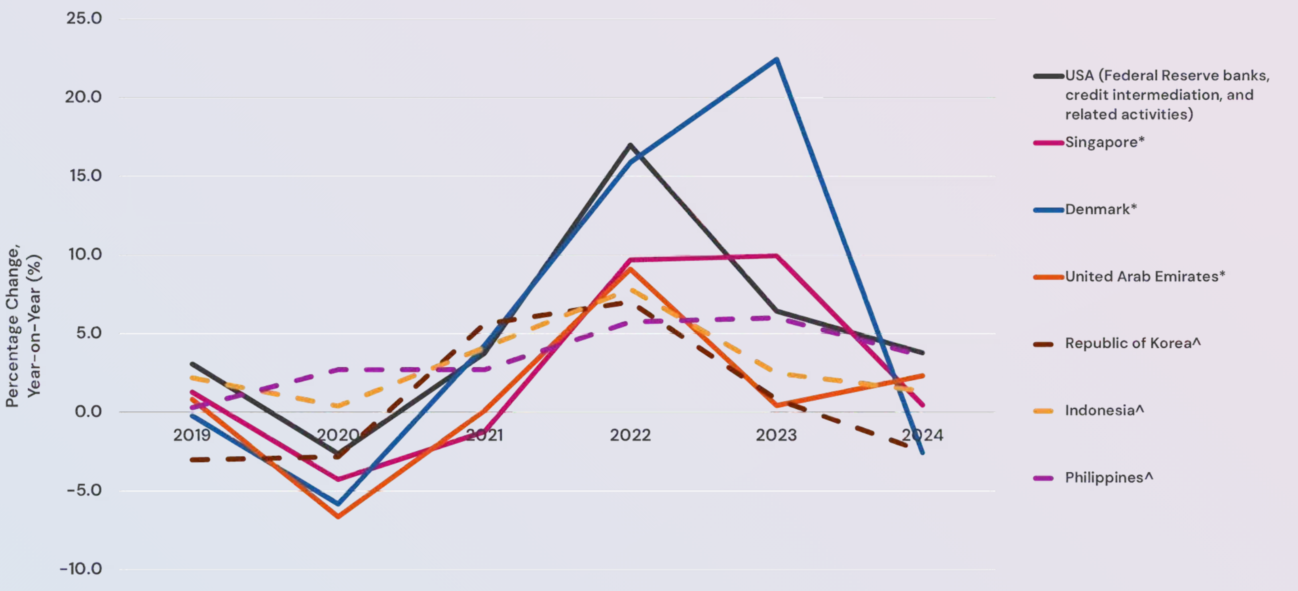
In 2022 and 2023, interest margins surged, driven by the rapid increase in interest rates. In 2024, the rates held steady in the first three quarters, before gradually moderating from September. The IGD growth trend of the Finance & Insurance industry reflected similar effects.

Country Comparisons

Highly open economies that operate as interest rate takers generally exhibited similar IGD growth trends, influenced by major global interest rates such as the federal funds rates.

Chart 4 illustrates comparisons of IGD growth trends among other interest rate taker countries like Denmark and the United Arab Emirates (UAE), as well as non-interest rate taker countries such as the Republic of Korea and Indonesia.

Chart 4: Comparisons of IGD Growth Trends among Countries, 2019-2024



* Interest rate taker country

^ Non-interest rate taker country

Conclusion

The IGD broadly indicates the change in prices of goods and services produced in an economy.

Recent IGD growth within Singapore's Finance & Insurance industry was primarily driven by the banking segment. This segment was significantly impacted by the volatile interest rate environment, which affected the banks' interest margins. Such shifts in interest margins constituted price effects, which were reflected in the IGD trends.

These observations were not unique to Singapore. Other highly open economies that act as interest rate takers, such as Denmark and the UAE, were also heavily influenced by the volatile global interest rate environment. Hence, their Finance & Insurance industries exhibited similar IGD growth trends in recent years.

References:

Monetary Authority of Singapore. '**Singapore's Monetary Policy Framework**.'

Data from statistical authorities of the USA, Denmark, the UAE, Republic of Korea, Indonesia, and Philippines.