Singapore's Growth Cycle Chronology, Coincident and Leading Indicators

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Introduction

First developed after the economic recession in 1985, Singapore's composite leading and coincident indices are reviewed periodically[1] to ensure that they remain adequate and relevant in identifying and anticipating Singapore's growth cycles.

The Singapore Department of Statistics has completed a comprehensive review of the composite leading and coincident indices, following the economic recovery from the COVID-19 pandemic.

Identification of Business Cycles

In the business cycle literature, there are three types of cycles, namely: the classical cycle, growth cycle and growth rate cycle (Table 1)[2]. Singapore's economic activity is characterised by growth cycles, rather than classical cycles or growth rate cycles as it has generally been on an upward trend with relatively stable growths.

TABLE 1
TYPES OF BUSINESS CYCLES

Classical Cycle	Growth Cycle	Growth Rate Cycle
Characterised by		
absolute expansions and contractions in the levels of aggregate economic activity	**deviations from the long-term trend growth rate** of the economy	**fluctuations in the growth rate** of aggregate economic activity

Singapore's Composite Coincident Index and Growth Cycle Chronology

Singapore's growth cycle chronology is determined from the growth cycles identified using the composite coincident index (CCI). The CCI is an aggregate of five macroeconomic indicators that move in tandem with business cycles, thus tracking the prevailing state of aggregate economic activity (Table 2).

With a more complete coverage of the different economic processes, the CCI is generally regarded as a better representation of Singapore's overall economic activity as compared to any single macroeconomic indicator such as real gross domestic product (GDP).

The latest review in 2023 concluded that the existing set of composite coincident indicators remains a reliable representation of Singapore's overall economic activity.

TABLE 2
SINGAPORE COMPOSITE COINCIDENT INDICATORS

Composite Coincident Indicators
Gross Domestic Product in Chained Dollars
Index of Industrial Production
Non-Oil Domestic Exports at Constant Prices
Total Employment
Retail Sales Index Excluding Motor Vehicles in Chained Volume Terms

1 Comprehensive reviews were conducted in 1991, 2004, 2011 and 2023.

2 Details on the different types of business cycles can be found in the feature article 'Singapore's Growth Cycle Chronology and Performance of Composite Leading Indicators' published in the 'Economic Survey of Singapore 2011': https://www.singstat.gov.sg/-/media/files/publications/economy/leading_indicators.

Table 3 presents Singapore's growth cycle chronology from 1974 to 2022. Since its recovery from the Global Financial Crisis (GFC) in 2009, the Singapore economy has experienced three growth cycles (Chart 1).

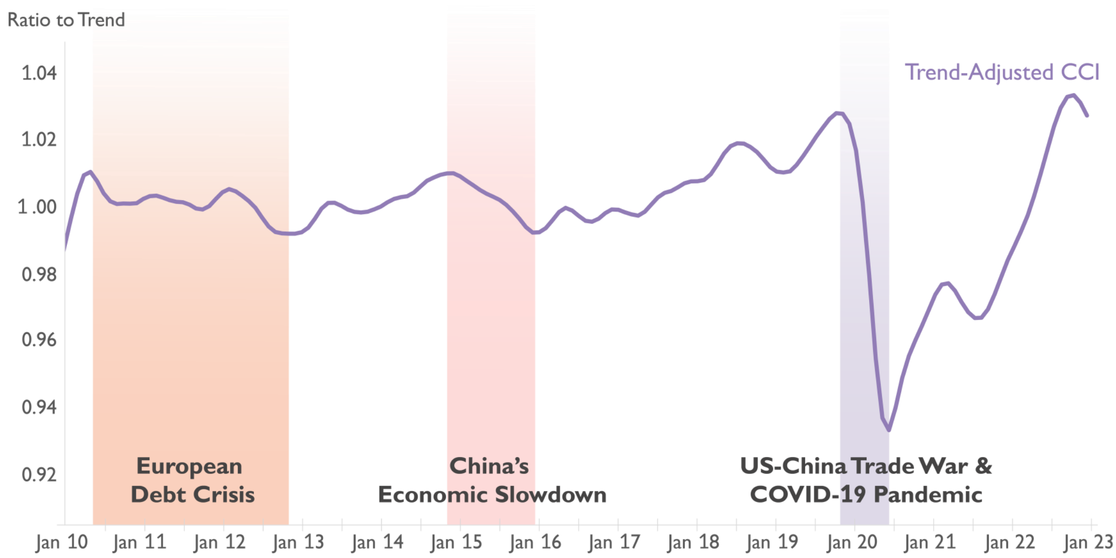
Following the short-lived seven-month recovery from the GFC, Singapore entered its longest period of economic slowdown of 29 months since 1974. The slowdown was attributed to spill-over effects from the European debt crisis to the Asia-Pacific region, which eventually bottomed out in late 2012, after the announcement from European Central Bank on its unlimited support and bailout for affected eurozone member states.

TABLE 3 SINGAPORE'S GROWTH CYCLE CHRONOLOGY, 1974 - 2022

Dates of Peak and Trough			Average Duration in Months			
Peak (P)	Trough (T)	Peak (P)	Low-growth (P to T)	High-growth (T to P)	Full Cycle (P to P)	Full Cycle (T to T)
May 1974	Dec 1974	Feb 1976	7	14	21	38
Feb 1976	Feb 1978	May 1981	24	39	63	58
May 1981	Dec 1982	Aug 1984	19	20	39	36
Aug 1984	Dec 1985	Jun 1988	16	30	46	46
Jun 1988	Oct 1989	Aug 1990	16	10	26	36
Aug 1990	Oct 1992	Sep 1994	26	23	49	30
Sep 1994	Apr 1995	Jul 1997	7	27	34	43
Jul 1997	Nov 1998	Aug 2000	16	21	37	35
Aug 2000	Oct 2001	Apr 2002	14	6	20	20
Apr 2002	Jun 2003	May 2004	14	11	25	21
May 2004	Mar 2005	Mar 2008	10	36	46	55
Mar 2008	Oct 2009	May 2010	19	7	26	36
May 2010	Oct 2012	Nov 2014	29	25	54	38
Nov 2014	Dec 2015[P]	Oct 2019[P]	13	46	59	54
Oct 2019[P]	Jun 2020[P]	-	8	-	-	-

[P] : *Recent peaks/troughs are preliminary as the trend estimates may be revised when more data become available.*

CHART 1 SINGAPORE'S GROWTH CYCLES, 2010 - 2022



Subsequently, China's economic slowdown in 2014 spilled over to export-dependent Asian economies such as Singapore, Malaysia and Indonesia. Consequently, Singapore's CCI peaked in Nov 2014 before bottoming out in early 2016, amidst an improvement in the global macroeconomic environment. Notably, Singapore registered an impressive economic expansion lasting 46 months, from Dec 2015 to Oct 2019.

The most recent cycle was registered in Oct 2019, when Singapore experienced its most severe economic recession due to a confluence of factors (including the US-China trade war and the COVID-19 pandemic) which affected demand and global supply chains. Fortunately, the acute fall in overall economic activity lasted only 8 months. By Jun 2020, Singapore's economy embarked on its recovery phase.

Growth Cycle Recessions versus Technical Recessions

Growth cycle recessions are defined as the periods of economic downturns registered during every peak-trough phase identified by the growth cycle.

This is distinct from technical recessions which are defined as two consecutive periods of quarter-on-quarter (q-o-q) declines of the seasonally adjusted (SA) real GDP.

For example, while Singapore experienced three growth cycle recessions since 2010, the Singapore economy only slipped into a technical recession in the second quarter of 2020, following two consecutive quarters of decline in the SA real GDP (Chart 2).

CHART 2 SINGAPORE'S GROWTH CYCLES WITH SEASONALLY ADJUSTED QUARTER-ON-QUARTER REAL GDP, 2010 - 2022

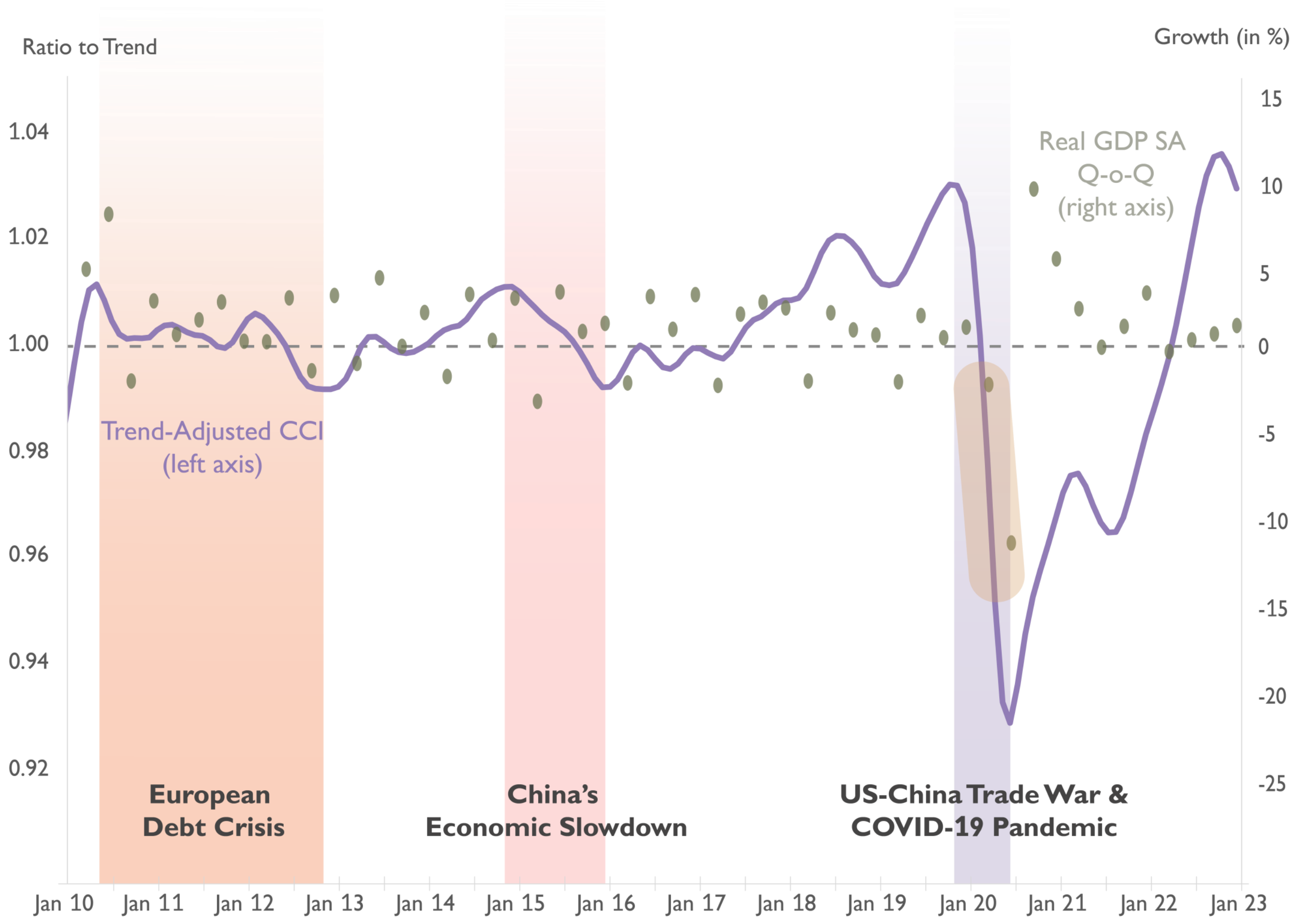


TABLE 4
SINGAPORE COMPOSITE LEADING INDICATORS

Composite Leading Indicators
Total New Companies Formed
Money Supply (M2)
Stock Exchange of Singapore Indices
Business Expectations for Stock of Finished Goods (Manufacturing)
Business Expectations for Wholesale Trade
US Purchasing Managers' Index (Manufacturing)
Total Non-Oil Seaborne Cargo Handled
Domestic Liquidity Indicator
Total Non-Oil Retained Imports at Constant Prices

TABLE 5
LEADS AND LAGS OF THE CLI OVER THE CCI, 2010 - 2022

Growth Cycle	CCI Turning Points	CLI Turning Points	Lead[+]/ Lag[-] (Months)
Peak	May 2010	Feb 2010	+ 3
Trough	Oct 2012	Sep 2011	+ 13
Peak	Nov 2014	Apr 2014	+ 7
Trough	Dec 2015	Dec 2015	0
Peak*	Oct 2019	-	-
Trough	Jun 2020	Apr 2020	+ 2
Average (2010-2022)			+ 5

* The CLI was unable to anticipate the growth cycle peak in Oct 2019.

Singapore's Composite Leading Index

The composite leading index (CLI) is a predictive tool to gauge if, and approximately when, an economic expansion or recession will take place. It serves as a useful forewarning tool for economists and policymakers on the overall health of the economy.

CLIs have been compiled by many countries, e.g., Netherlands, Japan, Korea and Malaysia, and international organisations such as The Conference Board and the Organisation for Economic Co-operation and Development (OECD), with a view to anticipate upturns and downturns in the economy.

Singapore's CLI comprises nine economic indicators that exhibit leading relationships with the growth cycles of the economy (Table 4). These leading indicators have been selected based on a set of key criteria including economic significance, cyclical properties, timeliness, periodicity and statistical quality of the data series.

The latest review in 2023 suggests that the existing set of composite leading indicators remains relevant in identifying and anticipating Singapore's growth cycles. In the previous comprehensive review conducted in 2011, Singapore's CLI had an average lead of 4.8 months over the CCI for the period of 2003 to 2010. Based on the latest review, Singapore's CLI maintained its lead over CCI, with an average lead of 5.0 months for the period of 2010 to 2022 (Table 5).

For example, the CLI peaked 3 months before the economic slowdown in May 2010 and bottomed out 13 months before the subsequent recovery.

Conclusion

The latest comprehensive review in 2023 indicates that the existing CCI remains an adequate and reliable representation of Singapore's prevailing aggregate economic activity.

Findings from the review also suggest the continuing relevance of the existing CLI in identifying and anticipating Singapore's growth cycles. The results further show that the leading properties of the CLI has improved marginally for the period of 2010 to 2022, compared with 2003 to 2010.

More information and latest data on CLI are available from the information paper 'Singapore's Growth Cycle Chronology, Coincident and Leading Indicators' and on the SingStat Table Builder.