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Looking Beyond GDP: Toward Sosial Well-being and Environmental Sustainability

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Transition to Sustainable Economy:
Malaysia's Journey So Far

Early signals on economic direction prior to GDP

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Abstract:

Economic crises are sudden disruptions in economic stability, often characterised by declines in activity, financial instability, and negative social consequences. Malaysia's government thus faces the challenging task of managing disruptions promptly to ensure stability in macro-economy. Predicting these crises can help lessen the negative impact through smart policy decisions, protecting the economy from a catastrophic downturn. The Malaysian Economic Indicators compile three indices: Leading, Coincident, and Lagging. The Leading Index (LI) has the ability to predict economic crises. Based on previous economic behaviour, the LI can predict the 1997/98 Asian financial crisis three months ahead of time, the 2000/01 dot-com crisis ten months ahead of time, the 2008/09 subprime and Eurozone crises two months ahead of time, and the COVID-19 health crisis five months ahead of time. LI can predict future economic movement in Malaysia, providing advance warning in four to six months ahead.

Keywords:

<Leading Index>; <Economic crisis>;<Sustainable>; <Early Signals>; <GDP>;

1. Introduction:

An economic crisis is a significant and sudden disruption in economic stability. Economic crises are often characterised by a sharp decline in economic activity, financial instability, and can lead to negative social consequences. These crises can be triggered by many factors and may lead to big implications for both national and global economies. One of the criteria to achieve sustainable economy is by having stability in macro-economy Jackson, T. (2009). To secure stability in macro-economy, Malaysia's Government must make sure that any possible disruption to the country's economy shall be managed as soon as possible. Therefore, anticipating these crises can help mitigate the adverse impact with informed policy decision so as to safeguard the economy from severe downturn. In this regard, LI is adopted in this study to obtain early signals on the economic direction in the near term.

2. Methodology:

Composite Index

The compilation of Malaysia Economic Indicators involves various economic indicators, then categorising them based on their behaviour either "lead" or "coincide" or "lag" or disqualified before combining them into a Composite Index. Hence, there are three indices in Composite Index namely Leading, Coincident and Lagging.

Leading Index

The LI forecasts the state of the economy as a whole in the coming months. The indicator reveals the direction of the economy. A continuous decrease in the LI growth rate is one among the first indicators that an ongoing expansion may start to slow down. This indicator includes elements that, on average, "lead the economy".

The following are the steps that has been used by Department of Statistics Malaysia (DOSM) to establish the Composite Index for Malaysia:

Initial Calculation of a Composite Index

Let $Y_{j,t}$ denote the value of the jth component of the composite index in period t, where $t = 0, 1, 2, ... T$, and let $y_{j,t}$ denote the component's monthly percent change (symmetrical percent change) :

$$y_{j,t} = 200x \frac{\left(Y_{j,t} - Y_{i \cdot t-1}\right)}{\left(Y + Y_{j,t-1}\right)} \; for \; t = 0, 1, 2, ...T \; \text{or} \qquad (1)$$

For the components that could have zero or negative values are calculated:

$$y_{j,t} = Y_{j,t} - Y_{j,t-1}$$

Next, calculated the standardisation factor or average absolute value of the monthly symmetrical percent change for each of the j components:

$$S_j = \frac{\Sigma_j |y_{j,t}|}{T} \qquad (2)$$

Let w_j denote the weight for each of the j components:

$$w_j = \frac{\beta_j}{\Sigma_j \beta_j}, \; where \; \beta_j = \frac{1}{S_j} \qquad (3)$$

This formula for wj gives equal weight to each component's standardisation change, $z_{j,t}$, defined as $z_{j,t} = \frac{y_{j,t}}{S_j}$. Note that $\Sigma_j w_j = 1$. If a data for a component are not available in the month t, then $\beta_j = 0$ and $w_j = 0$ for that component.

The symmetrical percent change, c_t, in the composite index is defined as:

$$c_t = \frac{\Sigma_j w_j y_{j,t}}{F_k} \; for \; t = 0, 1, 2, ...T \tag{4}$$

Where F_k is an index standardisation factor that is initially assigned a value of 1 for each of the k indexes. [Note that if $F_k = 1$, then $c_t = \mu + \Sigma_j w_j(y_{j,t} - \mu)$, where $\mu = \Sigma_j w_j \mu_j$. That is, the trend in the index, μ, will be designed equal a weighted average of the trends in the components, μ_j.]

The level of the composite index in period t, NDX_t, is computed as:

$NDX_0 = 100$, and

$$NDX_t = NDX_{t-1} \frac{(200+C_t)}{200-C_t}, \; for \; t = 0, 1, 2, ... T \tag{5}$$

Index Standardisation

This step ensures that the average absolute symmetrical percent change, Z_k, is the same for each of the k composite indexes in a given set. First, from the c_t values computed using formula 4 (with $F_k = 1$), calculate a Z_k value for each of the composite indexes:

$$Z_k = \frac{(\Sigma_j |c_t|)}{T} \; for \; t = 0, 1, 2, ...T \tag{6}$$

Next, compute the index standardisation factor, F_k, for each index by dividing its Z_k value by the Z value of the "primary" index:

$$F_k = \frac{Z_k}{z_{primary}} \tag{7}$$

The set of LI, Coincident Index (CI) and Lagging Index (LG) uses the CI as the primary index, so the F_k values for the LI, CI, LG indexes are:

$$F_{LI} = \frac{z_{LI}}{z_{CI}}, \; F_{LG} = \frac{z_{LG}}{z_{CI}}, \; and \; F_{CI} = 1$$

Then recomputed the c_t and NDX_t values for each index using formula (4) and (5) and the F_k values from formula (7).

Index Rebasing

$$NDX_{t,rebased} = 100\left(\frac{NDX_t}{BASE}\right) for \; t = 0, 1, 2, ...T \tag{8}$$

Components of Leading and Coincident Indices

Each economic indicator is chosen in accordance with the guidelines outlined in the Business Cycle Indicators Handbook, which include conformity to the business cycle, consistent timing, economic significance, statistical adequacy, smoothness, and promptness. To illustrate the Composite Index for LI and CI, 7 components of LI and 6 components of CI were selected as follows:

|	**Components**	
Leading	i.	Real Money Supply, M1
Index	ii.	Bursa Malaysia Industrial Index
	iii.	Real Imports of Semi-Conductors
	iv.	Real Imports of Other Basic Precious & Other Non-ferrous Metals
	v.	Number of Housing Units Approved
	vi.	Expected Sales Value, Manufacturing
	vii.	Number of New Companies Registered
Coincident	i.	Total Employment, Manufacturing
Index	ii.	Real Salaries & Wages, Manufacturing
	iii.	Industrial Production Index
	iv.	Real Contributions, EPF
	v.	Capacity Utilization, Manufacturing
	vi.	Volume Index of Retail Trade

3. Result:

Chart 1: Leading Index (2015=100), January 1991 to May 2023 and Business Cycle
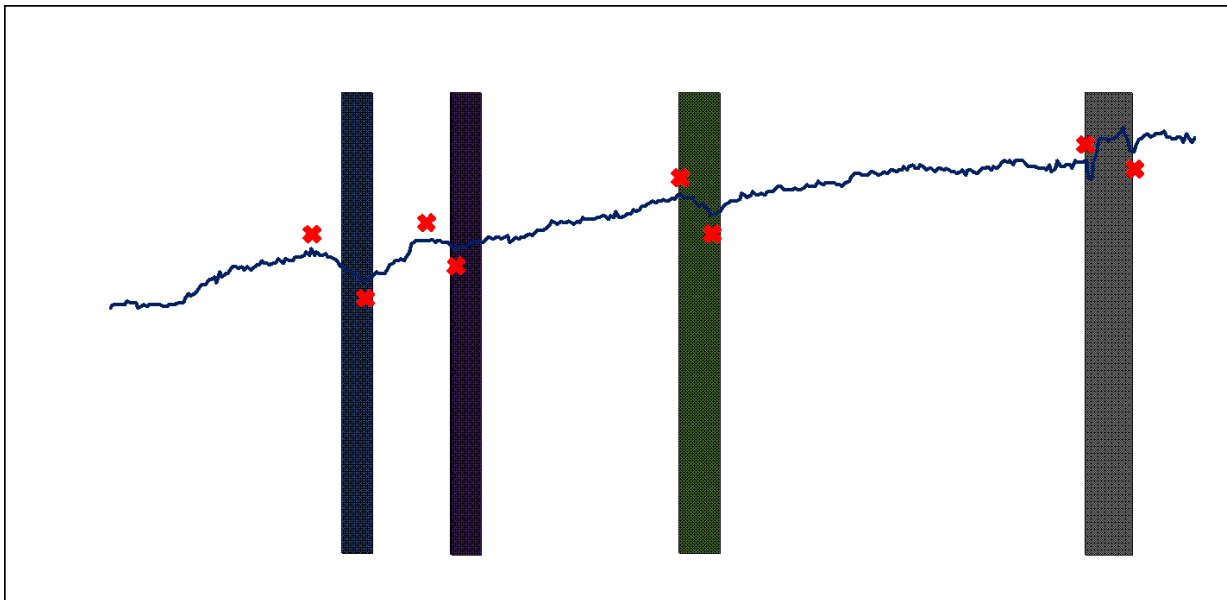
As seen in Chart 1, the LI offers an early warning for each of the economic crises. Based on prior economic behaviour, the LI can anticipate the 1997/98 Asian financial crisis three months in advance, the 2000/01 dot-com crisis ten months in advance, and the 2008/09 subprime and Eurozone crises two months in advance as well as COVID-19 health crisis 5 months in advance. The growth of GDP for that year, would confirm the forecast later.

Chart 2 : Coincident Index and GDP growth, 1991 to 2022
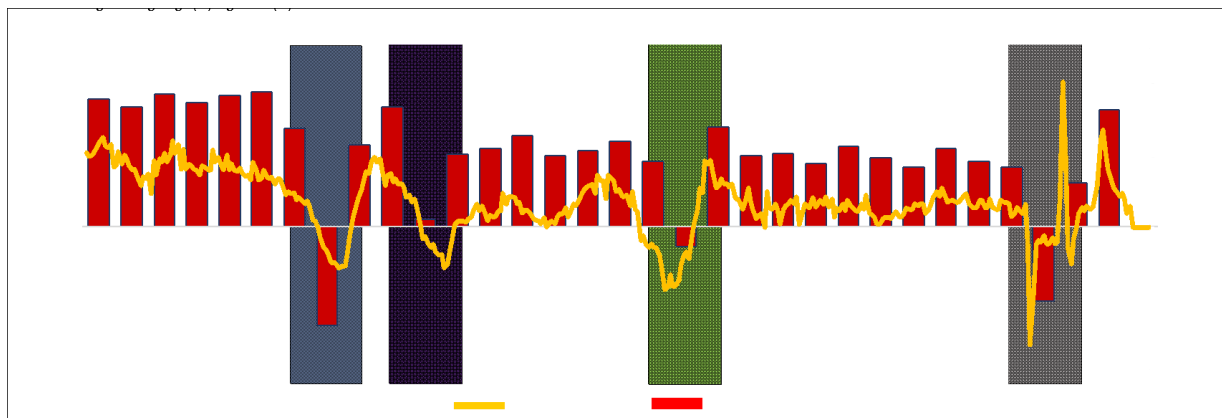
Focusing on the latest crisis, the trade war between the United States and China which lasted until 2019 had an impact on open economies such as Malaysia, hence the economists have warned of the likelihood of an economic recession in 2020. The breakout of the COVID19 pandemic, which was initially discovered at the end of 2019 that has spread around the world was an extra blow and has exacerbated the economic outlook. The implementation of Movement Control Orders (MCO) to restrict pandemic transmission has subsequently a direct influence on Malaysia's economic activity. According to the Malaysian Economic Indicators: Leading, Coincident, and Lagging Index April 2020, business closures in April 2020 weigh down Malaysia's economic scenario, as indicated by a year-on-year drop in CI to negative 19.3 per cent, down from 3.6 per cent in March 2020. In terms of annual LI, the index fell further to -5.5 per cent in April 2020, compared to -3.6 per cent in March 2020. Since October 2019, the LI has provided an early warning of an impending economic downturn. Since then, the economy has begun to slow down due to global trade tensions, and the downturn has intensified with the onset of COVID19.
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4. Discussion and Conclusion:

Malaysia's quick action to address economic challenges

1997/98
The Malaysian economy suffered a great deal in 1997–1998 as a result of the Asian financial crisis. The Gross Domestic Product (GDP) of Malaysia, which measures the country's economic performance, decreased from 6.1 per cent in the fourth quarter of 1997 to a negative 11.1 per cent in the fourth quarter of 1998. The LI gave a warning by foreseeing negative growth beginning in August 1997. The LI's downward growth trend persisted in 1998. The peak of the CI at 71.3 points in December 1997 signaled the start of the Malaysian economic slump, which lasted for a full year and ended with a trough of the CI at 67.5 points in November 1998.

The Asian financial crisis has had a negative impact on the economic growth of Asian countries including Malaysia. Malaysia responded by establishing the National Economic Action Council (MTEN) on 7 June 1998 to re-stimulate the economy. MTEN then prepared a paper titled the National Economic Recovery Plan, which

aims to stabilise the Ringgit, restore market confidence, maintain financial market stability, strengthen the economic base, continue the equity agenda, and revitalise sectors that have been severely impacted by the economic crisis. The formation of "Syarikat Pengurusan Dana harta Nasional Bhd" (Danaharta), "Syarikat Pengurusan Aset Negara", "Danamodal Nasional Bhd" (Danamodal), and "Jawatankuasa Penstruktruran Hutang Korporat" (CDRC) are among the actions Ibrahim, M. A. (2019). This crisis can finally be controlled, and Malaysia managed to get out of the Asian economic recession.

2000/01

The 2000–2001 Malaysia economic downturn began in November 2000 and lasted until December 2001 attributed by the world economic growth slowdown and the decline of the global electronics industry. The LI had warned by projecting negative growth from the beginning of 2001. CI recorded negative growth starting in June 2021, and the trends continued for that year, suggesting that a recession has occurred, but due to concerted measures since the financial crisis that focused growth from domestic sources and stimulation to internal demand helped Malaysia record an annual GDP growth for 2001 of 0.5 per cent.

2008/09

Another scenario was Malaysia's economic decline, which was precipitated by the infamous housing price bubble in the United States, which had an impact on Malaysia. Malaysia's GDP fell to minus 5.8 per cent in the first quarter of 2009, down from 7.6 per cent in the previous quarter. In line with the crisis, the LI provided an one month earlier signal with its peak in December 2007 with 91.3 points. The crisis began in January 2008, as indicated by a CI of 87.7 points, and lasted more than a year, ending in March 2009 with a CI of 79.4 points. In general, the LI forecasts the direction of Malaysia's economic movement four to six months in advance.

The global financial crisis began when one of the world's largest investment banks went bankrupt in September 2008. The government took proactive actions and stabilisation measures by introducing an economic stimulus package to reduce the effects of the global economic slowdown such as fiscal measures, monetary policy easing and comprehensive measures.

2020/21

Without a question, the pandemic's mobility limitations harm both Malaysia's economy and the economies of the rest of the world. As illustrated in Chart 1, the LI for October 2019 revealed an early indicator of peak by hitting 102.3 points, the highest level since 2018. As the consequences of the COVID-19 epidemic on the Malaysian economy deepen, the LI for March 2020 reached an all-time low, reaching 96.5 points. Given the declining performance of LI from November 2019 to April 2020, the economy is expected to decrease in an average of four to six months from the reference months. The second quarter of 2020 saw Malaysia's GDP contracted to 17.1 per cent, the lowest growth rate since the nation was affected by the Asian

Financial Crisis in 1998. Important industries have been impacted, including the travel and tourism, retail, and other services industries. Additionally, supply chains and company operations were affected, and consumer confidence has fallen. The likelihood of an economic rebound from a worldwide trade conflict in 2019 has been dampened by the COVID-19 outbreak.

The entire world economy including Malaysia was hit hard during the COVID-19 health crisis. The CI recorded a negative growth of -16.5 per cent after the Movement Control Order was implemented in Malaysia. Nevertheless, in the first quarter of 2021, the government's recovery stimulus with the opening of more than 90 per cent of the economic sector and social activities, as well as a high vaccination rate has spurred economic growth and the CI recorded a growth of 20.5 per cent.

Conclusion

The potential of LI to forecast the direction of future economic movement is demonstrated in the Malaysian situation, where it can provide an advance warning in four to six months on average. In addressing economic challenges, both short-term and long-term recovery measures are necessary to get the economy back on track. Localised short-term policies, combined with global long-term policies, will improve production, domestic consumption and people's confidence.

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