## 2. Decomposing Drivers of the Ringgit[93]

The Malaysian ringgit has depreciated against the U.S. dollar alongside other regional currencies since the beginning of the U.S. Federal Reserve's rate hike, but was one of the worst performing currencies in the region in 2023. This selected issue examines key drivers of the ringgit movements and identifies potential factors that could have contributed to the recent underperformance of the ringgit. The findings suggest that while external factors may have played an important role during the depreciation episodes, domestic fundamentals are vital in supporting the recovery of the ringgit over the longer term.

1. **Since the start of monetary policy normalization by the U.S. Federal Reserve in early 2022, the Malaysian ringgit has weakened against the U.S. dollar along with other regional currencies, but was one of the worst performers in 2023.** The ringgit depreciated by 5.1 percent against the U.S. dollar in 2022, followed by a further 7.1 percent decline that resulted to its underperformance against most regional currencies in 2023 (Figure A2.1). In line with the weakening of the ringgit, Malaysia experienced larger net portfolio outflows relative to its GDP compared with other regional economies in both 2022 and 2023 (Figure A2.2). In response, foreign exchange interventions have been deployed to slow down the pace of depreciation. Coordinated efforts by BNM and the government in early 2024, including to encourage government-linked companies (GLCs) and government-linked investment companies (GLICs) to repatriate and convert their foreign investment income in a more consistent and timely manner, have resulted in the ringgit's stabilization since March 2024.

Figure A2.1. Changes in Selected ASEAN+3 Currencies Against U.S. Dollar
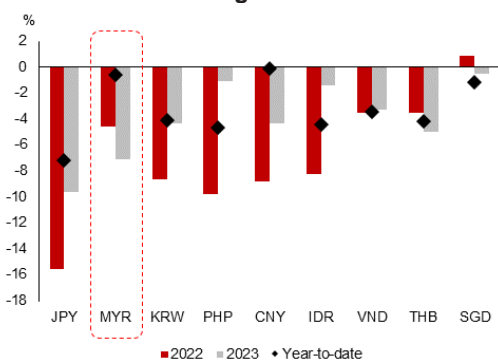
Source: National authorities via Haver Analytics; AMRO staff calculations
Note: Returns computed for year-to-date are based on data up to June 2024. CNY = Chinese yuan; IDR = Indonesian rupiah; JPY = Japanese yen; KRW = Korean won; MYR = Malaysian ringgit; PHP = Philippine peso; SGD = Singaporean dollar; THB = Thai baht; VND = Vietnamese dong.

**Figure A2.2. Net Portfolio Flows of Selected ASEAN+3 Economies**
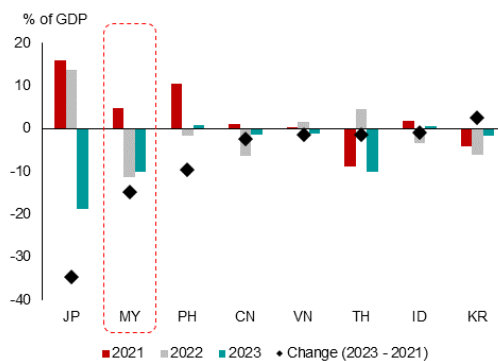
Source: National authorities via Haver Analytics; AMRO staff calculations
Note: CN = China; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = the Philippines; TH = Thailand; VN = Vietnam.

2. **The underperformance of the ringgit reflects the importance of understanding the dynamics of ringgit fluctuations and the underlying drivers.** An examination of ringgit movements from a historical perspective allows the identification of sharp depreciation and appreciation episodes since July 2005, which are determined based on defined thresholds, including the most recent episode of ringgit depreciation in 2022–2023

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[93] Prepared by Yin Fai Ho.

(Figure A2.3).[94] An analysis focusing on these episodes can provide valuable insights into the primary drivers behind them.

Figure A2.3. Evolution of USD/MYR Exchange Rate
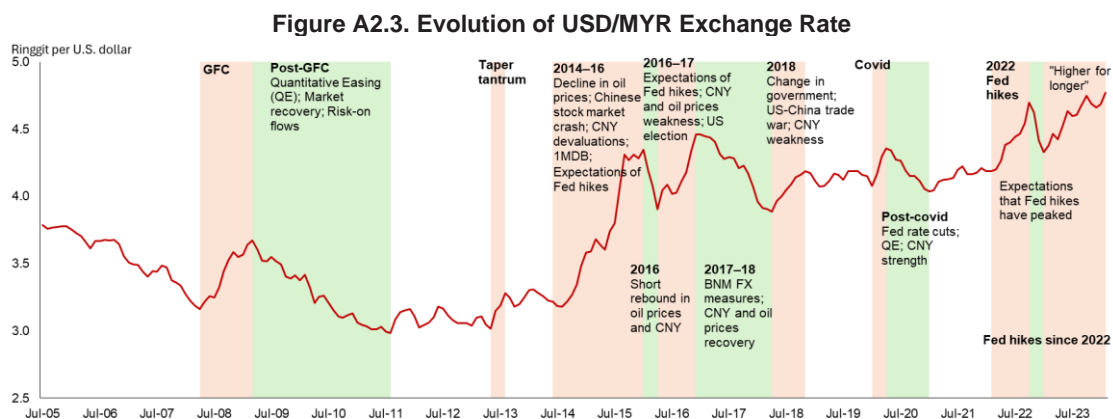
Source: BNM
Note: The pink area represents a period of sustained depreciation while the green area represents a period of sustained appreciation. Identified depreciation episodes are the GFC, Taper tantrum, 2014–16, 2016–17, 2018, COVID-19 and 2022 Fed hikes. Identified appreciation episodes are post-GFC, 2016, 2017–18 and post-COVID. A broader depreciation episode looking at Fed hikes since 2022 (March 2022 to March 2024) is included in the analysis to better understand the drivers of the recent ringgit weakness.

3. **A rolling-window vector autoregression (VAR) model is deployed to estimate the impact of each factor on ringgit movements across time.** Potential drivers included in the model are separated into external and domestic factors:

- **External factors** include (i) changes in the logarithm of CBOE's volatility index (VIX) as a proxy for global risk sentiment, (ii) changes in the logarithm of Brent oil prices, (iii) five-year interest rate differentials between the U.S. and Malaysia[95], and (iv) changes in the logarithm of the yuan-dollar exchange rate.

- **Domestic factors** include (i) differences in the CDS spreads between Malaysia and the U.S. as a proxy of country risk premium, and (ii) one-year ahead mean growth consensus forecasts as a proxy for Malaysia's growth prospects.

- Following Brunnermeier and others (2008) and Han and Westelius (2019), the VAR model can be written as

$$Y_t = \beta_0 + \sum_{j=1}^{J} A_j Z_{t-j} + \varepsilon_t,$$

where Y_t is a vector of endogenous variables, including the abovementioned factors and the changes in the logarithm of the ringgit-dollar exchange rate. The shocks are identified via Cholesky decomposition following the order of variables as enumerated above. The VAR model is estimated on a five-year rolling window basis[96] to account for the evolution of ringgit drivers over time, using monthly data from July 2005 to March 2024, with a lag order of one based on the Akaike Information Criterion.

4. **A historical decomposition based on the estimated VAR model is used to identify significant contributors of ringgit fluctuations during each episode of**

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[94] Depreciation episodes are defined as a sustained depreciation of either at least 3.9 percent within a quarter, 5.2 percent within six months, or 8 percent within a year. Appreciation episodes are defined as a sustained appreciation of either at least 3.5 percent within a quarter, 4.4 percent within six months, or 6.4 percent within a year. The thresholds are computed based on one standard deviation from mean returns of selected frequency.
[95] The interest rate differential is defined as the U.S. interest rate minus Malaysia's interest rate. The model is also estimated using two-year, three-year and 10-year interest rate differentials, but the five-year interest rate differential is selected because of its higher significance.
[96] The five-year rolling window is selected because it can capture the recent dynamics of interest rate differentials on the ringgit better than longer-horizon windows, given that the relationship between interest rate differentials and the ringgit has been historically weak.

depreciation or appreciation. Based on the decomposition results, several patterns can be observed:

- **Depreciation episodes of the ringgit are typically driven by external factors** (Figure A2.4). Ringgit depreciation during the GFC and the pandemic episode was driven partly by deterioration in global risk sentiment. The 2014–16 episode was led by a combination of lower risk appetite in global investors, sharp decline in oil prices, and the massive sell-off in China's stock markets. Meanwhile, the lackluster yuan contributed significantly to the ringgit's weakness during the depreciation episodes between 2016 and 2019.

- **Periods of appreciation generally succeed depreciation episodes and can be led by both domestic and external factors.** Ringgit appreciation in post-recovery periods following the GFC and the pandemic were mainly led by improvement in Malaysia's growth prospects and risk premium, as well as the amelioration of global risk sentiment.

- **The results suggest that large fluctuations in the ringgit are mostly driven by external factors and events**. Moreover, the markets tend to behave asymmetrically during risk-off and risk-on periods. Investors appear to be undiscerning and indifferent toward domestic fundamentals when uncertainty is heightened, withdrawing their funds from emerging markets (EMs), leading to depreciation pressure on EM currencies including the ringgit. On the other hand, domestic fundamentals become more meaningful to investors when market sentiment improves, as they are more selective in their allocation of funds to economies with stronger upside potential. Domestic factors play an important role in driving ringgit movements during periods which are absent of large ringgit movements as well.

Figure A2.4. Drivers of Ringgit Movements in Selected Periods
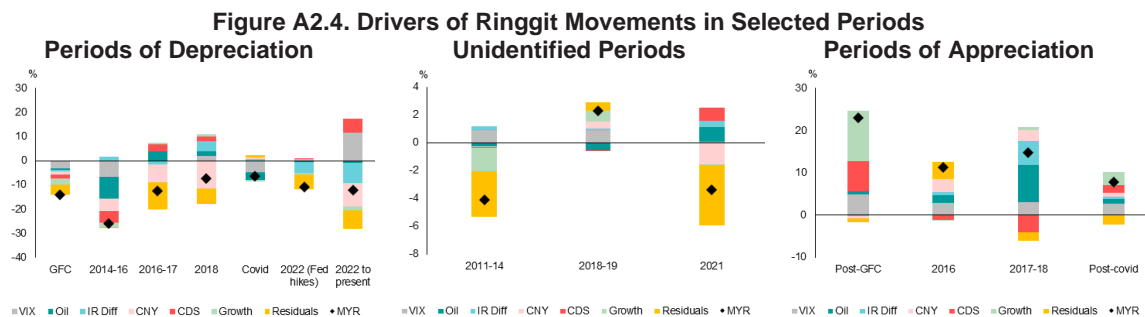
Source: National authorities via Haver Analytics; AMRO staff estimates
Note: The contribution of residuals can be explained by both the persistence of ringgit movements and unobserved variables such as current account balance and FX policy measures.

5. **The recent decline in the ringgit was driven by both rising interest rate differentials and yuan weakness.** Based on the model findings, the widening interest rate differentials vis-à-vis the U.S. since 2022 and depreciation in the yuan amid China's weaker-than-expected reopening in 2023 have largely contributed to the recent episode of ringgit depreciation. To illustrate how these factors contribute to the relative underperformance of the ringgit in the region, a comparison is conducted to see how interest rate differentials and the domestic currency's association with the Chinese yuan vary across the region:

- **Larger increase in interest rate differentials.** The weakness in the ringgit has been partly attributed to the widening interest rate differentials between the U.S. and Malaysia amid BNM's more gradual pace of monetary policy normalization. The policy rate spread between the two countries rose significantly from -163 basis

points in January 2022 to +238 basis points in March 2024, relatively large compared with regional peers (Figure A2.5). This has contributed to the persistent net portfolio outflows since 2022, weighing on the ringgit.

- **Stronger association with the yuan.** The ringgit has a comparatively higher sensitivity and correlation to the movements of the yuan historically compared with peer currencies in the region (Figure A2.6). Markets often view the ringgit, along with the won, as proxy currencies for the yuan, given their stronger trade linkages with China. Malaysia's domestic valued-added exports to China's final demand as a proportion of GDP has been one of the largest among regional peers and has further increased sharply in recent years, pointing to China's increasing importance as a source of demand for Malaysia's exports (Figure A2.7). Additionally, the ringgit-yuan connection could be further strengthened by markets' expectations that have built up over the years, on the back of the historically tight co-movements between the pair since the devaluation of the yuan in 2015. Such perceptions have resulted in a larger influence of the recent yuan weakness on the ringgit, contributing to the Malaysian's currency underperformance in the region.

Figure A2.5. Policy Rate Differentials in Selected ASEAN+3 Economies
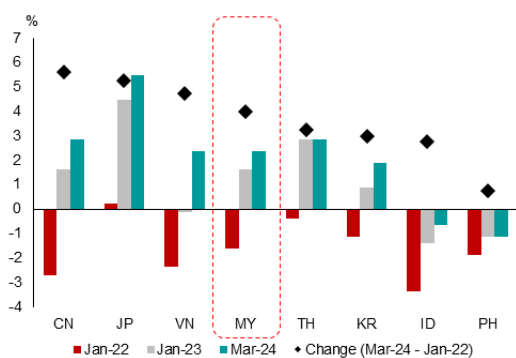
Source: National authorities via Haver Analytics; AMRO staff calculations
Note: CN = China; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = the Philippines; TH = Thailand; VN = Vietnam.

Figure A2.6. Sensitivity and Correlation of Selected ASEAN+3 Currencies with USD/CNY Movements
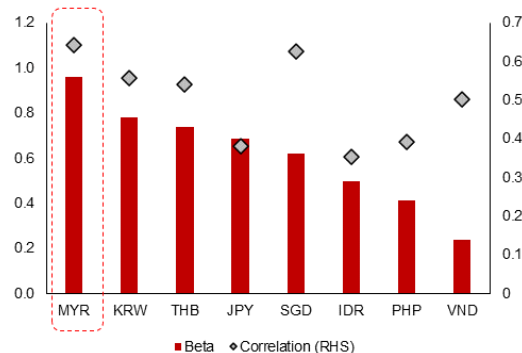
Source: National authorities via Haver Analytics; AMRO staff estimates
Note: The betas and correlations are computed using monthly data from January 2015 to March 2024. CNY = Chinese Yuan; IDR = Indonesian rupiah; JPY = Japanese yen; KRW = Korean won; MYR = Malaysian ringgit; PHP = Philippine peso; SGD = Singaporean dollar; THB = Thai baht; VND = Vietnamese dong.

6.   The underperformance of the ringgit can be explained by other potential drivers as well. Apart from the factors mentioned by the model above, an examination across regional peers shows that the ringgit's underperformance in the region can also be explained by the following factors:

- **Current account weakness.** Among regional peers, Malaysia experienced the largest deterioration in its current account balance in 2023 (Figure A2.8). Malaysia's current account balance declined sharply from 3.2 percent of GDP in 2022 to 1.5 percent in 2023 amid weaker exports.

- **Sensitivity of the ringgit.** A sensitivity analysis of regional currencies reveals that the ringgit is particularly sensitive to movements in regional currencies, especially during periods of broad depreciation (Figure A2.9).[97] The ringgit tends to decline

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[97] The sensitivity of a currency to regional currencies' movements is the coefficient (beta) obtained from regressing the log returns of a currency on the average log returns of the regional currencies. The sensitivity indicates the magnitude of returns of a currency that is associated to the broad returns of regional currencies.

more compared with regional currencies on average, even surpassing currencies in the region that are traditionally perceived as "high-beta", such as the won and the baht. Nonetheless, the ringgit also exhibits a relatively high sensitivity during periods of appreciation, albeit to a smaller extent. The variations in sensitivity among regional currencies can be partly explained by the flexibility of the exchange rate regime of each currency (Figure A2.10). Unsurprisingly, currencies under more flexible exchange rate regimes tend to appreciate or depreciate by a bigger magnitude, likely due to fewer FX interventions and capital control measures. According to the exchange rate regime classification by Ilzetzki and others (2019), the ringgit is managed under one of the more flexible exchange rate regimes in the region, which could partly explain its structurally larger movements among regional currencies during periods of broad appreciation or depreciation.[98]

Figure A2.7. Domestic Value-added Exports to China's Final Demand by Selected ASEAN+3 Economies
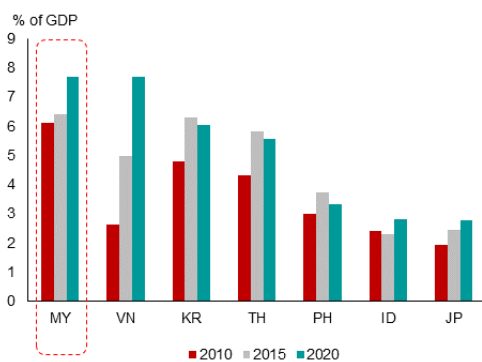

Source: OECD TiVA; AMRO staff calculations
Note: ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = the Philippines; TH = Thailand; VN = Vietnam.

**Figure A2.8. Current Account Balance of Selected ASEAN+3 Economies**
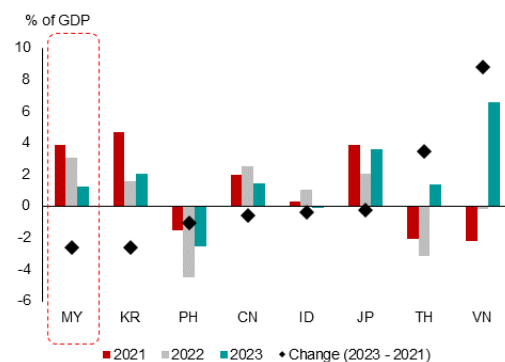
Source: National authorities via Haver Analytics; AMRO staff calculations
Note: CN = China; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = the Philippines; TH = Thailand; VN = Vietnam.

Figure A2.9. Sensitivity of Selected ASEAN+3 Currencies with Regional Average Movements
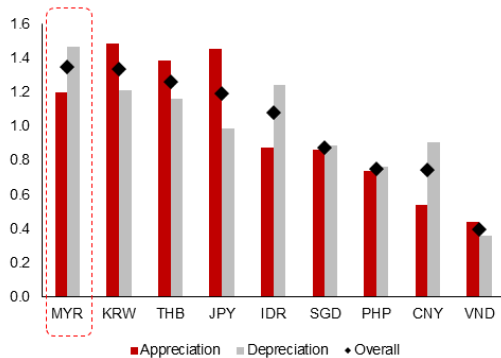
Source: National authorities via Haver Analytics; AMRO staff estimates
Note: The betas and correlation are computed using monthly data from January 2015 to March 2024. CNY = Chinese yuan; IDR = Indonesian rupiah; JPY = Japanese yen; KRW = Korean won; MYR = Malaysian ringgit; PHP = Philippine peso; SGD = Singaporean dollar; THB = Thai baht; VND = Vietnamese dong.

Figure A2.10. Sensitivity and Regime Flexibility of Selected ASEAN+3 Currencies
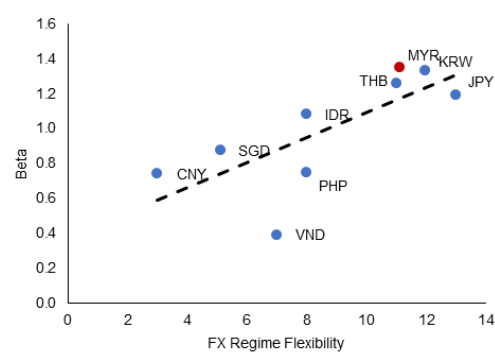
Source: National authorities via Haver Analytics; Ilzetzki and others (2019); AMRO staff estimates
Note: The betas are computed using monthly data from January 2015 to March 2024. Exchange rate regime flexibility is computed using the average exchange rate arrangement classification between January 2015 and December 2019. CNY = Chinese yuan; IDR = Indonesian rupiah; JPY = Japanese yen; KRW = Korean won; MYR = Malaysian ringgit; PHP = Philippine peso; SGD = Singaporean dollar; THB = Thai baht; VND = Vietnamese dong.

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[98] The flexibility of an exchange rate regime is determined based on the classification by Ilzetzki and others (2019), which includes the measurement of currency volatility and narrative assessment of central bank practices.

7. While recent measures have been effective in supporting the ringgit, policies focusing on strengthening domestic fundamentals will provide enduring support over the medium term. Existing FX measures, such as coordination with GLCs and GLICs to repatriate foreign exchange, are useful in softening excessive pressure on the ringgit, especially during periods of sharp depreciation that are typically driven by external factors. However, domestic fundamentals are vital in supporting the recovery of the ringgit once market sentiments improve and over the longer term. In this regard, authorities are encouraged to continue their work in the following aspects:

- **Structural and institutional reforms.** Policies focusing on enhancing growth potential, such as the New Industrial Master Plan 2030 and encouraging higher R&D spending, can improve Malaysia's growth prospects over the medium term. At the same time, reforms that strengthen the robustness of institutional frameworks and encourage discipline in governance, such as the Government Procurement Act and the Public Finance and Fiscal Responsibility Act, can lower Malaysia's country risk premium and bolster global investors' confidence. Such developments increase the attractiveness of domestic assets and provide support to the ringgit in the medium term.

- **Diversification of trade and investments.** While in the process of expanding its trade networks and attracting foreign investments, Malaysia should place importance on ensuring that its trade and investments remain diversified across sources and sectors to reduce outsized influence of any one economy or sector on the domestic economy and the ringgit. This can help to minimize the risk of excessive ringgit volatility arising from negative developments in a single economy or sector.

- **Active and well-coordinated communication with the markets.** Regular engagement with market participants can help authorities understand the reasoning behind prevailing market perceptions of the ringgit. Such interactions provide an opportunity for BNM to explain or clarify any recent developments that affect the currency as well as to address issues with regard to the movements in the ringgit. This proactive approach can foster a more stable and transparent market environment.

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