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An Investigation of the Factors Influencing External Debt in Emerging Market Economies

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Abstract

External financing support plays a vital role in the economic development of emerging market economies (EMEs). However, the ineffective using of external resources can increase the debt burden and exacerbate macroeconomic instability and financial vulnerabilities. After the global financial crisis, growing debt accumulation with the debt-favored environment has raised discussions about whether external financing is a blessing or a curse for macro-financial stability. This paper explores the drivers of external debt in EMEs from 2005Q1 to 2020Q1. To this end, the effects of economic growth, inflation, exchange rate, trade openness, and domestic credit on external debt to gross domestic product are analyzed with panel cointegration and panel augmented mean group (AMG) estimator for eight EMEs. The panel cointegration findings show that a long-run relationship exists between the series. The panel AMG findings indicate that economic growth declines external debt. A rise in trade openness, inflation, and domestic credit accumulate foreign debt in the long-run, whereas the impact of the credit is barely statistically significant. Although the impact of the exchange rate is insignificant for the panel, it is statistically significant in the four countries. Country-specific results are largely consistent with the panel findings, but some differences exist across countries.

Keywords: Emerging market economies, external debt, macroeconomic variables, panel cointegration, panel augmented mean group.

JEL Codes: C23, F34, F41

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1. Introduction

External financing can provide many gains to countries with insufficient domestic funding. Foreign borrowing can support consumption and finance productive investments (Reinhart & Trebesch, 2015). Short-term external sources enable companies to meet their daily financing needs, and long-term external sources would help with investment financing. Thus, external financing strengthens the private sector's dynamism (World Bank & IMF, 2022). Foreign finance is an essential complement to relatively more expensive domestic sources, especially during periods of abundant global liquidity (Reinhart & Trebesch, 2015). Furthermore, temporary external debt can support governments lacking fiscal space to operate the fiscal multipliers they need during recessions (Kose et al., 2020). However, external debt can also bring many risks.

Foreign credits are not guaranteed to be exclusively used in productive areas. This severely threatens the economic development and macroeconomic stability (World Bank & IMF, 2022). The growing debt to gross domestic product (GDP) ratio raises doubts regarding debt repayment and may cause sudden stops, resulting in a debt crisis (Reinhart & Trebesch, 2015; Kose et al., 2020). Moreover, foreign debt accumulation may lead to balance sheet vulnerabilities due to currency mismatches (Cavallino & Hofmann, 2022). A sharp depreciation of domestic currency leads to realizing these risks, which, in turn, causes currency and banking crises as well as external defaults (Reinhart & Trebesch, 2015; Kose et al., 2020).

The implications of external debt are not limited to crisis risk. High external debt stocks have a negative impact on economic growth. Accumulating external debt prompts disinvestment due to the expectation of higher taxes. Falling investments, in turn, decrease output growth (Ramzan & Ahmad, 2014; Onafowora & Owoye, 2019). Furthermore, external debt financing flows can lead to business cycle fluctuations through credit channels. Verma and Sengupta (2021) show a strong relationship between external debt inflows and credit booms, where the former usually precedes the latter. When credit growth and debt inflows surge concurrently, output volatility rises.

Also, external debt may worsen income distribution. Initially, an appreciation of the exchange rate due to the debt inflows would positively affect real wages and economic activities. However, the vulnerability increases due to the pressure of capital outflows on debt costs. Decreasing debt inflows and depreciation may cause firms to pass borrowing costs into prices. Inflationary pressures would reduce real wages and economic activity (Bortz et al., 2022).

The growing debt has been a problem for countries in specific periods throughout the past half century. Kose et al. (2021) defined four global debt waves since the 1970s. The first was in Latin America from 1970 to 1989; the second was in East Asia between 1990 and 2001; the third was in Europe and Central Asia from 2002 to 2009; and the last has been on a global scale since 2010. While the first three waves show some differences, the distinctive similarity is that they all resulted in crises.

Despite unconventional expansionary monetary and fiscal policies, emerging markets and developed economies (EMDEs) have had weak growth performance since the global financial crisis (GFC). As a result of factors such as weak demand, trade tensions among advanced economies, and a shift in global demand composition, global trade growth, which was 7.3% between 2002 and 2007, has been only 4.1% on average since 2011 (Kose & Ohnsorge, 2021). These developments and various external shocks have damaged fiscal positions and increased

financing needs in EMDEs. Furthermore, growing public debt is accompanied by increasing private sector debt (World Bank, 2017).

Kose et al. (2021) describe the last global debt wave, which started in 2010, as unprecedented in speed, size, and propagation. Unlike previous waves, public and private sector debt have increased concurrently. On average, EMDEs' external debt-to-GDP ratio has risen from 43% in 2007 to 57% in 2018 (Koh & Yu, 2021). The average external debt growth rate was 8% between 2011 and 2017. Although in 2020, the debt-to-GDP ratio had the highest annual growth since World War II due to the COVID-19 pandemic, external debt stocks increased by 5.3% annually (World Bank, 2022; World Bank & IMF, 2022). This reflects the impact of low global interest rates and debt-favour financial regulations on accumulating external debt. Concerns about EMDEs falling into a deflationary cycle after the GFC induced these countries to adopt financial policies and growth paths that exacerbate financial vulnerabilities and external debt positions (Elkhishin & Mohieldin, 2021).

Controlling debt levels is vital in order not to experience an end similar to the first three global debt waves. Elkhishin and Mohieldin (2021) report that the average over-indebtedness index increased from 6.3 in 2004–2008 to 9.7 in 2014–2018 in EMEs. While the average financial fragility index was 2.87 and the average external vulnerability index was 4.41 between 2004 and 2008, the former reached 4.07 and the latter increased to 6.34 between 2014 and 2018 in EMEs.

The vulnerabilities stemming from external debt motivate examining foreign financing drivers. Hence, this study aims to analyze the determinants of external debt in EMEs. To this end, factors influencing external debt are investigated between 2005Q1 and 2020Q1 with panel cointegration and a long-run estimator. Unlike previous studies, higher-frequency data, i.e., quarterly series, is employed in this panel analysis.

The study layout is structured as follows: The next section reviews empirical studies; the third part introduces data and model; the fourth section describes the methodology; the fifth provides the empirical findings; and the last section concludes the study.

2. Literature Review

Empirical studies examining the macroeconomic drivers of external debt can be divided into two groups. The first group deals with a single country. Abdullahi et al. (2015) explored Pakistan from 1974 to 2008. They found that a rise in the exchange rate, budget deficits, and interest rate declines external debt in both the short- and long-run. Awan et al. (2015) investigated Pakistan between 1976 and 2010 with an autoregressive distributed lag (ARDL) model. They reported that the effect of the nominal exchange rate, trade openness, and fiscal deficit on external debt is statistically significant. Examining the 1990–2014 period for Jordan with ARDL, Al-Fawwaz (2016) reported that terms of trade positively impact foreign debt in the long-run, while the effect of GDP is significant and negative in the short run. Özata (2017) analyzed Türkiye from 2000 to 2016 with ARDL. The exchange rate and budget deficit aggravate the external debt, whereas an increase in saving and interest rates declines foreign debt.

Using various methods, Gokmenoglu and Rafik (2018) investigated the effects of the exchange rate, GDP, capital expenditures, and recurrent expenditures on foreign debt in Malaysia between 1970 and 2013. The variables have no significant short-run relationship, whereas they are cointegrated in the long-run. Expenditures increase foreign debt, while economic growth reduces it. Also, these variables are the Granger cause of foreign debt.

Exploring the 1970–2017 period in Nigeria, an oil exporter, Adamu et al. (2019), reported that decreasing domestic savings and oil prices and a widening fiscal deficit aggravate external debt. Beyene and Kotosz (2020) analyzed the macroeconomic drivers of external debt for Ethiopia from 1981 to 2016 with the ARDL bound test. Debt service and the fiscal and trade deficit have a significant as well as positive impact on foreign debt, whereas the effects of economic growth, inflation, and trade openness are negative.

The second group examines external debt determinants for country groups. Tiruneh (2004) investigated developing countries for 1982–1998 with panel regression and reported that income instability, capital flight, debt service payments, and the savings gap are the primary sources of foreign debt. Colombo and Longoni (2009) explored the effects of economic, socio-political, and institutional drivers of foreign debt on developing countries between 1970 and 2000. They found that economic growth, trade openness, exchange rate flexibility, and domestic credit significantly and positively impact external debt. Analyzing 12 Caribbean Community countries between 1987 and 2005 with panel time series, Greenidge et al. (2010) reported that the real effective exchange rate, real interest rate, exports, output gap, and government spending gap contribute to external public debt accumulation. Exploring the 1970–2017 period for nine South American countries with dynamic panel time series, Bittencourt (2015) showed that only economic growth decreases external debt in the region. Waheed (2017) examined 12 oil-gas importers and 12 oil-gas exporters from 2004 to 2013. In exporter countries, economic growth, oil prices, foreign reserves, government revenue, and domestic savings decrease external debt, whereas inflation, government expenditure, and current account deficits increase foreign debt. Economic growth, domestic savings, and government revenue alleviate external debt in importer countries. In contrast, the effects of a widening trade deficit, domestic and foreign direct investments, interest payments, and international oil prices are positive.

Mensah et al. (2017) investigated 24 African countries from 1980 to 2010 with panel vector autoregression. External debt growth is positively influenced by domestic borrowings, government investments, and consumption expenditures, while it is negatively affected by economic growth, inflation, and tax revenue. Sağdıç and Yıldız (2020) analyzed the affecting factors of foreign debt in Central Asia and the Caucasus from 1995 to 2017. Panel regression results reported that debt service and government expenditures positively and significantly impact external debt. Conversely, domestic savings and current account balance negatively impact foreign debt. Dawood et al. (2021) explored 32 developing and transitioning countries in Asia from 1995–2019 with the generalized method of moments. Inflation and real GDP per capita mitigate external debt, whereas trade, government expenditures, and exchange rates have a positive impact. Analyzing heavily indebted developing countries between 2005 and 2016, considering the debt relief initiatives, Mijiyawa (2022) reported that economic growth, remittances, and the nominal exchange rate significantly and negatively impact external debt. The effects of the fiscal deficit, trade openness, and foreign direct investment are statistically insignificant. Gülcemal (2022) investigated the impact of trade openness, consumer price index (CPI), and GDP on external debt for six EMEs from 1990 to 2019 with various panel time series methods. An increase in economic growth declines total external debt, while a rise in trade openness and CPI accumulates foreign debt in the long-run.

3. Data and Model

The availability of data largely determines the sample. Constraints on the series, especially external debt data, shape the time dimension. Furthermore, the selection of countries is based on Morgan Stanley Capital International's Emerging Markets Index. Considering constraints and preferences, this study explores the influencing factors of external debt for Chile, Colombia, Hungary, Korea, Mexico, South Africa, Thailand, and Türkiye from 2005Q1 to 2020Q1. Based on previous empirical studies, the estimated model is defined as follows.

$$ED_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 INF_{it} + \beta_3 ER_{it} + \beta_4 TO_{it} + \beta_5 CR_{it} + u_{it} \quad (1)$$

where ED represents external debt and is obtained from dividing the total external debt stock by the annual cumulative value of the GDP at current prices. GDP denotes real gross domestic product, while INF stands for inflation, which is the annual percentage change of the CPI. ER shows the nominal exchange rate, the end-of-period value of national currency per US dollar. TO denotes trade openness and is calculated by dividing the sum of exports and imports by GDP at current prices. CR represents the credit to the non-financial sector from all sectors at market value divided by GDP. GDP and exchange rate are transformed into logarithmic form. Series showing seasonality are adjusted. Table 1 represents the descriptive statistics of the series.

Table 1

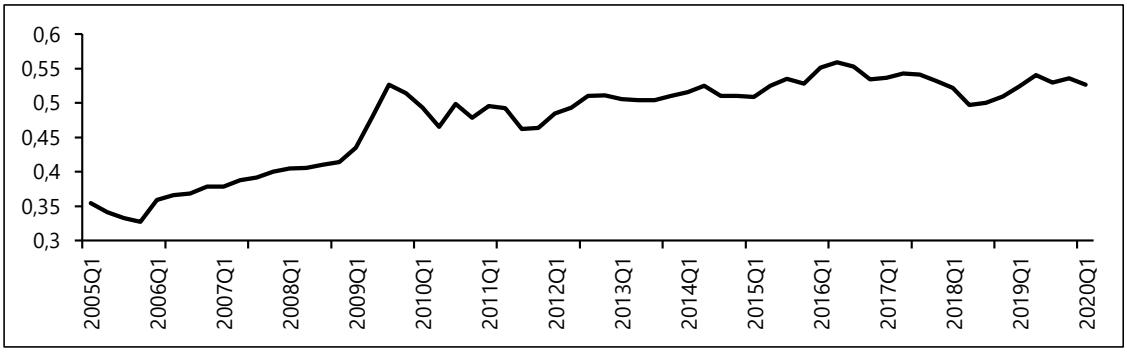
Descriptive Statistics and Data Sources

Variable	Obs.	Mean	SD	Min.	Max.	Data Sources
ED	488	0.476	0.346	0.171	1.909	Quarterly External Debt Statistics (World Bank)
GDP	488	11.619	0.738	10.443	12.838	Global Economic Monitor (World Bank)
INF	488	0.042	0.030	–0.030	0.224	International Financial Statistics (IMF)
ER	488	4.468	2.371	0.163	8.307	International Financial Statistics (IMF)
TO	488	0.810	0.399	0.331	1.740	International Financial Statistics (IMF)
CR	488	1.316	0.487	0.432	2.427	Credit Statistics (BIS)

The mean of total external debt-to-GDP is around 50%, while the lowest value is in Korea (2005Q3) and the highest is in Hungary (2009Q3). As seen in Figure 1, external debt rose sharply with the GFC. It followed a shaky path in the following periods. The reason it peaked in 2016Q2 may be the capital outflows wave in EMEs due to the taper tantrum that began in 2013Q2.

Figure 1

External Debt (2005Q1–2020Q1)



Note. External debt is external debt-to-GDP and is constructed by calculating the mean of each quarter.
Source: The author's illustration is based on World Bank data.

Table 1 reveals that inflation was not a severe problem for the relevant period. Chile, Hungary, and Thailand even recorded negative inflation in some quarters. Economic growth performances were reasonable, excluding the global financial crisis. Although some countries experienced sharp currency depreciations (e.g., Türkiye in 2018Q3–2019Q1, Colombia in 2015Q1–2015Q4), there was no rapidly increasing exchange rate trend in all countries. There was a high degree of openness to trade in Hungary, which had the highest external debt ratio, whereas Colombia had the lowest degree of openness. The increasing trend exists in credit-to-GDP values; their averages are well above one. Furthermore, the lowest value is Mexico (2005Q3), and the highest is Korea (2020Q1).

4. Methodology

This study analyzes the drivers of external debt with Westerlund's (2007) bootstrap panel cointegration and the AMG estimator as developed by Eberhardt and Bond (2009) and Eberhardt and Teal (2010). Westerlund (2007) showed that the bootstrap panel cointegration tests are more powerful and have better size accuracy when compared to Pedroni's (2004) residual-based tests. Furthermore, these tests are robust to cross-sectional dependence (CD). The test statistics of panel cointegration are derived from the conditional error correction model for y_{it}, as follows:

$$\Delta y_{it} = \omega_i' d_t + \alpha_i(y_{it-1} - \beta_i' x_{it-1}) + \sum_{j=1}^{pi} \alpha_{ij}\Delta y_{it-j} + \sum_{j=0}^{pi} \gamma_{ij}\Delta x_{it-j} + e_{it} \quad (2)$$

Here, $d_t = (1, t)'$ is the deterministic components and $\omega_i = (\omega_{1i}, \omega_{2i})'$ shows the parameters vector. Using equation (2), the error correction parameter (α_i) can be estimated in the following manner.

$$\Delta y_{it} = \omega_i' d_t + \alpha_i y_{it-1} + \lambda_i' x_{it-1} + \sum_{j=1}^{pi} \alpha_{ij}\Delta y_{it-j} + \sum_{j=0}^{pi} \gamma_{ij}\Delta x_{it-j} + e_{it} \quad (3)$$

The group mean statistics are calculated using equation (3) for each cross-section.

$$\Delta y_{it} = \widehat{\omega_i'} d_t + \hat{\alpha}_i y_{it-1} + \widehat{\lambda_i'} x_{it-1} + \sum_{j=1}^{pi} \hat{\alpha}_{ij}\Delta y_{it-j} + \sum_{j=0}^{pi} \hat{\gamma}_{ij}\Delta x_{it-j} + \hat{e}_{it} \quad (4)$$

Using the selection criteria, the lag (p_i) and lead (q_i) orders are determined while the composite error term (u_{it}) is estimated based on the $\hat{e}_{it}$ and $\hat{\gamma}_{ij}$:

$$\hat{u}_{it} = \sum_{j=0}^{pi} \hat{\gamma}_{ij}\Delta x_{it-j} + \hat{e}_{it} \quad (5)$$

Employing the long-run variance estimators through $\hat{u}_{it}$ and Δy_{it}, the mean group statistics are calculated by estimating $\hat{\alpha}_i$.

$$G_\tau = \frac{1}{N}\sum_{i=1}^{N} \frac{\hat{\alpha}_i}{SE(\hat{\alpha}_i)}, \qquad G_\alpha = \frac{1}{N}\sum_{i=1}^{N} \frac{T\hat{\alpha}_i}{\hat{\alpha}_i(1)} \quad (6)$$

The group statistics null hypothesis indicates no cointegration relationship among series in the whole panel (Westerlund, 2007, pp. 711–717; Persyn & Westerlund, 2008, pp. 233–234).

The panel AMG estimator is employed to obtain the long-run coefficients. The AMG is robust against CD and heterogeneity and is derived from two steps.

First step:

$$\Delta\gamma_{it} = m'\Delta X_{it} + \sum_{t=2}^{T} c_t \Delta D_t + e_{it} \quad \Longrightarrow \quad \hat{c}_t = \hat{\mu}_t^* \tag{7}$$

The first step is referred to as the common dynamic process. A first-difference ordinary least square regression enhanced with first-differenced time dummies is employed to estimate the dummy coefficients ($\hat{\mu}_t^*$). The second step involves capturing the idiosyncratic process by adding $\hat{\mu}_t^*$ to each of the N-standard group-specific regressions.

Second step:

$$\gamma_{it} = k_i + m_i' X_{it} + c_i t + n_i \hat{\mu}_t^* + e_{it}, \qquad \widehat{m}_{AMG} = N^{-1} \sum_i \widehat{m}_i \tag{8}$$

Alternative to this, the common process can be imposed on every member of the group with a unit coefficient by subtracting $\hat{\mu}_t^*$ from γ_{it}. Following the mean group method (Pesaran & Smith, 1995), the AMG estimates refer to mean values of the individual cross-section parameters (Eberhardt & Bond, 2009, p. 3; Eberhardt & Teal, 2010, p. 7; Eberhardt, 2012, p. 64).

5. Empirical Findings

A series of preliminary tests, including CD, homogeneity, and unit root tests, were conducted before examining the cointegration relationship and the long-run coefficients. Performing a cointegration test requires knowledge of the unit root properties of variables. Furthermore, the dependence status between the cross-sections affects the choice of unit root test. Therefore, the CD test is the first step of the investigation.

Certain conditions also need to be considered in selecting the appropriate CD test. The selection can be changed based on the size of the dimensions. The sample of this study includes 61 time units and eight cross-sectional units. Breusch and Pagan's (1980) LM, Pesaran's (2004) CD_{LM}, and Pesaran et al.'s (2008) LM_{adj} tests were used for the investigation of CD due to time units larger than cross-sections. Additionally, Pesaran and Yamagata's (2008) delta tests were conducted to explore the homogeneity of slope coefficients. Table 2 provides the results of these tests.

Table 2

Cross-Sectional Dependence and Homogeneity Test Results

Variable	LM	CD_{LM}	LM_{adj}
ED	97.737 (0.000)	9.319 (0.000)	6.122 (0.000)
GDP	76.190 (0.000)	6.440 (0.000)	5.893 (0.000)
INF	80.433 (0.000)	7.007 (0.000)	9.344 (0.000)
ER	61.801 (0.000)	4.517 (0.000)	29.438 (0.000)
TO	70.775 (0.000)	5.716 (0.000)	31.528 (0.000)
CR	53.773 (0.000)	3.444 (0.000)	18.290 (0.000)
Panel	115.340 (0.000)	11.671 (0.000)	10.243 (0.000)
	$\tilde{\Delta}$		$\tilde{\Delta}_{adj}$
Panel	27.455 (0.000)		29.181 (0.000)

The $\tilde{\Delta}$ and $\tilde{\Delta}_{adj}$ tests result in a rejection of the null hypothesis. That is, the slope coefficients are heterogeneous. Similarly, the CD test results suggest that the null hypothesis, which implies no CD between the series, is rejected at a significance level of 1%. There is a possibility that a shock to a variable in one country can affect another. In light of the CD, a second-generation unit root test was conducted using Pesaran's (2007) cross-sectionally augmented Dickey-Fuller (CADF) test. Table 3 represents the cross-sectionally augmented Im-Pesaran-Shin (CIPS) test statistics obtained by the average of all units' CADF values.

Table 3

Unit Root Test Results

	Level		First difference	
Variable	C	C & T	C	C & T
ED	–1.662	–1.588	–4.840[a]	–5.105[a]
GDP	–1.891	–2.213	–6.057[a]	–6.420[a]
INF	–1.841	–2.169	–4.472[a]	–4.785[a]
ER	–2.176	–1.323	–6.159[a]	–6.363[a]
TO	–1.857	–2.790[c]	–6.190[a]	–6.401[a]
CR	–1.923	–2.078	–5.626[a]	–5.933[a]

Note. [a], [b], and [c] indicate that series are stationary at 1%, 5%, and 10%, respectively. The maximum lag number is 1 based on the Akaike Information Criteria (AIC). C denotes constant, while C & T stand for constant and trend.

The CIPS test statistics show that the null hypothesis cannot be rejected. Series contain a unit root in their levels. Moreover, the first differences in the series are stationary at a 1% significance level. Therefore, all series are integrated in the first order, which allows the cointegration test to be performed. Table 4 reports the cointegration results.

Table 4

Panel Cointegration Test Results

Statistic	Value	Z-Value	Probability	Robust Probability
G_τ	–3.827	–4.528	0.000	0.008
G_α	–18.773	–2.596	0.005	0.000
P_τ	–10.761	–4.451	0.000	0.884
P_α	–16.960	–3.175	0.001	0.704

Note. The maximum values of lag, lead, and bandwidth are set as 1 based on $4(T/100)^{2/9}$ (Newey & West, 1994). According to the AIC, 0.75 lags and 0.38 leads exist. The deterministic component is constant. Bootstrap with 500 iterations was conducted for robust probability values.

Since Westerlund's (2007) panel cointegration is robust to CD, robust probability values must be taken into account. Furthermore, the group statistics should be regarded due to the heterogeneous slope coefficients. The robust probability values in group statistics report that the null hypothesis is rejected at a 1% significance level. This means the series are cointegrated in the long-run.

Table 5

AMG Estimator Results

Countries	GDP	INF	ER	TO	CR
Chile	–0.387 (0.001)	0.969 (0.000)	0.061 (0.498)	–0.407 (0.003)	0.262 (0.009)
Colombia	–0.650 (0.000)	0.196 (0.531)	0.020 (0.753)	0.575 (0.024)	0.693 (0.000)
Hungary	–0.044 (0.854)	0.929 (0.097)	–0.554 (0.000)	0.228 (0.047)	1.139 (0.000)
Korea	–0.726 (0.000)	2.267 (0.000)	–0.297 (0.000)	0.188 (0.000)	0.328 (0.000)
Mexico	0.446 (0.018)	0.040 (0.910)	–0.052 (0.433)	0.373 (0.081)	–0.137 (0.302)
South Africa	–0.371 (0.008)	–0.288 (0.355)	–0.049 (0.270)	0.344 (0.004)	0.694 (0.001)
Thailand	–0.286 (0.007)	1.339 (0.000)	0.193 (0.018)	0.092 (0.248)	0.082 (0.300)
Türkiye	–0.028 (0.439)	0.463 (0.000)	0.086 (0.000)	0.146 (0.098)	–0.567 (0.000)
	GDP	INF	ER	TO	CR
Panel	–0.256 (0.055)	0.739 (0.011)	–0.073 (0.386)	0.192 (0.057)	0.312 (0.099)
Wald χ^2 = 24.59 (0.000)					

Note. Common dynamic process was imposed with a unit coefficient in the AMG estimation.

The last stage of the analysis is the estimation of the long-run coefficients. As it can be seen in Table 5, Wald χ^2 test statistics indicate that the estimated model is significant. Panel results show that GDP significantly and negatively impacts external debt stock. A 1% rise in economic growth declines the foreign debt-to-GDP by –0.26% in the long-run. The impact of inflation on foreign debt accumulation is positive. A 1% rise in inflation increases external debt-to-GDP by 0.74% in the long-run. The impact of the nominal exchange rate is statistically insignificant.

Trade openness is the other factor that accumulates external debt. A 1% increase in trade openness raises foreign borrowing by 0.19% in the long-run. The impact of credit on external debt-to-GDP is barely statistically significant, but its magnitude is considerable. A 1% rise in domestic credit increases the external debt by 0.31% in the long-run.

The country-specific coefficients represent mixed results. There are five countries where GDP has a significant and negative impact. Unlike the others, the impact of GDP is positive in Mexico. The impact of inflation is positive and significant in five out of eight EMEs. Although the exchange rate's panel results are insignificant, the effect is statistically significant in four countries. While the increase in the exchange rate declines the external debt in Hungary and Korea, it raises the foreign debt in Türkiye and Thailand.

Trade openness is statistically significant in seven out of eight countries. Furthermore, the direction of the effect is positive in all countries, except Chile. Even though the panel results on credit are barely significant, credit affects external debt in six countries at a level of 1% significance. The increase in credit raises foreign borrowing in these countries, except for Türkiye.

The negative impact of economic growth verifies Bittencourt (2015), Waheed (2017), Mensah et al. (2017), Dawood et al. (2021), Mijiyawa (2022) and Gülcemal (2022).[1] The debt-reducing effects of economic growth may be due to improving budget balance through increasing tax revenues. This may have declined financing needs (Mijiyawa, 2022).

The debt-increasing impact of rising prices is consistent with the findings of Waheed (2017) and Gülcemal (2022), and it contradicts Mensah et al. (2017) and Sağdıç and Yıldız (2020). This can be explained by the distorting impact of inflation on the budget balance through declining the real value of taxes (Czerkawski, 1991) and its deterrent to domestic savings (Gylfason, 1991).

[1] Only panel studies are considered when discussing the findings with the empirical literature for consistency.

The depreciation directly raises the external debt burden in domestic currency. Also, the import-induced effects of depreciation may accumulate foreign debt through the current account deficit. On the contrary, the export-induced impact of depreciation can mitigate the financing needs from abroad (Mijiyawa, 2022). Although the panel results indicate that a rise in the exchange rate has no significant impact on the group, the exchange rate is the determinant of foreign debt for some countries. While the export-induced effect of depreciation may have worked for Hungary and Korea, the import-induced impact may have been more dominant for Thailand and Türkiye.

The statistically significant and positive contribution of trade openness confirms Dawood et al. (2021), Mijiyawa (2022), and Gülcemal (2022). Kose et al. (2021) stated that chronic and bulky current account deficits have played a major role in growing external debt in EMDEs since 2010. Hence, the positive sign of trade openness reflects that increasing financing needs to fulfill obligations in international economic relations.

Lastly, the debt-increasing effects of credit are consistent with Colombo and Longoni's (2009) findings. Credit growth indicates rising financial needs in meeting growth prospects. Financial deepening may have improved borrowing capacity from abroad and contributed to debt accumulation (Colombo & Longoni, 2009).

6. Conclusion

External financing support plays a vital role in the economic development of EMEs. However, this supporting role can only be achieved using resources in productive areas. Otherwise, the debt burden and macro-financial fragilities increase. After the GFC, the growing debt accumulation with the debt-favored environment stimulated new discussions on the sustainability of external debt. In this respect, this paper seeks an answer to the question of what the influencing factors of external debt are in EMEs by employing panel cointegration and panel AMG tests from 2005Q1 to 2020Q1.

Panel cointegration findings report that economic growth, inflation, exchange rate, trade openness, domestic credit, and external debt-to-GDP are cointegrated. The panel AMG findings demonstrate that economic growth reduces external debt. A rise in trade openness, inflation, and domestic credit accumulates foreign debt in the long-run, whereas the effects of the credit are barely statistically significant. Although the impact of the exchange rate is insignificant for the panel, it is statistically significant in the four countries. Country-specific findings are largely consistent with the panel findings. Nevertheless, some differences exist across countries.

Empirical findings show that domestic macroeconomic variables exert a determining influence on external debt-to-GDP in EMEs. This reveals that domestic balances contribute substantially to ensuring sustainable debt levels. Thus, economic growth ought to be boosted by using resources effectively. Increasing income both reduces the need for debt and facilitates debt repayment. Furthermore, inflation must be controlled despite not being a first-priority problem for these countries during the sample period. Inflation has become a severe problem for developed and developing countries, especially after the COVID-19 pandemic and the Ukraine-Russia war. The small probability of a low inflation environment in the near future suggests the necessity of paying attention to price increases for debt accumulation.

Reasonable credit growth is vital not only for macro-financial stability but also for sustainable debt levels. Policies to increase domestic savings can reduce the need for external financing and prevent excesses in credit growth. Another factor that can relieve the external

financing pressure is the increase in the share of exports in the trade volume. An export-dominant openness will increase both income and borrowing needs. This will also eliminate the direct effect of depreciation on the external debt burden. However, the import-induced impact of appreciation must not be ignored, and the focus can be directed towards the stability of the exchange rate.

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The author declares no conflict of interest.

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