

IMPACT OF EXTERNAL DEBT ON FINANCIAL DEVELOPMENT: AN EMPIRICAL ANALYSIS OF SELECTED EAST ASIAN AND PACIFIC COUNTRIES

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Article history

Received: June 26th, 2023

Received in revised form: August 23rd, 2023 | Accepted: September 23rd, 2023

Available online: October 26th, 2023

Abstract

This article explores the impact of external debt on financial development in a group of fifteen selected East Asian and Pacific countries from 1992 to 2021. These countries include Cambodia, China, Fiji, Indonesia, Lao PDR, Mongolia, Myanmar, Papua New Guinea, the Philippines, Samoa, the Solomon Islands, Thailand, Tonga, Vanuatu, and Vietnam. Data were extracted from the World Bank and International Monetary Fund databases. This study employs random effects and fixed effects models, Driscoll-Kraay standard errors, and the generalized method of moments to test two hypotheses. The results indicate that external debt has a positive impact on the financial development of these East Asian and Pacific countries, where economic growth plays a vital role in promoting financial development. Additionally, a nonlinear impact of external debt on the financial development of these East Asian and Pacific countries is observed. Based on these findings, it is recommended that appropriate financial development policies be implemented in the identified countries.

Keywords: East Asia and Pacific; External debt; Financial development.

DOI: [http://doi.org/10.37569/DalatUniversity.13.4S.1162\(2023\)](http://doi.org/10.37569/DalatUniversity.13.4S.1162(2023))

Article type: (peer-reviewed) Full-length research article

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1. INTRODUCTION

Bruton (1969) developed the dual-gap economic theory, which suggests that the debt of a developed economy reflects its implementation of economic growth goals. During the initial stages of growth, some countries lack sufficient capital reserves because of lower levels of national savings and interest rates compared to other countries. Additionally, underdeveloped debt markets may depend on external debt to achieve economic growth goals. Therefore, external debt may contribute to financial development in such countries and promote economic growth.

Previous studies have focused on the impact of financial development on economic growth and found a causal relationship between these factors (Calderón & Liu, 2003; Ibrahim & Alagidede, 2018; Kaushal & Pathak, 2015; Opoku et al., 2019). Other studies have explored the relationship between public debt and financial development (Altaylıgil & Akkay, 2013; De Bonis & Stacchini, 2009; Emran & Farazi, 2009; Hauner, 2009; Mun & Ismail, 2015). Ismihan and Ozkan (2012) found that expected public debt can harm financial development. Cottarelli et al. (2005) discovered that public debt has a negative impact on private sector credit. Kumhof and Tanner (2005) argued that the existence of a government debt market supports the bond market by providing basic financial infrastructure. Kutivadze (2011) found that domestic debt depends on the level of financial development. Despite the burgeoning interest in the relationship between government debt and financial development, earlier studies have arrived at conflicting conclusions, with some indicating negative effects and others positive effects. Given this significant controversy, an exploration of the relationship between external debt and financial development is needed.

This study focuses on selected East Asian and Pacific countries for two main reasons. Firstly, these countries are experiencing rapid economic growth with controlled inflation, improving national accounts, and stronger financial systems. However, the scarcity of capital impedes the resurgence of private investment in these countries. Hence, capital markets and financial flows are becoming increasingly important after the financial crisis during 2007–2008 (UN ESCAP, 2017). External debt offers a solution to this issue by providing additional capital for economic activities, which in turn promotes financial development and contributes to economic growth. Secondly, while there have been studies examining the impact of public debt on financial development, there is no research on the role of external debt in the financial development of the selected East Asian and Pacific countries. To fill this research gap, this study examines the influence of external debt on financial development, using data from fifteen countries between 1992 and 2021. The empirical findings are twofold. First, external debt has a positive impact on the financial development of certain East Asian and Pacific countries, with economic growth being a key factor in promoting financial development. Second, a nonlinear impact of external debt on the financial development of particular East Asian and Pacific countries is observed.

This study is divided into five sections. Section 1 is the introduction. Section 2 presents the theoretical background. Section 3 provides a description of the data and the

empirical design. Section 4 includes the empirical findings, while Section 5 presents the conclusions.

2. THEORETICAL BACKGROUND

MacDougall (1958) proposed the theory of capital inflows, which explains how a nation representing an investment economy provides capital to other countries that represent borrowing economies. This allows for the free movement of capital from rich to scarce-capital countries, providing advantages for both parties. The crucial aspect of this theory is the flow of capital between two countries through debt instruments, which enables more efficient use of capital and enhances welfare. Furthermore, countries that receive capital inflows can experience an increase in GDP, and the capital inflows contribute to the overall development of the financial sector (MacDougall, 1958).

Previous literature has examined the effect of external debt on economic activities and financial development. For instance, Agyapong and Bedjabeng (2020) investigated the role of external debt in financial development in African countries and found a positive association between external debt and financial development. Kengdo et al. (2020) also found a positive impact of external debt on domestic investment in sub-Saharan African subregions during the 1980–2017 period. Mohsin et al. (2021) explored the relationship between external debt stock and economic growth in several other countries around the world during the 2000–2018 period and found a positive correlation. On the basis of the above studies, the author argues that external debt can have a positive impact on financial development as it increases economic activity, which indirectly enhances financial development. Thus, the author proposes the following hypothesis:

H1: External debt is positively associated with financial development in the selected East Asian and Pacific countries.

Previous empirical studies have confirmed various relationships between public debt and financial development. For instance, Kumhof and Tanner (2005) explored government debt in developed countries and found that it has a negative impact on financial intermediaries, as banks have to take on higher risk when lending to the private sector. Cottarelli et al. (2005) estimated the impact of the ratio of public debt to GDP on private sector credit in several countries, including Albania, Bosnia, Hungary, Bulgaria, the Czech Republic, Estonia, Croatia, Latvia, Macedonia, Lithuania, Serbia, Montenegro, Slovakia, and Slovenia. Their findings showed that public debt is negatively associated with the ratio of bank credit. Similarly, Hauner (2009) analyzed the role of public debt in financial development and found that it has a negative impact. Emran and Farazi (2009) confirmed a causal relationship between government debt and private sector credit in several developed countries from 1975 to 2006. De Bonis and Stacchini (2009) examined the negative association between government debt and the degree of bank credit in 18 OECD countries from 1981 to 1997. Altayligil and Akkay (2013) examined the negative effect of public debt on financial development in Turkey from 2002 to 2012. Mun and Ismail (2015) found that domestic debt has a negative impact on financial development. In contrast, Kutivadze (2011) investigated the relationship between public debt and financial development in several

countries from 1994 to 2007 and found that public debt has a positive impact. The above analysis shows that a country's high level of debt can lead to a debt overhang (Cordella et al., 2010). This means that the government may be unable to repay its debt, even if it is willing to do so. As a result, this can lead to a decrease in investment and economic development, which may have a negative impact on financial development. In contrast, debt that is used to finance productive investments is likely to have a more positive impact on financial development than debt used to finance consumption or unproductive activities (Bezemer, 2014). Therefore, the author argues that external debt can have a nonlinear impact on financial development and proposes the following hypothesis:

H2: External debt has a nonlinear impact on financial development.

3. RESEARCH METHOD

3.1. Research data

Data for this study were collected from available data on 35 countries in the East Asia and Pacific region. According to the World Bank, the following countries lack data on external debt during the 1992–2021 period: American Samoa, Australia, Brunei Darussalam, French Polynesia, Guam, Japan, Kiribati, Korea, Malaysia, the Marshall Islands, Micronesia, Nauru, New Caledonia, New Zealand, the Northern Mariana Islands, Palau, Singapore, Timor-Leste, and Tuvalu. Cambodia lacks data on external debt from 1992 to 1994, Samoa lacks such data between 1992 and 2001, and Tonga lacks such data for 2021. Additionally, the Lao PDR lacks data on trade openness from 2017 to 2021, Myanmar lacks such data during the 1992–2009 period, and Papua New Guinea lacks such data from 2005 to 2021. Therefore, the data for this study were collected between 1992 and 2021 from 15 countries in the East Asia and Pacific region, including Cambodia (1995–2021), China, Fiji, Indonesia, the Lao PDR (1992–2016), Mongolia, Myanmar (2010–2021), Papua New Guinea (1992–2004), the Philippines, Samoa, the Solomon Islands, Thailand, Tonga, Vanuatu, and Vietnam. Information on financial development was collected from the International Monetary Fund, while data on external debt as a percentage of gross national income, GDP per capita, trade openness (the ratio of exports and imports to GDP), and foreign direct investment (the ratio of foreign direct investment flows to GDP) were obtained from the World Bank.

3.2. Research model

Following Agyapong and Bedjabeng (2020), the author built the following model (Equation 1):

$$LFD_{i,t} = \beta_0 + \beta_1 EXD_{i,t} + \beta_2 EXD_{i,t}^2 + \beta_3 LGPC_{i,t} + \beta_4 LTO_{i,t} + \beta_5 FDI_{i,t} + \mu_{i,t} \quad (1)$$

where i and t are the country and year, respectively; β_0 is the intercept coefficient; β is the regression coefficient of the independent variables; and μ is the standard error.

LFD represents financial development and is measured by the natural logarithm of the financial development index, which is the aggregate of the financial institution

index and financial market index (Sahay et al., 2015). The financial institution index is a composite that includes the financial institution depth index, financial institution access index, and financial institution efficiency index (Sahay et al., 2015). Similarly, the financial market index is a composite of the financial market depth index, financial market access index, and financial market efficiency index (Sahay et al., 2015).

EXD represents external debt, as measured by the ratio of total external debt to gross national income. EXD^2 is external debt squared.

The control variables in the model include LTO (trade openness), LGPC (per capita economic growth), and FDI (foreign direct investment). LGPC is measured by the natural logarithm of the gross domestic product per capita. FDI is measured by the ratio of foreign direct investment flows to GDP. LTO is measured by the natural logarithm of the ratio of exports and imports to GDP.

Random effects and fixed effects models are used to test the hypotheses using panel data. The variance inflation factor (VIF) is used to identify multicollinearity in the research model (Hair et al., 1995). To address autocorrelation and heteroscedasticity, the author employs a random effects model with Driscoll-Kraay standard errors (Driscoll & Kraay, 1998), and the generalized method of moments (GMM).

4. EMPIRICAL EVIDENCE

4.1. Descriptive statistics

The author analyzed data from the World Bank to provide descriptions of the variables in the research model. FD represents the financial development index, EXD represents the ratio of total external debt to gross national income, and GPC represents the gross domestic product per capita. FDI represents the ratio of foreign direct investment flows to GDP, while TO represents the ratio of exports and imports to GDP. LFD, LGPC, and LTO represent the natural logarithm of the financial development index, the GDP per capita, and the ratio of exports and imports to GDP, respectively.

Table 1. Summary statistics

| Variables | Observations | Mean | Median | Minimum | Maximum |
|-----------|--------------|------------|------------|----------|-------------|
| FD | 396 | 0.2521 | 0.1947 | 0.0286 | 0.7408 |
| LFD | 396 | -1.5601 | -1.6362 | -3.5529 | -0.2999 |
| EXD | 396 | 51.0651 | 37.8719 | 7.7035 | 283.253 |
| GPC | 396 | 2,835.3500 | 2,547.9100 | 378.9224 | 11,223.1500 |
| LGPC | 396 | 7.7863 | 7.8430 | 5.9373 | 9.3257 |
| TO | 396 | 88.3899 | 85.6661 | 11.8554 | 186.4682 |
| LTO | 396 | 4.4083 | 4.4504 | 2.4727 | 5.2282 |
| FDI | 396 | 4.2091 | 3.025 | -37.1726 | 43.9121 |

Source: World Bank and author's calculation.

Table 1 presents the sample statistics, revealing that the mean value for FD is 0.2521 points, indicating low financial development in the selected East Asian and Pacific countries. The EXD variable (the ratio of total external debt to gross national income) has an average value of 51.0651 percent. Agyapong and Bedjabeng (2020) reported a similar value of 57.939 for several African economies between 2002 and 2015. Moreover, the average ratio of exports and imports to GDP is 88.3899 percent, and the average GDP per capita is \$2,835.35. Finally, the average ratio of foreign direct investment to GDP is 4.2091 percent.

4.2. Correlation coefficient matrix

Table 2 displays the correlation coefficient matrix for the model variables. The table shows a negative relationship between financial development and the trade openness and foreign direct investment variables. The author also found a positive relationship between GDP per capita and financial development. In addition, the VIF coefficient for each independent variable pair was found to be less than 2. According to Hair et al. (1995), this indicates that multicollinearity is not a significant issue in the research model.

Table 2. Correlation matrix

| Variable | LFD | EXD | LGPC | LTO | FDI |
|----------|-----------|------------|-----------|-----------|--------|
| LFD | 1.0000 | | | | |
| EXD | -0.0496 | 1.0000 | | | |
| LGPC | 0.5796*** | -0.2795*** | 1.0000 | | |
| LTO | -0.0861* | 0.1278** | 0.0304 | 1.0000 | |
| FDI | -0.1086** | 0.1085** | -0.1091** | 0.2575*** | 1.0000 |
| VIF | | 1.1100 | 1.100 | 1.0900 | 1.0900 |

Notes: LFD: financial development; EXD: external debt; LTO: trade openness; LGPC: GDP per capita; FDI: foreign direct investment. Significance levels of 10%, 5%, and 1% are denoted by *, **, and ***, respectively.

4.3. Regression results and discussion

Table 3 presents the results of the regression analysis, which indicate that the p-values of the Hansen test and the AR(2) test are not statistically significant at the 10% level, suggesting that the generalized method of moments is appropriate for testing hypotheses in the research model. To address issues of autocorrelation and heteroscedasticity, the author employed a random effects model with regression using Driscoll-Kraay standard errors and the generalized method of moments. The EXD and LGPC variables (Table 3) exhibit a positive impact on financial development at significance levels of 10% and 5%, respectively. In contrast, the EXD² variable is negatively correlated with financial development at a significance level of 5%.

Table 3 reveals that the EXD coefficient is significantly positive at the 10% level, indicating that external debt has a positive effect on financial development and supporting Hypothesis 1. These results are in line with those of Agyapong and Bedjabeng (2020), who found that external debt levels can increase financial development in certain East Asian and Pacific countries. This can be explained by several factors. Firstly, external

debt represents money borrowed by a nation or organization from foreign sources, such as foreign banks, governments, or international financial institutions, to finance domestic ventures such as infrastructure projects or to support economic growth. Secondly, external debt can play a constructive role when used to fund productive ventures that contribute to economic growth, ultimately leading to higher living standards, productivity, employment opportunities, and greater financial development. However, the impact coefficient of external debt on financial development is low, indicating a limited effect of external debt on financial development in these East Asian and Pacific countries.

Table 3. Results of panel data analysis

| Variables | LFD _{i,t} | | | |
|---------------------------------|------------------------|------------------------|------------------------|-----------------------|
| | Random effects | Fixed effects | Driscoll-Kraay | GMM |
| | (1) | (2) | (3) | (4) |
| LFD _{i,t-1} | - | - | - | 0.8640*** (19.50) |
| EXD _{i,t} | 0.0061*** (6.21) | 0.0061*** (6.21) | 0.0061*** (4.31) | 0.0008* (1.87) |
| EXD ² _{i,t} | -0.00001*** (-4.26) | -0.00001*** (-4.26) | -0.00001*** (-3.47) | -0.00003** (-2.12) |
| LGPC _{i,t} | 0.3062*** (6.85) | 0.3062*** (6.85) | 0.3062*** (11.13) | 0.0812** (2.13) |
| LTO _{i,t} | 0.1148*** (2.61) | 0.1148*** (2.61) | 0.1148 (1.67) | 0.0265 (0.92) |
| FDI _{i,t} | 0.0017 (0.87) | 0.0017 (0.87) | 0.0017 (0.65) | 0.0013 (1.40) |
| Constant | -5.4161*** (-18.01) | -4.8694*** (-14.58) | -4.8694*** (-22.53) | -0.7447* (-1.87) |
| Number of groups | 15 | 15 | 15 | 15 |
| Number of obs. | 396 | 396 | 396 | 396 |
| Year | Yes | Yes | Yes | Yes |
| Country | Yes | Yes | Yes | Yes |
| Prob > Chi ² | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| AR(1) test | -2.27** [0.023] | | | |
| AR(2) test | 1.20 [0.232] | | | |
| Hansen test | 407.98 [0.837] | | | |

Notes: LFD: financial development; EXD: external debt; LTO: trade openness; LGPC: GDP per capita; FDI: foreign direct investment. Significance levels of 10%, 5%, and 1% are denoted by *, **, and ***, respectively.

T-statistics are reported in parentheses; p-values are reported in brackets.

At a 10% significance level (refer to columns 3 and 4 in Table 3), a nonlinear impact of external debt on financial development is observed. Therefore, the author has sufficient evidence to accept Hypothesis 2, which suggests that external debt has a nonlinear impact on financial development. These results can be explained by several reasons. The first reason pertains to crowding out. When a country carries a high level of external debt, it can crowd out private investment (Clements et al., 2003). This implies that the government may need to borrow money from domestic investors to repay its external debt, making it more challenging for businesses to secure loans. Consequently, this situation can discourage investment and impede economic growth. The second reason is related to financial instability. A country burdened with substantial external debt becomes more susceptible to financial instability (Obstfeld et al., 2010). This susceptibility arises from the difficulty the government faces in responding to shocks, such as declining exports or financial crises due to the debt (Obstfeld, 1995). As a result, financial development could decrease. Another reason involves resource misallocation. If a country uses external debt to finance consumption or unproductive activities, it can lead to resource misallocation (Babu et al., 2014). This misallocation implies that resources are not being used in the most productive manner, which can negatively impact economic growth and financial development.

Table 3 shows that the coefficients of LGPC are positive at the 1% significance level, suggesting that economic development has a significant impact on financial development. These findings support the results of Fowowe (2011), who argued that economic growth positively influences financial development because of a causal relationship. Moreover, the impact factor of economic growth on financial development is high, highlighting the pivotal role economic development plays in financial development. The coefficient of LTO in columns (3) and (4) is not statistically significant at the 10% level, indicating that trade openness has no impact on financial development. Additionally, the author finds that the FDI variable is also not statistically significant at the 10% level. This contradicts the assertion by Bosworth and Collins (1999) that foreign direct investment is associated with financial development.

5. CONCLUSION

This study examines the impact of external debt on financial development in several East Asian and Pacific countries using panel data from 1992 to 2021. The empirical results indicate that external debt is positively related to financial development, with economic growth being a vital driver of financial development in these nations. On the other hand, the findings of this study also reveal a nonlinear impact of external debt on financial development. These findings imply that excessive or poorly managed external debt can lead to negative outcomes, such as a default on debt repayments, which can be catastrophic for the overall economy and financial system. Such an event can trigger a decline in investor confidence, higher borrowing costs, and even a recession. Hence, it is crucial to manage external debt carefully and selectively, ensuring that it is channeled into productive investment and does not cause financial instability.

Based on these findings, this study recommends three policy implications for effectively managing external debt in the financial sector. Firstly, the borrower or government must comprehend the implications of taking on external debt and its ability to service that debt over time. By evaluating the sustainability of external debt, the borrower can ensure that the debt is manageable and can be paid off in the long run. Secondly, external debt is usually denominated in a foreign currency, exposing the borrower to currency risk. Hence, effective foreign exchange risk management involves hedging exchange rate risk using financial instruments, foreign exchange reserves, or diversifying the currency of the debt portfolio to minimize volatility risk. Finally, governments should devise comprehensive debt management strategies that monitor debt service (interest and principal payments), negotiate favorable terms such as lower interest rates and manage cash flow effectively.

This study has a limitation in that it examines only the impact of external debt on financial development without considering the reverse direction. Financial development can also influence external debt by generating more economic activity, leading to increased government spending and lending to meet the demand for economic growth. To address this issue and provide a comprehensive understanding of the relationship between financial development and external debt, further research is warranted and recommended by the author.

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