Financial Openness and Financial Development: Evidence from Emerging Countries

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Financial Openness and Financial Development: Evidence from Emerging Countries

ABSTRACT

We investigate the potential relation between financial openness and financial development for 27 emerging countries for the period between 1996 and 2016. We focus on three dimensions of financial openness: capital account openness, trade openness, and stock-market openness. In this study, we propose alternative measures for the capital account and trade openness. Moreover, we offer capital flow and valuation-based measures for stock-market openness as a potential determinant of financial development. Our findings indicate that capital account openness and trade openness are the key drivers of financial development. These results are not sensitive to the use of alternative financial openness and financial development measures and robust after controlling for institutional quality and its components. Our results have implications for policymakers in emerging countries who try to increase the depth of their financial markets for easier and cheaper access to funds.

Key Words: Financial Development, Trade Openness, Capital Account Openness, Stock Market Openness

JEL Classification Codes: F19, F39
1. **Introduction**

A growing line of research documents a positive link between economic growth and financial development in developed and emerging countries (Levine, Loayza & Beck, 2000; Valickova, Havranek & Horvath, 2015). The finding that countries that have developed their financial systems tend to grow faster motivates researchers to investigate what explains financial development. This research question is especially important for policymakers in emerging countries trying to develop their financial system to raise much-needed capital to finance economic growth.

This study examines the potential relation between financial openness and financial development by employing a panel of 27 emerging countries for the period between 1996 and 2016. We offer several measures both for financial openness and for financial development. More specifically, we focus on three building blocks of financial openness, namely, capital-account, trade, and stock-market openness. To proxy financial development, we also use three different measures such as the ratios of stock market capitalization, liquid liabilities, and private credits to GDP. The main objective of this study is to find out whether financial openness stimulates financial development and, if so, which types of financial openness are more important for establishing a deeper financial system.

The studies so far have embarked on the importance of only two dimensions of financial openness which are trade and capital-account openness. For instance, Rajan and Zingales (2003) assume that trade openness fosters financial development, which enlarges investment opportunities and increases competition in the economy by bringing foreign investors to domestic markets. Huang and Temple (2005) show that if the degree of trade openness for the goods market increases, financial development will improve. Law (2009) states that trade openness and capital flows are important drivers of financial development in emerging countries. Law and Habibullah (2009) emphasize that trade openness supports the development of financial markets.

It is also discussed that enhancing capital account openness plays an essential role for successful financial development. Chinn and Ito (2006) concentrate on the effects of capital account openness on financial development for emerging markets. They report that removing capital controls enables foreign and domestic investors to diversify their portfolios internationally. Due to the global pricing of assets, stemming from international diversification, expected returns and thus the cost of capital can decrease. This increases the likelihood of
projects ending up with net profits. Klein and Olivei (2008) show a positive link between the degree of capital account openness and the level of financial development, indicating that liberalizing capital accounts triggers financial development.

In addition to the well-known dimensions of financial openness such as trade openness and capital account openness, stock-market openness can also be an important component of financial development. A well-functioning stock market can lower cost of equity by providing easy access to funds, which in turn, increases returns and investment especially in emerging markets (Stulz, 1999; Bekaert & Harvey, 2000; Henry, 2000a, 2000b; Bekaert, Harvey & Lundblad, 2005; Kim & Singal, 2000; Jayasuriya, 2005). Stock market liberalization can attract foreign investors to take part in the local financial system of a country and to finance profitable local projects, which leads to financial deepening. From this perspective, the degree of stock-market openness can be a potential factor in the transition from an emerging to an advanced financial system. On the other hand, if stock market openness may not be binding, it can have no impact on financial development. Due to the political instability and economic policies of emerging countries, foreign investors may not prefer to trade local stocks even the stock market is liberalized for foreign investment. In summary, it can be difficult to determine whether stock-market openness affects financial development or not. Therefore, clarifying this issue is an empirical matter. Interestingly, as far as we are aware, there are no studies investigating the association between stock market openness and financial development. In this study, we try to fill this gap. We proxy stock-market openness by capital flow-based and valuation-based measures. More specifically, the capital flow-based measure suggested by Umutlu, Akdeniz and Altay-Salih (2010) displays the ratio of foreign equity liabilities in a stock market to market capitalization of that stock exchange. On the other hand and the valuation based measure suggested by Bekaert, Harvey, Lundblad and Siegel (2011) indicates the degree of segmentation of a stock market with respect to the world market, which is the opposite of the degree of stock-market integration.

This study further adds to the current literature by using alternative measures for trade openness and capital account openness, which are composite trade share and an alternative measure of capital account openness measure of Chin and Ito (2006), respectively. Composite trade share blends two components: i) Trade share, showing the volume of exports and imports of goods and services divided by GDP, and ii) World trade share, showing the total trade with respect to the total world trade. In the construction of an alternative measure of capital account openness, we use the binary coding for restrictions on capital accounts presented in 13
subcategories in the IMF’s Annual Reports on Exchange Arrangements and Exchange Restrictions (AREAER). We take the average of the binary values for 13 subcategories to obtain a restriction-based measure and then subtract the average from one to convert the restriction-based measure to a measure for capital accounts openness.

We find that out of three financial openness measures, trade openness and capital account openness play the most significant roles to promote financial development. We check the robustness of our results by using alternative financial openness and financial development measures and obtain similar results. Moreover, our results remain unchanged after controlling for institutional quality and its components. Our results are also valid for a longer sample period, which is obtained by dropping some alternative measures with fewer time-series observations. Our results have implications for policymakers in emerging markets who try to increase the depth of their financial markets for gaining easier and cheaper access to funds. For instance, policymakers can take steps to facilitate trade and capital account openness at the highest priority.

This paper adds to the literature in the following ways. Our first contribution is the examination of stock market openness as a potential determinant of financial development. We both use a capital flow-based variable and a valuation-based variable to measure stock market openness. The ratio of foreign equity liabilities to the market capitalization of the stock exchange (\(FEL\)) is the capital flow-based measure while the degree of segmentation of a stock market (\(SEG\)) is the valuation-based measure. To the best of our knowledge, there is no other study that uses these measures to explain financial development. Our second contribution is the use of alternative measures of trade openness and capital account openness, which are composite trade share and an alternative measure of capital account openness and use them to examine the reliability of our results.

The remainder of the study is outlined as follows. Section 2 defines data sources and variables. Section 3 shows the model specification and methodology. Section 4 presents findings and the discussion of results. The final section provides the concluding remarks.

2. Data and Variables

Because of its extensive scope, it is not easy to quantify financial development (Rajan & Zingales, 2003). Although there is no single correct variable to represent financial development, some standard quantitative variables like the relative size of stock market, liquid liabilities, and private credits by banks with respect to the size of economy have been commonly used to
represent financial development in many empirical studies. In line with the literature, we employ these three different proxies for modelling financial development. More specifically, these measures are Private Credit by Deposit Money Banks, Stock Market Capitalization, and Liquid Liabilities all of which are expressed as a share of GDP. Private Credit is defined as credits or loans granted by banks to the private sector (Levine et al. 2000). Stock Market Capitalization to GDP shows the relative size of stock markets with respect to the size of the overall economy and is calculated as the ratio of the value of all listed shares to GDP. Liquid Liabilities to GDP shows currency plus demand and interest-yielding liabilities of all financial intermediaries as a percentage of GDP. It is shortly called as broad money and generally used for measurement of financial depth (Beck, Demirgüç-Kunt & Levine, 2010). The data for these measures are provided by the World Bank's Global Financial Development Database (GFDD).

We use Institutional Quality and its components separately as control variables in our regression specifications to examine whether our results are robust. The components of Institutional Quality include; Control of Corruption, Government Effectiveness, Political Stability and Absence of Violence/Terrorism, Regulatory Quality, Rule of Law, and Voice and Accountability. Each component represents a different aspect of governance. Control of Corruption acquires perceptions of how much public power is being used for private gain, comprising the "seizure" of the state by personal and elite interests. Government Effectiveness includes perceptions about the quality of public and civil services, which is not affected by political oppression. It also involves policy creation and implementation quality of the government. Political Stability and Absence of Violence/Terrorism indicates the political instability of a country and/or violence that is politically supported. Regulatory Quality shows the government’s aptitude for systemizing and applying principles and strategies that allow and foster the development of the private sector. Rule of Law shows how much society complies with the rules, how society is bound up with rules and whether the enforcement is equal to all members of societies. Voice and Accountability describe the independence of association and expression as well as free media tools in a country where citizens can take part in the election of their government (World Governance Index, 2018). The data for six components of institutional quality are obtained from the World Governance Index (WGI) on a scale of -2.5 to +2.5. We take the average of these six components to construct the combined Institutional Quality (INST_QUAL) measure. We either use Institutional Quality measure alone or its components in different regression specifications.
2.1. Variables for Financial Openness

One of the aims of this paper is to find out which types of financial openness are more important for financial depth. We use three financial openness measures, which are Trade Openness (TO), Capital Account Openness (KAOPEN) and stock market openness measured as Foreign Equity Liabilities (FEL). We use those variables as the base-case financial openness measures in regression specifications.

Trade Openness (TO) is described as exports plus imports of goods & services (BoP, current US$) divided by GDP (current US$). TO data is taken from World Development Indicators (WDI).

Chinn and Ito (2006) introduce an index called Financial Openness Index of Capital Account Openness (KAOPEN). We use the normalized version of KAOPEN index that ranges between zero and one, and the data is obtained from Chinn and Ito (2006). KAOPEN index is derived from four dummy variables; multiple exchange rates, restrictions on current account transactions, restrictions on capital account transactions, and requirement of the surrender of export proceeds, which are taken from the IMF’s Annual Reports on Exchange Arrangements and Exchange Restrictions (AREAER). Chin and Ito (2006) take the reverse of these binary variables to indicate the degree of financial openness. Hence, KAOPEN takes higher values if there are cross-border financial transactions.

Lane and Milesi-Ferretti (2007) used a capital flow-based measure to explain the extent of financial liberalization. Their measure demonstrated the sum of foreign equity assets and liabilities and the foreign direct investment assets and liabilities of a country as a share of the GDP. Umutlu et al. (2010) introduced a modified version of Lane and Milesi-Ferretti measure that concentrates on the extent of openness of a stock market to foreign equity investment. They defined a new measure called Foreign Equity Liabilities (FEL), which is computed as the ratio of equity liabilities portfolio to the market capitalization of the stock exchange.

\[
FEL = \frac{\text{Portfolio Equity Liabilities}}{\text{Market Cap. of Local Stock Exchange}}
\]

We employ FEL as the measure for stock market openness. The data for FEL is retrieved from Lane and Milesi-Ferretti (2007).

2.2. Alternative Variables for Financial Openness
We try to explain the association between financial openness and financial depth by using alternative measures of financial openness. For each of our base-case variables (TO, KAOPEN, and FEL), their corresponding alternatives are used to examine whether main results are sensitive to different definitions of financial openness measures.

Our alternative measure for trade openness is Composite Trade Share (CTS) offered by Squalli and Wilson (2011). CTS combines two dimensions of trade: Trade Share and World Trade Share. The first dimension, Trade Share (TS), is calculated as the volume of exports and imports of goods and services of a country divided by its GDP.

\[ TS_t = \frac{(X+M)_t}{GDP_t} \]  

where X is exports and M is imports of goods and services. TS lies in the range of zero and positive infinity.

The second dimension of CTS, World Trade Share (WTS), is computed the volume of exports and imports of goods and services of a country divided by the total world export and import.

\[ WTS_t = \frac{(X+M)_t}{\sum_{i=1}^{n}(X+M)_i} \]  

\( i: \) country, \( n: \) number of countries in the world at year t.

WTS shows the ratio of country i’s total trade to the total world trade.

Finally, Squalli and Wilson (2011) combined TS and WTS to construct CTS:

\[ CTS_{it} = \frac{\frac{(X+M)_t}{GDP_t} \cdot \frac{(X+M)_i}{\sum_{i=1}^{n}(X+M)_i}}{\frac{1}{n} \sum_{i=1}^{n} (X+M)_i} \]  

We calculate CTS for each country and for each year and use it as an alternative to TO measure. The data to construct CTS is from WDI.

Our second alternative measure is ALT_KAOPEN. We use the AREAER to calculate ALT_KAOPEN, which is an alternative to the Chinn-Ito KAOPEN index. AREAER provides information for the presence or lack of 13 restraints for capital accounts, which allows us to track the overall capital account openness for a country. AREAERs are publicly available on the official website of IMF. We employ a binary coding to identify restrictions in a country. More specifically, we assign one if there is a restriction for a restriction category and zero otherwise. Next, we calculate the average of all binary values belonging to 13 categories. This average represents the degree of restrictions. In the last step, we deduct the average from 1 so that we obtain an openness (not a restriction) measure for capital accounts. We name this variable as ALT_KAOPEN. Our measure is similar to that of Miniane (2004), in the sense that both measures use binary coding for restrictions. ALT_KAOPEN differs from Miniane’s
measure in the number of restriction categories used. We use 13 categories for capital restrictions and dropped the 14th category used by Miniane (2004) which reflects multiple exchange rate arrangements as we only focus on restrictions. Our measure is also different from that of Miniane (2004) as it is a measure for openness whereas Miniane’s measure indicated the degree of restrictions. Furthermore, we extend the index of Miniane (2004), which ends in 2000, to 2016 for the emerging countries in our sample.

We calculate $ALT_{KAOPEN}$ for all countries and for all years from 1996 to 2016 by manually collecting the data on restriction, categories from IMF’s annual reports on AREAER. We cannot construct $ALT_{KAOPEN}$ before 1996 as the annual reports have a different report format before this date and do not document 13 subcategories.

Finally, our alternative measure for stock market openness is the World Equity Market Segmentation ($SEG$), which was first proposed by Bekaert et al. (2011). A country’s degree of segmentation is the opposite of its degree of integration. If the market is more segmented, it means that it is less open to foreign investors and thus less diversified in terms of fund sources. Therefore, we expect a negative association between segmentation and financial development. Bekaert et al. (2011) defined $SEG$ as the absolute difference between local and global earnings-to-price ratios of industries. This measure reflects the contributions of both time-series and cross-sectional variations in segmentation.

Equity Market Segmentation for country $i$ in year $t$ is defined as:

$$SEG_i = \sum_{j=1}^{N} IW_{i,j,t} \left| EY_{i,j,t} - EY_{w,j,t} \right|$$

$i$: country, $j$: industry, $t$: year, $w$: global market, $N$: number of industries

where $IW_{i,j,t}$ indicates the weight of industry $j$ in country $i$ at year $t$ and $\left| EY_{i,j,t} - EY_{w,j,t} \right|$ indicates the absolute value of the difference between earnings-to-price ratio of industry $j$ in country $i$ ($EY_{i,j,t}$) and that in global market portfolio ($EY_{w,j,t}$).

The idea behind $SEG$ measure rests on the following argument. If financial markets are fully integrated, then the same industries around the world should provide similar earnings yield, therefore the difference between earnings yields should converge to zero. Oppositely, if the markets are segmented local industries will provide different earnings yield depending on local conditions and the difference between earnings yield will divert from zero. In summary, $SEG$ shows to what extent countries are actually integrated or segmented.
We calculate SEG in the following manner. First, we assume that each country index is the weighted average of N industries for each year and define the weight of industry j in country i as the ratio of the market capitalization of the industry to that of country IW_{i,j,t}. Then, we calculate EY_{i,j,t} as the reciprocal of price-to-earnings ratio for industry j in country i. Next, we calculate EY_{w,j,t} similarly for the Global market portfolio. Finally, we compute the weighted average of the absolute value of differences between local and global earnings-to-price ratio for each country and for each year in the sample period.

Our sample of equity industries involves twenty different sectors, which are Automobile & Parts, Banks, Basic Resources, Chemicals, Construction and Materials, Financial Services 3, Financial Services 4, Food & Beverages, Health Care, Industrial Goods & Services, Insurance, Media, Oil & Gas, Personal & Household Goods, Real Estate, Retail, Technology, Telecom, Travel & Leisure and Utilities. We calculate SEG for 27 emerging countries for the period between 1996 and 2016, using annual price-to-earnings ratio and market value data for industries from DataStream and add it to our regressions to examine its potential relationship with financial development.

Table 1 shows descriptive statistics for all variables including the dependent and independent variables employed in the analysis for 27 emerging countries listed in Appendix from 1996 to 2016. Table 2 provides information about variables’ data availability and data source.

In the previous literature, it is documented that trade openness and capital account openness play important roles to trigger financial development. Therefore, we expect positive signs for trade openness and capital account openness measures (TO, CTS, KAOPEN, ALT_KAOPEN). In addition, a strong institutional environment can facilitate financial development so we anticipate a positive correlation between INS_QUAL and financial deepening. FEL indicates the degree of integration of stock markets whereas market segmentation (SEG), as the name implies, shows the opposite of integration, therefore, we anticipate FEL and SEG move in the opposite directions. Hence, FEL is anticipated to be positively linked to financial development while SEG is expected to exert a negative influence.
3. Model Specification and Methodology

We investigate whether financial openness exerts any impact on financial depth in emerging countries. Our empirical model includes trade openness (TO), capital account openness (KAOPEN) and stock market openness (FEL) as the base-case variables of financial openness. As a robustness test, we employ the alternative versions of TO, KAOPEN, and FEL, which are CTS, ALT_KAOPEN, and SEG, respectively. In addition to independent variables of interest, we used several control variables including the components of institutional quality. Besides these individual quality measures, we also use a single overall quality measure (INST_QUAL) by averaging the individual measures.

The dependent variable, financial development, is proxied by three alternative indicators: Stock Market Capitalization to GDP, Liquid Liabilities to GDP, and Private Credit by Deposit Money Banks to GDP. For each dependent variable, we estimate four different regression specifications and provide the results for panel regressions including i) base-case variables, ii) alternative variables, and iii) a combination of both.

Since our sample has both time-series (years) and cross-sectional (countries) dimensions, we use panel data regression in our study. We use the fixed effects model to cope with country effects.

In the first set of regression specifications, we estimate the following models of financial development with base-case variables of financial openness in Eqs. (6), (7) and (8). In each of these equations, an alternative definition of the dependent variable is used.

\[
\text{MarketCap}_{it} = \alpha + \beta_1 \text{FEL}_{it} + \beta_2 \text{TO}_{it} + \beta_3 \text{KAOPEN}_{it} + \beta_4 \text{CC}_{it} + \beta_5 \text{PE}_{it} + \beta_6 \text{PS}_{it} + \beta_7 \text{RQ}_{it} + \beta_8 \text{VA}_{it} + \beta_9 \text{RL}_{it} + \epsilon_{it} \\
\text{LiquidLiab}_{it} = \alpha + \beta_1 \text{FEL}_{it} + \beta_2 \text{TO}_{it} + \beta_3 \text{KAOPEN}_{it} + \beta_4 \text{CC}_{it} + \beta_5 \text{PE}_{it} + \beta_6 \text{PS}_{it} + \beta_7 \text{RQ}_{it} + \beta_8 \text{VA}_{it} + \beta_9 \text{RL}_{it} + \epsilon_{it} \\
\text{Private}_{it} = \alpha + \beta_1 \text{FEL}_{it} + \beta_2 \text{TO}_{it} + \beta_3 \text{KAOPEN}_{it} + \beta_4 \text{CC}_{it} + \beta_5 \text{PE}_{it} + \beta_6 \text{PS}_{it} + \beta_7 \text{RQ}_{it} + \beta_8 \text{VA}_{it} + \beta_9 \text{RL}_{it} + \epsilon_{it}
\]
In the second set of specifications, we estimate panel regressions with base-case variables for financial openness along with the combined institutional quality measure, \textit{INST\_QUAL}, as shown in Eqs. (9), (10), and (11).

\begin{align*}
\text{MarketCap}_{it} & = \alpha + \beta_1 \text{FEL}_{it} + \beta_2 \text{TO}_{it} + \beta_3 \text{KAOPEN}_{it} + \beta_4 \text{INST\_QUAL}_{it} + \varepsilon_{it} \quad (9) \\
\text{LiquidLiab}_{it} & = \alpha + \beta_1 \text{FEL}_{it} + \beta_2 \text{TO}_{it} + \beta_3 \text{KAOPEN}_{it} + \beta_4 \text{INST\_QUAL}_{it} + \varepsilon_{it} \quad (10) \\
\text{Private}_{it} & = \alpha + \beta_1 \text{FEL}_{it} + \beta_2 \text{TO}_{it} + \beta_3 \text{KAOPEN}_{it} + \beta_4 \text{INST\_QUAL}_{it} + \varepsilon_{it} \quad (11)
\end{align*}

Next, we estimate Eqs. (12), (13), and (14) in which financial openness is measured by alternative measures of \textit{CTS}, \textit{ALT\_KAOPEN}, and \textit{SEG}.

\begin{align*}
\text{MarketCap}_{it} & = \alpha + \beta_1 \text{SEG}_{it} + \beta_2 \text{CTS}_{it} + \beta_3 \text{ALT\_KAOPEN}_{it} + \beta_4 \text{CC}_{it} + \beta_5 \text{PE}_{it} + \beta_6 \text{PS}_{it} + \beta_7 \text{RQ}_{it} + \beta_8 \text{VA}_{it} + \beta_9 \text{RL}_{it} + \varepsilon_{it} \quad (12) \\
\text{LiquidLiab}_{it} & = \alpha + \beta_1 \text{SEG}_{it} + \beta_2 \text{CTS}_{it} + \beta_3 \text{ALT\_KAOPEN}_{it} + \beta_4 \text{CC}_{it} + \beta_5 \text{PE}_{it} + \beta_6 \text{PS}_{it} + \beta_7 \text{RQ}_{it} + \beta_8 \text{VA}_{it} + \beta_9 \text{RL}_{it} + \varepsilon_{it} \quad (13) \\
\text{Private}_{it} & = \alpha + \beta_1 \text{SEG}_{it} + \beta_2 \text{CTS}_{it} + \beta_3 \text{ALT\_KAOPEN}_{it} + \beta_4 \text{CC}_{it} + \beta_5 \text{PE}_{it} + \beta_6 \text{PS}_{it} + \beta_7 \text{RQ}_{it} + \beta_8 \text{VA}_{it} + \beta_9 \text{RL}_{it} + \varepsilon_{it} \quad (14)
\end{align*}

The regression Eqs. (15), (16), and (17) include alternative variables for openness measures and the combined institutional quality measure as shown:

\begin{align*}
\text{MarketCap}_{it} & = \alpha + \beta_1 \text{SEG}_{it} + \beta_2 \text{CTS}_{it} + \beta_3 \text{ALT\_KAOPEN}_{it} + \beta_4 \text{INST\_QUAL}_{it} + \varepsilon_{it} \quad (15) \\
\text{LiquidLiab}_{it} & = \alpha + \beta_1 \text{SEG}_{it} + \beta_2 \text{CTS}_{it} + \beta_3 \text{ALT\_KAOPEN}_{it} + \beta_4 \text{INST\_QUAL}_{it} + \varepsilon_{it} \quad (16) \\
\text{Private}_{it} & = \alpha + \beta_1 \text{SEG}_{it} + \beta_2 \text{CTS}_{it} + \beta_3 \text{ALT\_KAOPEN}_{it} + \beta_4 \text{INST\_QUAL}_{it} + \varepsilon_{it} \quad (17)
\end{align*}

Lastly, we estimate Eqs. (18), (19), and (20) in which alternative variables of \textit{SEG} and \textit{CTS}, and the base-case variable of \textit{KAOPEN} are simultaneously used along with the control variable of \textit{INST\_QUAL}.

\begin{align*}
\text{MarketCap}_{it} & = \alpha + \beta_1 \text{SEG}_{it} + \beta_2 \text{CTS}_{it} + \beta_3 \text{KAOPEN}_{it} + \beta_4 \text{INST\_QUAL}_{it} + \varepsilon_{it} \quad (18) \\
\text{LiquidLiab}_{it} & = \alpha + \beta_1 \text{SEG}_{it} + \beta_2 \text{CTS}_{it} + \beta_3 \text{KAOPEN}_{it} + \beta_4 \text{INST\_QUAL}_{it} + \varepsilon_{it} \quad (19)
\end{align*}
Private_{it} = \alpha + \beta_1 SEG_{it} + \beta_2 CTS_{it} + \beta_3 KAOPEN_{it} + \beta_4 INST\_QUAL_{it} + \epsilon_{it} \tag{20}

4. Findings and Discussion

4.1. Results of the Base-Case Regression Specification

Tables 3 and 4 report the results of regressions including base-case variables of financial openness for three alternative dependent variables. Each panel shows the results for a different dependent variable. Panel A of Table 3 reports the results when Stock Market Cap. / GDP represents financial development. The coefficient on $FEL$ in Specification (I) where $FEL$ is the only independent variable is -0.0176 with a t-statistic of -1.28. In Specification (IV), which accounts for the effects of all control variables, $FEL$ has a slope of -0.0948 with a t-statistic of -0.74. These findings do not provide evidence in favor of a relationship between $FEL$ and financial development. On the other hand, $TO$ and $KAOPEN$ have significantly positive coefficients in the specifications they are included. The coefficients on $TO$ in Specifications (II) and (IV) have t-statistics of 10.50 and 2.60, respectively and thus significantly depart from zero. Similarly, $KAOPEN$ in Specifications (III) and (IV) has also positively significant slope estimates with t-statistics of 5.30 and 1.87, respectively. These findings indicate that both trade openness and capital account openness are important drivers of financial deepening even after controlling for other financial openness and institutional quality variables.

[Insert Table 3 here]

Panel B shows the results when the dependent variables is represented by Liquid Liabilities / GDP. $FEL$ in Specification (I) has a negative insignificant slope of -0.005 whereas its slope switches sign in Specification (IV) and turns into a marginally significant positive slope of 0.1215. The inconsistent slope estimates on $FEL$ in different specifications suggest that there is no reliable relationship between stock market openness and financial development. The positive significant slope estimates on $TO$ and $KAOPEN$ in all the specifications they are included confirm the previous findings for $TO$ and $KAOPEN$ in Panel A. Lastly, the results in Panel C where the dependent variable is represented by Private Credit / GDP are qualitatively the same with those in Panel B. $FEL$ is not consistently related to financial development, whereas $TO$ and $KAOPEN$ are exerting a positive influence on the dependent variable.

The institutional quality components provide mixed results in different panels of Table 3. The coefficients on some of these variables either change sign in different panels or are not consistently significant in all regression specifications. Because of the mixed results provided...
by these control variables, we combine them into one variable and use Institutional Quality ($INST_QUAL$) as a standalone control variable. We re-run all the panel regressions with $INST_QUAL$ and present the results in Table 4.

[Insert Table 4 here]

When several institutional characteristics are incorporated into one variable named $INST_QUAL$, the effects of $TO$, $KAOPEN$, and $FEL$ on financial development remain unchanged. While $FEL$ has inconsistent slope estimates, $TO$ and $KAOPEN$ continue to have significantly positive slopes after controlling for $INST_QUAL$ regardless of how financial development is measured as evident in Panels A, B, and C. The slope on $INST_QUAL$ is indistinguishable from zero in each of the three panels. This is not surprising as the components of $INST_QUAL$ were found to provide mixed results in Table 3.

4.2. Results of Regressions with Alternative Financial Openness Variables

The analyses in the previous subsection employ various measures for financial development. This subsection employs alternative variables for explanatory variables as well. Tables 5 and 6 report the results of regressions with alternative variables of stock market openness ($SEG$), trade openness ($CTS$), and capital account openness ($ALT_KAOPEN$). Institutional characteristics are represented by six different variables in Table 5, while the combined version of institutional characteristics ($INST_QUAL$) is used in Table 6.

[Insert Table 5 here]

As shown in Panel A of Table 5, $SEG$ has an insignificant slope with a t-statistic of -1.48 in the univariate panel regression (Specification I) and a marginally negative significant slope with a t-statistic of -1.78 when control variables are included (Specification IV). However, the results of Specification I in Panel B show that the slope on $SEG$ changes sign and Specification (IV) indicates that $SEG$ has no longer a significant impact on financial development when effects of control variables are accounted for. In Panel C, $SEG$ has a significant slope neither in Specification (I) nor in Specification (IV). These findings suggest that the alternative stock market openness measure $SEG$ is not able to explain financial development. This result supports the previous result that stock market openness based on $FEL$ does not determine financial development.

Alternative trade openness variable of $CTS$ persistently explains financial development no matter how financial development is measured as evidenced by significant slopes on $CTS$ in all panels. Moreover, $CTS$ produces positive significant slopes in all regression specifications it is
included, suggesting that it is explaining financial development. This result reinforces the previously obtained result that trade openness based on \( TO \) is significantly associated with financial development. Alternative capital account variable \( ALT\_KAOPEN \) yields positive significant slopes in all panels except Panel B where the dependent variable is represented by Liquid Liabilities to GDP. Apart from this finding, the slopes on capital account openness in Tables 3 and 5 are alike. Finally, just like the results in Table 3, the slopes on six components of Institutional Quality are not consistent in different panels of Table 5 and do not point out a reliable link between institutional quality measures and financial development.

The regression results when institutional quality measures are represented by one single variable are shown in Table 6. The signs and significance levels of slopes on \( SEG, CTS, \) and \( ALT\_KAOPEN \) in Table 6 are very similar to those on \( FEL, TO, \) and \( KAOPEN \) in Table 4. \( SEG \) has a negative insignificant slope in Specification (I) but a negative significant slope in Specification (IV) of Panel A (t statistics are -1.48 and -1.71, respectively) and has insignificant slopes in Panels B and C. \( CTS \) has persistently positive significant slopes in all specifications and in all panels. \( ALT\_KAOPEN \) produces positive significant slopes in Panels A and C. Supporting the results in Table 4, \( INST\_QUAL \) generates mixed results about the association between institutional quality and financial development. Overall, the similar results obtained in Tables 3 and 5 and also in Tables 4 and 6 indicate that using alternative explanatory variables does not change our main results materially.

[Insert Table 6 here]

4.3. Results of Regression Specifications Combining Base-case and Alternative Variables

In this part, we present the results of panel regressions obtained by mixing the base-case variables with alternative variables for financial openness. We mainly focus on the impact of openness measures on the dependent variable. In the full specification, we employ the base-case variable \( KAOPEN \), and alternative variables \( SEG \) and \( CTS \).

The results in Table 7 show that using base-case variables and alternative variables in different combinations does not change our results. As found earlier, stock market openness is not linked to financial development whereas trade openness and capital account openness are strongly associated with financial development no matter how the financial openness variables are measured.

[Insert Table 7 here]
4.4. Robustness Checks

To uncover whether our results are time specific, we attempt to extend the research period by removing the variables that have time constraints. The data for INST_QUAL is available on the WGI official web site only after 1996. It is also not possible to calculate an alternative measure for KAOPEN for the pre-1996 period because data for 13 sub-categories do not exist in AREAER. Therefore, we remove the variables of INST_QUAL and ALT_KAOPEN from our analyses and re-run panel regressions with variables that have longer time-series data.

Table 8 presents the results of panel regressions including base-case variables (FEL, TO, and KAOPEN) for a longer research period. The results in Table 8 can be summarized as follows. Both Trade Openness (TO) and Capital Account Openness (KAOPEN) have both positive and significant effects on financial development in all specifications and in all panels. However, the coefficient on FEL switches sign in different specifications and is sometimes significant and sometimes not.

[Insert Table 8 here]

In table 9, we only use two of the alternative variables (SEG and CTS) that were used before and instead of ALT_KAOPEN we use Chin and Ito (2006)’s non-normalized version of Financial Openness Index of Capital Account Openness (KAOPEN_N), which has longer time-series data. Table 9 shows that CTS and KAOPEN_N are persistently and positively associated with financial development whereas SEG continues to yield mixed results. These findings confirm our main results. In short, the results in Tables 8 and 9 show that our main results are not time specific and robust to the use of a longer research period.

[Insert Table 9 here]

5. Concluding Remarks

Emerging markets need foreign investment for boosting their economy more than developed markets do. Desperately searching for foreign funds, policymakers in emerging markets may not care much about the way they attract these foreign resources. This paper aims to reveal some clues on how to prioritize various forms of financial openness to improve financial development that is expected to attract foreign funds.
We test whether a relation between financial openness measured in three different forms and financial development exist by using a panel of 27 emerging markets spanning the period of 1996-2016. Examining the determinants of financial development is especially crucial for policymakers in emerging markets trying to develop their financial system for low-cost access to funds.

In this study, we employ stock-market openness as another proxy for financial openness along with the widely used proxies of trade openness and capital account openness. We measure stock-market openness both with a capital flow-based and a valuation-based variable. Although these variables and their variants were used before to examine their link with aggregate total volatility, economic growth and market returns, their relationship with financial development was not investigated previously.

Moreover, we use an alternative variable for trade openness offered by Squalli and Wilson (2011), which was not used to explain financial development before. We also form an alternative measure of capital account openness in the sense of Miniane (2004), using the binary coding provided for capital account restrictions in the annual reports of IMF. Again, this alternative variable of capital account openness was not used to determine financial development before. Moreover, we employ several metrics of financial development to check the robustness of our results.

Our results indicate a statistically positive and significant effect of trade openness and capital accounts openness on financial development. We do not detect a robust and consistent impact of stock-market openness on financial development. These results are not sensitive to the alternative definitions of financial openness and financial development. Furthermore, these results are also robust to the addition of control variables such as institutional quality and its components. Lastly, our results hold for a longer research period obtained by dropping the variables with a fewer number of time-series observations.

Our results have implications for policymakers. Since stock-market openness is not as important as other forms of financial openness for a deeper financial system, policymakers can first focus on establishing and maintaining trade openness and capital account openness.
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**Appendix 1: Country list (27 countries)**

| Argentina | Indonesia | Philippines |
|-----------|-----------|-------------|
| Bahrain   | Israel    | Poland      |
| Brazil    | Korea     | Qatar       |
| Chile     | Kuwait    | Russia      |
| China     | Malaysia  | South Africa|
| Czech     | Mexico    | Thailand    |
| Egypt     | Morocco   | Turkey      |
| Hungary   | Oman      | UAE         |
| India     | Pakistan  | Vietnam     |
### Table 1: Basic Statistics

|                        | Mean    | Median  | Std. Dev. | Max   | Min     | Observation |
|------------------------|---------|---------|-----------|-------|---------|-------------|
| Market Cap.            | 0.4920  | 0.3391  | 0.4637    | 3.2808| 0.0001  | 758         |
| Liquid Liab.           | 0.4553  | 0.3745  | 0.2856    | 1.9781| 0.0575  | 1282        |
| Private Credit         | 0.3698  | 0.2774  | 0.2749    | 1.6321| 0.00223 | 1263        |
| TO                     | 0.6914  | 0.5669  | 0.4246    | 2.5109| 0.0908  | 994         |
| CTS                    | 0.8277  | 0.4087  | 1.1692    | 8.2436| 0.0209  | 939         |
| FEL                    | 0.2160  | 0.1369  | 0.7906    | 15.8558| 0       | 709         |
| SEG                    | 0.0776  | 0.0277  | 0.1968    | 1.5997| 0.0026  | 632         |
| ALT_KAOPEN             | 0.2924  | 0.2307  | 0.2484    | 0.9230| 0       | 567         |
| KAOPEN_N               | 0.0755  | -0.1355 | 1.5576    | 2.3599| -1.9104 | 1141        |
| KAOPEN                 | 0.4650  | 0.4156  | 0.3647    | 1     | 0       | 1141        |
| INST_QUAL              | 0.0574  | -0.0042 | 0.5605    | 1.2870| -1.1782 | 513         |

### Table 2: Summary of Variables

| Variables              | Period       | Data Source     |
|------------------------|--------------|-----------------|
| Stock Market Capitalization | 1975-2017   | GFDD            |
| Liquid Liabilities     | 1960-2016    | GFDD            |
| Private Credit         | 1960-2016    | GFDD            |
| SEG                    | 1973-2018    | DataStream      |
| CTS                    | 1960-2017    | WDI             |
| ALT_KAOPEN             | 1996-2016    | IMF (AREAER)    |
| FEL                    | 1975-2015    | Lane-Milesi Ferretti |
| TO                     | 1960-2017    | WDI             |
| KAOPEN                 | 1970-2016    | Chin-Ito        |
| INST_QUAL              | 1996-2017    | WGI             |
Table 3: Results of Panel Regressions with Base-Case Variables for Financial Openness

|                | Panel A: Stock Market Cap. / GDP | Panel B: Liquid Liabilities / GDP | Panel C: Private Credit / GDP |
|----------------|---------------------------------|----------------------------------|-----------------------------|
|                | (1)                             | (2)                              | (3)                         |
| C              | 0.4853a                         | 0.0546                           | 0.3222a                     |
|                | (45.48)                         | (1.28)                           | (5.12)                      |
| FEL            | -0.0176                         | -0.0948                          | -0.0055                     |
|                | (-1.28)                         | (-0.74)                          | (-0.82)                     |
| TO             | 0.6197a                         | 0.2050a                          | 0.4344a                     |
|                | (10.50)                         | (2.60)                           | (14.46)                     |
| KAOPEN         | 0.2429a                         | 0.1318a                          | 0.2105a                     |
|                | (5.30)                           | (1.87)                           | (7.66)                      |
| Control of Corruption | -                              | 0.1504b                         | -0.0017                     |
|                | (-2.00)                          | (-0.04)                          |                             |
| Government Effectiveness | 0.1022                           | 0.2120a                         |                             |
|                | (1.38)                           | (5.62)                           |                             |
| Political Stability | 0.1093a                        | -0.0579a                        | 0.0052                      |
|                | (2.97)                           | (-3.08)                          | (0.23)                      |
| Regulatory Quality | 0.2125a                       | -0.1162a                        | -0.0460                     |
|                | (3.11)                           | (-3.32)                          | (-1.12)                     |
| Voice and Accountability | -0.0620                      | -0.0892a                        | -0.1419a                    |
|                | (-0.92)                          | (-2.61)                          | (-3.52)                     |
| Rule of Law |                              | 0.1254a                         | 0.1951b                     |
|                | -                               | (2.61)                           | (3.44)                      |
| Fixed Effect | Yes                             | Yes                              | Yes                         |
| Adjusted R²   | 0.6382                          | 0.6802                           | 0.6516                      |
| Observation   | 709                             | 732                              | 729                         |
| Sample Period | 1975-2015                       | 1975-2017                        | 1975-2016                   |

a, b, and c show regression parameters that are significant at 1%, 5%, and 10%.
### Table 4: Results of Panel Regressions with Base-Case Variables for Financial Openness and Combined Institutional Quality Measure

|                  | Panel A: Stock Market Cap. / GDP | Panel B: Liquid Liabilities / GDP | Panel C: Private Credit / GDP |
|------------------|----------------------------------|----------------------------------|------------------------------|
|                  | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| C                | 0.4853$^a$ | 0.0546 | 0.3745$^a$ | 0.2704$^a$ | 0.5531$^a$ | 0.2178$^a$ | 0.3914$^a$ | 0.4414$^a$ | 0.4657$^a$ | 0.1029$^a$ | 0.2977$^a$ | 0.2697$^a$ |
|                  | (45.48) | (1.28) | (15.65) | (4.36) | (105.25) | (10.21) | (28.26) | (13.49) | (79.28) | (5.06) | (21.93) | (7.27) |
| FEL              | -0.0176 | -0.0917 | -0.0055 | -0.0129$^c$ | -0.0047 | -0.0047 | -0.0047 | -0.0047 | -0.0047 | -0.0047 | -0.0047 | -0.0047 |
|                  | (-1.28) | (-0.70) | (-0.82) | (1.87) | (-0.62) | (1.87) | (1.87) | (1.87) | (1.87) | (1.87) | (1.87) | (1.87) |
| TO               | 0.6197$^a$ | 0.2754$^a$ | 0.4344$^a$ | 0.4145$^a$ | 0.4700$^a$ | 0.4700$^a$ | 0.4700$^a$ | 0.4700$^a$ | 0.4700$^a$ | 0.4700$^a$ | 0.4700$^a$ | 0.4700$^a$ |
|                  | (10.50) | (3.46) | (14.46) | (2.72) | (16.50) | (16.50) | (16.50) | (16.50) | (16.50) | (16.50) | (16.50) | (16.50) |
| KAOPEN           | 0.2429$^a$ | 0.1803$^a$ | 0.2105$^a$ | 0.1185$^a$ | 0.2335$^a$ | 0.1976$^a$ | 0.0768 | 0.1976$^a$ | 0.0768 | 0.1976$^a$ | 0.0768 | 0.1976$^a$ |
|                  | (5.30) | (2.70) | (7.66) | (3.35) | (8.71) | (4.95) | (1.59) | (4.95) | (1.59) | (4.95) | (1.59) | (4.95) |
| INST_QUAL        | 0.0556 | 0.0556 | 0.0556 | 0.0556 | 0.0556 | 0.0556 | 0.0556 | 0.0556 | 0.0556 | 0.0556 | 0.0556 | 0.0556 |
|                  | (0.69) | (0.69) | (0.69) | (0.69) | (0.69) | (0.69) | (0.69) | (0.69) | (0.69) | (0.69) | (0.69) | (0.69) |
| Fixed Effect     | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Adjusted R²      | 0.6382 | 0.6802 | 0.6516 | 0.6516 | 0.6635 | 0.5700 | 0.8955 | 0.7374 | 0.6665 | 0.5391 | 0.8565 |
| Observation      | 709 | 732 | 729 | 416 | 706 | 954 | 1091 | 413 | 708 | 950 | 1079 | 416 |
| Sample Period    | 1975-2015 | 1975-2017 | 1975-2016 | 1996-2015 | 1975-2015 | 1960-2016 | 1970-2016 | 1996-2015 | 1975-2015 | 1960-2016 | 1970-2016 | 1996-2015 |

a, b, and c show regression parameters that are significant at 1%, 5%, and 10%.
### Table 5: Results of Panel Regressions with Alternative Variables for Financial Openness

|                      | Panel A: Stock Market Cap. / GDP | Panel B: Liquid Liabilities / GDP | Panel C: Private Credit / GDP |
|----------------------|----------------------------------|----------------------------------|------------------------------|
|                      | (1)                              | (2)                              | (3)                          |
|                      | (4)                              | (4)                              | (4)                          |
|                      | (4)                              | (4)                              | (4)                          |
| C                    | C0.5707\(^a\) (35.95)            | C0.5904\(^a\) (77.89)            | C0.5120\(^a\) (29.43)       |
|                      | 0.3568\(^a\) (24.18)             | 0.4184\(^a\) (60.20)             | 0.3413\(^a\) (58.68)        |
|                      | 0.4498\(^a\) (21.62)             | 0.5872\(^a\) (42.21)             | 0.4455\(^a\) (48.28)        |
|                      | 0.4463\(^a\) (13.28)             | 0.5120\(^a\) (29.43)             | 0.4020\(^a\) (29.83)        |
| SEG                  | -0.2116 (-1.48)                  | -0.0553 (-0.75)                  | -0.0361 (-0.39)              |
|                      | 0.2512\(^c\) (1.78)             | -0.0230 (-0.28)                  |                             |
| CTS                  | 0.1360\(^a\) (11.75)             | 0.1324\(^a\) (21.98)             | 0.1148\(^a\) (18.99)        |
|                      | 0.0755\(^a\) (5.39)              | 0.0543\(^a\) (7.44)              | 0.0442\(^a\) (4.83)         |
| ALT_KAOPEN           | 0.3473\(^a\) (5.15)              | 0.1694\(^b\) (2.14)              | 0.2341\(^a\) (4.87)         |
|                      | 0.0669 (1.48)                    | -0.0342 (-0.84)                  | 0.1700\(^a\) (3.34)        |
| Control of Corruption| -                                | -0.1154\(^a\) (-3.02)           | -0.0816\(^c\) (-1.69)      |
|                      | -0.1592\(^b\) (-2.09)           | -0.0798\(^b\) (-2.25)           |                             |
| Government Effectiveness | -0.0223 (-0.29)         | 0.1773\(^a\) (4.54)             | -0.0071 (-0.14)             |
|                      | -                                |                                  |                             |
| Political Stability  | 0.1123\(^a\) (3.12)             | -0.0515\(^a\) (-2.78)           | -0.0042 (-0.18)             |
|                      | 0.0669 (1.48)                    |                                  |                             |
| Regulatory Quality   | 0.2576\(^a\) (3.75)             | -0.0798\(^b\) (-2.25)           | 0.0274 (0.61)               |
|                      |                                  |                                  |                             |
| Voice and Accountability | -0.0157 (-0.24)         | -0.0477 (-1.41)                  | -0.0944\(^b\) (-2.21)      |
|                      |                                  |                                  |                             |
| Rule of Law          | 0.2268\(^b\) (2.62)             | 0.1206\(^a\) (3.18)             | 0.1850\(^a\) (3.18)        |
| Fixed Effect         | Yes                              | Yes                              | Yes                          |
|                      | Yes                              | Yes                              | Yes                          |
| Adjusted R\(^2\)    | 0.6620                           | 0.7004                           | 0.7537                       |
|                      | 0.8080                           | 0.8260                           | 0.8125                       |
|                      | 0.8470                           | 0.7537                           | 0.9147                       |
| Observation          | 615                              | 730                              | 602                          |
| Sample Period        | 1975-1977-1996-2017              | 1977-1996-2017                   | 1973-1996-2016               |
|                      | 2017                             | 2017                             | 2016                         |

\(^a, \, ^b, \, ^c\) show regression parameters that are significant at 1%, 5%, and 10%.
Table 6: Results of Panel Regressions with Alternative Variables for Financial Openness and Combined Institutional Quality Measure

|                  | Panel A: Stock Market Cap. / GDP | Panel B: Liquid Liabilities / GDP | Panel C: Private Credit / GDP |
|------------------|----------------------------------|----------------------------------|-----------------------------|
|                  | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| C                | 0.5707^a | 0.3568^a | 0.4498^a | 0.4317^a | 0.5904^a | 0.4184^a | 0.5872^a | 0.5521^a | 0.5122^a | 0.3413^a | 0.4455^a | 0.4196^a |
|                  | (35.95) | (24.18) | (15.08) | (77.89) | (60.20) | (42.21) | (36.82) | (58.68) | (48.28) | (29.83) | (22.71) |          |
| SEG              | -0.2116 | -0.2451c | 0.0354 | -0.0417 | -0.2300 | -0.0230 | -0.0417 | -0.0230 | -0.0053 |          |          | (0.05) |
|                  | (-1.48) | (-1.71) | (0.49) | (-0.55) | (-0.28) | (-0.28) | (-0.55) | (-0.28) | (0.05) |          |          |          |
| CTS              | 0.1360^a | 0.0815^a | 0.1324^a | 0.1324^a | 0.0687^a | 0.0687^a | 0.1148^a | 0.0505^a |          |          |          | (5.88) |
|                  | (11.75) | (6.13) | (21.98) | (9.80) | (9.80) | (9.80) | (18.99) | (5.88) |          |          |          |          |
| ALT_KAOPEN       | 0.3473^a | 0.1986^b | 0.0669 | 0.0669 | -0.0029 | -0.0029 | 0.2341^a | 0.1845^a |          |          |          | (3.64) |
|                  | (5.15) | (2.51) | (1.48) | (1.48) | (-0.07) | (-0.07) | (4.87) | (3.64) |          |          |          |          |
| INST_QUAL        | 0.0592 |              | -0.0748b | -0.0748b |          | -0.0748b |          |          | 0.0391 |          |          | (0.85) |
|                  | (0.82) |              | (-2.02) | (-2.02) |          | (-2.02) |          |          | (0.85) |          |          |          |
| Fixed Effect     | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Adjusted R^2     | 0.6620 | 0.7004 | 0.8080 | 0.8394 | 0.8260 | 0.7537 | 0.8125 | 0.9077 | 0.7682 | 0.7285 | 0.7774 | 0.8508 |
| Observation      | 615 | 730 | 532 | 414 | 602 | 904 | 553 | 418 | 605 | 900 | 557 | 422 |
| Sample Period    | 1975- | 1977- | 1996- | 1996- | 1973- | 1977- | 1996- | 1996- | 1973- | 1977- | 1996- | 1996- |
|                  | 2017 | 2017 | 2016 | 2016 | 2016 | 2016 | 2016 | 2016 | 2016 | 2016 | 2016 | 2016 |

a, b, and c show regression parameters that are significant at 1%, 5%, and 10%.
Table 7: Results of Panel Regressions Obtained by Combining Base-Case Variables with Alternative Variables

|                  | Panel A: Stock Market Cap. / GDP | Panel B: Liquid Liabilities / GDP | Panel C: Private Credit / GDP |
|------------------|----------------------------------|----------------------------------|------------------------------|
|                  | (1)                              | (2)                              | (3)                          |
|                  | (1)                              | (2)                              | (3)                          | (4)                          |
| C                | 0.5707<sup>a</sup> (35.95)       | 0.3568<sup>a</sup> (24.18)       | 0.3745<sup>a</sup> (15.65)   | 0.3976<sup>a</sup> (11.74)  |
|                  | 0.5904<sup>a</sup> (77.89)       | 0.4184<sup>a</sup> (60.20)       | 0.3914<sup>a</sup> (28.26)   | 0.5175<sup>a</sup> (28.78)  |
| SEG              | -0.2116 (-1.48)                  | -0.2406<sup>c</sup> (-1.68)     | 0.0354 (0.49)                | -0.0419 (-0.56)             |
| CTS              | 0.1360<sup>a</sup> (11.75)       | 0.0792<sup>a</sup> (5.96)        | 0.1324<sup>a</sup> (21.98)   | 0.0655<sup>a</sup> (9.35)   |
| KAOPEN           | 0.2429<sup>a</sup> (5.30)        | 0.1809<sup>a</sup> (3.09)        | 0.2105<sup>a</sup> (7.66)    | 0.0765<sup>b</sup> (2.46)   |
| INST_QUAL        | 0.0398 (0.55)                    | -0.0927<sup>b</sup> (-2.51)     | -0.0927<sup>b</sup> (-2.51)  | 0.2335<sup>a</sup> (8.71)   |
| Fixed Effect     | Yes                              | Yes                              | Yes                          | Yes                          |
| Adjusted R<sup>2</sup> | 0.6620                           | 0.7004                           | 0.6516                       | 0.8407                       |
| Observation      | 615                              | 730                              | 729                          | 414                          |
| Sample Period    | 1975-2017                        | 1977-2017                        | 1975-2016                    | 1996-2016                    |

a, b, and c show regression parameters that are significant at 1%, 5%, and 10%.
Table 8: Results for a Longer Sample

|                  | Panel A: Stock Market Cap. / GDP | Panel B: Liquid Liabilities / GDP | Panel C: Private Credit / GDP |
|------------------|---------------------------------|---------------------------------|-------------------------------|
|                  | (1)                             | (2)                             | (3)                           | (4)                           | (1)                             | (2)                             | (3)                           | (4)                           | (1)                             | (2)                             | (3)                           | (4)                           |
| C                | 0.4853a                         | 0.0546                          | 0.3745a                       | -0.0139                       | 0.5531a                       | 0.2178a                       | 0.3914a                       | 0.3233a                       | 0.4657a                       | 0.1029a                       | 0.2977a                       | 0.1543a                       |
|                  | (45.48)                         | (1.28)                          | (15.65)                       | (-0.31)                       | (105.25)                      | (10.21)                       | (28.26)                       | (14.79)                       | (79.28)                       | (5.06)                         | (21.93)                       | (6.62)                       |
| FEL              | -0.0176                         | 0.1140                          | 0.0055                        | 0.1657a                       | -0.0047                       | -0.0047                       | 0.4700a                       | 0.3777                        | 0.1520a                       |                                 | (3.77)                        |                             |
|                  | (-1.28)                         | (1.48)                          | (-0.82)                       | (4.40)                        | (-0.62)                       |                               |                               |                               |                               |                               |                             |                             |
| TO               | 0.6197b                         | 0.5851a                        | 0.4344a                       | 0.2555a                       | -0.0055                       | -0.0055                       | 0.4700a                       | 0.3277b                       | 0.1520a                       |                                 | (3.77)                        |                             |
|                  | (10.50)                         | (9.68)                          | (14.66)                       | (8.59)                        |                                 |                               |                               |                               |                               |                               |                               |                             |
| KAOPEN           | 0.2429a                         | 0.1498a                        | 0.2105a                       | 0.0543b                       | 0.2335a                       |                                 |                               | 0.1236a                       |                                 |                               |                               | (5.10)                       |
|                  | (5.30)                          | (3.25)                          | (7.66)                        | (2.39)                        |                                 |                               |                               |                                 |                               |                               |                               | (8.71)                       |
| Fixed Effect     | Yes                             | Yes                             | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           |
| Adjusted R²      | 0.6382                          | 0.6802                          | 0.6516                        | 0.6954                        | 0.7992                        | 0.6635                        | 0.5700                        | 0.8349                        | 0.7374                        | 0.6665                        | 0.5391                        | 0.8013                        |
| Observation      | 709                             | 732                             | 729                           | 680                           | 706                           | 954                           | 1091                          | 677                           | 708                           | 950                           | 1079                          | 679                           |
| Sample Period    | 1975-2015                       | 1975-2017                       | 1975-2016                     | 1975-2015                     | 1975-2015                     | 1975-2015                     | 1975-2015                     | 1975-2015                     | 1975-2015                     | 1975-2015                     | 1975-2015                     | 1975-2015                     |

a, b, and c show regression parameters that are significant at 1%, 5%, and 10%.
Table 9: Results for Longer Sample and Alternative Variables

| Panel A: Stock Market Cap. / GDP | Panel B: Liquid Liabilities / GDP | Panel C: Private Credit / GDP |
|----------------------------------|----------------------------------|------------------------------|
| (I) | (II) | (III) | (IV) | (I) | (II) | (III) | (IV) | (I) | (II) | (III) | (IV) | (I) | (II) | (III) | (IV) |
| C | 0.4853<sup>a</sup> | 0.0546 | 0.4832<sup>a</sup> | 0.4547<sup>a</sup> | 0.5531<sup>a</sup> | 0.2178<sup>a</sup> | 0.4855<sup>a</sup> | 0.5018<sup>a</sup> | 0.4657<sup>a</sup> | 0.1029<sup>a</sup> | 0.4021<sup>a</sup> | 0.4295<sup>a</sup> | | | | |
| | (45.48) | (1.28) | (48.07) | (22.53) | (105.25) | (10.21) | (83.12) | (58.54) | (79.28) | (5.06) | (69.70) | (41.32) | | | | |
| SEG | -0.0176<sup>b</sup> | -0.3126<sup>b</sup> | -0.0055<sup>b</sup> | -0.0290<sup>b</sup> | - | -0.0047<sup>b</sup> | -0.0835<sup>b</sup> | | | | | | | | | |
| | (-1.28) | (-2.27) | (-0.82) | (-0.49) | | (-0.62) | (-1.17) | | | | | | | | | |
| CTS | 0.6197<sup>a</sup> | 0.1029<sup>a</sup> | 0.4344<sup>a</sup> | 0.0860<sup>a</sup> | 0.4700<sup>a</sup> | | 0.0743<sup>a</sup> | | | | | | | | | |
| | (10.50) | (8.09) | (14.46) | (15.57) | | | (11.31) | | | | | | | | | |
| KAOPEN_N | 0.0568<sup>a</sup> | 0.0440<sup>a</sup> | 0.0492<sup>a</sup> | 0.0546<sup>a</sup> | | 0.0405<sup>a</sup> | | | | | | | | | | |
| | (5.30) | (3.60) | (7.66) | (8.71) | | (6.42) | | | | | | | | | | |
| Fixed Effect | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | | | | | | | | |
| Adjusted R<sup>2</sup> | 0.6382 | 0.6802 | 0.6516 | 0.7253 | 0.7992 | 0.6635 | 0.5700 | 0.8852 | 0.7374 | 0.6665 | 0.5391 | 0.8314 | | | | |
| Observation | 709 | 732 | 729 | 571 | 706 | 954 | 1091 | 577 | 708 | 950 | 1079 | 580 | | | | |
| Sample Period | 1975- | 1975- | 1975- | 1977- | 1975- | 1960- | 1970- | 1977- | 1975- | 1960- | 1970- | 1977- | | | | |

a, b, and c show regression parameters that are significant at 1%, 5%, and 10%. 