# Finance and growth: Schumpeter might be wrong in our era. New evidence from Meta-analysis

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**Abstract**

In the first meta-study on the finance-growth nexus, we bridge the gap between Schumpeterian authors and sympathizers of Andersen & Tarp (2003). Over 20 fundamental characteristics that have influenced the debate over the last decades are examined. The empirical evidence is based on 196 outcomes from 20 studies. For the investigated Andersen & Tarp hypotheses, while we find only partial support for their position on the lack of substantial empirical evidence on a positive finance-growth nexus, the stance that a negative nexus is characteristic of African and Latin American countries is strongly rejected. Schumpeter's thesis might be wrong in our era because of: endogeneity-based estimations, publication bias and, effects of financial activity. A historical justification is also discussed.

*Keywords*: Meta analysis; Finance; Economic growth; Publication bias

*JEL codes*: C1; C4; E0; O0

## 1. Introduction

As far as we have reviewed, one of the themes that have ignited great interest with intense debate and controversy among economic scholars and policy makers over the last decades is the finance-growth nexus. There is yet no definite consensus in theoretical and empirical literature on the relationship between financial development and economic growth[1]. While the first school pioneered by Schumpeter (1911) strongly advocates the positive rewards of financial development on growth, the recent financial crisis has resurfaced the ghost of the second school that is skeptical about the positive nexus.

Consistent with Schumpeter (1911), financial services are important for economic growth as long as they improve productivity by promoting technological innovation and helping entrepreneurs with the best chances of success in the innovation process. He argued that financial development would facilitate the mobilization of productive savings, efficient resource allocation, reduce problems of information asymmetry and improve risk management. He further stressed that these effects could create a favorable macroeconomic framework for strong economic growth. This thesis has been strongly supported by a strand of endogenous growth models (King & Levine, 1993; Beck et al., 2000).

Against the backdrop of the recent financial crisis and global economic meltdown, it has become abundantly clear that financial development greatly penalizes economic growth in periods of financial crisis. An abundant literature has been consistent with the view that, the determining threshold remains the trade-off between financial instability and financial development in economic growth (Kaminsky & Reinhart, 1999; Demirguc-Kunt & Detragiache, 1998). While this skepticism is limited to the short-run (Loayza & Rancière, 2004; Eggoh, 2008),

[1] Lucas (1988) even rejects the role of finance on growth as 'over-stressed'.

the positive impact of finance on growth is not sufficiently sustained by the literature (Andersen & Tarp, 2003). With a substantial backing of empirical literature (Gregorio & Guidotti, 1992; Ram, 1999; Luitel & Khan, 1999), Andersen & Tarp (2003) have strongly professed that, the positive association between finance and growth become negative when the sample is limited to Latin American and African countries[2].

This pattern has set the course for a recent short-run Schumpeterian trip to embryonic African monetary zones to assess the Schumpeterian thesis for positive spillovers of financial services on growth (Asongu, 2013a). A journey that has ended with mixed feelings because, while the trip has been promising for the East African Monetary Zone (EAMZ), it has been lamentable for the West African Monetary Zones (WAMZ). Results of the EAMZ (that are consistent with the traditional monetary policy arrangements) support the Schumpeterian thesis whereas, those of the WAMZ (in line with the non-traditional strand of regimes in which policy instruments in the short-run cannot be used of offset adverse shocks to output) are sympathetic with the Andersen & Tarp hypothesis.

With the above interesting background, to the best of our knowledge, there is currently no meta-study that has addressed the underlying factors behind these conflicting results. A meta-study could tackle the heterogeneity of the finance-growth nexus by providing the much needed synthesis that will throw more light into the debate. In this study, we rigorously combine outcomes from several papers in order to take the debate to another platform. By attempting to bridge the gap between Schumpeterian authors and sympathizers of Andersen & Tarp (2003), this paper has a fivefold contribution to the literature. Firstly, as far as we have reviewed, it is the first meta-study on the nexus under consideration. Secondly, it assesses evidence of publication bias

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[2]The hypothesis of Andersen & Tarp (2003) was earlier initiated by Gregorio & Guidotti (1992) who found a negative finance-growth nexus for Latin American countries. This thesis has been partially supported by many authors (Ram, 1999; Luitel & Khan, 1999).

hitherto unexamined in the finance-growth literature. Thirdly, it identifies fundamental characteristics that genuinely influence the nexus[3]. Fourthly, a corollary to the third contribution is the introduction of financial concepts of money and credit in the meta-examination of the linkage. Hence, we are able to assess whether money or credit matters for the direction of the nexus. Fifthly, it provides a twofold assessment of the Andersen & Tarp (2003) hypothesis[4]: on the one hand, the dimension of whether a negative finance-growth nexus is specific to African and Latin American countries is examined and; on the other hand, the position that the positive finance-growth nexus has not been sufficiently supported by empirical works is also investigated.

The rest of the paper is organized as follows. Data issues are discussed in Section 2. The empirical analysis and corresponding discussion are covered in Section 3. Section 4 concludes.

## 2. Data

### 2.1 Data collection process

Studies used in the meta-study are collected after an extensive search from April to June 2011. ScienceDirect, Econlit, Econpapers, RePEc, Google Scholar and the classical Google search engine are cross-examined for relevant references. Regardless of methodological underpinnings, the base criterion for data collection is the finance-growth nexus. Some papers are discarded due to the absence of empirical analysis with reported student (t) ratios or standard errors. This is the case of causality analysis. Some papers are simply put aside because their English versions could not be found. Of the 186 papers downloaded and examined, only 20 were retained based on the criteria discussed above.

[3] We comprehensively assess whether more than 20 fundamental characteristics in the finance-growth nexus have influenced research outcomes over the past decades: choice of financial development indicator (financial depth: money vs. financial activity: credit); estimation methodology (GMM vs. Least Squares); frequency of data (annual or otherwise)…etc

[4] They have concluded that the positive impact of finance on growth is not sufficiently sustained by empirical works. "*Turning to the empirical evidence, it is shown that the alleged first-order effect whereby financial development causes growth is not adequately supported by econometric work. The empirical evidence on the finance-growth nexus does not yield any clear-cut picture*" (Andersen & Tarp, 2003; p.1).

There is yet no clear consensus on the selection process of observations in meta-analysis. While some authors have preferred only one observation per study (Stanley, 2001), others have included all available estimates (Florax et al., 2005). Within the framework of this paper, we follow neither of the two approaches. Whether we collect all the available observations in a given paper depends on the differences in statistical significance. For instance, if a model is used for robustness purposes and corresponding results do not differ significantly from those of the initial model; only one set of observations is collected. This approach has a twofold justification: (1) it mitigates potential issues of overparametization and multicolinearity and; (2) it avoids data selection bias by over-representation of some studies. When a conflict of interest arises, values of the model with the highest coefficient of determination are collected. Consistent with the 'conceptual independence' approach to meta-analysis, we neither reject 'studies examined in different countries with the same methodology' nor 'studies devoted to a specific set of countries with different methodologies'.

Table 1 below summarizes the papers included in the meta-analysis with particular emphasis on the financial intermediary development dynamics encountered in the literature[5]. 196 observations have been collected from the 20 retained studies.

[5]At the beginning, we wanted to involve all the financial intermediary development dimensions identified by the Financial Development and Structure Database (FDSD) of the World Bank (WB). These dimensions are consistent with recent finance literature (Asongu, 2013bc) and include: financial depth (liquid liabilities to GDP); financial allocation efficiency (Bank credit to Bank deposits); financial size (deposit bank assets on central bank assets) and financial activity (private domestic credit to GDP). Unfortunately as we reviewed the literature, we found very scanty evidence of studies that have employed measures of financial allocation efficiency and financial size. Restricting the selection process to financial depth and financial activity, we further discovered that there were three measures of financial activity: ratio of private credit to GDP, ratio of private credit to domestic credit and, ratio of domestic credit to GDP. All the three measures are collected because the last two do not pose any issues of over-representation in terms of degrees of freedom (see Table 1).

**Table 1: Papers included in the Meta-Analysis**

| Number | Studies | Number of Estimates | | | | |
|---|---|---|---|---|---|---|
| | | LL | PRIVY | DOMC | PRIVATE | Finance |
| 1 | Christopoulos & Tsionas (2004) | 11 | -- | --- | --- | 11 |
| 2 | Corporale et al. (_______) | 4 | -- | --- | --- | 4 |
| 3 | Hassan et al. (2011) | 9 | 9 | 11 | --- | 29 |
| 4 | Loayza & Ranciere (2002) | 1 | -- | --- | 1 | 2 |
| 5 | Lu & Yao (2009) | 3 | | --- | 3 | 6 |
| 6 | Naceur & Ghazouani (2007) | 6 | 6 | --- | --- | 12 |
| 7 | Levine(1999) | 6 | 6 | --- | 6 | 18 |
| 8 | Huang et al. (2010) | 2 | 2 | --- | --- | 4 |
| 9 | Shen & Lee (2006) | 9 | 9 | --- | --- | 18 |
| 10 | Liu & Hsu (2006) | 6 | 6 | --- | --- | 12 |
| 11 | Jalil et al. (2010) | 2 | 2 | --- | --- | 4 |
| 12 | Goaied & Sassi (2010) | 8 | 8 | --- | --- | 16 |
| 13 | Estrada et al. (2010) | 4 | 4 | --- | --- | 8 |
| 14 | Gondo (2009) | 2 | 2 | --- | --- | 4 |
| 15 | Favara (2003) | 12 | 12 | --- | --- | 24 |
| 16 | Kemal et al. (2008) | 2 | 2 | --- | --- | 4 |
| 17 | Barajas et al. (2010) | --- | 6 | --- | --- | 6 |
| 18 | Claessens & Laeven (2002) | --- | 2 | --- | --- | 2 |
| 19 | Gregorio & Guidott (1995) | --- | 12 | --- | --- | 12 |
| 20 | Leitao (2010) | -- | 2 | --- | --- | 2 |
| | Total | 87 | 90 | 11 | 10 | 196 |

LL: Liquid Liabilities on GDP. PRIVY: Private Credit on GDP. DOMC: Domestic Credit on GDP. PRIVATE: Private Credit on Domestic Credit.

## 2.2 Moderator variables

As shown in Table 2, we control for the unobserved heterogeneity and assess fundamental characteristics that genuinely affect the nexus under meta-investigation. These include: observable financial development dynamics, quality of the dependent variable, the econometric approach, data characteristics, regions and data sources. The choice of the fundamental characteristics is consistent with the motivations of the meta-study. For instance, financial and regional dynamics enable the assessment of the two dimensions of the Andersen & Tarp (2003) hypothesis. Ultimately, more than 20 relevant moderator variables are derived from the 6 fundamental characteristics.

**Table 2: List of moderator variables**

| | Study Characteristics | Moderation variables |
|---|---|---|
| 1 | Financial Development Variables | Liquid Liabilities on GDP<br>Private Credit on GDP<br>Domestic Credit on GDP<br>Private Credit on Domestic Credit |
| 2 | Quality of Dependent Variable | GDP Growth (1=GDP, 0=otherwise) |
| 3 | Econometric Method | Functional form (1=linear, 0=otherwise),<br>Statistical technique1(1= least squares, 0=otherwise)<br>Statistical technique2 (1=GMM, 0=otherwise)<br>Type of analysis (1=panel, 0=otherwise) |
| 4 | Data Characteristics | Frequency of data (1=annual, 0=otherwise)<br>Years (average year of study period)<br>Data transformation 1 (1=log, 0=otherwise)<br>Data transformation 2 (1=variable/GDP, 0=otherwise) |
| 5 | Regions | Africa (1=Africa, 0=otherwise)<br>Asia (1=Asia, 0=otherwise)<br>Europe (1=Europe, 0=otherwise)<br>Latin America (1=Latin America, 0=otherwise)<br>North America (1=North America, 0=otherwise)<br>Southeast Asia (1=Southeast Asia, 0=otherwise)<br>Middle East (1=Middle East, 0=otherwise) |
| 6 | Data Sources | World Bank (1=Information from the World Bank, 0=otherwise)<br>International Monetary F und (1=IMF information, 0=otherwise)<br>United Nations (1=UN information, 0=otherwise) |

GDP: Gross Domestic Product.

## 3. Empirical Analysis

### 3.1 Assessing Publication Bias

Data collection has been based on the following baseline OLS specification[6]

$$y_k = \beta_0 + \beta_1 x_k + \varepsilon_k \qquad (1)$$

where $y$ is the dependent variable representing growth, $x$ is a measure of financial development and the $k$ subscript represents the number of observations. However, basing our results on Eq. (1) is unfeasible and erroneous because the standard errors (se) and $t$-statistics are not directly comparable. Hence, the analysis of heterogeneity is typically the first step of data assessment in meta-analysis.

Heterogeneity consists of examining the extent to which beta coefficients in Eq. (1) differ from one another. Accordingly, we convert the estimated coefficients into their partial

[6] Ordinary Least Squares (OLS) is the predominant estimation technique in meta-analysis (see Card & Krueger, 1995; Görg & Strol, 2001; Havranek & Irsova, 2010).

correlations. Owing to their unitless characteristics, partial correlations are ideal for comparing the finance-growth linkage across the literature under consideration. Consistent with the meta-analysis literature (Doucouliagos et al., 2012; Stanley & Doucouliagos, 2012), the partial correlations ($r$) are computed from the $t$-statistics ($t$) and degrees of freedom ($df$) as shown in Eq. (2) below:

$$r = \frac{t}{\sqrt{(t^2 + df)}} \qquad (2)$$

A consistent bulk of the empirical literature examining the finance-growth nexus is characterized by substantial distortions in the magnitude of estimated effects, especially when studies report estimates toward a specific value. Hence, the possibility of selection or publication bias[7]. In accordance with the meta-analysis literature, failing to take this publication bias issue into account may lead to overstating the magnitude of the genuine effect.

*3.1.1 A simple graphical test*

As shown in Figure 1 below, a scatter plot is presented to test for publication bias. Accordingly, a funnel-like symmetrical representation denotes the absence of publications bias. In the figure, while the horizontal axis presents the partial correlations of the estimated coefficients, the vertical axis shows the measurement of the precision. The most common measure of precision is the inverse of the standard error (INSE). The absence of the bias under consideration implies that the estimated effects are distributed symmetrically around the genuine effect or around zero when no genuine effect exists. Normally, studies with large (small) sample should result to more (less) precise estimates, implying smaller (larger) standard errors. Hence, less precise estimates at the bottom of the graph ought to be spread out more than precise ones at

[7] The "file drawer" problem occurs when researchers publish exclusively studies with significant results that are in line with mainstream theory because these findings have a high probability of being accepted for publication in academic journals. Therefore studies with a limited likelihood of publication are simply "filed" and kept in the "drawer". Mainstream studies on meta-analysis have consistently underlined this issue (Card & Krueger, 1995; Görg & Strobl, 2001; Mookerjee, 2006).

the top of the graph. Consequently in the absence of bias, a scatter plot should resemble a symmetric funnel.

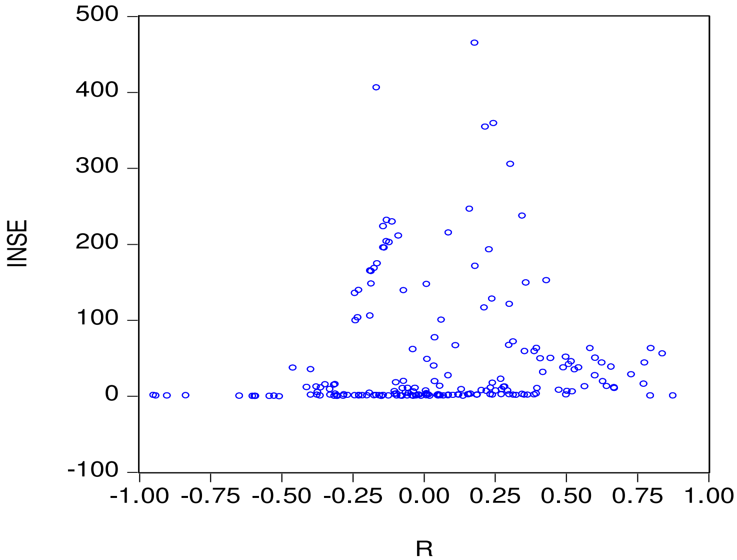


**Figure 1: Funnel plot**

From Figure 1 above, it could clearly be seen that the positive effects are over-reported which confirms the presence of a positive-effect bias. However, it should be noted that the funnel plot provides only indications and not definite evidence. Therefore, the positive-publication bias may be attributed to other factors. It is thus important to assess bias beyond diagrammatic representations.

*3.1.2 Funnel Asymmetry test*

The most documented formal analysis for publication bias is the "Funnel Asymmetry Test" (FAT) developed by Egger al. (1997). The test is based on the following regression:

$$c_k = \beta_0 + \beta_1 se_k + \eta_k \quad (3)$$

where *c* stands for the estimated coefficient of the financial development variable on growth and, *se* are the standard errors corresponding to the estimated coefficients. In the absence of bias in the finance-growth literature, the estimated effects are not related to the corresponding standard errors. Testing for the significance of the constant term is traditionally regarded as the Precision Effect Test (PET) because the effects should be randomly distributed around the (constant). Accordingly, the estimated coefficient corresponding to the standards errors should tend toward zero as the size of the sample increases. Hence, a significant effect of the coefficient corresponding to the standard errors is evidence of publication bias.

Inferences based on FAT are invalid because the estimated effects collected from the finance-growth nexus literature are not directly comparable. An issue which can be addressed with the use of partial correlations and corresponding standard errors:

$$r_k = \beta_0 + \beta_1 se_k + \mu_k \quad (4)$$

where $r$ is the partial correlation of the estimated effect of $c$, $se$ is the corresponding standard error of $r$ and $u$ is the error term. Unfortunately, Eqs. (3) and (4) suffer from heteroscedasticity. To avoid misleading inferences, we divide the Eq. (4) with the corresponding standard errors. Hence the new equation becomes:

$$r_k * = \beta_1 + \beta_0 \frac{1}{se_k} + \upsilon_k \quad (5)$$

The asterisk on the dependent variable means that the ratios (partial correlations) have been divided by the corresponding standard errors. This slight modification does not change the inference because; there is still a constant effect and a genuine effect. Since estimation by simple OLS could lead to biased estimates due to potential correlation among estimates within one study, we also estimate with cluster robust (CR) standard errors as reported in Table 3 below.

**Table 3 : Funnel Asymmetry Test**

| | Intercept ($\beta_1$) | 1/SEr ($\beta_0$) | Asjusted R² | Fisher | Studies (j) | Obs (n) | Testing $\sigma_\varepsilon^2 \leq 2$ |
|---|---|---|---|---|---|---|---|
| OLS | **12.957*** (0.000)** | **-0.143*** (0.000)** | 0.206 | **51.849*** (0.000)** | 20 | 196 | P-value (0.000) |
| OLS-CR | **12.957*** (0.000)** | -0.143 (0.130) | 0.206 | 2.305 (0.130) | 20 | 196 | P-value (0.000) |

OLS: Ordinary Least Squares. CR: Cluster Robust. Obs: observations. *P-values* in brackets.

Table 3 above shows findings of the FAT. The results broadly indicate the presence of publication bias because the intercept is statistically significant in both specifications. As we move from the OLS to the OLS-CR specification, evidence of the genuine effect disappears. However the finding at this level is not definite because previous research has shown that, in cases with unexplained heterogeneity, FAT and PET results may be misleading (Stanley, 2008). We justify the presence of unexplained heterogeneity by testing the hypothesis that the variance of the error term is less or equal to 2 (see last column). The null hypothesis for the absence of unexplained heterogeneity is strongly rejected. Hence, the need to control for this unexplained heterogeneity using moderation variables in a meta-regression analysis.

### 3. 2 Meta-analysis

The purpose of the meta-analysis is to reveal the specific factors that affect the reported values. While some factors may contribute to publication bias, others contribute to the genuine effect. Since factors accounting for publication bias are by nature highly correlated with those contributing the genuine effect, we limit moderator variables to the latter effect for three main reasons: (1) we have already substantially covered the issue of publication bias; (2) the genuine effect of finance-specific factors is consistent with the motivation of the study and; (3) in accordance with the conclusion of the previous section, the moderator variables for the genuine effect are used to explained the unobserved heterogeneity. The choice of the moderator variables has already been substantially documented in the data section.

$$r_k{}^* = \beta_1 + \beta_0 \frac{1}{se_k} + \sum_{k=1}^{K} \gamma_k M_{ik} \frac{1}{se_k} + \upsilon_k \qquad (6)$$

The findings in Table 4 below are based on Eq. (6) above. The use of two specifications has a twofold justification: on the one hand, it enables us to mitigate the three main issues of overparametization and multicolinearity (see green figures of the correlation analysis in Appendix 1); on the other hand, it is a means of robustness check. From the cluster robust OLS estimations, the following findings can be established. (1) The significant intercept indicates evidence of publication bias whereas the significant estimate corresponding to the '1/se' beta variable shows evidence of a genuine effect. (2) The incorporation of financial depth (liquid liabilities) and domestic credit influences a positive finance-growth nexus while the addition of private credit (in GDP or domestic credit terms) is favorable to a negative finance-growth nexus. (3) While the use of OLS may lead to a positive nexus, when the issue of endogeneity is addressed (with GMM), the nexus becomes negative. (4) Data transformation in logarithm (ratio of GDP) significantly influences a positive (negative) relationship. (5) Contrary to Andersen & Tarp (2003), the inclusion of Latin American and African countries significantly improve a positive finance-growth nexus. (6) With the exception of North America and slight exception of Europe, the inclusion of Asian, South East Asian and Middle East countries also significantly improve the partial coefficient correlations. (7) While data from the World Bank increases the possibility of a positive relationship, those from the IMF are favorable to a negative nexus and data from the UN has not effect.

Two important findings are worth noting for the assessed Andersen & Tarp (2003) hypotheses. On the one hand, we find only partial support for the postulation that, the positive finance-growth nexus has not been sufficiently backed by recent empirical literature. On the other hand, we do not find any backing for the thesis that, African and Latin American countries are characteristic of the negative nexus.

### 3.3 Further discussion of results

We now devote more space to discussing the position of the Schumpeterian thesis of positive spillovers of financial services on growth. This discussion will be categorized in two strands: an empirical explanation and a historical perspective.

Three points are worth discussing from the empirical perspective: endogeneity-based evidence, the relevance of publication bias and genuine effects of the finance moderator variables. Firstly, we have noticed that, estimation techniques (GMM) that take the endogeneity concern into account lead to results with a negative finance-growth nexus and those (OLS for instance) that do not take it into account lead to a positive finance-growth nexus. This leads us to infer that Schumpeter might be wrong when endogeneity is taken into account. Secondly, as we have already seen above, there is substantial evidence of publication bias in which insignificant (or negative) finance-growth nexus papers are simply not sent out for publication because of their low probabilities of being accepted in academic journals. It follows that, many manuscripts that have not met some criteria of the Schumpeterian finance-growth conception have substantially suffered from the 'file drawer' problem and are unrepresented in the literature. Thirdly, based on the genuine effects of the selected financial variables, we have observed that financial activity (private domestic credit) genuinely decreases evidence of a positive finance-growth nexus. Financial depth (liquid liabilities) that reflects a positive nexus is not as important as financial activity because the former is a simple measure of financial system deposits or an extensive use of currency (Money Supply) that may not necessarily transit via the banking sector (in developing countries).

From a historical perspective, it is important to first of all recall that proponents of a negative finance-growth nexus have sustained that financial development greatly penalizes economic growth in periods of financial meltdown. Therefore the determining threshold remains the trade-off between financial instability and financial development in economic growth (Kaminsky & Reinhart, 1999; Demirguc-Kunt & Detragiache, 1998). With this interesting background, it could be inferred that, at Schumpeter's time[8] the detrimental effect of financial instability on economic growth was less severe than what we are currently witnessing today. To put this fact into perspective: "*the modern era of globalization has been associated with*

[8] Schumpeter, J. (1911). The Theory of Economic Development, Cambridge, MA, Havard University Press.

*significant economic transformation around the world, but also an increasing frequency of financial crises. According to Eichengreen and Bordo (2002) there were 39 national or international financial crises between 1945 and 1973. Their frequency increased from 139 between 1973 and 1997, culminating in the Asian financial crisis*" (Buckle, p.36). Therefore it is only logical to infer that Schumpeter might be wrong in our time. The argument can further be buttressed by the evidence that characteristics of financial crisis run counter to the Schumpeterian thesis. The presence of financial instability decreases favorable macroeconomic conditions for a strong economic growth: easy mobilization of productive savings, efficient resource allocation, reduction of information asymmetry and, improvement of risk management (Schumpeter, 1911).

## 4. Conclusion

In the first meta-study on the finance-growth nexus, we have bridged the gap between Schumpeterian authors and sympathizers of Andersen & Tarp (2003). Over 20 fundamental characteristics that have influenced the debate over the last decades have been examined. The empirical evidence is based on 196 outcomes from 20 studies. For the investigated Andersen & Tarp hypotheses, while we have found only partial support for their position on the lack of substantial empirical evidence on a positive finance-growth nexus, the stance that a negative nexus is characteristic of African and Latin American countries has been strongly rejected. Schumpeter's thesis might be wrong in our era because of: endogeneity-based estimations, publication bias and, effects of financial activity. A historical justification has also been discussed.

**Table 4: Results of meta-regression using partial correlations coefficients**

| | Response variable: partial correlations of the observed effect | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **1st Specification** | | | | | **2nd Specification** | | | | |
| Intercept ( $\beta_1$ ) | **17.99***** | **11.948*** | 1061.07 | **1039.15*** | 271.388 | **8.327**** | **24.167***** | 984.41 | 967.63 | -106.408 |
| | **(0.005)** | **(0.082)** | (0.102) | **(0.090)** | (0.722) | **(0.044)** | **(0.007)** | (0.135) | (0.116) | (0.888) |
| 1/SEr ( $\beta_0$ ) | -0.153 | -0.146 | -0.147 | **-0.170**** | **-0.153*** | -0.153 | -0.146 | -0.149 | -0.179 | **-0.162**** |
| | (0.108) | (0.102) | (0.127) | **(0.044)** | **(0.060)** | (0.108) | (0.107) | (0.126) | (0.024) | **(0.041)** |
| [Finance: LL on GDP]/SEr | **10.349**** | **9.588**** | 5.109 | 4.469 | **6.083*** | --- | --- | --- | --- | --- |
| | **(0.010)** | **(0.017)** | (0.197) | (0.157) | **(0.058)** | | | | | |
| [Finance: Priv. Credit on GDP]/SEr | --- | --- | --- | --- | --- | **-10.349**** | **-9.594**** | -4.839 | -4.460 | **-6.495*** |
| | | | | | | **(0.010)** | **(0.017)** | (0.221) | (0.192) | **(0.062)** |
| [Finance: Dom. Credit on GDP ]/SEr | **18.78***** | **11.503**** | **13.82**** | 0.524 | 4.106 | **8.434**** | 1.838 | **10.413*** | -0.629 | -1.186 |
| | **(0.005)** | **(0.040)** | **(0.039)** | (0.943) | (0.473) | **(0.046)** | (0.628) | **(0.061)** | (0.923) | (0.762) |
| [Finance: Priv. Credit on Dom. Credit ]/SEr | -9.575 | -14.199 | -12.891 | -7.697 | -7.807 | **-19.92***** | **-24.01***** | **-17.200**** | -11.630 | **-11.213*** |
| | (0.265) | (0.111) | (0.169) | (0.357) | (0.280) | **(0.009)** | **(0.003)** | **(0.030)** | (0.132) | **(0.067)** |
| [Dependent variable(GDP=1, 0=otherwise)]/SEr | --- | 0.822 | **12.909*** | -1.832 | -5.335 | --- | 0.856 | 11.150 | -2.804 | -6.262 |
| | | (0.865) | **(0.083)** | (0.827) | (0.744) | | (0.859) | (0.138) | (0.727) | (0.720) |
| [Statistical technique1(1=least squares, 0=otherwise)]/SEr | --- | --- | --- | --- | --- | --- | **22.706***** | **35.937***** | **54.875***** | **46.802***** |
| | | | | | | | **(0.002)** | **(0.002)** | **(0.000)** | **(0.000)** |
| [Statistical technique2 (1=GMM, 0=otherwise)]/SEr | --- | **-24.4***** | **-42.7***** | **-66.23***** | **-59.69***** | --- | --- | --- | --- | --- |
| | | **(0.002)** | **(0.000)** | **(0.000)** | **(0.000)** | | | | | |
| [Type of analysis(1=panel, 0=otherwise)]/SEr | --- | --- | 7.914 | 4.597 | -6.683 | --- | --- | 1.237 | -3.772 | **-20.000**** |
| | | | (0.326) | (0.425) | (0.394) | | | (0.877) | (0.566) | **(0.032)** |
| [Data frequency(1=annual, 0=otherwise)]/SEr | --- | --- | **19.43***** | **11.611*** | **14.342**** | --- | --- | **18.471***** | 10.314 | **13.750*** |
| | | | **(0.003)** | **(0.079)** | **(0.046)** | | | **(0.006)** | (0.114) | **(0.080)** |
| [Years(average years of study)] /SEr | --- | --- | 0.562 | **0.559*** | 0.151 | --- | --- | 0.509 | 0.500 | -0.068 |
| | | | (0.114) | **(0.093)** | (0.715) | | | (0.161) | (0.137) | (0.868) |
| [Data transformation 1(1=log, 0=otherwise)]/SEr | --- | --- | **22.097**** | **22.06***** | **37.63***** | --- | --- | **16.800**** | 11.455 | **32.343***** |
| | | | **(0.011)** | **(0.007)** | **(0.000)** | | | **(0.037)** | (0.152) | **(0.000)** |
| [Data transformation 2(1=GDP, 0=otherwise)]/SEr | --- | --- | **-20.71**** | **-29.48***** | **-30.7***** | --- | --- | **-21.386**** | **-29.28***** | **-32.36***** |
| | | | **(0.021)** | **(0.000)** | **(0.000)** | | | **(0.018)** | **(0.000)** | **(0.000)** |
| [Africa (1=Africa,0=otherwise)]/SEr | --- | --- | --- | 2.511 | -7.340 | --- | --- | --- | **15.671**** | 0.353 |
| | | | | (0.639) | (0.338) | | | | **(0.047)** | (0.968) |
| [Asia (1=Asia, 0=otherwise)]/SEr | --- | --- | --- | **16.01***** | **25.31***** | --- | --- | --- | **13.873***** | **27.422***** |
| | | | | **(0.000)** | **(0.002)** | | | | **(0.006)** | **(0.000)** |
| [Europe (1=Euro, 0=otherwise)]/SEr | --- | --- | --- | --- | --- | --- | --- | --- | 5.213 | **14.237*** |
| | | | | | | | | | (0.492) | **(0.060)** |
| [Latin America (1=Latin America, 0=otherwise)]/SEr | --- | --- | --- | **29.68***** | **34.39***** | --- | --- | --- | **24.953***** | **31.812***** |
| | | | | **(0.000)** | **(0.000)** | | | | **(0.001)** | **(0.000)** |
| [North America (1=North America, 0=otherwise)]/SEr | --- | --- | --- | 8.367 | 13.590 | --- | --- | --- | --- | --- |
| | | | | (0.497) | (0.211) | | | | | |
| [South East Asia(1=South East Asia, 0=otherwise)]/SEr | --- | --- | --- | **15.61**** | **22.605**** | --- | --- | --- | **15.06**** | **24.602***** |
| | | | | **(0.025)** | **(0.015)** | | | | **(0.0371)** | **(0.009)** |
| [Middle East (1=Middle East, 0=otherwise)]/SEr | --- | --- | --- | **62.52***** | **48.45***** | --- | --- | --- | **52.246***** | **38.630**** |
| | | | | **(0.000)** | **(0.000)** | | | | **(0.000)** | **(0.000)** |
| [Dummy=1 if Information is from the World Bank] /SEr | --- | --- | --- | --- | **21.583*** | --- | --- | --- | --- | **28.553**** |
| | | | | | **(0.083)** | | | | | **(0.023)** |
| [Dummy=1 if Information is from the IMF]/SEr | --- | --- | --- | --- | **-22.36***** | --- | --- | --- | --- | **-25.07***** |
| | | | | | **(0.001)** | | | | | **(0.003)** |
| [Dummy=1 if Information is from the United Nations]/SEr | --- | --- | --- | --- | -0.569 | --- | --- | --- | --- | 6.388 |
| | | | | | (0.935) | | | | | (0.431) |
| Adjusted R² | 0.223 | 0.292 | 0.349 | 0.573 | 0.608 | 0.223 | 0.285 | 0.333 | 0.521 | 0.569 |
| Fisher | **5.002***** | **3.42***** | **6.705***** | **15.001***** | **13.903***** | **5.002***** | **3.512***** | **5.943***** | **7.154***** | **8.388***** |
| Number of studies | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Number of Observations | 196 | 196 | 195 | 195 | 195 | 196 | 196 | 195 | 195 | 195 |

Notes: *, **, *** represent significance levels of 10%, 5% and 1% respectively. LL: Liquid Liabilities. Priv. Private. Dom: Domestic. Euro: Europe.

## Appendices

### Appendix 1: Correlation Analysis (Potential overparametization and multicolinearity issues highlighted in green colour)

| Financial Development | | | | Moderation Variables | | | | | | | | | | | | | | | | | | R.V | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LL | P | D | P/D | D.V | ST1 | ST2 | ToA | Freq | Yrs | Log | GDP | Afri | Asia | Euro | LA | NA | SEA | ME | WB | IMF | UN | r | |
| 1.00 | -.82 | -.19 | -.20 | .09 | -.03 | .02 | -.18 | .23 | .11 | .03 | -.01 | .05 | .006 | .07 | .08 | .02 | -.005 | .03 | -.14 | .04 | -.10 | .02 | LL |
| | 1.00 | -.20 | -.21 | -.11 | -.06 | .05 | .07 | .12 | -.18 | .06 | -.01 | .01 | -.11 | -.04 | -.10 | .01 | -.06 | .02 | .21 | .09 | -.05 | -.001 | P |
| | | 1.00 | -.05 | .02 | .13 | -.12 | .12 | -.22 | .22 | -.11 | .03 | -.08 | .17 | .03 | .01 | -.01 | .22 | -.02 | -.24 | -.33 | .48 | .04 | D |
| | | | 1.00 | .02 | .08 | -.08 | .12 | -.05 | -.07 | -.11 | .03 | -.08 | .09 | -.10 | .01 | -.08 | -.04 | -.10 | .06 | .00 | -.10 | -.09 | P/D |
| | | | | 1.00 | -.06 | .05 | -.05 | -.09 | .01 | .05 | -.01 | .03 | .04 | .04 | .03 | .03 | .09 | .04 | .11 | .15 | -.22 | -.01 | D.V |
| | | | | | 1.00 | -.94 | -.22 | -.36 | -.05 | -.38 | -.08 | -.45 | .26 | .14 | .10 | .23 | .11 | -.61 | -.26 | -.09 | .27 | .29 | ST1 |
| | | | | | | 1.00 | .31 | .33 | .06 | .41 | .08 | .34 | -.25 | -.12 | -.09 | -.22 | -.11 | .65 | .22 | .07 | -.25 | -.30 | ST2 |
| | | | | | | | 1.00 | -.15 | .11 | -.17 | -.07 | -.11 | -.18 | .24 | -.17 | .21 | .04 | .24 | .43 | -.25 | .24 | -.07 | ToA |
| | | | | | | | | 1.00 | .22 | .01 | .14 | .25 | .08 | .23 | .04 | .25 | -.14 | .22 | .01 | .13 | -.32 | .08 | Freq |
| | | | | | | | | | 1.00 | -.31 | .17 | -.08 | .38 | .25 | -.20 | .12 | .16 | .08 | -.27 | -.60 | .38 | -.02 | Yrs |
| | | | | | | | | | | 1.00 | .07 | .39 | -.22 | -.23 | -.16 | -.20 | -.10 | .31 | -.13 | .34 | -.23 | -.02 | Log |
| | | | | | | | | | | | 1.00 | .05 | .06 | .06 | .04 | .05 | .02 | .06 | -.12 | -.09 | .06 | -.02 | GDP |
| | | | | | | | | | | | | 1.00 | -.16 | -.16 | -.11 | -.14 | -.07 | .50 | .30 | .11 | -.17 | .05 | Afri |
| | | | | | | | | | | | | | 1.00 | -.07 | -.13 | -.04 | -.08 | -.18 | -.49 | -.26 | .25 | .09 | Asia |
| | | | | | | | | | | | | | | 1.00 | -.13 | .86 | -.08 | -.19 | 0.11 | .10 | .17 | .06 | Euro |
| | | | | | | | | | | | | | | | 1.00 | -.11 | .03 | -.13 | -.12 | .08 | .006 | .07 | LA |
| | | | | | | | | | | | | | | | | 1.00 | -.07 | -.16 | .24 | .15 | .11 | .32 | NA |
| | | | | | | | | | | | | | | | | | 1.00 | -.08 | -.21 | -.23 | .35 | .03 | SEA |
| | | | | | | | | | | | | | | | | | | 1.00 | .29 | -.17 | -.08 | .10 | ME |
| | | | | | | | | | | | | | | | | | | | 1.00 | .20 | -.39 | .10 | WB |
| | | | | | | | | | | | | | | | | | | | | 1.00 | -.56 | -.13 | IMF |
| | | | | | | | | | | | | | | | | | | | | | 1.00 | .10 | UN |
| | | | | | | | | | | | | | | | | | | | | | | 1.00 | r |

LL: Liquid Liabilities on GDP. P: Private Credit on GDP. D: Domestic Credit on GDP. P/D: Private Credit on Domestic Credit. ST1: Statistical Technique 1. ST2: Statistical Technique 2. ToA: Type of Analysis. Freq: Data Frequency. Yrs: Average year of study. Log: Data transformation in logarithm. GDP: Data transformation in GDP. Afri: Africa. Euro: Europe. LA: Latin America. NA: North America. SEA: South East Asia. ME: Middle East. WB: World Bank. IMF: International Monetary Fund. UN: United Nations. r: Partial correlations of the observed effect. R.V: Response Variable. All the variables are in ratios of Standard errors.

## Appendix 2: Data collection summary

| Studies | A: LLY | | B:PrivcreditY | | C:DomcreditY | D:(B/C) | | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Christopoulos & T.(2004) | 3.21 | (3.00) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1985 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 5.09 |
| Christopoulos & T.(2004) | 51.5 | (4.33) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1985 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 5.09 |
| Christopoulos & T.(2004) | 40.3 | (3.14) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1985 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 5.09 |
| Christopoulos & T.(2004) | 3.08 | (1.62) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1985 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 5.09 |
| Christopoulos & T.(2004) | 18.5 | (1.50) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1985 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 5.09 |
| Christopoulos & T.(2004) | 30.4 | (3.76) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1985 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 5.09 |
| Christopoulos & T.(2004) | 36.5 | (3.72) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1985 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5.09 |
| Christopoulos & T.(2004) | 83.1 | (1.68) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1985 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5.09 |
| Christopoulos & T.(2004) | 25.4 | (3.28) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1985 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 5.09 |
| Christopoulos & T.(2004) | 39.1 | (3.83) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1985 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 5.09 |
| Christopoulos & T.(2004) | 14.1 | (2.57) | | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1985 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 17.2 |
| Corporale et al.(_____) | 0.01 | (2.42) | | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 2000 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11.31 |
| Corporale et al.(_____) | 0.00 | (2.10) | | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 2000 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7.61 |
| Corporale et al.(_____) | 0.00 | (2.44) | | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 2000 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5.47 |
| Corporale et al.(_____) | 0.00 | (1.81) | | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 2000 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4.00 |
| Hassan et al. (2011) | | | 1.20 | (2.06) | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 6.55 |
| Hassan et al. (2011) | | | -0.07 | (-0.10) | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5.91 |
| Hassan et al. (2011) | | | 0.68 | (1.83) | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 11.00 |
| Hassan et al. (2011) | | | 0.58 | (1.20) | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 5.00 |
| Hassan et al. (2011) | | | -0.77 | (-0.65) | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 4.58 |
| Hassan et al. (2011) | | | -0.38 | (-1.11) | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 11.74 |
| Hassan et al. (2011) | | | -0.57 | (-2.11) | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 10.95 |
| Hassan et al. (2011) | | | -3.17 | (-2.36) | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7.41 |
| Hassan et al. (2011) | | | -0.40 | (-1.29) | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 24.63 |
| Hassan et al. (2011) | 1.30 | (1.64) | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 6.55 |
| Hassan et al. (2011) | -2.1 | (-2.58) | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6.00 |
| Hassan et al. (2011) | 0.12 | (0.18) | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 11.00 |
| Hassan et al. (2011) | 0.68 | (0.44) | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 5.09 |
| Hassan et al. (2011) | -1.28 | (-0.55) | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 4.47 |
| Hassan et al. (2011) | 0.34 | (0.60) | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 11.74 |
| Hassan et al. (2011) | -1.78 | (-3.17) | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 10.95 |
| Hassan et al. (2011) | -1.99 | (-1.47) | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7.28 |
| Hassan et al. (2011) | -1.07 | (-2.48) | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 24.51 |
| Loayza & Ranciere(2002) | 2.08 | (11.4) | | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1979 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 18.60 |
| Loayza & Ranciere(2002) | | | 1.43 | (22.69) | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1979 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 18.60 |
| Lu & Yao(2009) | -0.690 | (-0.40) | | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1996 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16.82 |
| Lu & Yao(2009) | 1.031 | (0.93) | | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1996 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16.67 |
| Lu & Yao(2009) | 0.914 | (0.81) | | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1996 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16.61 |
| Lu & Yao(2009) | | | | | | -0.757 | (-0.14) | 1 | 1 | 1 | 0 | 1 | 1 | 1996 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16.82 |
| Lu & Yao(2009) | | | | | | -1.578 | (-0.43) | 1 | 1 | 1 | 0 | 1 | 1 | 1996 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16.67 |
| Lu & Yao(2009) | | | | | | -3.032 | (-0.93) | 1 | 1 | 1 | 0 | 1 | 1 | 1996 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16.61 |

A: Liquid Liabilities/GDP, B: Private Credit/GDP, C:Domestic Credit/GDP, D: Private/Domestic Credit, E: Dependent variable(1=GDP, 0=otherwise), F:Functional form(1=linear, 0=otherwise), G: Statistical technique1(1= least squares, 0=otherwise), H:Statistical technique2(1=GMM, 0=otherwise), I:Type of analysis(1=panel, 0=otherwise), J: Frequency of data(1=annual, 0=otherwise), K:Years(average year of study period), L: Data transformation(1=log, 0=otherwise), M:Data transformation(1=variable/GDP, 0=otherwise), N:Africa(1=Africa, 0=otherwise), O:Asia(1=Asia, 0=otherwise), P(1=Europe, 0=otherwise), Q:Latin America(1=Latin America, 0=otherwise), R: North America(1=North America, 0=otherwise), S:Southeast Asia(1=Southeast Asia, 0=otherwise), T(1=Middle East, 0=otherwise), U: World Bank information(1=Information from the World Bank, 0=otherwise), V: IMF information(1=IMF information, 0=otherwise), W:UN information(1=UN information, 0=otherwise), X: Size (Squared root of degrees of freedom). Values in brackets () after extrapolated coefficients are student statistics.

## Appendix 3: Data collection summary (continued 1)

| Studies | A: LLY | | B:PrivcreditY | | C:DomcreditY | | D:(B/C) | | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Naceur & Ghazouani(2007) | -0.291 | (-3.30) | | | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1991 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 7.348 |
| Naceur & Ghazouani(2007) | -0.264 | (-2.83) | | | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1991 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 7.348 |
| Naceur & Ghazouani(2007) | -0.248 | (-2.98) | | | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1991 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 7.348 |
| Naceur & Ghazouani(2007) | | | 0.009 | (0.06) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1991 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 7.348 |
| Naceur & Ghazouani(2007) | | | -0.047 | (-0.25) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1991 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 7.348 |
| Naceur & Ghazouani(2007) | | | -0.126 | (-0.75) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1991 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 7.348 |
| Naceur & Ghazouani(2007) | -0.226 | (-3.37) | | | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1991 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 9.165 |
| Naceur & Ghazouani(2007) | -0.209 | (-3.02) | | | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1991 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 9.165 |
| Naceur & Ghazouani(2007) | -0.197 | (-2.98) | | | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1991 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 9.165 |
| Naceur & Ghazouani(2007) | | | -0.049 | (-0.50) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1991 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 9.165 |
| Naceur & Ghazouani(2007) | | | -0.026 | (-0.26) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1991 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 9.165 |
| Naceur & Ghazouani(2007) | | | -0.067 | (-0.67) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1991 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 9.165 |
| Levine(1999) | 0.087 | (3.28) | | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1985 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 5.831 |
| Levine(1999) | 0.074 | (1.62) | | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1985 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 5.745 |
| Levine(1999) | | | | | | | 0.137 | (7.56) | 1 | 1 | 1 | 0 | 1 | 0 | 1985 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 4.899 |
| Levine(1999) | | | | | | | 0.138 | (6.04) | 1 | 1 | 1 | 0 | 1 | 0 | 1985 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 4.899 |
| Levine(1999) | 0.68 | (4.27) | | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 5.916 |
| Levine(1999) | 0.37 | (2.22) | | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 5.831 |
| Levine(1999) | | | | | | | 0.104 | (6.64) | 1 | 1 | 1 | 0 | 1 | 0 | 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 5.000 |
| Levine(1999) | | | | | | | 0.093 | (4.02) | 1 | 1 | 1 | 0 | 1 | 0 | 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 5.000 |
| Levine(1999) | 0.003 | (0.24) | | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 6.164 |
| Levine(1999) | 0.004 | (0.38) | | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 6.083 |
| Levine(1999) | | | | | | | 0.084 | (4.27) | 1 | 1 | 1 | 0 | 1 | 0 | 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 5.657 |
| Levine(1999) | | | | | | | 0.082 | (3.35) | 1 | 1 | 1 | 0 | 1 | 0 | 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 5.657 |
| Huang et al.(2010) | 2.261 | (2.46) | | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 7.416 |
| Huang et al.(2010) | 2.598 | (2.91) | | | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 7.416 |
| Huang et al.(2010) | | | 2.479 | (2.55) | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 7.416 |
| Huang et al.(2010) | | | 2.555 | (2.81) | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1977 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 7.416 |
| Shen & Lee(2006) | -0.019 | (-4.24) | | | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 29.59 |
| Shen & Lee(2006) | -0.012 | (-4.87) | | | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 29.05 |
| Shen & Lee(2006) | -0.014 | (-3.21) | | | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 28.74 |
| Shen & Lee(2006) | | | -0.019 | (-3.84) | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 31.62 |
| Shen & Lee(2006) | | | -0.020 | (-4.07) | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 31.09 |
| Shen & Lee(2006) | | | -0.013 | (-2.74) | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 30.80 |
| Shen & Lee(2006) | -0.068 | (-7.02) | | | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 29.59 |
| Shen & Lee(2006) | -0.072 | (-7.15) | | | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 29.05 |
| Shen & Lee(2006) | -0.052 | (-5.49) | | | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 28.74 |
| Shen & Lee(2006) | | | -0.053 | (-7.37) | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 31.62 |
| Shen & Lee(2006) | | | -0.057 | (-7.71) | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 31.09 |
| Shen & Lee(2006) | | | -0.039 | (-5.75) | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 30.80 |

A: Liquid Liabilities/GDP, B: Private Credit/GDP, C:Domestic Credit/GDP, D: Private/Domestic Credit, E: Dependent variable(1=GDP, 0=otherwise), F:Functional form(1=linear, 0=otherwise), G: Statistical technique1(1= least squares, 0=otherwise), H:Statistical technique2(1=GMM, 0=otherwise), I:Type of analysis(1=panel, 0=otherwise), J: Frequency of data(1=annual, 0=otherwise), K:Years(average year of study period), L: Data transformation(1=log, 0=otherwise), M:Data transformation(1=variable/GDP, 0=otherwise), N:Africa(1=Africa, 0=otherwise), O:Asia(1=Asia, 0=otherwise), P(1=Europe, 0=otherwise), Q:Latin America(1=Latin America, 0=otherwise), R: North America(1=North America, 0=otherwise), S:Southeast Asia(1=Southeast Asia, 0=otherwise), T(1=Middle East, 0=otherwise), U: World Bank information(1=Information from the World Bank, 0=otherwise), V: IMF information(1=IMF information, 0=otherwise), W:UN information(1=UN information, 0=otherwise), X: Size(Squared root of degrees of freedom). Values in brackets () after extrapolated coefficients are student statistics.

## Appendix 4: Data Collection Summary (continued 2)

| Studies | A: LLY | | B:PrivcreditY | | C:DomcreditY | | D:(B/C) | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hassan et al. (2011) | | | | | 1.17 | (2.01) | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 7.07 |
| Hassan et al. (2011) | | | | | -1.48 | (-1.52) | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6.55 |
| Hassan et al. (2011) | | | | | 0.07 | (0.15) | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 11.31 |
| Hassan et al. (2011) | | | | | 1.53 | (2.42) | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 5.74 |
| Hassan et al. (2011) | | | | | 0.74 | (2.24) | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 5.19 |
| Hassan et al. (2011) | | | | | 0.04 | (0.13) | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 11.83 |
| Hassan et al. (2011) | | | | | -1.32 | (-3.66) | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 11.26 |
| Hassan et al. (2011) | | | | | -1.49 | (-1.30) | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7.74 |
| Hassan et al. (2011) | | | | | -0.42 | (-1.55) | | 1 | 1 | 1 | 0 | 1 | 0 | 1994 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 24.65 |
| Levine(1999) | | | 0.13 | (5.19) | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1985 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 5.91 |
| Levine(1999) | | | 0.08 | (2.70) | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1985 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 5.83 |
| Levine(1999) | | | 0.08 | (3.69) | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 6.08 |
| Levine(1999) | | | 0.04 | (2.54) | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 6.00 |
| Levine(1999) | | | 0.03 | (2.10) | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 6.70 |
| Levine(1999) | | | 0.03 | (2.19) | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1975 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 6.63 |
| Shen & Lee(2006) | -0.028 | (-4.88) | | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 29.59 |
| Shen & Lee(2006) | -0.033 | (-5.42) | | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 29.05 |
| Shen & Lee(2006) | -0.021 | (-4.1) | | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 28.74 |
| Shen & Lee(2006) | | | -0.033 | (-5.54) | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 31.62 |
| Shen & Lee(2006) | | | -0.036 | (-5.93) | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 31.09 |
| Shen & Lee(2006) | | | -0.022 | (-4.29) | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1988 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 30.80 |
| Liu & Hsu (2006) | -3.708 | (-1.60) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1991 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4.123 |
| Liu & Hsu (2006) | -0.985 | (-0.38) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1991 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4.123 |
| Liu & Hsu (2006) | 0.413 | (0.24) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1991 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4.123 |
| Liu & Hsu (2006) | -1.223 | (-1.14) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1991 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4.123 |
| Liu & Hsu (2006) | 18.58 | (5.43) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1991 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4.123 |
| Liu & Hsu (2006) | 24.07 | (7.52) | | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1991 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4.123 |
| Liu & Hsu (2006) | | | 0.071 | (0.045) | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1991 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4.123 |
| Liu & Hsu (2006) | | | -1.071 | (-0.64) | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1991 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4.123 |
| Liu & Hsu (2006) | | | -15.35 | (-12.41) | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1991 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4.123 |
| Liu & Hsu (2006) | | | -9.126 | (-6.26) | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1991 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4.123 |
| Liu & Hsu (2006) | | | -33.41 | (-8.59) | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1991 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4.123 |
| Liu & Hsu (2006) | | | -35.83 | (-11.33) | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1991 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4.123 |
| Jalil et al.(2010) | 0.965 | (2.314) | | | | | | 1 | 1 | 0 | 0 | 0 | 1 | 1986 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 6.245 |
| Jalil et al.(2010) | 2.589 | (3.572) | | | | | | 1 | 1 | 0 | 0 | 0 | 1 | 1986 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 6.164 |
| Jalil et al.(2010) | | | 0.587 | (3.654) | | | | 1 | 1 | 0 | 0 | 0 | 1 | 1986 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 6.245 |
| Jalil et al.(2010) | | | 0.234 | (6.585) | | | | 1 | 1 | 0 | 0 | 0 | 1 | 1986 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 6.164 |
| Barajas et al.(2010) | | | 0.007 | (2.512) | | | | 1 | 1 | 0 | 1 | 1 | 0 | 1990 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 9.899 |
| Barajas et al.(2010) | | | 0.006 | (2.125) | | | | 1 | 1 | 0 | 1 | 1 | 0 | 1990 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 9.592 |
| Barajas et al.(2010) | | | 0.017 | (4.181) | | | | 1 | 1 | 0 | 1 | 1 | 0 | 1990 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 25.37 |
| Barajas et al.(2010) | | | 0.010 | (2.148) | | | | 1 | 1 | 0 | 1 | 1 | 0 | 1990 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 24.18 |

A: Liquid Liabilities/GDP, B: Private Credit/GDP, C:Domestic Credit/GDP, D: Private/Domestic Credit, E: Dependent variable(1=GDP, 0=otherwise), F:Functional form(1=linear, 0=otherwise), G: Statistical technique1(1= least squares, 0=otherwise), H:Statistical technique2(1=GMM, 0=otherwise), I:Type of analysis(1=panel, 0=otherwise), J: Frequency of data(1=annual, 0=otherwise), K:Years(average year of study period), L: Data transformation(1=log, 0=otherwise), M:Data transformation(1=variable/GDP, 0=otherwise), N:Africa(1=Africa, 0=otherwise), O:Asia(1=Asia, 0=otherwise), P(1=Europe, 0=otherwise), Q:Latin America(1=Latin America, 0=otherwise), R: North America(1=North America, 0=otherwise), S:Southeast Asia(1=Southeast Asia, 0=otherwise), T(1=Middle East, 0=otherwise), U: World Bank information(1=Information from the World Bank, 0=otherwise), V: IMF information(1=IMF information, 0=otherwise), W:UN information(1=UN information, 0=otherwise), X: Size(Squared root of degrees of freedom). Values in brackets () after extrapolated coefficients are student statistics.

## Appendix 5: Data Collection Summary (continued 3)

| Studies | A: LLY | | B:PrivcreditY | | C:DomcreditY | D:(B/C) | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Claessens & Laeven(2002) | | | -0.021 | (-1.30) | | | 0 | 1 | 1 | 0 | 1 | 1 | 1985 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 35.17 |
| Claessens & Laeven(2002) | | | 0.049 | (3.23) | | | 0 | 1 | 1 | 0 | 1 | 1 | 1985 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 28.63 |
| Goaied & Sassi(2010) | -4.552 | (-1.54) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 19.07 |
| Goaied & Sassi(2010) | -2.342 | (-0.72) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 19.07 |
| Goaied & Sassi(2010) | | | -5.116 | (-3.35) | | | 1 | 1 | 0 | 1 | 1 | 1 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 19.07 |
| Goaied & Sassi(2010) | | | -4.865 | (-6.62) | | | 1 | 1 | 0 | 1 | 1 | 1 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 19.07 |
| Goaied & Sassi(2010) | -0.557 | (-0.32) | | | | | 1 | 1 | 0 | 1 | 1 | 0 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 8.185 |
| Goaied & Sassi(2010) | -0.101 | (-0.12) | | | | | 1 | 1 | 0 | 1 | 1 | 0 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 8.185 |
| Goaied & Sassi(2010) | | | -3.371 | (-2.03) | | | 1 | 1 | 0 | 1 | 1 | 0 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 8.185 |
| Goaied & Sassi(2010) | | | -3.006 | (-3.29) | | | 1 | 1 | 0 | 1 | 1 | 0 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 8.185 |
| Goaied & Sassi(2010) | -9.414 | (-3.06) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 13.19 |
| Goaied & Sassi(2010) | -8.564 | (-1) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 13.19 |
| Goaied & Sassi(2010) | | | -5.299 | (-2.9) | | | 1 | 1 | 0 | 1 | 1 | 1 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 13.19 |
| Goaied & Sassi(2010) | | | -15.70 | (-0.47) | | | 1 | 1 | 0 | 1 | 1 | 1 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 13.19 |
| Goaied & Sassi(2010) | 2.834 | (0.96) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 13.49 |
| Goaied & Sassi(2010) | 5.522 | (0.3) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 13.49 |
| Goaied & Sassi(2010) | | | 1.795 | (0.7) | | | 1 | 1 | 0 | 1 | 1 | 1 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 13.49 |
| Goaied & Sassi(2010) | | | 28.158 | (1.9) | | | 1 | 1 | 0 | 1 | 1 | 1 | 1984 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 13.49 |
| Estrada et al.(2010) | 2.792 | (3.736) | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1997 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 19.41 |
| Estrada et al.(2010) | 2.554 | (2.017) | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1997 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 19.39 |
| Estrada et al.(2010) | 2.036 | (2.425) | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1997 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 19.39 |
| Estrada et al.(2010) | 2.756 | (3.694) | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 1997 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 19.39 |
| Estrada et al.(2010) | | | 1.772 | (3.06) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1997 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 19.41 |
| Estrada et al.(2010) | | | 1.299 | (1.71) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1997 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 19.39 |
| Estrada et al.(2010) | | | 1.586 | (2.39) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1997 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 19.39 |
| Estrada et al.(2010) | | | 1.812 | (3.14) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1997 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 19.39 |
| Gondo (2009) | -0.194 | (-1.70) | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1985 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4.899 |
| Gondo (2009) | -0.409 | (-1.96) | | | | | 1 | 1 | 1 | 0 | 0 | 1 | 1985 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4.899 |
| Gregorio & Guidott (1995) | | | 0.018 | (2.3) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1972 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 9.274 |
| Gregorio & Guidott (1995) | | | 0.024 | (3.58) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1972 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 9.274 |
| Gregorio & Guidott (1995) | | | 0.015 | (1.74) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1972 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 7.937 |
| Gregorio & Guidott (1995) | | | 0.01 | (1.71) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1977 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 9.274 |
| Gregorio & Guidott (1995) | | | 0.044 | (2.16) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1972 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 4.796 |
| Gregorio & Guidott (1995) | | | 0.054 | (2.77) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1972 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 4.796 |
| Gregorio & Guidott (1995) | | | 0.048 | (2.39) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1977 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 4.796 |
| Gregorio & Guidott (1995) | | | 0.135 | (3.62) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1972 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 4.796 |
| Gregorio & Guidott (1995) | | | -0.092 | (-3.2) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1967 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 7.416 |
| Gregorio & Guidott (1995) | | | -0.104 | (-3.83) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1967 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 7.416 |
| Gregorio & Guidott (1995) | | | -0.041 | (-0.72) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1962 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 7.416 |
| Gregorio & Guidott (1995) | | | -0.027 | (-0.52) | | | 1 | 1 | 1 | 0 | 1 | 0 | 1962 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 7.416 |

A: Liquid Liabilities/GDP, B: Private Credit/GDP, C:Domestic Credit/GDP, D: Private/Domestic Credit, E: Dependent variable(1=GDP, 0=otherwise), F:Functional form(1=linear, 0=otherwise), G: Statistical technique1(1= least squares, 0=otherwise), H:Statistical technique2(1=GMM, 0=otherwise), I:Type of analysis(1=panel, 0=otherwise), J: Frequency of data(1=annual, 0=otherwise), K:Years(average year of study period), L: Data transformation(1=log, 0=otherwise), M:Data transformation(1=variable/GDP, 0=otherwise), N:Africa(1=Africa, 0=otherwise), O:Asia(1=Asia, 0=otherwise), P(1=Europe, 0=otherwise), Q:Latin America(1=Latin America, 0=otherwise), R: North America(1=North America, 0=otherwise), S:Southeast Asia(1=Southeast Asia, 0=otherwise), T(1=Middle East, 0=otherwise), U: World Bank information(1=Information from the World Bank, 0=otherwise), V: IMF information(1=IMF information, 0=otherwise), W:UN information(1=UN information, 0=otherwise), X: Size(Squared root of degrees of freedom). Values in brackets () after extrapolated coefficients are student statistics.

## Appendix 6: Data Collection Summary (continued 4)

| Studies | A: LLY | | B:PrivcreditY | | C:DomcreditY | D:(B/C) | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| laLeitao(2010) | | | 0.342 | (2.96) | | | 1 | 1 | 1 | 0 | 1 | 1 | 1993 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 22.06 |
| Leitao(2010) | | | 0.146 | (9.19) | | | 1 | 1 | 0 | 1 | 1 | 1 | 1993 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 21.21 |
| Favara(2003) | 0.612 | (4.74) | | | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8.775 |
| Favara(2003) | 0.407 | (2.71) | | | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8.718 |
| Favara(2003) | 0.331 | (2.27) | | | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8.660 |
| Favara(2003) | 0.301 | (1.95) | | | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8.602 |
| Favara(2003) | | | 0.389 | (3.83) | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8.775 |
| Favara(2003) | | | 0.244 | (1.82) | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8.718 |
| Favara(2003) | | | 0.215 | (2.54) | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8.660 |
| Favara(2003) | | | 0.198 | (2.09) | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8.602 |
| Favara(2003) | 0.709 | (7.05) | | | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7.810 |
| Favara(2003) | 0.257 | (2.22) | | | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7.746 |
| Favara(2003) | 0.427 | (5.28) | | | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7.681 |
| Favara(2003) | 0.582 | (6.56) | | | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7.280 |
| Favara(2003) | | | 0.545 | (6.9) | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 8.185 |
| Favara(2003) | | | 0.187 | (2.23) | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7.483 |
| Favara(2003) | | | 0.311 | (5.91) | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7.280 |
| Favara(2003) | | | 0.113 | (1.92) | | | 1 | 1 | 1 | 0 | 0 | 0 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7.681 |
| Favara(2003) | 0.072 | (10.9) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22.84 |
| Favara(2003) | 0.074 | (2) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22.84 |
| Favara(2003) | 0.06 | (7.25) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22.82 |
| Favara(2003) | 0.048 | (0.91) | | | | | 1 | 1 | 0 | 1 | 1 | 1 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22.82 |
| Favara(2003) | | | 0.024 | (7.32) | | | 1 | 1 | 0 | 1 | 1 | 1 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22.84 |
| Favara(2003) | | | 0.021 | (0.83) | | | 1 | 1 | 0 | 1 | 1 | 1 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22.84 |
| Favara(2003) | | | 0.009 | (4.18) | | | 1 | 1 | 0 | 1 | 1 | 1 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22.82 |
| Favara(2003) | | | 0.006 | (0.29) | | | 1 | 1 | 0 | 1 | 1 | 1 | 1979 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22.82 |
| Kemal et al.(2008) | 0.0017 | (0.25) | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1987 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 21.58 |
| Kemal et al.(2008) | 0.0971 | (1.25) | | | | | 1 | 1 | 1 | 0 | 1 | 1 | 1987 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 21.56 |
| Kemal et al.(2008) | | | -0.012 | (-2.8) | | | 1 | 1 | 1 | 0 | 1 | 1 | 1987 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 21.58 |
| Kemal et al.(2008) | | | -0.010 | (-1.5) | | | 1 | 1 | 1 | 0 | 1 | 1 | 1987 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 21.56 |
| Barajas et al.(2010) | | | 0.018 | (4.266) | | | 1 | 1 | 0 | 1 | 1 | 0 | 1990 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 11.53 |
| Barajas et al.(2010) | | | 0.014 | (2.697) | | | 1 | 1 | 0 | 1 | 1 | 0 | 1990 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 11.40 |
| Gondo (2009) | | | 0.086 | (3.18) | | | 1 | 1 | 1 | 0 | 0 | 1 | 1985 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4.899 |
| Gondo (2009) | | | 0.089 | (3.06) | | | 1 | 1 | 1 | 0 | 0 | 1 | 1985 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4.899 |

A: Liquid Liabilities/GDP, B: Private Credit/GDP, C:Domestic Credit/GDP, D: Private/Domestic Credit, E: Dependent variable(1=GDP, 0=otherwise), F:Functional form(1=linear, 0=otherwise), G: Statistical technique1(1= least squares, 0=otherwise), H:Statistical technique2(1=GMM, 0=otherwise), I:Type of analysis(1=panel, 0=otherwise), J: Frequency of data(1=annual, 0=otherwise), K:Years(average year of study period), L: Data transformation(1=log, 0=otherwise), M:Data transformation(1=variable/GDP, 0=otherwise), N:Africa(1=Africa, 0=otherwise), O:Asia(1=Asia, 0=otherwise), P(1=Europe, 0=otherwise), Q:Latin America(1=Latin America, 0=otherwise), R: North America(1=North America, 0=otherwise), S:Southeast Asia(1=Southeast Asia, 0=otherwise), T(1=Middle East, 0=otherwise), U: World Bank information(1=Information from the World Bank, 0=otherwise), V: IMF information(1=IMF information, 0=otherwise), W:UN information(1=UN information, 0=otherwise), X: Size(Squared root of degrees of freedom). Values in brackets () after extrapolated coefficients are student statistics.

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