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THE EVOLVING IMPORTANCE OF BANKS AND SECURITIES MARKETS

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<u>ABSTRACT</u>

This paper examines the evolving importance of banks and securities markets during the process of economic development. We find that as countries develop economically, (1) the size of both banks and securities markets increases relative to the size of the economy, (2) the association between an increase in economic output and an increase in bank development becomes smaller, and (3) the association between an increase in economic output and an increase in securities market development becomes larger. The results are consistent with theories predicting that as economies develop, the services provided by securities markets become more important for economic activity, while those provided by banks become less important.

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1. Introduction

Several lines of economic theory stress that banks provide different services to the economy from those provided by securities markets, predicting that *both* the operation of banks and the functioning of securities markets will have independent influences on economic development. For example, Acemoglu and Zilibotti (1997), Allen and Gale (1997, 1999), Boot and Thakor (1997, 2000), Dewatripont and Maskin (1995), Holmstrom and Tirole (1993), and Rajan (1992) argue that banks have a comparative advantage in reducing the market frictions associated with financing standardized, shorter-term, lower-risk, well-collateralized endeavors, while decentralized markets are relatively more effective in custom-designing arrangements to finance more novel, longer-run, higher-risk projects relying more on intangible inputs. Consistent with these theories, Demirguc-Kunt and Maksimovic (1998), Levine and Zervos (1998), and Beck and Levine (2004) provide evidence that better functioning banks and securities markets exert robust, independent positive effects on economic activity.

A substantial body of economic theory also emphasizes that the comparative importance of banks and markets for economic activity changes during the process of economic development, with markets becoming relatively more important for economic activity. For example, the concepts articulated in Goldsmith (1969), Allen and Gale (1995, 2000), Boot and Thakor (1997, 2000), Boyd and Smith (1998), Weinstein and Yafeh (1998), Morck and Nakamura (1999), and Song and Thakor (2012) suggest that (1) banks and markets provide different, though sometimes complementary, financial services and (2) the services provided by markets become comparatively more important for promoting economic activity as countries develop economically. In particular, these theories suggest that as economies develop, more projects require customized financial arrangements rather than standardized contracts and more

projects rely on intangible assets rather than on easily collateralized capital inputs. Since these models also suggest that banks have a comparative advantage in financing standardized, well-collateralized endeavors, while securities markets are better at custom-designing arrangements to finance more novel projects that rely on intangible inputs, these theories imply that the services provide by securities markets will have a bigger impact on economic activity as economies grow, while those provided by banks will become less important for economic activity.

Empirical research, however, has been largely unsuccessful at clarifying the *evolving* importance of banks and markets during the process of economic development, as exemplified by Beck and Levine (2002), Demirguc-Kunt and Maksimovic (2002), and Levine (2002). Demirguc-Kunt and Levine (2001) show that banks and securities markets tend to become more developed as economies grow and that securities markets tend to develop more rapidly than banks. Thus, financial systems generally become more market-based during the process of economic development. But, this pattern could simply reflect reverse causality. Perhaps, economic progress boosts the development of securities markets more than it boosts bank development. The observation that financial systems tend to become more market-based as economies develop does not necessarily imply that securities markets exert a larger impact on economic activity in more economically advanced economies.

In this paper, we evaluate empirically the changing importance of banks and securities markets as economies develop in two steps. We first reassess with a new database how banks and securities markets evolve as economies develop. That is, as countries develop economically, what happens to the size of banks and securities markets relative to the size of the overall economy? We then examine how the associations between economic activity and both bank and stock market development change as countries develop economically. That is, we regress

economic activity on both bank and securities market development and assess how the estimated coefficients change as countries develop economically. This provides information on how the associations between economic activity and different components of the financial system evolve during economic development.

The primary methodological contribution of this paper is using quantile regressions to assess how the associations between economic activity and both bank and securities market development evolve as countries grow (Koenker and Basset, 1978). Ordinary least squares (OLS) regressions provide information on the association between, for example, economic development and bank development for the "average" country, the country at the average level of economic development. But, quantile regressions provide information on the relationship between economic activity and bank development at each percentile of the distribution of economic development. As we emphasize throughout the paper, these quantile analyses do not yield a sharp causal interpretation. Rather, they show how the estimated coefficients on the financial development indicators vary at different levels of economic development. In this way, we illustrate how the associations between economic development and both bank and securities market development change during the process of economic development.

We also contribute new data to the analyses of finance and development. We construct a database that covers 72 countries over the period from 1980 through 2008. We aggregate the data into 5-year averages (data permitting), so that we have a maximum of six observations per country. Besides using standard indicators such as bank credit to the private sector as a share of Gross Domestic Product (GDP), stock market capitalization relative to GDP, and the value of stock market transactions relative to GDP, we also assemble data on the capitalization of private domestic bond markets relative to GDP.

We first find that both banks and securities markets become larger relative to the size of the overall economy as countries develop economically, confirming the results in Demirguc-Kunt and Levine (2001). These findings hold across various measures of bank and securities market development, including measures incorporating private domestic bond markets. It is important to notice that the measures of bank and securities market development are scaled by GDP. Thus, our findings show that the growth of marketable securities and bank loans outpaces the growth of economic activity as countries develop economically.

We also find that (1) the association between economic activity and bank development *decreases* with economic development, but (2) the association between economic activity and securities market development *increases* as countries grow. Put differently, as economies develop, the marginal increase in economic activity associated with an increase in bank development falls, while the marginal increase in economic activity associated with an increase in securities market development rises. Although we do not use instrumental variables to identify a causal effect, these results are consistent with the predictions emerging from the large body of theoretical research discussed above: As economies develop economically, the services provided by securities markets will become more important for future economic development while those provided by banks will become less important.

This research is policy relevant. First, if the optimal mixture of banks and markets changes as an economy develops, then this advertises the costs of policy and institutional impediments to the evolution of the financial system. Indeed, this is the first paper to show that the association between economic activity and stock market development increases as economies grow, while the association between economic activity and bank development decreases. Second, this work suggests that the associations between economic activity and both bank and securities

market development change with economic development. This implies that the estimated elasticities from past research regarding the impact of changes in bank or stock market development on economic development will yield misleading information about countries with incomes far from the sample average. Past studies do not account for the *evolving* importance of banks and markets during the process of economic development.

This paper contributes to a better understanding of the dynamic relationships among economic development, financial institutions, and securities markets, but these contributions come with qualifications and limitations. First, although the analyses are policy relevant, we do not examine policy instruments. Thus, the results suggest that impediments to the evolution of financial systems will hinder economic activity, but they do not provide guidance on exactly which types of policies will foster the healthy development of financial systems.

Second, although the analyses reduce concerns about reverse causality, they do not nail down a particular causal mechanism, nor do they rule out reverse causality or omitted variable bias. More specifically, a substantial body of theory predicts that as economies develop, financial systems will become more market-based and the marginal impact of securities markets on economic activity will increase while that of banks will decrease. Our findings are consistent with these predictions. These findings are inconsistent, however, with simple reverse causality stories. While a simple reverse causality scenario might predict that economic development will boost the size of banks and securities markets relative to the size of the overall economy and such a scenario might also predict that securities markets will grow faster than banks, the simple reverse causality story does not yield predictions about the *differential* change in association between economic activity and bank and securities market development as economies grow. That is, the simple reverse causality scenario does not predict both that the association between

economic activity and bank development diminishes in magnitude but the association between economic activity and securities market development increases in magnitude as countries develop economically. Although these differential effects might be accounted for by sophisticated reverse causality scenarios, potential omitted variable biases, or as yet to be formalized theories of finance and development, this paper provides the first empirical evidence that is consistent with an influential theoretical literature predicting that securities markets become more important for economic activity, and bank become less important, as countries develop economically.

2. Data and Summary Statistics

2.1. Financial system indicators

We use several measures of bank and stock market development to analyze the relationship between economic activity and the structure of the financial system. We would like to have indicators of the degree to which banks and markets ameliorate market frictions and thereby (1) improve ex ante information about possible investments, (2) enhance the monitoring of investments after financing occurs, (3) facilitate the trading, diversification, and management of risk, (4) ease the mobilization and pooling of savings, and (5) foster the exchange of goods, services, and financial claims. We would also like information on how the mixture of banks and markets affect the provision of these services. But, such empirical proxies do not exist for a broad cross-section of countries over the last few decades. Instead, we rely on standard measures of the size and activity of banks and securities markets. These measures are constructed over the period from 1980 to 2008, and Table 1 provides the primary sources of these indicators.

To measure "bank" development, we use **Private credit**, which equals deposit money bank credit to the domestic private sector as a share of Gross Domestic Product (GDP). Private credit isolates credit issued to the private sector and therefore excludes credit issued to governments, government agencies, and public enterprises. Private credit also excludes credits issued by central banks. Not surprisingly, there is enormous cross-country variation in Private credit. For example, averaging over the 1980-2008 period, Private credit was less than 10% of GDP in Angola, Cambodia, and Yemen, while it was greater than 85% of GDP in Austria, China, and United Kingdom. Table 2 indicates that the annual average value of Private credit across countries was 39% with a standard deviation of 36%.

To measure "market" development, we primarily use **Stock value traded**, which equals the value of stock market transactions as a share of GDP. This market development indicator incorporates information on the size *and* activity of the stock market, not simply on the value of listed shares. Earlier work by Levine and Zervos (1998) indicates that the trading of ownership claims on firms in an economy is closely tied to the rate of economic development. There is substantial variation across counties. As shown in Table 2, while the mean value of Stock value traded is about 29 percent of GDP the standard deviation is about double this value. In Armenia, Tanzania, and Uruguay, Stock value traded annually averaged less than 0.23% over the 1980-2008 sample (10th percentile). In contrast, Stock value traded averaged over 75% in Hong Kong, Saudi Arabia, Switzerland, and Unites States (90th percentile).Also, we confirm this paper's results using other market development indicators. In particular, we examine **Stock market capitalization**, which simply measures the value of listed shares on a country's stock exchanges as a share of GDP and **Securities market capitalization**, which equals the capitalization of the stock market plus the capitalization of the private domestic bond markets, divided by GDP.

2.2. Other data

As a measure of economic activity, we use **Log Real GDP per capita**, which equals the logarithm of GDP per capita in constant 2000 U.S. dollars. And, to assess the independent link between finance and economic development, we control for many other country characteristics that have been employed in the development literature. In some specifications, we use "standard controls" to evaluate the independent relationship between finance and economic activity. These standard controls include: years of schooling, openness to trade, inflation, government size, the initial GDP per capita of the economy in 1980, and dummy variables for the 5-year periods of analysis. Consistent with theories guiding the empirical analyses (which are discussed in the Introduction), we examine **Log Real GDP per capita** rather than GDP per capita growth because we want estimates of the association between economic activity and both bank and securities market development. With the current specification, the estimated coefficients provide information on how **Log Real GDP per capita** changes when, for example, securities market development changes. Table 1 gives the detailed definitions and sources of these data and Table 2 provides descriptive statistics.

2.3. Correlations

The correlations in Table 3 highlight key features about the financial system and economic development. First, bank and securities market development are positively correlated with economic development. Second, bank and securities market development are positively correlated, suggesting that financial development involves both bigger banks and bigger markets. Though simple correlations, we will see that these basic patterns hold when controlling for many other national traits.

3. The Relationships among Banks, Markets, and Economic Development

3.1. Quantile regressions

To assess how the relationships between economic activity and both bank development and stock market development evolve with economic development, we use quantile regressions with data averaged over non-overlapping 5-year periods. Ordinary least squares (OLS) provide information on the relationship between Log Real GDP per capita and financial development for the country at the average level of economic development. But, OLS does not provide information on how the relationship between economic activity and financial development differs for countries at different levels of economic activity.

Our quantile regressions model the relation between Log Real GDP per capita and financial development at the specific percentiles (or quantiles) of Log Real GDP per capita. Thus, in a quantile regression of Log Real GDP per capita on Private credit, the procedure is able to yield a *different* estimated coefficient on Private credit for each percentile (or quantile) of Log Real GDP per capita. For example, the estimated coefficient at the 50th percentile is a median regression, yielding the estimated relationship between Log Real GDP per capita and Private

credit at the median level of economic activity. By computing the quantile regression for each of the 5th to the 95th quantiles, we assess how the relationship between economic activity and financial development differs across distinct levels of Log Real GDP per capita.

In neither the OLS nor the quantile regressions do we identify the causal impact of bank and securities market development on economic development. Rather, the goal is to explore whether, and how, the relation between changes in economic activity and changes in both bank and market development varies with the level of economic development.

3.2. Illustrating the quantile regression results

In Panel A of Figure 1, the graph on the upper-left-hand-side plots the coefficients from 91 separate quantile regressions for each percentile from the 5th through the 95th percentiles of Log Real GDP per capita, where the dependent variable is Log Real GDP per capita and the main regressor is Private credit. We also control for Stock value traded. A circle represents each coefficient estimate produced by the quantile regression associated with the corresponding percentile. The left axis provides information on the values of the coefficient estimates. Thus, the estimated coefficient depicts the "sensitivity" of Log Real GDP per capita associated with a change in Private credit at each percentile of economic development. These estimates are statistically significant, and we provide additional information on the sensitivity of these estimates below. The graph also plots the actual values of Private credit at each percentile, which are designated with a triangle. The scale of the values of Private credit is provided on the right axis. The graphs in the remainder of Panel A of Figure 1 provide similar information on the relationship between economic activity and stock market development. The upper-right graph provides information for Stock value traded. The lower-hand-side charts confirm the increasingly

relevant role for securities markets by documenting similar upward trends for both Securities market capitalization and Stock market capitalization.

Panel B of Figure 1 provides the same types of quantile analyses, while controlling for other characteristics of the national economies. We use as "standard controls:" Log Real GDP per capita in 1980, Government size, Openness to trade, Inflation, Average years of schooling, and period-fixed effects.

In each of the eight graphs in Panels A and B of Figure 1, we provide two additional pieces of information. First, the horizontal dotted line is the OLS estimate of the coefficient on the financial development indicator. Thus, in the graph on the upper-left-hand-side of Figure 1-Panel A, this line is simply the coefficient on Private credit from an OLS regression of Log Real GDP per capita on Private credit for the full sample of country-year observations, controlling for Stock value traded. When moving away for the mean Log Real GDP per capita, the quantile estimates become statistically different from the OLS estimates, and we explore the nature of these deviations below. Second, the solid line shows the estimated linear relationship between each estimated coefficient of the financial development indicator (i.e. the circles) and the GDP per capita percentile associated with the coefficient. As a specific example, consider the graph in the upper-right quadrant of Figure 1-Panel B. We first collect the estimated coefficients on Stock value traded after conditioning on the standard controls and period-fixed effects. We then regress these estimated coefficients on the GDP per capita percentile associated with the estimates. Panel A in Table 4, column (4) provides the results from this regression. The estimated coefficient for each GDP per capita percentile provides the trend line graphed in Figure 1. We discuss these results in greater depth below.

3.3. Discussing the quantile regression results

In terms of bank development, Figure 1 shows that as Log Real GDP per capita rises, two things happen: (1) Private credit rises (triangles) and (2) the marginal increase in Log Real GDP per capita associated with an increase in Private credit *falls* (circles). Put differently, the level of bank development increases, but its association with economic activity falls. We formally test this in Panel A of Table 4. In this panel, the dependent variable is the estimated linear association between economic activity and either bank development or securities market development at each percentile of the distribution of GDP per capita underlying Figure 1. Regressions (1) and (2) show that this relationship is statistically significant: as economic activity increases, there is a significant reduction in the estimated coefficient on Private credit.

The results are the opposite for securities market development. As Log Real GDP per capita rises, (1) Stock value traded rises and (2) the marginal increase in Log Real GDP per capita associated with an increase in Stock value traded also *rises*. That is, as countries develop economically, securities market development increases and its association with economic activity also increases. Regressions (3) and (4) in Panel A of Table 4 show that this effect is statistically significant: the association between economic activity and Stock value traded increases as Log Real GDP per capita rises. These results suggest that the relationship between bank development and economic activity differs from the one between securities market development and economic activity.

Figure 1 suggests that there might be a nonlinear relationship between (1) economic activity and bank development and (2) between economic activity and securities market development. To assess the sensitivity of our findings and provide more information on the nature of the relationship, we examine this more rigorously in Panel B of Table 4, which includes

a quadratic term to allow for a potential nonlinear, parabolic relationship. This makes it possible to estimate the level of economic activity at which the associations between financial and economic development start to decrease as the economy develops further.

Consistent with Figure 1, the Table 4-Panel B regression results suggest that there is a nonlinear association between economic activity and both bank and securities market development. At very low levels of economic development, the association between economic activity and bank development is increasing in economic development, but the slope quickly becomes negative. In particular, regressions (1) and (2) of Panel B indicate that the slope of the association between economic activity and bank development becomes negative after real GPD per capita reaches $1,032 in 2000 US dollars (36th percentile). For securities market development, Table 4-Panel B indicates that the association between economic activity and securities is always increasing in the 5th -95th percentile interval of economic development, but at a decreasing rate (regressions (3) and (4)). In other words, only the upwards sloping part of the estimated parabola is relevant. For example, the regression (4) estimates suggest that as economies grow and move to the next percentile, the coefficient increases by more than 5 percent for countries below the 20th percentile. In contrast, the coefficient increases by just 0.7-1.0 percent for each additional percentile from the 78th percentile upwards.

3.4. Broader implications of quantile analyses

The evidence is consistent with several lines of theoretical research on the evolving importance of banks and financial markets during the process of economic development. As noted in the Introduction, Allen and Gale (2000), Boot and Thakor (1997, 2000), Boyd and Smith (1998), Song and Thakor (2012), and others stress that at higher levels of economic

development, economies require the types of custom-designed financial arrangements that ease the financing of more novel, longer-term investment that often employ more intangible inputs than the types of projects that dominate economic activity at lower levels of economic development. These theories predict that securities markets are comparatively better than banks at financing such activities. Thus, influential lines of theoretical analysis predict that the services provided by securities markets will become more important for fostering economic activity as economies grow, while those provided by banks will tend to become less important. The quantile regression results are consistent with these predictions. At the same time, the quantile regression results are inconsistent with the view that economic development is simply associated with an increase in bank and stock market development with no *differential* effect on their association with economic activity. That is, we find that as countries development economically, the association between economic activity and bank development tends to weaken while the association with securities market development tends to strengthen.

4. Conclusions

This paper provides an empirical exploration of the evolving importance of banks and markets during the process of economic development. As economies grow, both the banking system and financial markets become more developed, but the association between economic activity and bank development tends to fall while the association between economic activity and securities market development tends to increase. Although this paper does not use instrumental variables to identify the separate causal impacts of bank and securities markets development on economic development at different stages of economic development, we do provide quantile regressions that for the first time directly assess the predictions emerging from an influential line

of theoretical work on financial structure. That is, this paper's results are consistent with the view that (a) financial institutions provide different financial services from those provided by financial markets and (b) as economies grow, the services provided by securities markets become more important for promoting economic activity while those provided by banks become less important. As such, this research suggests that policies and institutions that impede the *evolution* of the structure of financial systems as economies grow can have detrimental ramifications on economic development.

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Table 1: Variable definitions and sources

Name	Source	Definition
Dependent variable and baseline financial sector controls		
Log Real GDP per capita	World Development Indicators (WDI)	Logarithm of real GDP per capita (constant 2000 USD).
Private credit	International Financial Statistics (IFS)	Deposit money bank credit to the private sector as % of GDP.
Stock value traded	Standard & Poor's	Value of stock market transactions as % of GDP.
Stock market capitalization	Standard & Poor's	The value of listed shares on a country's stock exchange as a share of GDP.
Securities market capitalization	Standard & Poor's; Bank of International Settlements	Stock market capitalization plus Domestic private bond market capitalization as % of GDP.
Standard controls		
Log Initial GDP per capita	WDI	Log Initial real GDP per capita (constant 2000 USD).
Log Avg. years of schooling	Barro and Lee (2010)	Log (1 + Average years of schooling).
Log Openness to trade	WDI	Log Sum ex- and imports of goods and services as % of GDP.
Log Government size	WDI	Log General government consumption as % of GDP.
Log Inflation rate	IFS	Log(1 + Annual change of CPI)

Table 2: Descriptive statistics
Descriptive statistics are calculated on all available annual data in the period 1980-2008.

Variable	Mean	Standard deviation	Maximum	Minimum
Dependent variable and baseline controls				
Log Real GDP per capita (constant 2000 USD)	7.58	1.57	10.94	4.13
Private credit	39.28	35.90	319.71	0.00
Stock value traded	28.80	57.44	632.34	0.00
Stock market capitalization	47.70	58.39	561.44	0.00
Securities market capitalization	59.08	71.20	588.27	0.00
Standard controls				
Log Avg. years of schooling	1.86	0.50	2.65	0.03
Log Openness to trade	4.26	0.61	6.12	-1.18
Log Inflation rate	0.15	0.37	5.48	-0.52
Log Government size	2.72	0.43	4.42	0.32

Table 3: Correlations
Correlations are calculated on all available annual data in the period 1980-2008. *, **, *** denote significance level of correlation at 10, 5, and 1-percent level, respectively.

| *Correlations*	Log Real GDP per capita	Private Credit	Stock value traded	Log Average years of schooling	Log Openness to trade	Log Inflation rate	Log Government size
Private Credit	0.67***	1					
Stock value traded	0.41***	0.51***	1				
Log Average years of schooling	0.71***	0.49***	0.26***	1			
Log Openness to trade	0.25***	0.21***	0.08***	0.31***	1		
Log Inflation rate	-0.15***	-0.16***	-0.12***	-0.03**	-0.13***	1	
Log Government size	0.28***	0.21***	0.04**	0.25***	0.28***	-0.08***	1

Figure 1: Quantile coefficients for Private credit and Securities Market Activity

The dependent variable is Log real GDP per capita. The figures depict the coefficients of quantile regressions of Private credit, Stock value traded, Securities market capitalization and Stock market capitalization as independent variables for each of the 5th to 95th percentiles of the GDP per capita distribution on the left axis. Private credit is defined as deposit money bank credit to the private sector as % of GDP. Stock value traded is the value of stock value transactions as % of GDP. Stock market capitalization is the value of listed shares on a country's stock exchanges as % of GDP. Securities market capitalization is defined as Stock market capitalization plus Domestic private bond market capitalization as % of GDP. Percentile values are reported on the right axis. Data are 5-year non-overlapping country averages. Panel A does not control for additional variables. Panel B controls for Standard controls: Initial GDP per capita, Government size, Openness to trade, Inflation, Average years of schooling, and time-fixed effects. The horizontal dotted line depicts the OLS estimate. The solid lines represent linear fits.
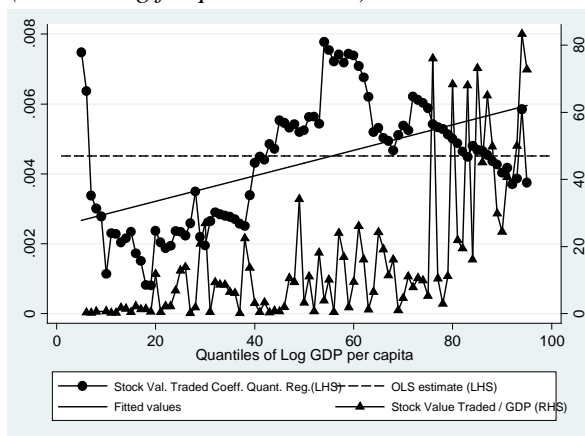
Panel A: No controls
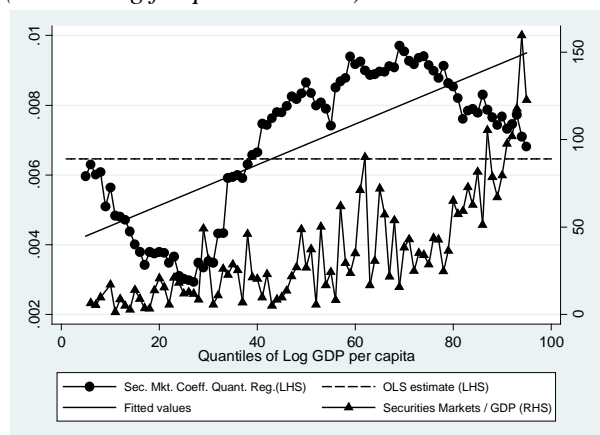
Private credit
(controlling for market value traded)
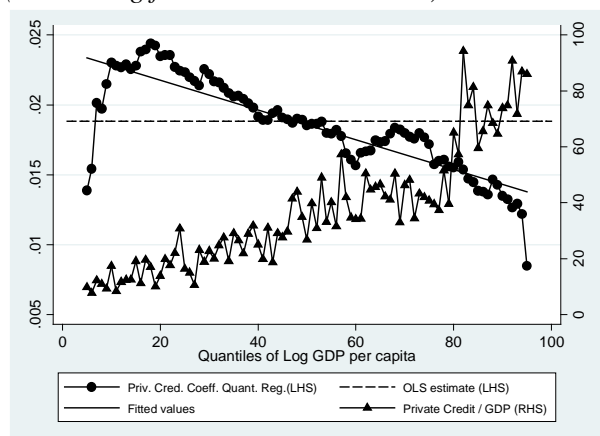
Stock value traded
(controlling for private credit)

Securities market capitalization
(controlling for private credit)

Stock market capitalization
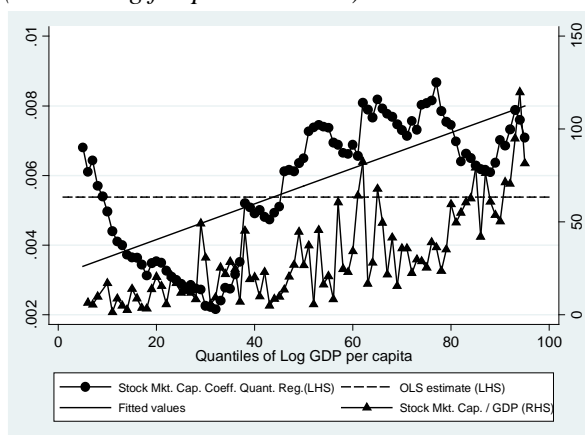*(controlling for private credit)*

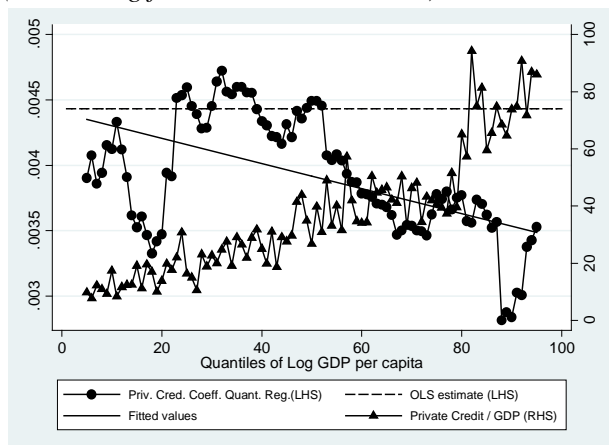**Figure 1 (continued): Quantile coefficients for Private credit and Securities Market Activity**
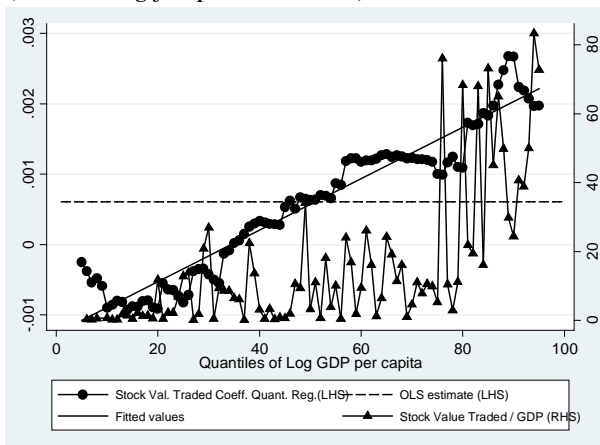
Panel B: Accounting for Standard Controls

Private credit
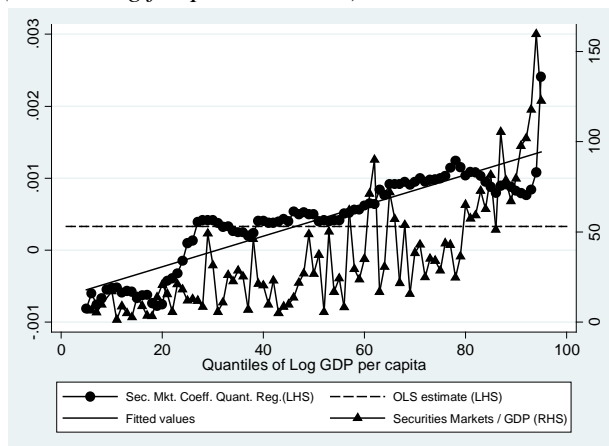*(controlling for market value traded)*

Stock value traded
(controlling for private credit)

Securities market capitalization
(controlling for private credit)

Stock market capitalization
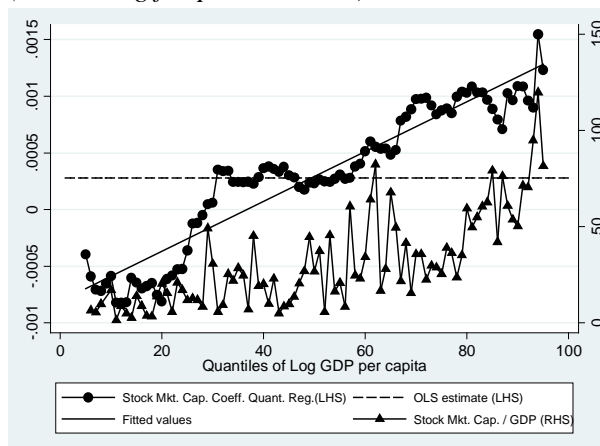*(controlling for private credit)*

Table 4: Robust regression results of linear regression fits of Figure 1

The table displays robust regressions results of the linear fits depicted in Figure 1. The dependent variables are coefficients of quantile regressions of Private credit and Stock value traded for each of the 5th to 95th percentiles of the GDP per capita distribution, respectively, on 5-year non-overlapping country averages. Panel A reports a linear model, where the regressors are a constant and the income percentile associated with the coefficient. Panel B shows the results for the quadratic model using the same independent variables in the linear model plus the square of the percentile associated with the coefficient. Columns 1 and 3 use coefficients of quantile regressions without additional controls (Panel A of Figure 1). Columns 2 and 4 use coefficients of quantile regressions that include standard controls: Initial GDP per capita, Government size, Openness to trade, Inflation, Average years of schooling, and time-fixed effects (Panel B of Figure 1). The p-values in brackets are based on robust country-level clustered standard errors. *, **, *** denote significance on the 10, 5, and 1-percent level, respectively.

Panel A: Linear model

	Dep. Var.: Percentile regression coefficient Private credit		Dep. Var.: Percentile regression coefficient Stock Value Traded	
	1	2	3	4
	(No controls)	(With all controls)	(No controls)	(With all controls)
Percentile	-1.24E-04***	-1.02E-05***	4.18E-05***	3.79E-05***
	[0.00]	[0.00]	[0.00]	[0.00]
Constant	2.51E-02***	4.45E-03***	2.05E-03***	-1.34E-03
	[0.00]	[0.00]	[0.00]	[0.00]
Controls	No	Yes	No	Yes
Observations	91	91	91	91

Panel B: Quadratic model

	Dep. Var.: Percentile regression coefficient Private credit		Dep. Var.: Percentile regression coefficient Stock Value Traded	
	1	2	3	4
	(No controls)	(With all controls)	(No controls)	(With all controls)
Percentile	-1.09E-04***	2.67E-05***	2.13E-04***	4.88E-05***
	[0.00]	[0.00]	[0.00]	[0.00]
Square of Percentile	-1.37E-07	-3.69E-07***	-1.63E-06***	-1.02E-07**
	[0.00]	[0.00]	[0.00]	[0.00]
Constant	2.48E-02***	3.77E-03***	-1.44E-03***	-1.58E-03
	[0.00]	[0.00]	[0.00]	[0.00]
Controls	No	Yes	No	Yes
Observations	91	91	91	91

Appendix 1: Countries and medians for selected indicators
The table provides country medians for the period 1980-2008.

Country	Median Real GDP per capita	Median Private credit to GDP (%)	Median Stock value traded to GDP (%)
Argentina	7,169	19.9	2.7
Armenia	683	7.4	0.0
Bangladesh	277	16.7	1.4
Bolivia	987	35.2	0.0
Botswana	2,595	14.7	0.7
Brazil	3,586	37.8	13.4
Bulgaria	1,564	41.7	0.8
Chile	3,917	55.8	8.8
China	600	93.0	29.5
Colombia	2,333	30.1	1.3
Costa Rica	3,549	19.0	0.2
Croatia	4,823	36.5	1.0
Côte d'Ivoire	635	20.0	0.2
Ecuador	1,335	21.0	0.3
Egypt, Arab Rep.	1,182	29.2	4.0
El Salvador	1,877	34.9	0.2
Georgia	1,075	7.8	0.2
Ghana	234	5.2	0.5
Guatemala	1,599	19.1	0.0
Hong Kong, China	23,345	148.0	123.4
India	352	25.9	38.5
Indonesia	773	24.7	7.1
Iran, Islamic Rep.	1,486	22.8	1.9
Israel	16,920	68.6	22.3
Jamaica	3,469	24.0	2.3
Jordan	1,901	66.0	10.4
Kazakhstan	1,397	21.2	0.7
Kenya	421	24.2	0.6
Kuwait	16,929	56.5	36.0
Kyrgyz Republic	321	5.3	1.6
Latvia	3,588	22.8	0.8
Lebanon	4,459	73.5	1.4

Appendix 1 (continued): Countries and medians for selected indicators

Country	Median Real GDP per capita	Private credit to GDP (%)	Stock value traded to GDP (%)
Lithuania	3,506	16.8	1.9
Macedonia, FYR	1,752	23.9	1.4
Malawi	144	8.9	0.3
Malaysia	3,366	105.7	43.7
Mexico	5,277	17.2	8.1
Moldova	512	13.3	1.9
Mongolia	464	11.1	0.3
Morocco	1,234	29.0	2.6
Namibia	2,052	46.6	0.3
Nepal	199	18.3	0.5
Nigeria	368	13.2	0.4
Oman	7,537	24.7	3.4
Pakistan	503	24.6	17.2
Panama	3,480	60.4	0.5
Papua New Guinea	630	18.1	0.1
Paraguay	1,399	20.1	0.1
Peru	2,049	13.3	2.9
Philippines	941	29.3	9.6
Poland	4,251	27.5	5.1
Romania	1,896	37.5	0.9
Russian Federation	2,037	16.2	7.8
Saudi Arabia	9,402	22.7	9.7
Singapore	18,451	90.0	74.0
Slovenia	9,595	35.5	2.6
South Africa	3,181	58.0	43.4
Sri Lanka	676	21.8	1.8
Tanzania	264	5.4	0.1
Thailand	1,827	95.6	34.0
Tunisia	1,639	53.8	1.4
Turkey	3,580	17.8	30.3
Uganda	215	4.2	0.0
Ukraine	944	11.1	0.6
United Arab Emirates	22,586	47.4	1.1
Uruguay	6,068	35.3	0.0
Venezuela, RB	5,030	16.5	0.7
Vietnam	328	37.3	1.0
Zambia	369	8.2	0.2