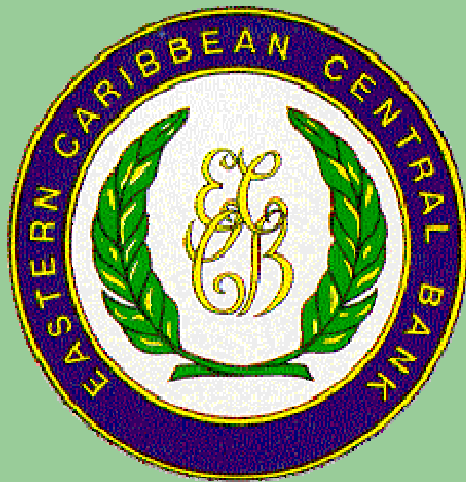# The Nexus Between Financial Intermediation and Growth: The Case of the ECCU

Rohan Stowe and C. Kevin Silston
Research Department
Eastern Caribbean Central Bank

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Motivation for the study

The paucity of empirical research work on the financial intermediation-growth nexus in small-island developing economies like the ECCU

To get a better understanding of the relationship and the mechanism through which the financial Intermediation influences growth in the ECCU.

Outline of Presentation

- Background

- Literature Review

- Data and Summary Statistics

- Methodology

- Preliminary Results

Background

- Unfolding the ECCU enigma

(1) Outstanding growth performance in spite of domestic and external shocks

(2) Shocks to the other sectors have had little or no effect on the financial sector.

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Literature Review

Two basic schools of thought with respect to the role of financial development in the growth process.

(1) The the financial sector plays a pivotal role in influencing some of the factors of production critical to the economic growth process.

Bagehot (1873), Hicks (1969), Schumpeter (1912)

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Literature Review

(2) Financial development is not a leading indicator of economic growth. It is the financial sector that follows growth

Robinson (1952), Lucas (1988), Meir and Seers (1984) Stern (1989).

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Literature Review

There is a growing body of theoretical and empirical evidence that suggest, that there is a positive first order relationship between financial development and growth. *Levine (1997)*

Theoretical Argument:
The financial system influences economic growth by allocating resources over space and time to aid in the processes of capital accumulation and technological innovation

Literature Review

The financial system satisfies five (5) basic functions:
(1) mobilise and pool savings;

(2) allocate resources by reducing information asymmetries related to possible investment decisions;

(3) monitor investments and exert corporate governance on firms;

(4) facilitate risk management;

(5) ease the trading of goods, services and contracts

Literature Review

Empirical evidence support the finance growth
relationship.

(1) King and Levin (1993a, b)

(2) Rousseau and Watchel (1998); Arestis, Demetriades and Luintel (2000)

(3) Levine, Loayza and Beck (2000)

(4) Rajan and Zingales (1998), Demirguc_Kunt and Maksimovic (1998)

Literature Review

Levine (2004) draws (3) broad conclusions from the existing body of work:

(1) countries with better functioning banks and markets grow faster but the degree to which a country is bank- based or market-based does not matter much;

(2) simultaneity bias does not seem to drive these conclusions;

(3) better functioning financial systems ease the external financing constraints that impede firms industrial expansion, suggesting that this is the one mechanism through which financial development matters for growth.

Assumptions

(1)There is a positive relationship between financial intermediary development and growth in the ECCU which runs from finance to growth.

(2)The observed relationship between the level for financial Intermediary development and growth is due to both within-country differences and the between country differences

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Data and Summary Statistics

Measuring Financial Development
Five main variables are used to proxy the level of financial intermediary development:

- Liquid Liabilities of the Commercial Banking system (M2R)
- Private Sector Credit Ratio (PSC)
- Total Credit Ratio (TCR)
- Business Credit Ratio (BUSCR)
- Domestic Credit Ratio(DC)

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Data and Summary Statistics (cont'd)

Measuring Growth & Control Variables
i) Two measures of growth are used;
 1) Real per capita GDP growth
 2) Logarithm of real per capita GDP

ii) Control Variables
 Group 1- Integration
 (openness index and FDI ratio)
 Group 2- Domestic Policy
 (capital expenditure ratio, size of government ratio, gross fixed capital formation)

 Group 3- Exogenous(population growth, growths in exports, initial income, inflation)

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Data and Summary Statistics (cont'd)

	Table 1			
Panel Summary Statistics of Key Variables:1988-2005				
Variable	**Mean**	**Std. Dev**	**Min.Value**	**Max.Value**
Growth	2.84	9.79	-22.97	95.46
Domestic Credit	0.58	0.30	-0.35	1.53
Business Credit	0.34	0.17	0.04	0.87
Private Sector Credit	0.65	0.27	0.21	1.70
Total Credit	0.78	0.30	0.24	1.82
M2R	0.76	0.30	0.41	2.06
Foreign Direct Investment	0.13	0.10	0.00	0.62
Growth of Exports	5.24	13.61	-61.19	54.81
OPEN	1.34	0.24	0.95	2.25
Inflation	2.93	2.37	-1.80	12.14
Government Balance	-0.16	0.70	-4.16	2.85
Capital Expenditure	0.08	0.06	0.01	0.38

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Data and Summary Statistics (cont'd)

|	GRGDPpc	DC	BUSC	PSC	TCR	M2R	FDI	GEXG	OPEN	INF	CGOB	CAPE	GFKF
Table 2 -Annual Data													
Panel Correlation Matrix:1988-2005													
GRGDPPC	1												
DC	-0.12	**1.00**											
BUSCR	-0.08	0.68	**1.00**										
PSC	-0.12	0.91	0.79	**1.00**									
Total Credit	-0.39	0.91	0.70	0.92	**1.00**								
M2R	0.00	0.53	0.48	0.72	-0.13	**1.00**							
FDI	-0.05	0.57	0.56	0.64	0.11	0.61	**1.00**						
GEXGS	0.31	0.03	0.01	-0.01	-0.04	-0.07	0.05	**1.00**					
OPEN	0.02	0.06	0.11	0.20	-0.08	0.35	0.20	0.20	**1.00**				
INF	-0.04	-0.01	-0.07	-0.03	0.07	-0.06	0.04	0.09	0.13	**1.00**			
CGOB	-0.03	-0.36	-0.36	-0.42	-0.03	-0.38	-0.51	-0.09	-0.22	-0.07	**1.00**		
CAPEXP	0.06	-0.53	-0.43	-0.37	-0.27	0.09	-0.14	-0.03	-0.08	0.02	0.05	**1.00**	
Gross Fixed Capital Formation	0.13	0.02	-0.26	-0.06	0.19	0.16	0.12	-0.05	-0.05	0.11	0.02	0.19	**1.00**

Data and Summary Statistics (cont'd)

table 3.xls

Data and Summary Statistics (cont'd)

Graph 1: Financial Intermediation and Growth
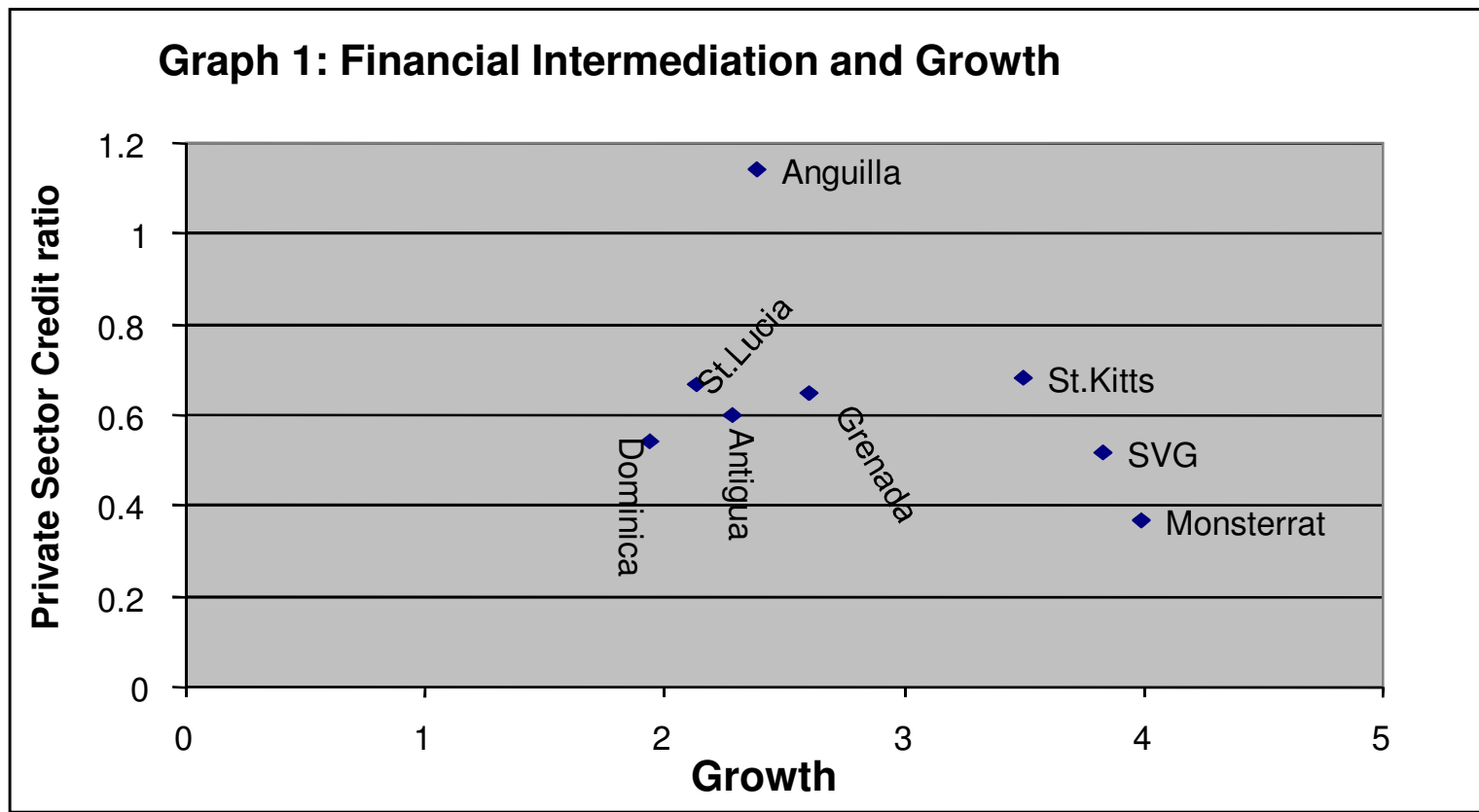
Data and Summary Statistics (cont'd)

Graph 2: Financial Intermediation and Growth
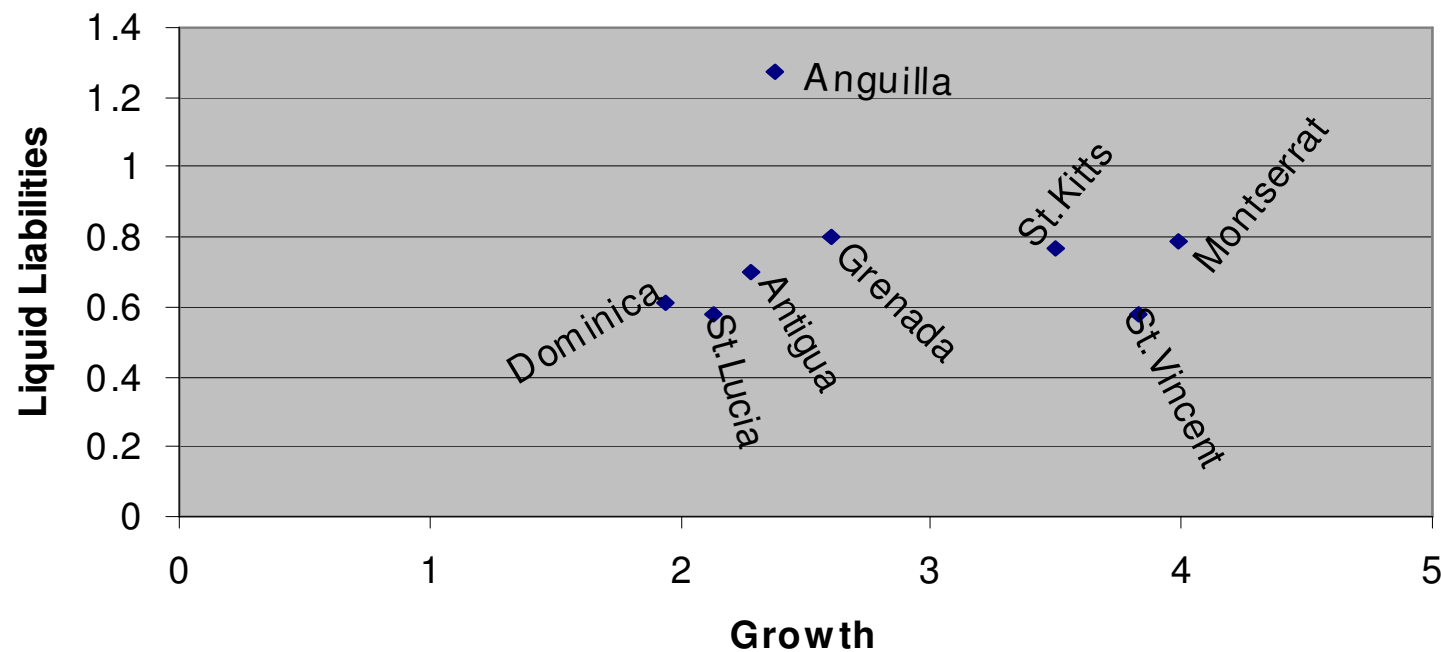
Dynamic Panel Model

The model specification:

(1) Panel consist of eight member countries of the ECCU over the period 1988-2005

(2) We use a non-overlapping three(3) years period so that we have six(6) observation per country

(3) The regression equation is specified as:
$$y_{it} = \alpha y_{i,t-1} + \beta X_{it} + \eta_i + \lambda_t + \varepsilon_{it} \quad (1)$$

Dynamic Panel Model

(1) $y_{it,} =$ Log of Real GDP per capita

(2) $X_{it} =$ includes the indicator of financial development along with other control variables

(3) $\eta_t =$ unobserved country-specific effect

(4) $\varepsilon_{it} =$ the error term

Dynamic Panel Model

We use two generalized-method-of moments estimators
For panel (Arellano and Bover, 1995):
(1) The difference

The following moment conditions must hold

$$E[y_{i,t-p} \cdot (\varepsilon_{i,t} - \varepsilon_{i,t})] = 0 \text{ for } p \geq 2, t = 3, \dots T(2)$$

$$E[X_{i,t-p} \cdot (\varepsilon_{i,t} - \varepsilon_{i,t})] = 0 \text{ for } p \geq 2, t = 3, \dots T(3)$$

Dynamic Panel Model

(2) System Estimator must fulfill the following moment conditions:

$$E[(y_{i,t-p} - y_{i,t-p-1}) \cdot (\eta_i + \varepsilon_{i,t})] = 0 \text{ for } p=1 \quad (4)$$

$$E[(X_{i,t-p} - X_{i,t-p-1}) \cdot (\eta_i - \varepsilon_{i,t})] = 0 \text{ for } p=1 \quad (5)$$

Dynamic Panel Model

The Diagnostic Test

Three specification tests are suggested by Arellano and Bond(1991) Arellano and Dover (1995) and Blundell and Bond (1997)

(1) The Sargan test of over-identifying restriction
(2) The AR(2) test for serial correlation
(3) The "difference" Sargan Statistic

Empirical Results

Table I -Benchmark Regression: Determinants of Growth using 3 years averages				
Dependent Variable:Log Real Per Capita GDP				
		Dynamic Panel Estimators		
	OLS(Pool regression)	**Levels**	**Difference**	**System**
Initial Income	**0.46****	**0.96****	**0.45***	**0.27***
	0.12	0.01	0.20	0.06
	0.00	0.00	0.03	0.00
Government Balance	**-0.025**	**0.08**	**0.00**	**0.05**
	0.01	0.04	0.20	0.05
	0.01	0.11	0.96	0.26
Foreign Direct Investment	**-0.04**	**0.11****	**0.06**	**-0.23**
	0.02	0.01	0.04	0.19
	0.01	0.00	0.12	0.22
Investment	**0.65****		**0.74***	
	0.14		0.18	
	0.00		0.00	
Openness	**0.12***	**0.17****	**-0.13**	**-0.03**
	0.05	0.04	0.12	0.10
	0.02	0.01	0.30	0.75
R-squared	0.98			
No obs	32			

Empirical Results

Maintable.xls

Preliminary Results

Table 5 -Economic Growth and Financial Sector Development					
Dependent Variable:Log Real Per Capita GDP					
			Dynamic Panel Estimators		
Indicators	OLS	Levels	Difference	System	Within
Business Credit	**0.03****	**0.05****	**0.32****	**0.04**	**0.09***
	0.01	0.02			0.03
	0.00	0.01			
Private Sector Credit	**-0.02**	**-0.10**	**-0.07**	**-0.11**	**0.01**
	0.01	0.03		0.02	
	0.01	0.00			
Total Credit	**-0.02**	**-0.17**	**0.03**	**0.05**	**0.19**
	0.01	0.06		0.04	
	0.03	0.00			
Liquid Liabilities	**0.42****	**0.04**	**0.47****	**0.08**	**0.47****
	0.10	0.06		0.06	
	0.00	0.45			

Preliminary Results

Indicators.xls

Preliminary Results

Diagnostics.xls

Sensitivity Checks

Growth $= \alpha + \beta FIN + \delta[FIN*X] + \varphi X + \varepsilon_{it}$

where X equals initial real per capita GDP, FDI and sub-regional dummy

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Summary of Results

Table 5 suggests the following:

1. Business credit and liquid liabilities have a significant association with growth

2. The magnitude of that association is economically significant especially for liquid liabilities

Summary of Results

Table 5 suggests the following:

(3) There is no significant contemporaneous relationship between credit to the private sector and growth

However private sector credit seems to affect growth with a lagged effect

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