Working Paper:

Financing for SMEs in the ECCU Region: An Empirical Investigation into the Constraints of SME Financing.

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Outline

- Motivation of study.
- Research Question
- Literature Review
- Data and Sample
- Model Specification
- Results
- Policy Recommendations

Motivation

- SMEs are the drivers of economic growth and employment.
- In the ECCU and wider CARICOM they face significant constraints in accessing finance.
- To date limited empirical studies have been conducted in the ECCU region and CARICOM by extension.

Research Question

- How does size among other key firm characteristics, bank relationship and bank credit assessment, industry and regional differences affect firms ability to access credit or demand credit in the ECCU region?

Literature

- (Schiffer & Weder, 2001); findings suggested that small firms and medium firms have greater problems in accessing finance.
- (Beck & Cull, 2014) small and medium firms were 30% and 13-14% less likely to obtain a formal loan respectively as compared to larger firms. Additionally, sole proprietorships and partnerships firms were also less likely to have a formal loan.
- Findings by (Abo, et al., 2013) suggest that for most SMEs, inadequate collateral and lack of financial information were the principal constraints to obtaining bank credit.
- (Nu Minh Le, 2012) finds that firms in services and manufacturing had a higher probability of accessing credit.
- (Holton, et al., 2012) discovered that the real economy proxied by GDP growth was found to affect demand for credit through a supply spill-over effect. (Jenkins & Hussain, 2014) macroeconomic conditions do have an impact on SME credit.

Data and Sample

- For this study firm level data utilized was based on the Productivity, Technology and Innovation (PROTEqIN) survey.
- The main objectives of the survey were to provide new and updated data from enterprises that were included in the previous WBES for the LAC region.
- This survey was conducted using a conventional methodology with control for quality.
- Similarly, to the WBES for LAC, firms in the PROTEqIN survey were surveyed in strata's according to size (small, medium and large) and sector.

Data & Sample

- The key *dependent variable* is *access to bank credit* which is defined as those firms which indicated that they utilise bank credit.
- The *second dependent* variable *demand for credit* is defined as those firms which have applied for credit within the last financial year.
- *The industry variable* covers two principle sector; manufacturing and services.
- Country variables *real interest rate* and *GDP per-capita* were sourced from the World Bank website.

Model Specification

- The preferred model of choice for answering the research questions is the logistic regression model.

$$\Pr(y = 1|x) = \frac{\exp(x'\beta)}{1 + \exp(x'\beta)} = \wedge(x'\beta)$$

Two Models were estimated:

<u>Model 1</u>

$$\Pr(Bank\ Credit)_{kj} = G\left(Firm\ Specific_{kj}, Credit\ Assessment_{kj}, Country_j\right) + e_{kj}$$

<u>Model 2</u>

$$\Pr\ (Demand)_{kj} = G\left(Firm\ Specific_{kj}, Credit\ Assessment_{kj}, Country_{\ j}\right) + e_{kj}$$

Model Specification

- Collinearity test is also employed to determine the extent of correlation among the explanatory covariates. A bench mark of $r > 0.5$.
- The control variables "*country*" were included in all regressions so as to account for any heterogeneity that may arise at the country level.
- To account for variation among firms clustering of the errors at the industry level were allowed. This allows for correlation of the firms within similar industries but not across the different industries.

Results: WC Financing Patterns CARICOM

- Across the board it was observed that all firms basically fund more that 50% of their working capital needs using internal sources of revenue.
- Supplier credit is the second largest contributor to working capital financing with an overall 17% contribution
- Small firms are observed to use less financing from private commercial banks as compared to medium and large firms.
- Overall contribution by state banks to working capital financing is the lowest at only 3% of the total.

Results: FC Financing Patterns CARICOM

- Small and medium firms finance a greater proportion of their fixed capital using internal funds as compared to larger firms.
- Internal funds account for an overall 63% of firms total fixed capital financing.
- Private commercial banks are the second largest, accounting for just over 22% of funding for fixed capital purchases.
- Of small firms, 53% and medium firms 66% did possess an overdraft facility, as compared to 81% of the large firms which possessed an overdraft facility.
- Of the firms that had a loan facility, 35.9% of small firms and 41% of medium firms had a loan compared to 47% of large firms.

Results: Financing Patterns ECCU

- Internal funds account for 60% of firms working capital financing, while supplier credit accounts for the second largest source of finance for working capital at 19.87%.
- State owned banks continues to be one of the least utilized sources of financing among firms.
- For fixed capital financing internal funds account 69.9%.
- Commercial banks make up the second largest share of financing for fixed capital at 23%
- Other sources account for 7% (other includes informal sources, angel investors, money lenders, family etc.)

Results: Financing Patterns ECCU

- Small and medium firms are observed to use more informal sources of financing. This is partly due to the relaxed collateral requirements and relationship these parties might share with the firms' owners which allows access to financing with less restrictions.
- On average 54.7% of small firms and 63.1% of medium firms have an overdraft facility compared to 54.3% for large firms.
- 35% of small and medium firms have a loan facility, whereas 43% of large firms have a loan or credit facility.
- Small and medium firms are 52.3% and 34.2% reported that access to finance was an obstacle to operations as opposed to only 5.7 % of large firms who reported access to financing obstacle.

Results: Logistic Regression (CARICOM)

	Model 1	Model 2
	Access to Credit	Demand for Credit
Size		
Medium	0.774***	0.576***
	(0.000)	(0.000)
Small	0.623***	0.581***
	(0.000)	(0.000)
Legal Status		
Sole Proprietorship	1.173	0.915
	(0.277)	(0.431)
Partnership/Other	1.155***	1.026
	(0.000)	(0.456)
Foreign	1.001	0.993*
	(0.460)	(0.066)
Collateral	9.455***	0.834***
	(0.000)	(0.002)
Audit	1.325***	0.932***
	(0.000)	(0.000)
Overdraft	1.363***	0.857
	(0.003)	(0.627)
Real	0.982	0.954***
	(0.313)	(0.000)
LNGDPC	0.868**	0.957***
	(0.049)	(0.000)
Duration		0.991***
		(0.000)
Observations	1883	726

Results: Logistic Regression (CARICOM)

- Small firms are 38% and medium firms are 23% are less likely to obtain credit relative to larger firms.
- For those firms formally registered as partnerships, the odds of accessing credit are significantly higher and they are 15.5% more likely to have access to financing, relative to shareholding companies.
- The variables collateral, overdraft facility and audited financial statements significantly increase firms' chances of accessing credit.
- Firms with collateral are 9 times more likely to access credit facilities as compared to those firms without.
- Firms with Audited financial statements and overdraft facilities are 32.5% and 36.3% more likely to have access to credit

Results: Logistic Regression (CARICOM)

- On the country level, it is observed that the log of GDP per-capita significantly reduces the odds of obtaining a loan, while the real interest rate has no significant impact on firms’ chances of obtaining credit.
- On the demand side, small and medium firms are significantly associated with the demand credit and are both 42% more likely to be discouraged relative to larger firms.
- The odds of foreign owned firms applying for credit are less than one 1% even though its significant. This suggests that foreign owned firms have less need for credit in domestic markets.
- Both country variables as measured by the log of GDP per-capita and real interest rate are found to significantly reduce the probability of firms applying for credit. This is consistent with similar studies.

Results: Logistic Regression (ECCU)

	Model 1	Model 2
	Access to Credit	Demand for Credit
Size		
Medium	1.617	0.512
	(0.497)	(0.116)
Small	2.110	0.608***
	(0.395)	(0.000)
Legal		
Sole Proprietorship	1.411*	1.342
	(0.056)	(0.181)
Partnership/Other	11.50***	1.037
	(0.000)	(0.328)
Size#Legal		
Sole Proprietorship # Medium	1.479	
	(0.109)	
Sole Proprietorship # Small	0.594***	
	(0.000)	
Partnership # Medium	0.0465***	
	(0.000)	
Partnership # Small	0.109***	
	(0.006)	
Foreign	1.000	0.994***
	(0.989)	(0.000)
Collateral	30.87***	0.956
	(0.000)	(0.351)
Audit	1.319***	1.493***
	(0.000)	(0.008)
Overdraft	1.124***	1.013
	(0.000)	(0.930)
Growth	1.786***	0.670
	(0.000)	(0.199)
Real	0.943***	0.934*
	(0.000)	(0.089)
Duration		0.994
		(0.323)
Observations	772	276

Results: Logistic Regression (ECCU)

- For the outcome variable access to credit, it is observed that sole proprietors and partnership firms are more likely to have access credit relative to shareholding companies.
- While the small and medium firms category are not significantly associated with the likelihood of firms accessing credit, its interaction with legal status indicates that size does have a constraining effect on firms ability to access credit.
- This shows that while legal incorporation and formality may favor firms’ ability to access financing on one hand, size of firm significantly reduces their ability to access credit.
- This is particularly due to the fact that small and medium firms often lack the ability to provide collateral and often suffer from information opacity issues.

Results: Logistic Regression (ECCU)

- Firms' performance as measured by growth in sales was found to significantly increase the odds of firms obtaining credit by 79%.
- Ability to provide collateral was found to have a significant impact on access to credit. Firms which are able to pledge collateral are 31 times more likely to have access to credit.
- Audited financial statements were found to significantly increase the likelihood of firms accessing credit by 77%.
- The odds of firms with an overdraft facility accessing credit was significant and 12% more likely to have access to credit.
- The country variable real interest rate significantly reduces the likelihood of firms accessing credit which suggests that financial institutions do look at the overall picture of the macroeconomic environment.

Results: Logistic Regression (ECCU)

- For the outcome variable demand for credit, findings suggest that small and medium firms are less likely to apply for credit relative to large firms.
- This implies that in the ECCU, small firms are more likely to be discouraged from applying for credit relative to large firms.
- Those firms that are part of a larger organization are significant and 85% more likely to demand credit.
- Additionally the variable foreign was found to have a significant impact on demand for credit however, the odds of foreign owned firms demanding credit were less than 1%.
- This is due to the fact that firms that are foreign owned often secure their financing abroad before making investments domestically.

Policy Recommendations

Regional Credit Bureau

- Credit information sharing can enforce discipline among borrowers and reduce risks associated with moral hazard, furthermore it would allow the firms to build a credit history and establish a reputation.

Partial Loan Guarantee Scheme

- It would allow for lenders to establish and gather information on new borrowers who would be backed by the guarantee.
- Would allow for greater penetration in the credit markets.
- CARICOM example: Credit Enhancement Facility operated by the DBJ.

Policy Recommendations

Secured Transactions Framework

- Consideration be given to creating a secured transaction framework for the CARICOM region to allow borrowers to pledge moveable property for collateral purposes.
- This would allow for non-traditional sources of financing such as factoring and leasing to be used in SME financing.
- Factoring opens opportunities for small and medium firms to access capital financing by selling their short term assets (accounts receivables and inventories) to a factor who buys it usually for a fee.

Policy Recommendations

Secured Transactions Framework

- Government of Jamaica passed the Security Interests in Personal Property Act and established a collateral registry. This legislation would allow for a wide range of collateral items to be used such as inventory and accounts receivables

Conclusion

- Size of firm does matter and is an important factor in determining whether a firm is likely to be constrained or discouraged.
- While legal incorporation may increase firms’ chances of obtaining financing, size of firm acts as a constraint to accessing credit.
- Compared to CARICOM, in the ECCU there is a high degree of heterogeneity among firms and countries.
- Firms with audited financial statements, collateral and overdraft facilities are significantly more likely to have access to credit suggesting there is presence of information asymmetry between borrower and lenders.

Thank You!