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"Credit Lines, Bank Deposits or CBDC? Competition and Efficiency in Modern Payment Systems"

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The argument

- Credit lines help economize on balance sheet length
- CBDC does not
- When balance sheet length is socially costly CBDC may be detrimental
- Nevertheless, firms may hold CBDC in equilibrium, making things worse

Equivalence Result

Snapshot of world without CBDC

Central Bank

Banks

	D

Firms

D	

Snapshot with CBDC and central bank refinancing of banks

Central Bank

	(R)
L	CBDC

Banks

(R)	–
	L

Firms

–	
CBDC	

Sources of equivalence failure

- CBDC, deposits not substitutable as means of payment
- CBDC, deposits different resource costs for payments
- Limits to CB refinancing (collateral, information)

▷ Relevance of gross positions—balance sheet length, ownership structure ([differential] asset mgt costs, political economy)

(Brunnermeier and Niepelt, 2019; Keister and Sanches, 2020; Niepelt, 2020a,b)

Credit Lines

Credit lines increase velocity relative to no credit lines

- Fewer precautionary balances
- Shorter holding periods
- (Credit lines also change ownership structure)

Credit Lines

Credit lines increase velocity relative to no credit lines

Do they generate complementarities relative to no credit lines?

- "When a credit line is used ... the transaction generates an asset that in turn backs deposits. This complementarity economizes on asset holdings and cuts cost by a factor of 2."
- Always one unit of assets backing a unit of liabilities

  Cost ratio $\perp \phi$

  "2" reflects holding period

Credit Lines

Credit lines increase velocity relative to no credit lines

Do they generate complementarities relative to no credit lines?

Credit lines do not change equivalence result

- Credit lines reduce banks' gross positions $\times$ holding periods relative to no credit lines (and ownership structure)
- But at each point in time, deposits could be substituted by CBDC plus CB refinancing ... subject to caveats mentioned

▷ Role of credit lines $\perp$ CBDC equivalence result

Gross positions can be relevant for only former, only latter, or both

Credit Lines

Transacting With a Credit Line

Central Bank		Banks		Firms	
				A+a	
				I	

Central Bank		Banks		Firms	
A	R	R	D	D+a	
				I	

Central Bank		Banks		Firms	
A				I+a	
	R	R	D	D	

[Within-bank transaction: L instead of R backing suffices, thus no CB balance sheet needed]

Transacting Without a Credit Line

Central Bank		Banks		Firms	
A+a	R+r	R+r	D+d	D+d	
				I	

Central Bank		Banks		Firms	
A+a	R+r	R+r	D+d	D+d	
				I	

Central Bank		Banks		Firms	
A+a	r	r	d	I+d	
	R	R	D	D	

[Within-bank transaction: L instead of R backing suffices, thus no CB balance sheet needed]

Questions

A paper about (non)equivalence of CBDC?

- Main argument concerns relevance of gross positions for credit lines vs. no credit lines
- Such relevance need not per se imply that gross positions undermine CBDC equivalence; in the paper they do because of additional assumptions

▷ Nonequivalence due to relevance of gross positions could be modeled more directly, simpler; from this perspective credit lines are distraction

Questions

A paper about (non)equivalence of CBDC?

Or about credit lines, their beneficial cross-subsidization features, and how CBDC compromises them?

- Banking sector creates *positive* externalities—opposite message of Friedman (1969), Chari and Phelan (2014), ...
- Empirical question: (Relative) social costs of different asset holdings?

▷ Theoretical question: How is cross-subsidization viable in first place, before CBDC? Does the initial equilibrium exist?