

E-shekels Across Borders:

A distributed ledger system to settle
payments between Israel and the West Bank

Priscilla Toffano (IMF&LSE) and Kathy Yuan (LSE)

Summary

- Problem: Palestinian/Israeli cross-border transactions are at risk
- Proposal to solve it: new payment mechanism with DLT
- Discussion

Financial complex set-up

- BoI and PMA supervising two independent banking systems
- PAL lacks its own currency (use of shekel + others)
- Economies are very integrated so a lot of cross-border transactions



Integrated economies

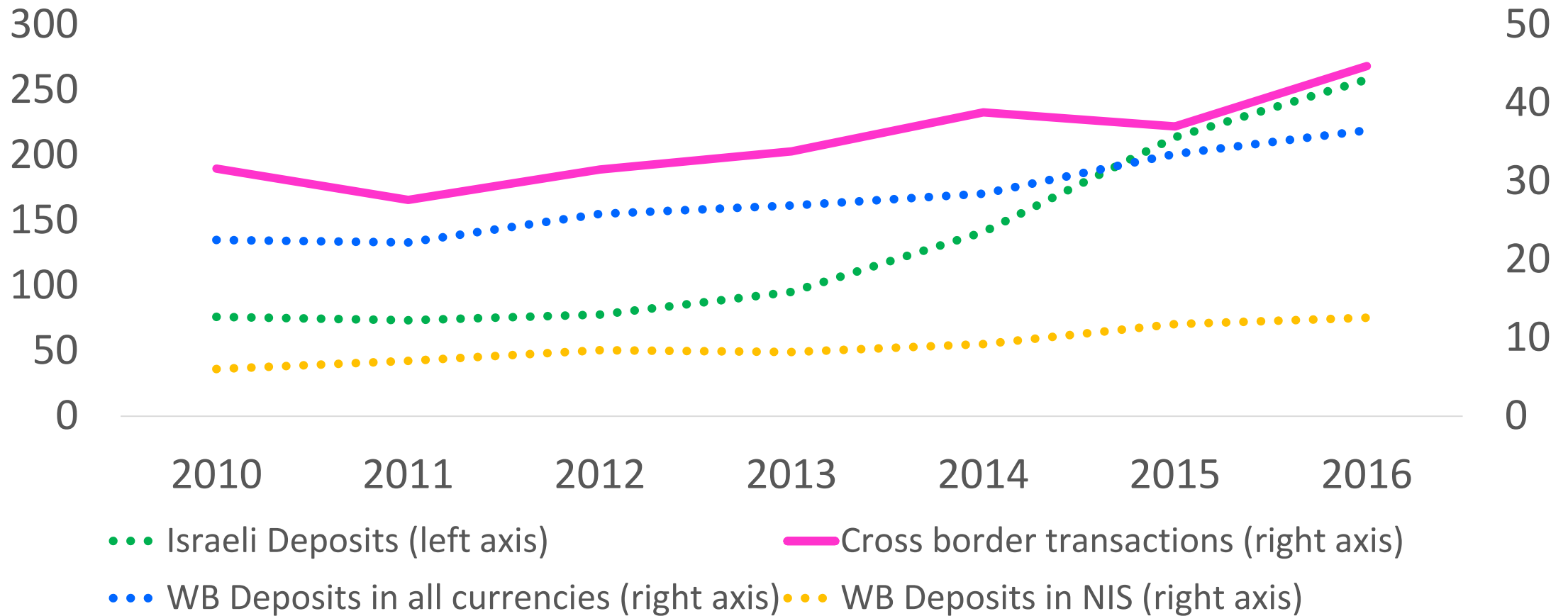
- Around 70 percent of Palestinian imports are from Israel and more than 80 percent of Palestinian exports are to Israel
- Almost 20 percent of the labour force in the West Bank works in Israel
- Many bilateral transactions

Non-cash payments between PAL and ISR

Items (in NIS billion)	2010	2011	2012	2013	2014	2015	2016
Cheques drawn on Palestinian banks	4	4	5.5	7.1	8.2	8	8.5
Cheques drawn on Israeli banks	3.6	5.6	4	4.7	6.6	7	8
Outward transfers	13	8	9	9	10	8	9.8
Inward transfers	11	10	13	13	14	14	18.4
TOTAL	31.6	27.6	31.5	33.8	38.8	37	44.7

Gross cross-border transactions; and Deposits

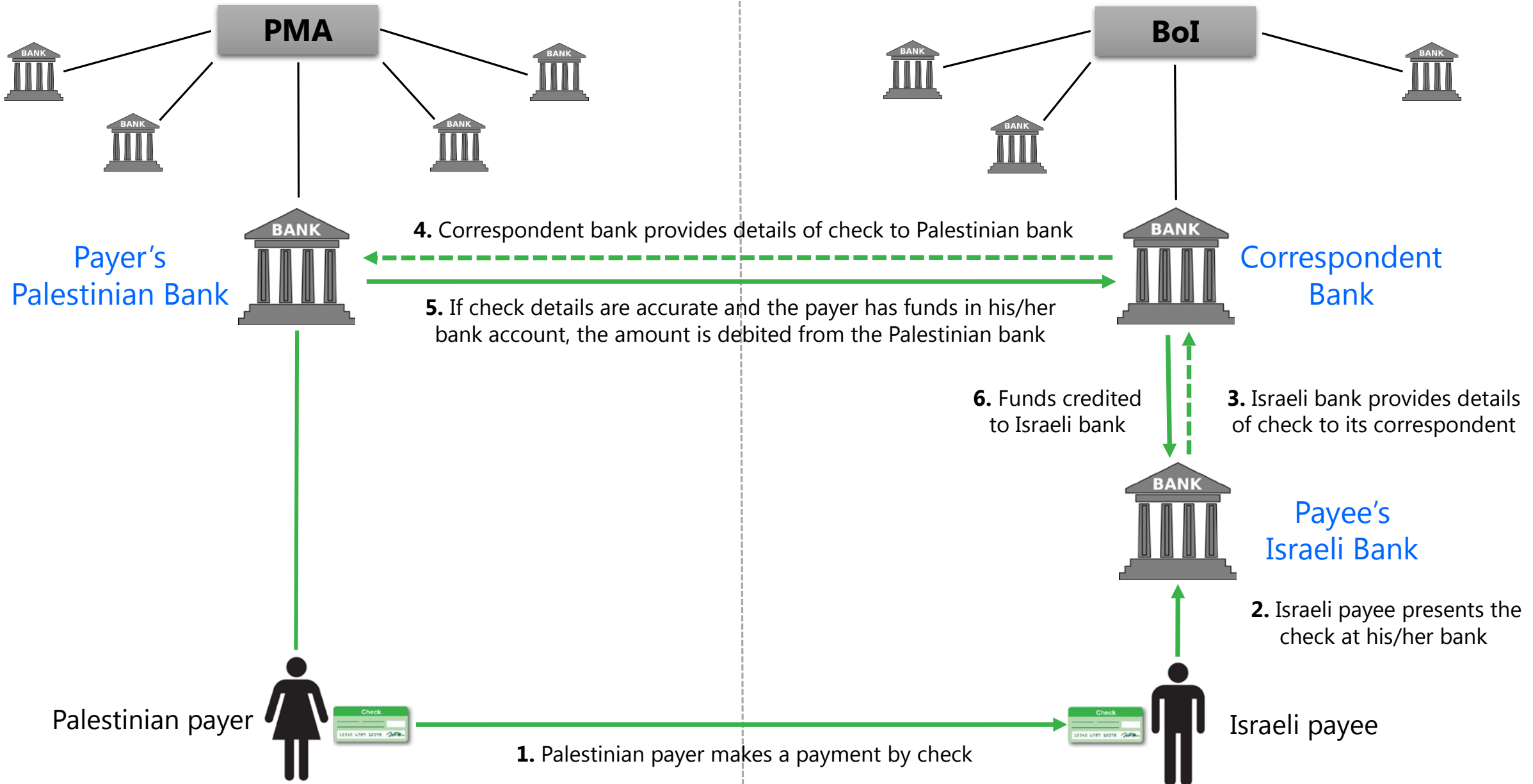
(NIS billion)



How are these transactions currently settled?

Palestinian Banking System

Israeli Banking System



HAPOALIM THREATENS TO SEVER TIES WITH PALESTINIAN BANKS OVER LEGAL FEARS

Recent board meeting concluded that bank is exposed to possible lawsuits if it's discovered that funds transferred to Palestinian banks ended up funding terrorist activities.

BY YEHUDA SHARONI/MAARIV HASHAVUA

/ FEBRUARY 18, 2016 19:49

Business

Israeli Banks to Seek Extra Cover From Palestinian Ties

By [Yaacov Benmeleh](#)

24 October 2017 11:13 BST

Major Israeli bank considers boycotting Palestinian banks

February 19, 2016 at 2:54 pm | Published in: Israel, Middle East, News, Palestine



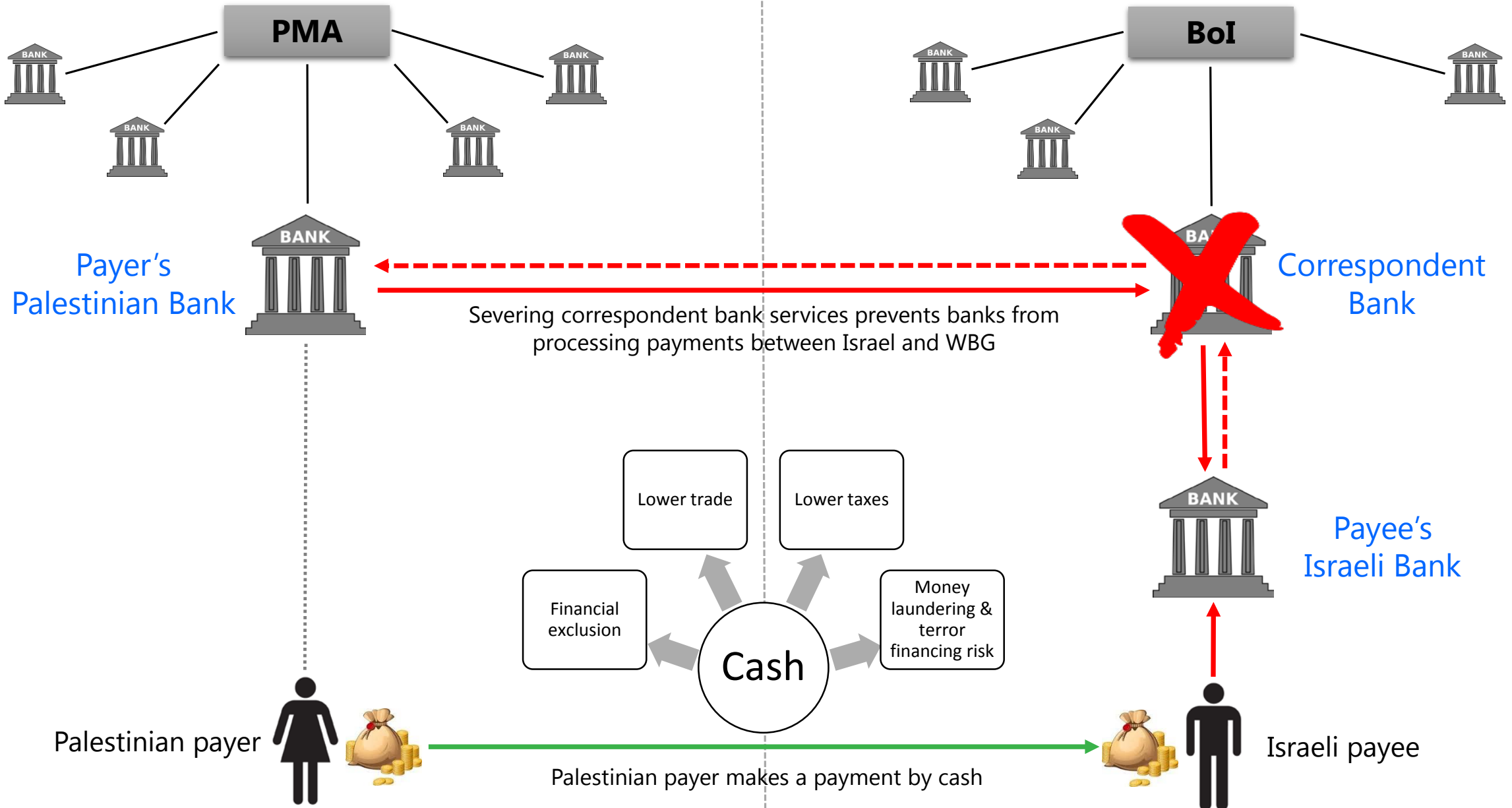
Problem: Threats to correspondent relations

- Higher costs of regulatory compliance, particularly in relation to AML/CFT : increasing penalties and uncertainty on KYCC
- Monitoring the high volume of Israeli/Palestinian transactions is cumbersome and not profitable

Consequences of severing correspondent relations

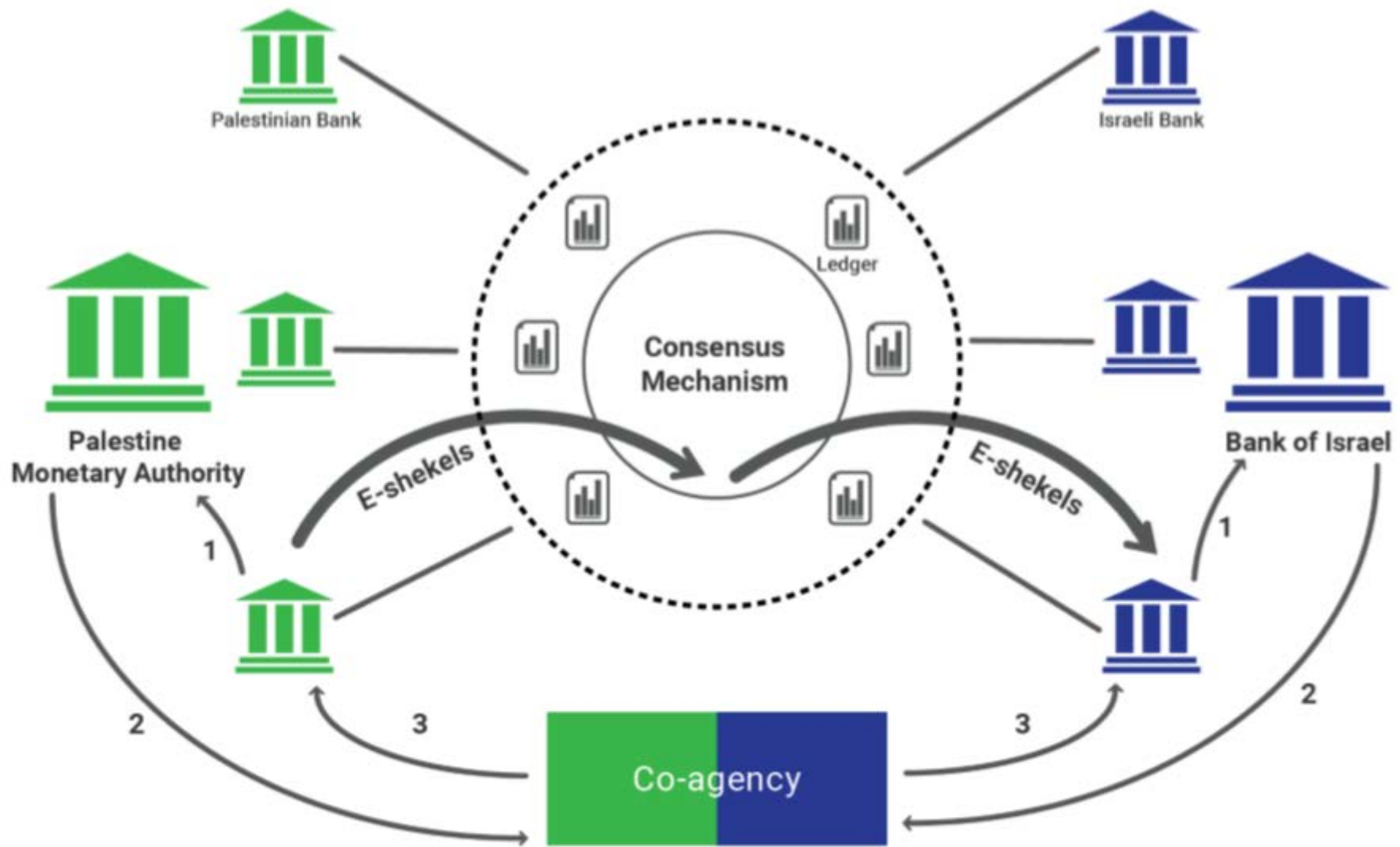
Palestinian Banking System

Israeli Banking System



Proposal

- Taking correspondent services from the bank level to the distributed ledger
- In order to tilt the profitability/risk mix for banks and encourage them to participate in the system and increase its liquidity
- Extension of Project Jasper/Ubin to a cross-country setting



Note that e-shekels can travel in either direction.

Notes- 1: Bank instructs central bank to transfer NIS balance from its current account into a collateral account at the co-agency. **2:** Central bank sends NIS balance to co-agency as collateral for e-shekels. **3:** Co-agency sends an equivalent balance of e-shekels to the bank's digital wallet.

Step by step

Pledging of Israeli and Palestinian Banks

	Before				Shekel-deposits pledged for e-shekels				Distribution of e-shekels to banks' wallets			
	Domestic Payment Systems		Distributed Ledger		Domestic Payment Systems		Distributed Ledger		Domestic Payment Systems		Distributed Ledger	
Bank A	100		0		90		0		90		10	
Bank B	100		0		80		0		80		20	
Bank C	100		0		70		0		70		30	
Bank D	100		0		60		0		60		40	
Co-agency	0	0	0	0	30	70	30	70	30	70	0	0

Payment in E-Shekels from Bank D to Bank A

	Before				Bank D makes a payment to Bank A			
	Domestic Payment Systems		Distributed Ledger		Domestic Payment Systems		Distributed Ledger	
Bank A	90		10		90		20	
Bank B	80		20		80		20	
Bank C	70		30		70		30	
Bank D	60		40		60		30	
Co-agency	30	70	0	0	30	70	0	0

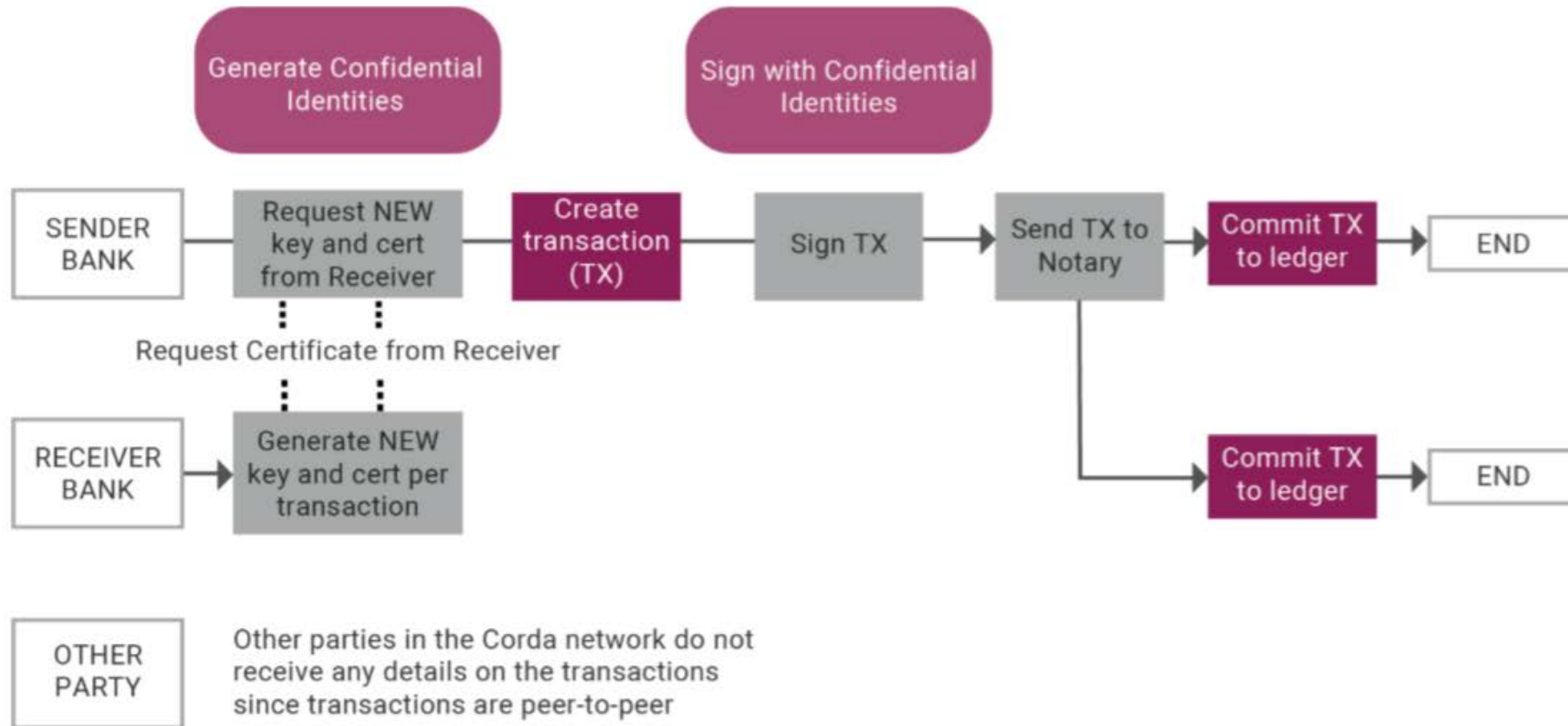
Settlement Off the Ledger (E-Shekels' Redemption)

	Before				E-shekels are returned to the Co-agency's node				Co-agency credits/debits banks' accounts + returns collateral			
	Domestic Payment Systems		Distributed Ledger		Domestic Payment Systems		Distributed Ledger		Domestic Payment Systems		Distributed Ledger	
Bank A	90		20		90		0		110		0	
Bank B	80		20		80		0		100		0	
Bank C	70		30		70		0		100		0	
Bank D	60		30		60		0		90		0	
Co-agency	30	70	0	0	30	70	40	60	0	0	0	0

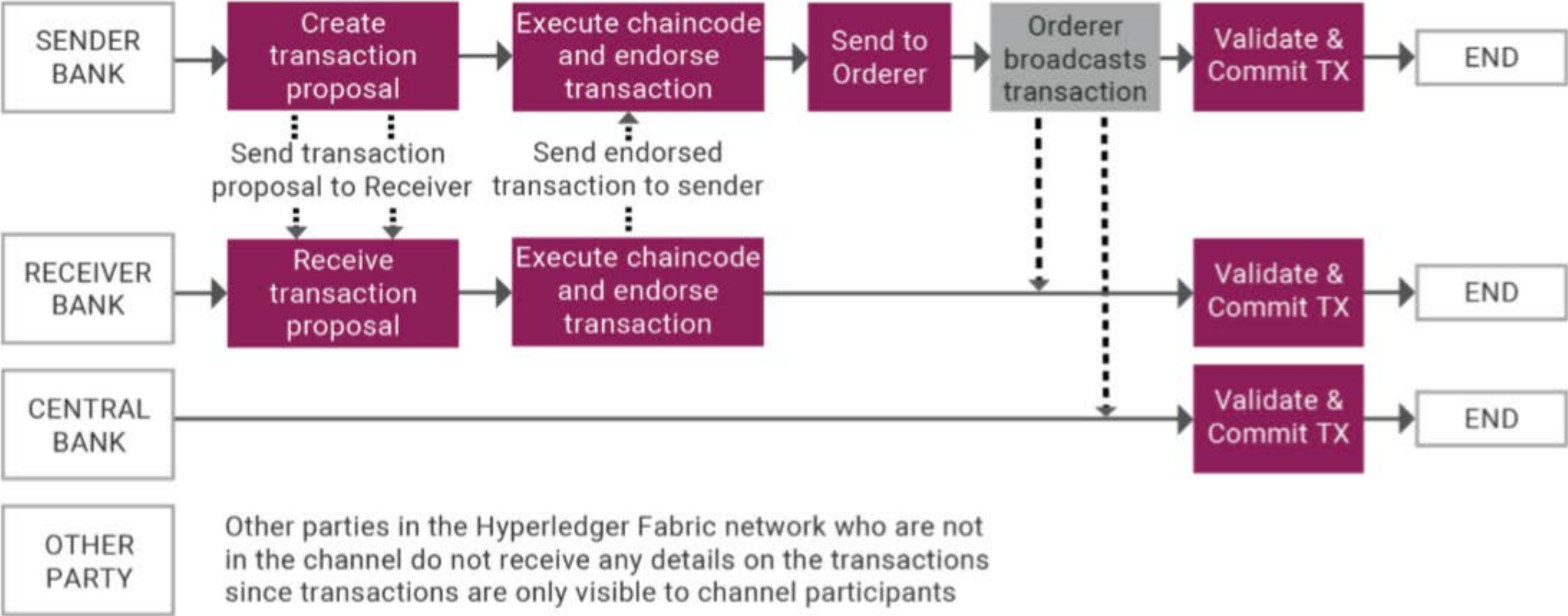
Technological platforms

- Corda
- Hyperledger Fabric
- Quorum

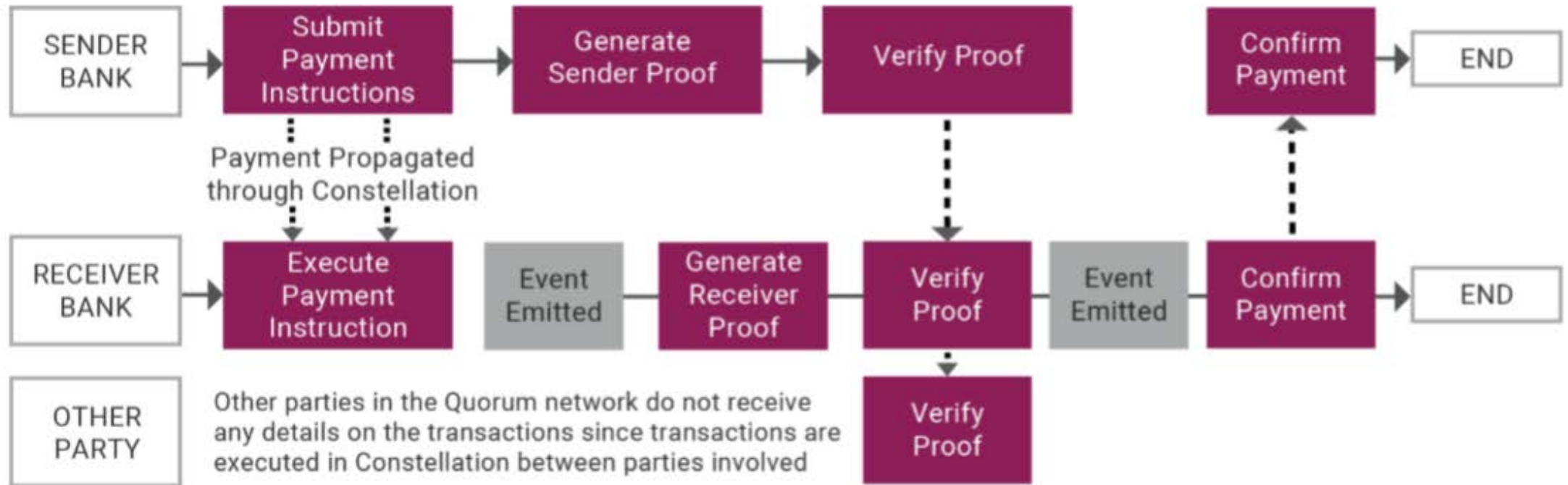
Corda



Hyperledger Fabric



Quorum



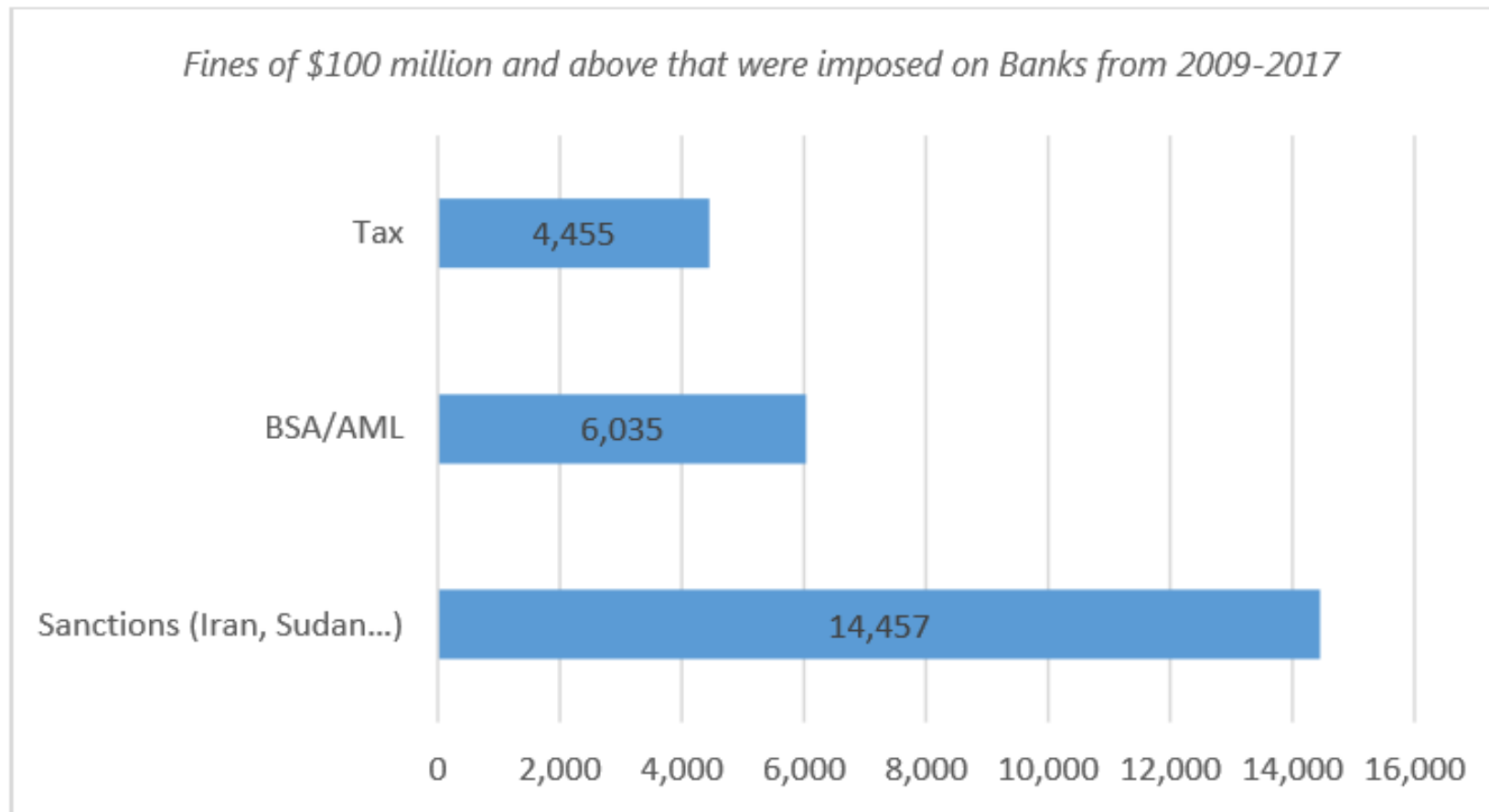
BENEFIT	How	Is DLT necessary?
Reduction of any single point of failure	Higher resiliency by sharing mutually agreed records of transactions	
Higher speed and lower cost of transactions	Transactions can be made in near real-time and synchronised ledger eliminates duplication/inconsistencies	
Elimination of credit risk	Transactions in e-shekels are equivalent to transactions in central bank money	
Better supervision and auditing	Full visibility on all transactions and transactions cannot be erased or be tampered with	
Reduction of physical barriers	E-shekels eliminate the need to physically move means of payment	
Increase in some banks' profitability	Banks could be rewarded for providing e-shekel liquidity	
Reduction in the building-up of excess NIS liquidity in Pal	Excess NIS cash in Palestinian banks' vaults could be used as collateral	
Use of smart contracts to decrease counterparty risk	To diminish counterparty risk of recurrent transactions	

BENEFIT	How	Is DLT necessary?
Reduction of any single point of failure	Higher resiliency by sharing mutually agreed records of transactions	NO
Higher speed and lower cost of transactions	Transactions can be made in near real-time and synchronised ledger eliminates duplication/inconsistencies	NO
Elimination of credit risk	Transactions in e-shekels are equivalent to transactions in central bank money	NO
Better supervision and auditing	Full visibility on all transactions and transactions cannot be erased or be tampered with	YES
Reduction of physical barriers	E-shekels eliminate the need to physically move means of payment	NO
Increase in some banks' profitability	Banks could be rewarded for providing e-shekel liquidity	NO
Reduction in the building-up of excess NIS liquidity in Pal	Excess NIS cash in Palestinian banks' vaults could be used as collateral	NO
Use of smart contracts to decrease counterparty risk	To diminish counterparty risk of recurrent transactions	YES

Questions

Extra slides

Figure 9. Breakdown of Fines paid by Breach (in Millions of USD)



Source: Key Financial Center Supervisors and Enforcement Agencies and IMF Staff calculations.