

Blockchain & Money



Class 22

December 4, 2018

Class 22 Overview

- Readings and Study Questions
- Trade Finance
- Trade Finance Blockchain Technology Efforts
- Shipping and Supply Chain Blockchain Projects
- Final Projects
- Spring Courses
- Conclusions

Class 22 (12/4): Study Questions

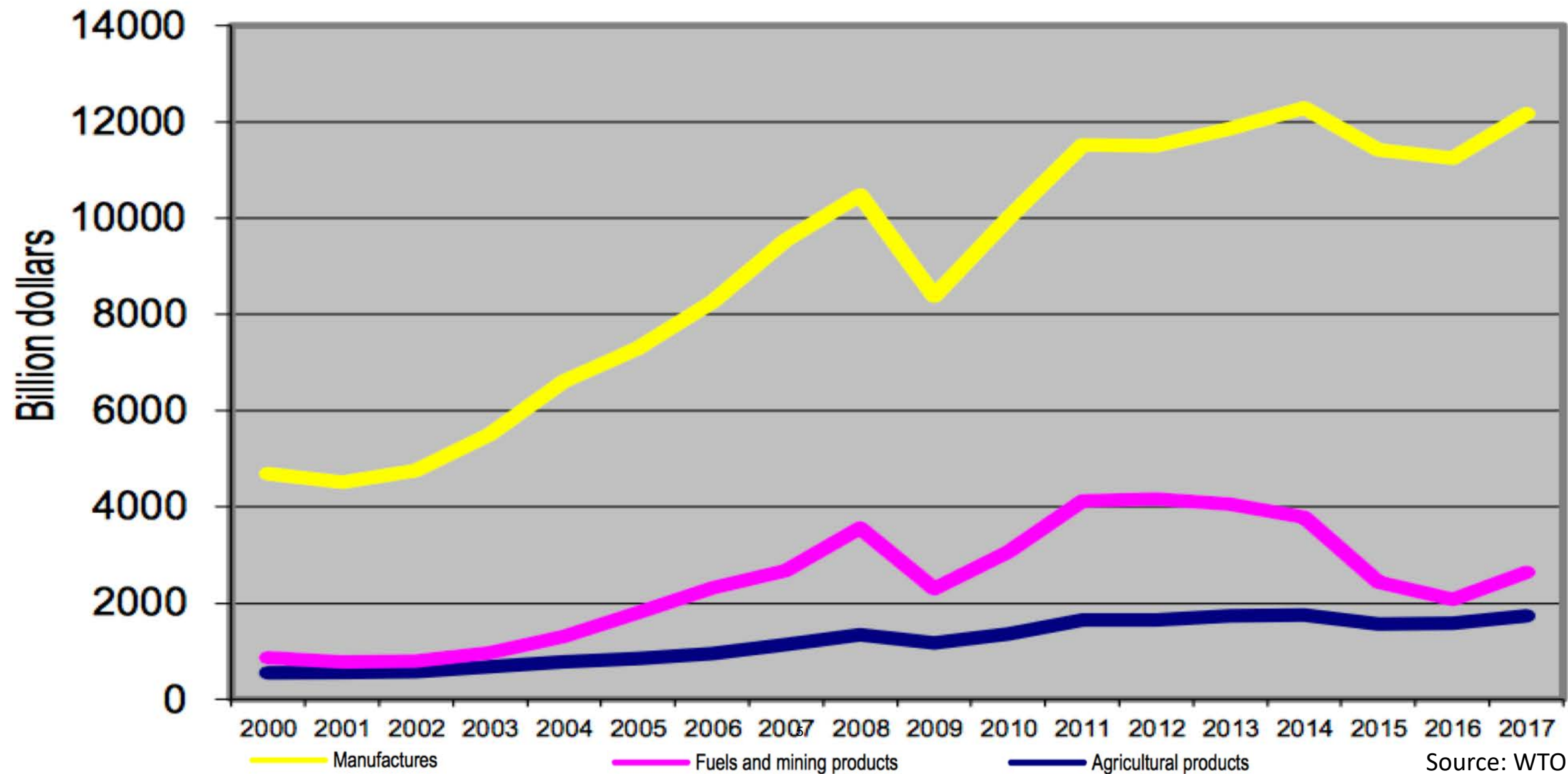
- What attributes of trade finance and supply chain management might make this a ripe set of use cases for blockchain applications?
- What lessons might be drawn from the ongoing projects?

Class 22 (12/4): Readings

- ‘Trade Tech – A New Age for Trade and Supply Chain Finance’ World Economic Forum / Bain
- ‘How Banks Are Teaming Up To Bring Blockchain To Trade Finance’ CB Insights
- ‘Hong Kong, Singapore to link up trade finance blockchain platforms’ Reuters
- *‘Business Interest in Blockchain Picks Up While Cryptocurrency Causes Conniptions’ Wall Street Journal*
- ‘De Beers turns to blockchain to guarantee diamond purity’ Reuters

Exports by product, 2017

Courtesy of [World Trade Organization](#). Used with permission.



Source: WTO

Financing International Trade

Bank Supported – 'Trade Finance'

- Letter of Credit
- Documentary Collection

- Factoring and Forfaiting
- Import and Export Loans
- Pre-Export Finance
- Supplier Credit
- Supply Chain Finance

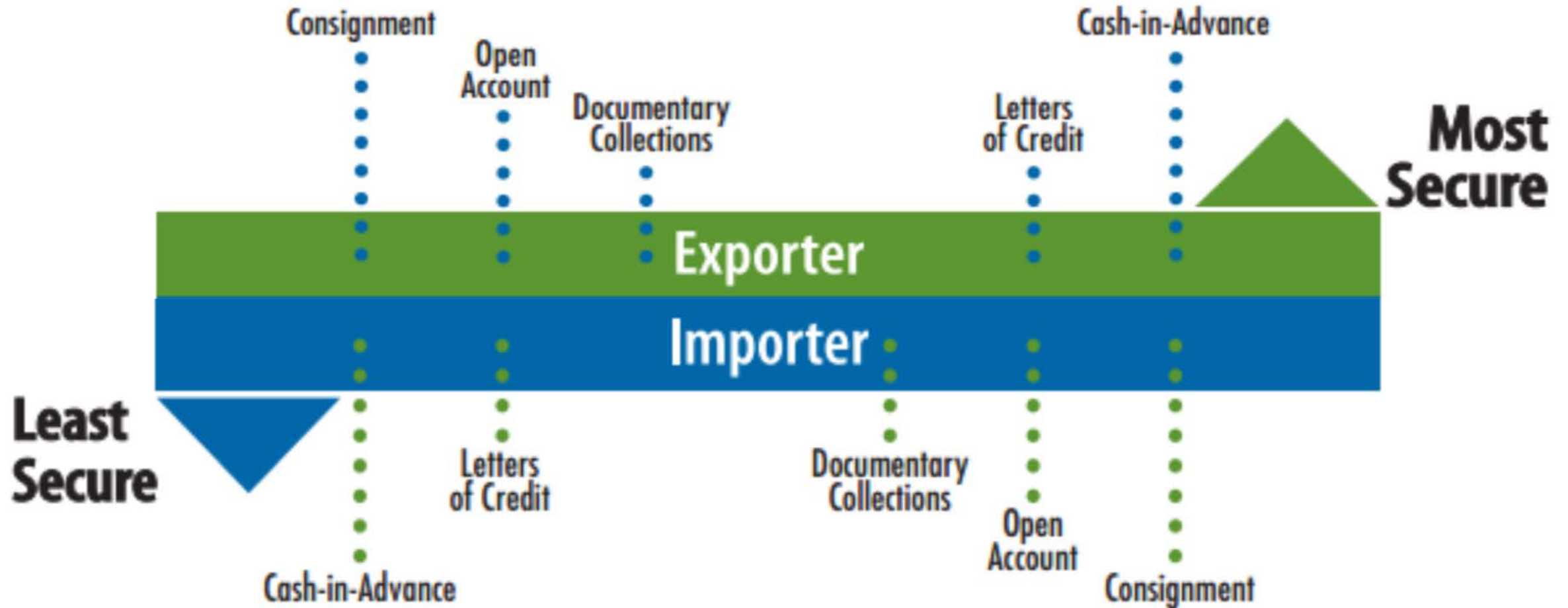
Financing International Trade

Commercial Arrangements – 'Trade Credit'

- Open Account
- Cash in Advance
- Consignment

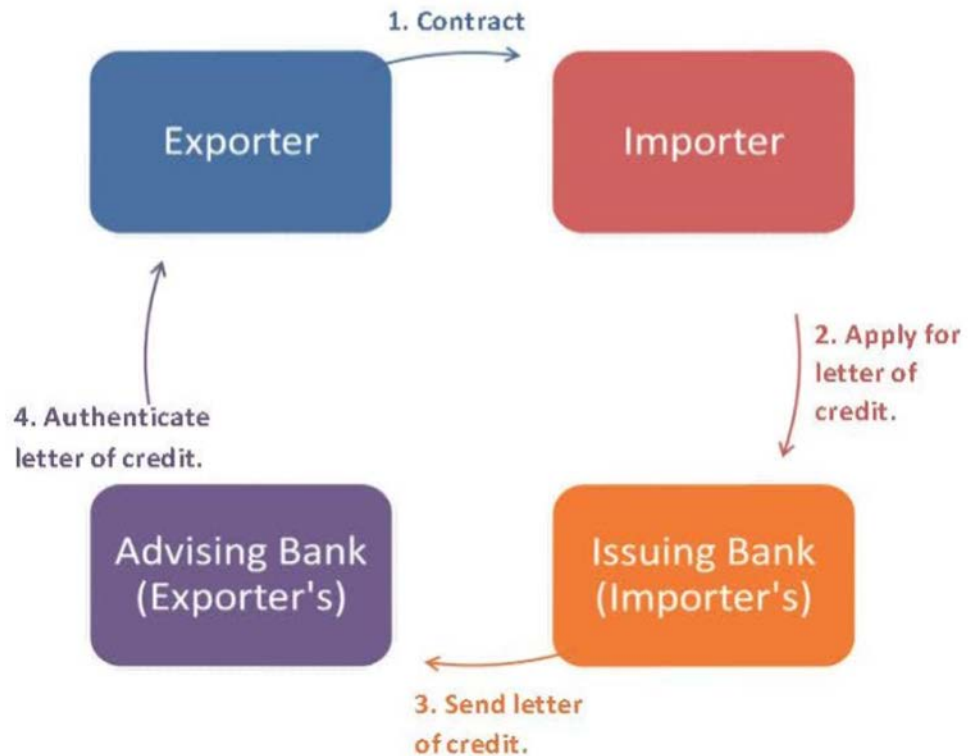
Export Credit Insurance and Public Guarantees

Trade Financing

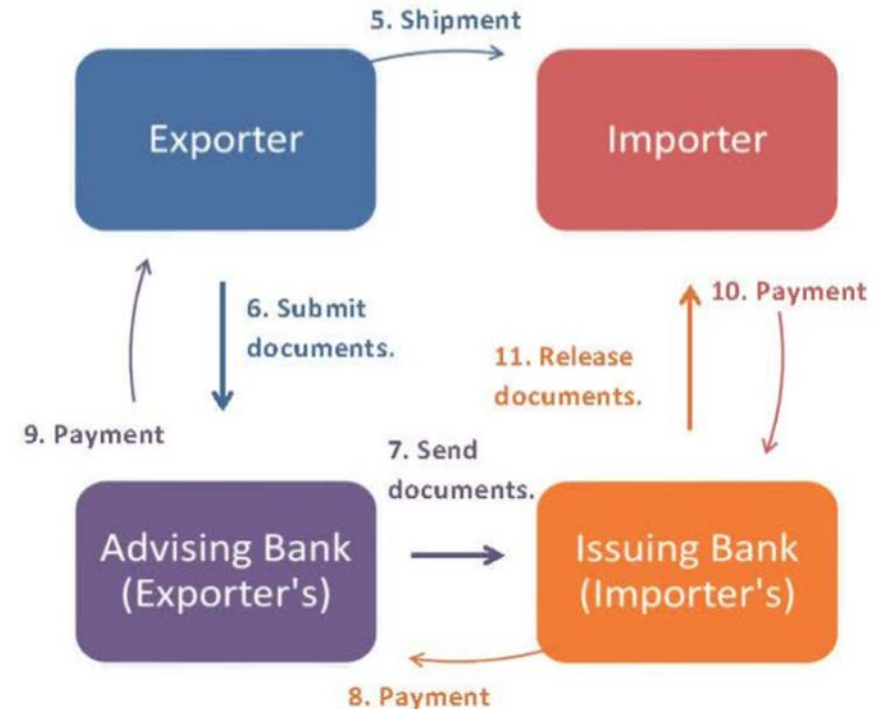


Trade Finance

Contract

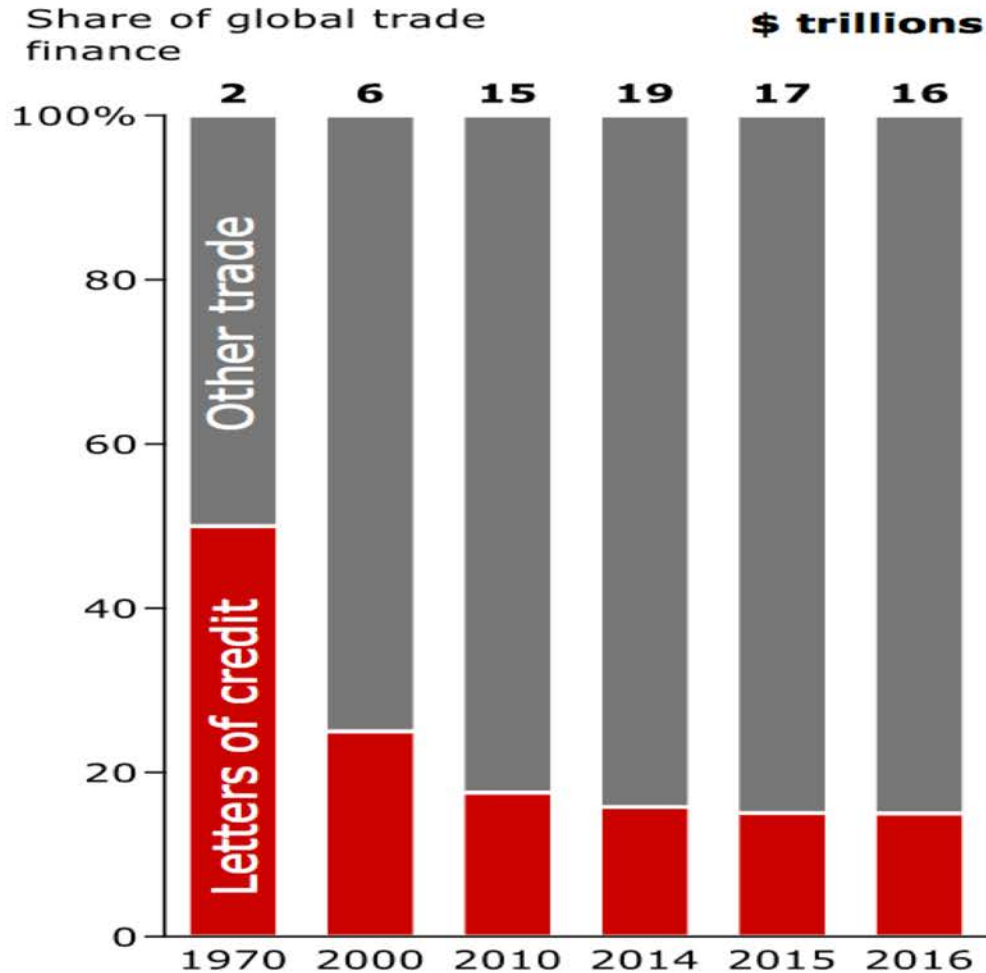


Execution

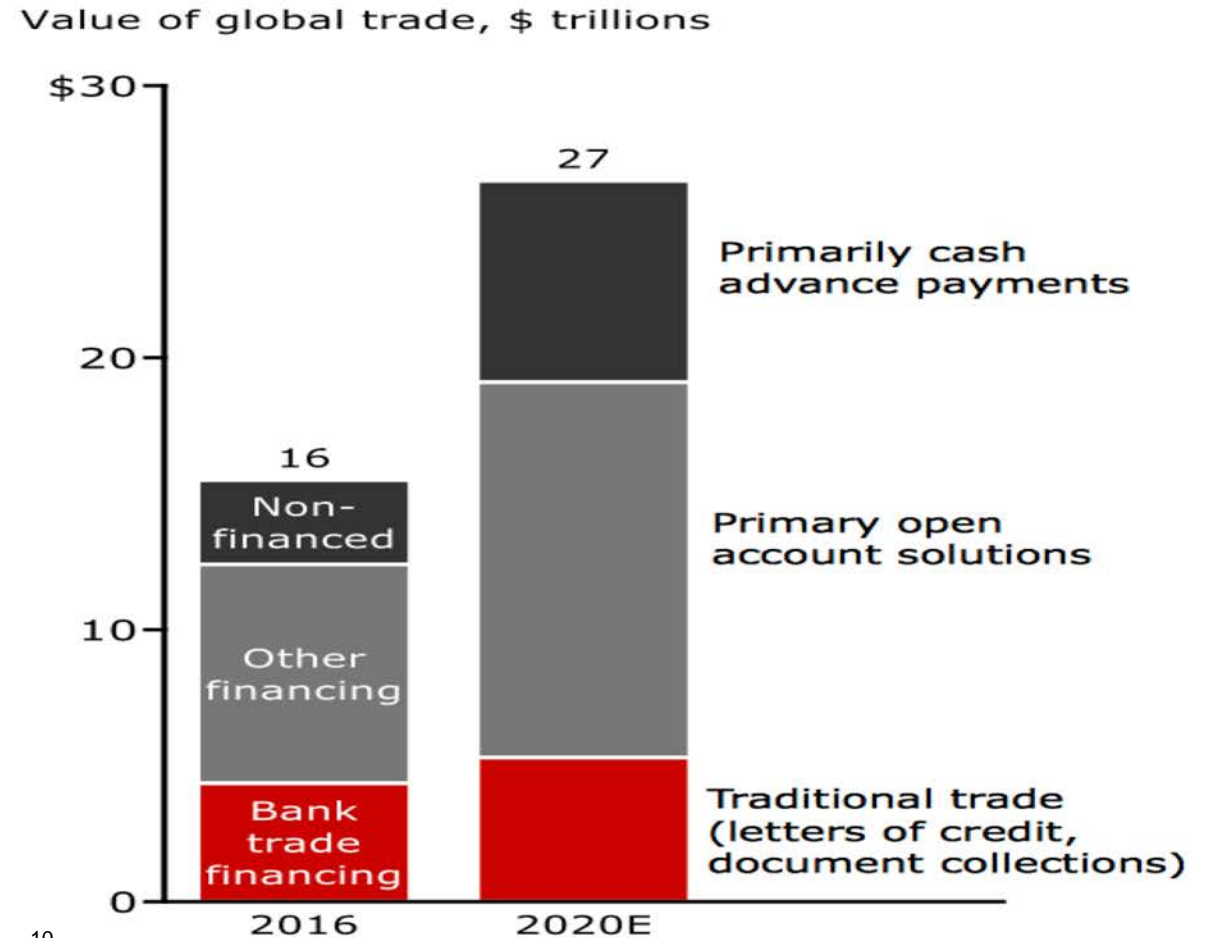


Trade Finance

LETTERS OF CREDIT ARE LOSING SHARE

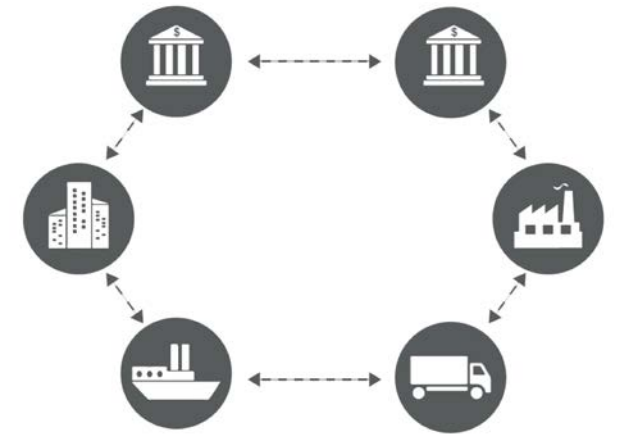


WHILE OPEN ACCOUNT SOLUTIONS SURGE



Trade Finance

© EdgeVerve Systems Limited. All rights reserved.
This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>



- Parties:
 - Importers
 - Exporters
 - Banks
 - Shippers
 - Freight Forwarders
 - Customs Agents
 - Document Carriers
- Documents:
 - Bill of Lading, Invoice, Bill of Exchange, Packing List, Insurance Certificate, License, Embassy Legalization, Certificate of Origin, Inspection Certificate, Agricultural Certification, Airway Bill, Trucking Receipt, Railway Receipt, Forwarder Cargo Receipt, Rail Consignment Note, Road Consignment Note, Consignment Instructions, Warehouse Receipt, Multi-Modal Transport Waybill, Delivery Receipt, Insurance Policy, and Insurance Certificate

Trade Finance - Blockchain Technology?

- Multiple Parties Involved
- Verification is Critical to Work Flows and Economics



© EdgeVerve Systems Limited. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>

- Trade Finance relies on Significant Document Flow

Trade Finance Blockchain Technology Consortia

- Voltron – Corda - Letter of Credits
- Marco Polo – Corda - Receivable and Payment Guarantee Financing
- Batavia – IBM – Monitor Open Transactions
- We.Trade – IBM – Letter of Credits
- HKTFP – Ping An Group – Supply Chain Record Keeping

Trade finance blockchain consortia

Voltron

Led By



Select Consortium Members



Marco Polo

Led By



Select Consortium Members



Batavia

Led By



Select Consortium Members



we.Trade

Led By



Select Consortium Members



HKTFP

Led By



Select Consortium Members



© CB Insights. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>

Trade Finance – Additional Projects

- China – Peoples Bank of China backed trade finance blockchain platform
- Dubai - TradeAssets marketplace for buying and selling trade finance assets
- Hong Kong & Singapore - Global Trade Connectivity Network for Documents
- India – a) Finacle Trade Connect for validation, documents and payment
b) Trade Receivables e-Discounting linked to RBI Trade Receivable e-Discounting System
- Singapore –National Trade Platform with NTT Data and MUFG Bank proof of concept
- Komgo SA – Ethereum based – ConsenSys plus 15 Banks and trading firms

Shipping and Supply Chain Blockchain Projects

Shipping

- Accenture – With APL, Kuehne & Nagel, and AB InBev
- TradeLens – IBM and Maersk

Supply Chain

- Carrefour – Chickens, Dairy and other food products
- DeBeers - Diamonds
- TrustChain – IBM – Jewelry supply chain
- Walmart – IBM – Food from farm to grocery shelf
- World Bank – Indonesian Palm Oil proof of concept

Final Projects: Assessing Use Cases

- What is the value creation proposition and ‘pain point’ being solved?
- Which transactions and data needs recording?
- Which multiple stakeholders need write and read access to ledgers?
- Which costs of verification or networking can be reduced?
- What are competitors doing to address similar value propositions or markets?
- Why are append only logs and multiple party consensus the best solution?

Final Projects: Assessing Use Cases

- If permissionless applications, why is native token the best solution?
- If so, why permissionless?
- Tradeoffs of scalability, performance, privacy, security, & coordination
- Can traditional data base adequately address use case?
- How can broad adoption be realized?
- What is the customer experience vs. current experience and interface?

Spring 2019 Policy Course

- Public Policy & Private Sector (15.S66) Tuesday 5 – 8 pm
 - Explores the intersection of public policy and the private sector
 - Senior level public policy guests in discussion-based course
 - Key economic policy - technology, trade, tax, financial, and competitions policies
 - Tentative Guest Speakers - Sheila Bair, Sara Bianchi, Steve Moore, John Podesta, Sharis Pozen, & Miriam Shapiro
 - Taught with Simon Johnson

Spring 2019 Blockchain Technology Courses

- Blockchain Lab (15.S68) Tuesday 1 – 2:30 pm
 - Action Learning working on Digital Currency Initiative projects
 - With Simon Johnson, Neha Nerula, Michael Casey
- Emerging Blockchain Havens (15.228 B) H3 Monday 6 – 9 pm
 - Student Led trip to Estonia and Switzerland during Spring break & SIP weeks
- Crypto Finance (15.S04) H4 Tentatively Mon/Wed 10 – 11:30 am
 - With Antoinette Schoar and Leonid Kogan

Class 23 (12/6): Study Questions

- What are the trade-offs of using blockchain technology for identity and access management (IAM)?
- What is self-sovereign identity? How might blockchain self-sovereign or digital identity applications be applicable within the financial sector?
- Will you ask for your MIT diploma digitally or on paper?

Class 23 (12/6): Readings

- *'Self-sovereign identity: Why blockchain?'* IBM
- *'Blockchain and Digital Identity – A Good Fit?'* Internet Society
- *'Can blockchain ease banks' digital-identity concerns?'* American Banker
- *'Blockchains and Digital Identity'* Toward Data Science
- *'Singapore Regulator, Banks Complete KYC Blockchain Prototype'* CCN
- *'Digital Diploma Debuts at MIT'* MIT News

Conclusions

- Trade Finance plays Significant Role in \$17 Trillion Export Markets for Goods
- Trade Finance is multi party and document intensive
- Verification, Networking and Trust key to Trade Finance Economics
- Multiple Consortia and Projects Underway
- Banks, Governments and Shippers mostly Exploring Permissioned Systems
- Blockchain Technology is Likely to be Catalyst for Change in Trade Finance

MIT OpenCourseWare
<https://ocw.mit.edu/>

15.S12 Blockchain and Money
Fall 2018

For information about citing these materials or our Terms of Use, visit: <https://ocw.mit.edu/terms>.