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Technology and Innovations in Forex transactions and International Remittance

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Abstract:

Forex markets are the largest financial markets of the world and as per the world bank report 2018 , the international FX remittance industry is expected to reach over $500 billion. Hence the global community is looking for latest technologies that can improve the efficacy of the international transactions in FX and make them faster and safer. International remittance industry has an involvement of households, businessmen, corporate, governments banks and other financial institutions and hence include a wide array of monetary transactions which are sometimes huge in size and is required to be conducted on high priority and sometimes in critical emergency. Therefore it is indispensable now to have innovations and participation of technology efficient enough to handle the huge volumes of these cross border FX transactions and at the same time make them faster and utmost guarded ,secure and cost effective to execute.

This paper intends to study the nature of international FX remittances in terms of participants, purpose, traditional modes, volumes along with the latest technologies used in this sector. It will also identify the importance of these international FX remittances and technological advancements with the perspective of banks in India.

Introduction:

A. FX : Foreign Exchange

Foreign exchange also known as Forex means the conversion of one country's currency into another country's currency at its conversion rate. The global foreign exchange market witnesses huge daily volumes ranging in trillions of dollars thereby making it the largest financial market in the world

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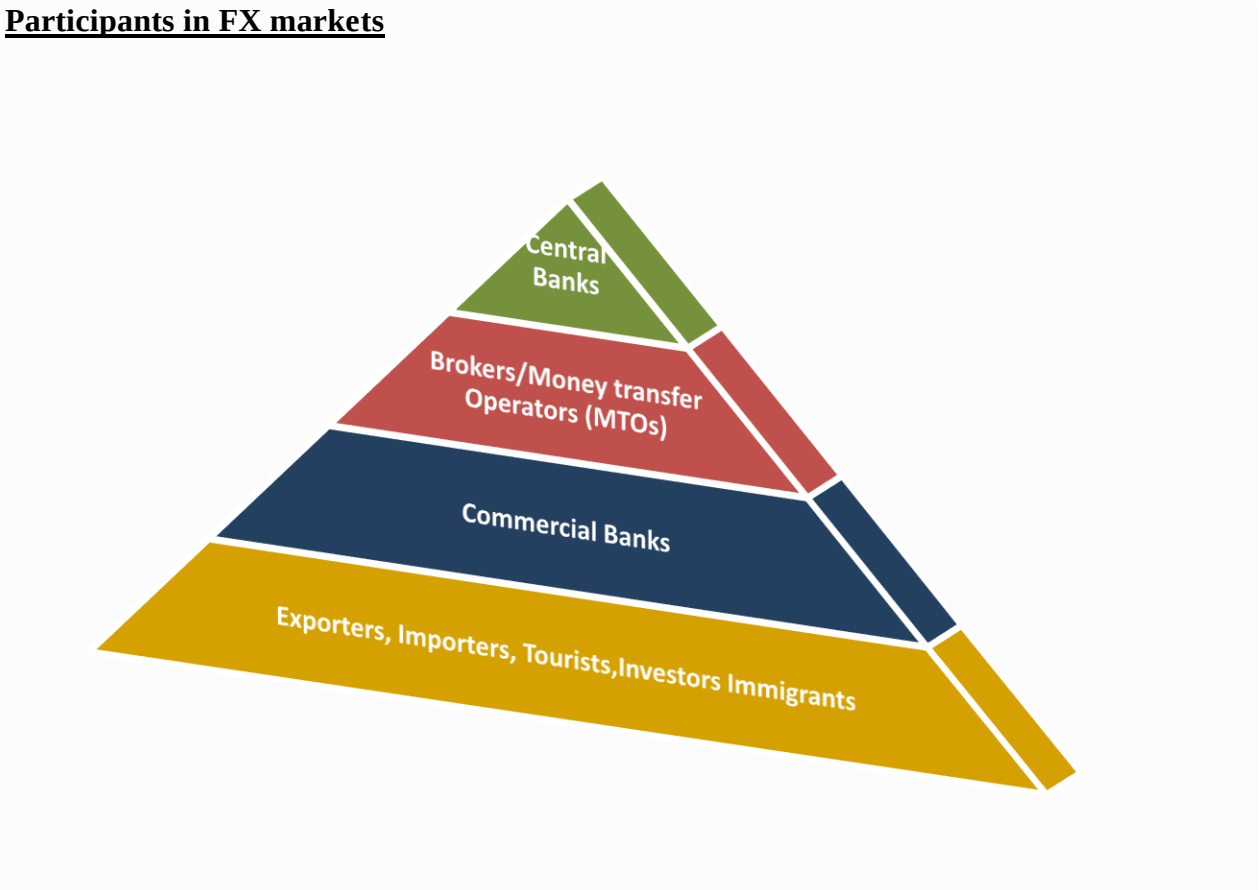
Foreign exchange market is a market where the currencies of different countries are bought and sold. It involves spot, forward, future, swap and option transactions and help the traders to transfer the price of goods purchased across borders, credit functions, speculate on the prices of currencies and also in hedging and arbitrage.

Unlike the Bombay Stock Exchange, which has a physical building, FX market takes place everywhere in the world and has no centralized building. Most transactions are done by phone or computer. It is estimated that the international currency exchange is driving $180 billion in business per day, the majority of which take place in London, New York and Tokyo, with cities such as Singapore, Zurich, Frankfurt and Hong Kong.

Participants in FX markets



At the bottom of a pyramid are the actual buyers and sellers of the foreign currencies- exporters, importers, tourist, investors, and immigrants. They are actual users of the currencies and approach commercial banks to buy it.

The commercial banks are the second most important participants of the foreign exchange market. The banks dealing in foreign exchange play a role of "market makers", in the sense that they quote on a daily basis the foreign exchange rates for buying and selling of the foreign currencies. Also, they function as clearing houses, thereby helping in clearing the difference between the demand for and the supply of currencies. These banks buy the currencies from the brokers and sell it to the buyers.

The third layer of a pyramid constitutes the foreign exchange brokers. These brokers function as a link between the central bank and the commercial banks and also between the actual buyers and commercial banks. They are the major source of market information. These are the persons who do not themselves buy the foreign currency, but rather strike a deal between the buyer and the seller on a commission basis.

The central bank of any country is the apex body in the organization of the exchange market. They work as the lender of the last resort and the custodian of foreign exchange of the country. The central bank has the power to regulate and control the foreign exchange market so as to assure that it works in the orderly fashion. One of the major functions of the central bank is to prevent the aggressive fluctuations in the foreign exchange market, if necessary, by direct intervention. Intervention in the form of selling the currency when it is overvalued and buying it when it tends to be undervalued.

Two Tiers of FX Market

This global market has two tiers. The first is the **interbank market.** This is where the biggest banks exchange currencies with each other. Even though it only has a few members, the trades are enormous. Hence it dictates currency values. Banks also engage in the SWIFT market

The second tier is the **over-the-counter market**, where companies and individuals trade.

The 10 biggest players in the foreign exchange market, according to '***Euromoney's 2018 FX Survey':***

Bank	Market Share
JP Morgan Chase	12.13%
UBS	8.25%
XTX Markets	7.36%
Bank of America Merrill Lynch	6.20%
Citibank	6.16%
HSBC	5.58%
Goldman Sachs	5.53%
Deutsche Bank	5.41%
Standard Chartered	4.49%
State Street	4.37%

B. International FX Remittance

A foreign remittance is a transfer of money from a foreign worker to their familiy or other individuals in their home countries. In many countries, remittance constitutes a significant portion of a nation's gross domestic product or GDP. The United States is the leading source of foreign remittances, followed by Russia and Saudi Arabia. The top recipients of foreign remittances are India, China, and the Philippines. The G8 and World Bank are attempting to monitor and regulate remittance costs due to the enormous flow of funds.

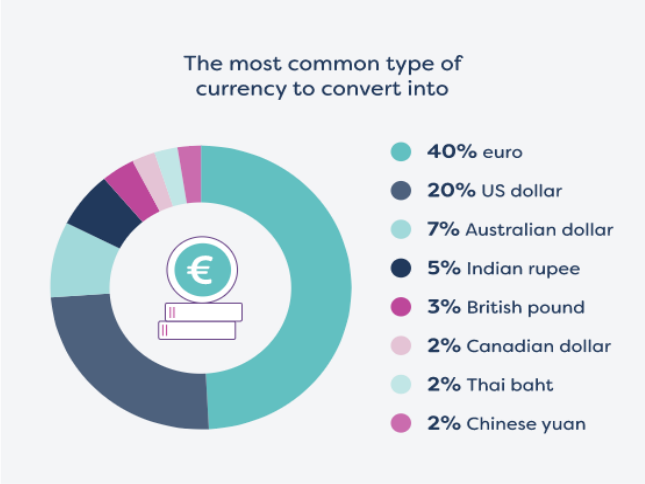
As per economists and social scientists, remittances are so widespread, that they have implications that extend beyond an individual's finances.

For example, since remitting involves financial institutions, people who send and receive remittance are likely to have bank accounts, which promotes economic development. Remittances can be lifesaving in emergencies, such as natural disasters and armed conflicts, when the recipients' other sources of income

In this research paper, along with this category of individuals we would consider others too who are transferring currencies from one country to another for business and trade purposes.

Reasons for International Remittance:

- Sending money to friends and family
- Overseas purchase of goods and services
- Overseas bill payment
- Moving money between own accounts



Source: *Data collected from 645 interviews conducted online by Consumer Intelligence, accurate as of April 2018*

Traditional Ways of Remittance or Money transfer

1. **Bank Wire transfer/SWIFT Transfer:** As a most popular mode , it facilitates transfer by an individual through SWIFT interface in which he approaches his local bank and provides the details such as currency of transfer, name of correspondent bank, the international bank account number (IBAN) and the SWIFT Code /BIC. These details help in identifying where the money should be remitted.

   The bank sending the funds then sends a message to the receiving bank or a correspondent bank through a secure system. The settlement instructions are also included. Thereafter the transfer of funds takes place between the two banks, ultimately

resulting in credit to the recipient's account. This mode of wire transfer is the fastest and most secure system of transferring funds internationally.

Limitations:

- This mode of transfer faces uncertainty of time of payment as the no. of intermediaries through which the payment will go through is not known to the customer/transferor.
- Also its difficult to **track the movement** of payment through the way. Hence if the payment is stuck somewhere and not proceeding further, this is happening with which intermediary, is not known.
- The amount of **fees charged** by the respective intermediaries is not known clearly.
- The purpose of transfer is also not clear due to which there is a possibility that the money is being sent for **money laundering**.
- Once the process of remittance has begun, it can't be stopped or altered in the middle before reaching its destination.

2. **Cash-in-Advance**

For international sales, **wire transfers and credit cards** are the most commonly used cash-in-advance options available to exporters. With the advancement of the Internet, **escrow services** are becoming another cash-in-advance option for small export transactions.

Limitations:

- With cash in advance, only exporter can eliminate the credit risk but not the importer.
- But, this mode is not very popular among the importer as it involves a risk of not receiving the goods even after making the payments.Thus, exporters who insist on this payment method as their sole manner of doing business may lose to competitors who offer more attractive payment terms.

3. **Letters of Credit**

Letters of credit (LCs) are one of the most secure instruments available to international traders. An LC is a commitment by a bank on behalf of the buyer that payment will be made to the exporter, provided that the terms and conditions stated in the LC have been met, as verified through the presentation of all required documents. The buyer establishes credit and pays his or her bank to render this service. An LC is useful when reliable credit information about a foreign buyer is difficult to obtain, but the exporter is satisfied with the creditworthiness of the buyer's foreign bank. An LC also protects the buyer since no payment obligation arises until the goods have been shipped as promised.

Limitations:

- **Time consuming formalities**
- **Additional cost ;** Bank fee
- **Fraud Risk: Possibility of misuse**: A letter of credit poses a material fraud risk to the importer. The bank will pay the exporter upon looking at the shipping documents and not the actual quality of goods. Disputes can arise if the quality is different from what was agreed upon.
- **Currency risk :** A letter of credit also carries forex risk. There will be an agreed upon currency in the letter of credit. At least one of the parties will have a different currency than that, and hence they will face a risk due to currency fluctuations. It can also work in favor.
- **Time bound :** A letter of credit has an expiration date and therefore the exporter has time limitation within which he will have to deliver the goods by all means. At times, this haste creates a mess.
- **Risk of default by Issuing bank :** A letter of credit essentially transfers the credit-worthiness from the importer to the issuing bank. So, if the issuing bank defaults,

there is still a payment risk to the exporter. Though the exporter can avoid it if the advising bank guarantees the payment, that will add to the cost of the letter of credit.

- **Tough to terminate or Cancel**
- **Governed by very complex rules**

4. **Documentary Collections/Cash against Documents**

A documentary collection (D/C) is a transaction whereby the exporter entrusts the collection of the payment for a sale to its bank (remitting bank), which sends the documents that its buyer needs to the importer's bank (collecting bank), with instructions to release the documents to the buyer for payment. Funds are received from the importer and remitted to the exporter through the banks involved in the collection in exchange for those documents. D/Cs involve using a draft that requires the importer to pay the face amount either at sight (document against payment) or on a specified date (document against acceptance). The collection letter gives instructions that specify the documents required for the transfer of title to the goods. Although banks do act as facilitators for their clients, D/Cs offer no verification process and limited recourse in the event of non-payment. D/Cs are generally less expensive than LCs.

Limitations:

- Risk of non-payment may be greater. If bill of exchange specifies payment at a date after delivery, exporter hands over control of the goods but run the risk of non-payment on the due date.
- Bank's role is limited and do not guarantees payment.
- The banks don't verify the shipping documents or guarantee payment by your buyer.
- May strain exporters cash flow, especially if the bill of exchange provides for extended credit terms.

- Exposed to FX risk from the date of the sale contract to the time of payment.

5. **Open Account**

An open account transaction is a sale where the goods are shipped and delivered before payment is due, which in international sales is typically in 30, 60 or 90 days.

Limitations:

- It involves very high credit risk for exporter
- Exporters who are reluctant to extend credit may lose a sale to their competitors.

Technological advancements in Forex transactions

Modern technologies have brought changes in several markets with consequences that are changing society. For instance, the concept of **"gig economy,"** which is majorly powered by mobile app-based activities for its participants.

According to Techspirited, the evolution of modern technology in today's society is a great phenomenon. It has improved quality of life, enhanced productivity and provided further growth in different industries. One of these includes the opportunity to conveniently trade in the forex market.

The basic technologies facilitating forex trading are as below

- **Computers**: is indespensable tool for trading, brisk and reliable computers allow traders to practice strategies and execute trades. Depending on the trading system, appropriate and latest software can be chosen.
- **Internet access**. Now has becom staple like food , shelter and clothing and availability of of high speed internet connection for quick data exchange and efficient executions is the cherry on the top.
- **Platforms and software**. When Right programs with most recent update in the software and trading system enable the traders to execute the trade more effectively and the transfers become more swift and reliable.

- **Mobile Apps and devices**. Enable the traders to keep a tab on the latest news and developments in the market that affect the transfers and the value of the currencies Traders can easily check open trades or do market analysis on tablets or android phones. Mobile apps and devices also come in handy in case of computer crashes or emergencies.

In today's technological era, a plethora of investors are investing and transferring forex through mobile apps like ;

- MetaTrader 4 and 5 platforms and
- Broadband cellular network, play a significant role in these transactions

These networks provide WiFi connections with **4G connectivity** for mobile devices to make these transactions speedy and safe.

5G networks are even faster in executing open and closed positions by traders of high frequency transactions.

Offering mobile app functions in trading and money transfers internationally is becoming the industry norm for retail online brokerage organizations A contemporary study conducted by ORC International for Fidelity states that 56% of mobile users access financial apps for sophisticated investing functions such as analysis, reports, and trading.30 Mobile trades comprised 5.5% of all retail trades placed in December 2013, but exceeded 7% in December 2014, showing a gain of 43.7%.31

Online money transfers allows traders to swiftly and smoothly send money to each other, without the cumbersome procedures of writing and mailing a check or transferring physical cash.

Distance does not play much role in the international/national remittances through technology. The only thing that matters is the internet network connectivity at both the ends to meet the end. Hence it does not matter if the parties are miles away or in the next door neighborhood.

For instance, PayPal is often associated with the facilitating the new online peer-to-peer payments era in the 2000s. Now, many traditional banks offer a way to do this easily online. Bank of America, for instance, allows its clients to send money to friends using just a phone number or email address of the receiving party.

PayPal's founders in 1998 , started an online company X.com, with PayPal soon emerging as the chief focus of the company. PayPal quickly grabbed an opportunity with online marketplaces, which clearly required a way for consumers to swiftly and smoothly transfer money online.

In 2000, PayPal , collaborated with eBay, and its account base rose to 100,000.43 Today, PayPal has 184 million active customer accounts, in over 200 markets, and allows customers to get paid in more than 100 currencies.44 Remittances are free on PayPal and it earns its revenue through charging merchants for virtual purchases by consumers. Now, PayPal is being disrupted by other competitors offering **"digital wallets".** Venmo is a free digital wallet that enables to make and share payments with friends. It is quite clearly targeted at Millennials – the age group most likely to be splitting restaurant and cab bills – and offers social functionality where one can share one's payments on a page that is similar to the "wall" on Facebook. In 2012, Venmo was acquired by Braintree for $26 million, and just a year later Braintree was acquired by PayPal for $800 million.

Companies make profit from this technological trend in multiple ways. Below are some success stories that explain some of the ways with which firms have thrived in the mobile payments arena.

• Large organizations like Google have entered the arena. In this case, the Mountain View-based giant created **Google Wallet**, trying to make the go-to mobile payments platform. As in most projects where Google is involved, the highest value comes not from the operation per se but from the data that such an operation generates.

• Medium-sized organizations like Domino's Pizza have also entered the arena. Regarding most retailers, the aim is to facilitate mobile-based consumption. Now, we can order a pizza sitting in US , from any part of India, and pay for it in seconds. Obviously, the impact is to defend (and ideally increase) market share, revenues and profits by leveraging technology.

• Startups like Venmo are created with the sole aim to play in this field. This firm's solution became a convenient way to collect and pay money among friends, and thus attracted acquirers – Braintree bought Venmo in 2012 and then PayPal acquired Braintree in 2013. Six months ago, PayPal announced that it plans to let merchants accept payments through Venmo. Companies from all sizes are entering this field. Some enter by creating new business units (e.g., Google),

others by innovations that complement their current operations (e.g., Domino's) and yet others to be acquired by larger organizations or investment firms (e.g., Venmo).

Impact of Digital Evolution on International Remittances

BCG and SWIFT predict a step forward in the digitization of trade finance in the world

All due to a shift in attitudes around the significance of technological innovation, artificial intelligence and an emerging threat from FinTechs all set to disrupt the existing model.

Following are the advantages of technology in International Financial Remittances

Faster than Banks

Fintech application can process the request for international money transfers way faster than banks. Banks typically take days together to make successful transfers from one party to another, while technology helps it make it more swift and fast

Cheaper

The processing fee charged by fintech applications is relatively lower than those charged by banks. And many of the companies also do it free of cost too.. Fintech players also generally refrain from charging hidden fees, amendment charges or cancellation fee, unlike banks and money transfer operators.

Flexible

Fintech based International Remittance solutions are flexible to use as they allow users to transfer money from anywhere in the world using their mobile phones or a web browser. Besides making online transfers, these solutions also support alternatives like sending cash through physical locations or making arrangements to transfer cash over the phone.

Beneficial Exchange Rates

Fintech companies offer lucrative exchange rates to its users, making them a more pocket-friendly option for people sending as well as receiving money through international remittance. Initially, banks and big companies were the only ones privy to the exchange rates, but the onset of fintech companies have brought competitive exchange rates to common people as well as small and medium businesses.

Convenient to use and implement

Easy features like spot deals, forward contracts, limit orders and schedule payments add to the convenience of users looking to send money to their families. These features are especially useful for ensuring the most favourable exchange rates, thus helping people to get more money across.

Complete Transparency

Fintech compamies have introduced new standards with respect to transparency in financial transactions. Traders sending and receiving money through the various money remittance solutions are kept in the loop with real-time updates. The companies also follow the security norms to make sure that any kind of transactions are carried out through a secured channel.

Fintech has brought disruption in the international remittance sector and emerging to grow as more and more people opt for mobile financial solutions over the traditional methods.

The MobiFin International Remittance solution by Panamax is one such platform that facilitates domestic and international remittance through a cashless and cost-effective model. Complete with built-in KYC and anti-money laundering features, it ensures full traceability and transparency, essential for secure cross-border payments.

Safer and focused

Robotics and AI can better screen transactions close to the source, and shift attention towards higher-risk transactions that require manual approval, without the high false-positives that are common artefacts from older, preexisting solutions. Banks may try and apply the same AI decision-making capabilities to commercial decisions or checks when originating trade transactions.

Reduced Data entry efforts

More recently, banks have been combining Intelligent OCR with AI to enable straight through-processing in data capture for trade finance. Such technology can learn how to map printed text, and automatically fill back-end data fields by recognizing recurring patterns in document

templates. This can reduce the need for manual intervention in transaction processing and significantly reduce unit transaction processing costs for banks

Latest Technology In International Remittance For Fast Transaction And Paper Less Recording

Below is the list of technological advance emnts used to help the banks make the international transactions faster, safer and paperless.

1. **Intelligent Document Recognition (IDR) technology** : Intelligent document recognition is a new technology that promises to transform the way businesses handle document processing. ... It uses a combination of optical character recognition techniques and rules based engines to characterize documents and classify them correctly.

2**. R3 Corda Platform : R3's Corda** is an enterprise **blockchain platform** that delivers privacy, security, interoperability and scalability in the international remittance transactions

3. **Digital Trade Chain Consortium:** A group of seven large European banks, Digital Trade Chain Consortium, have turned to IBM to build and host a new trade finance platform, based on IBM Blockchain powered by Hyperledger Fabric.

4. **OCR with AI :** Banks use OCR as a means of transaction security and risk management. Because when using traditional OCR, users can only check documents manually. But when integrated AI and natural language processing technology (NLP), OCR adds the ability to automatically assess risks for any paper document.

5. **DLT** : A distributed ledger (also called a shared ledger or distributed ledger technology or **DLT**) is a consensus of replicated, shared, and synchronized digital data geographically spread across multiple sites, countries, or institutions. There is no central administrator or centralized data storage like in **CLOUD** facility

6. **Blockchain:** A new prototype developed by Bank of America Merrill Lynch (BofAML), HSBC and the Infocomm Development Authority of Singapore (IDA) brings the paper-intensive letter of credit (LC) transactions onto the blockchain.

The seven steps to a blockchain-based LC transaction:

1: The importer creates an LC application for the importer bank to review and stores it on the blockchain.

2: The importer bank receives notification to review the LC and can approve or reject it based on the data provided. Once checked and approved, access is then provided to the exporter bank automatically for approval.

3: The exporter bank approves or rejects the LC. If approved, the exporter is able to view the LC requirements and is prompted to view through the application.

4: The exporter completes the shipment, adds invoice and export application data and attaches a photo image of any other required documents. Once validated, these documents are stored on the blockchain.

5: The documents are viewed by the exporter bank, which approves or rejects the application.

6: The importer bank reviews the data and images against the LC requirements, marking any discrepancies for review by the importer. When approved, the LC goes straight to completed status or is sent to the importer for settlement.

7: If required due to a discrepancy, the importer can review the export documents and approve or reject them.

Conclusion:

Digital channels for international remittances are evolving. We all believe that technology has been transforming the workflow and all the procedures in the international remittance industry. I still believe that the fax was the most disruptive technology in this industry because it quickly allowed the spread of agents and correspondents all over the world in the 90's but only old-timers will agree to this statement. Today' systems have become more open to allow for integrations through APIs; pieces of technology that can be added on to replace, automate, speed, make safer, make less risky, make more efficient, our internal banking systems. Tasks once handled with physical bills, bulky computers, and human interaction are now being completed entirely on digital interfaces. And that is where fintech is crawling into traditional international money transfer operations.

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