Changing Dynamics of the Indian FX Market

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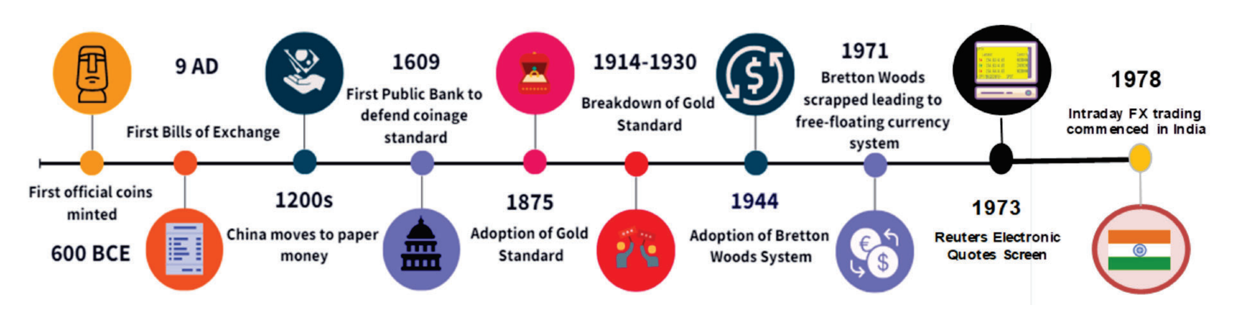
1. Backdrop

The Indian foreign exchange market has undergone a significant transformation in the three decades since the Indian rupee (INR) became fully convertible for current account transactions in August 1994. This article discusses the evolution of the Indian forex market in the backdrop of rapid technological and geopolitical changes, growing role of the external sector and increased interconnectedness of the Indian economy with the global markets.

2. Evolution of Global Currency Trading

The barter system of exchanging merchandise evolved naturally as humans decided to settle and start agriculture. Drawbacks such as lack of double coincidence of wants, lack of divisibility and lack of common value of unit led to a quick switch to first commodity and then metallic money. The rise of global trade necessitated a more portable solution in the form of paper money. Concerns around liquidity, trust and widespread acceptance led to the centralization of the minting of coins or printing of currency notes by sovereigns. Towards the end of 20th century, currencies became more dematerialized and with the emergence of cheques, debit cards and credit cards, the volume and velocity of transactions multiplied while eliminating the need to hoard physical cash. Digital or virtual currencies are the latest stage in the continual process of evolution in money.

Figure 1: History of Money



The need for converting or exchanging one currency for another started with the expansion of trading in goods and services. Dealing in coins minted by multiple issuers with varied weightage and metal content led to the origin of exchange rates between multiple currencies. While paper money was also initially backed by bullion, a physical commodity does not back fiat money issued by most modern governments. Instead, the rate for exchanging one currency with another is derived from its supply and demand along with the monetary and fiscal stability of the issuing government. The foreign exchange market or the forex market or just FX market is a venue where currencies of different countries are traded i.e. bought or sold for other currencies at a given rate of exchange. Currencies are traded in pairs, i.e. one currency is swapped into another at the end of the transaction.

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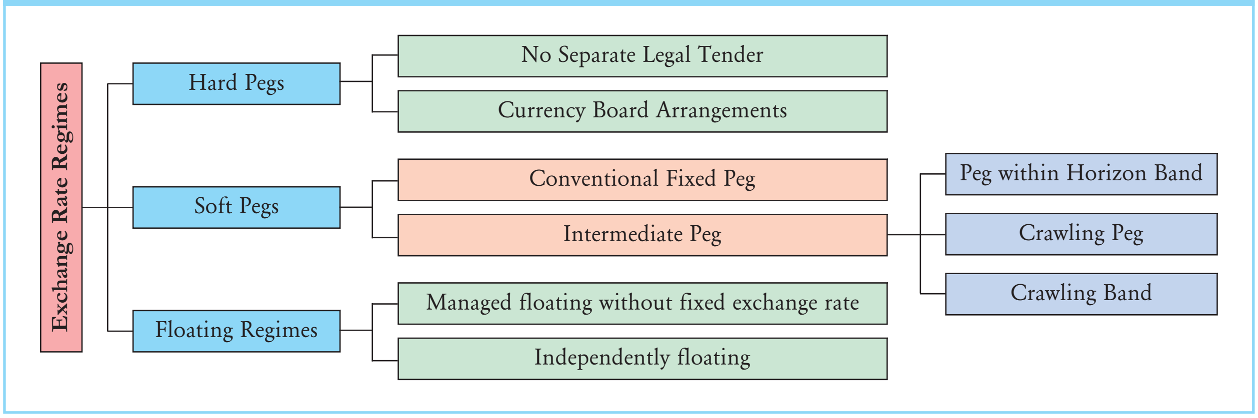
2.1. Exchange Rate Regimes

The exchange rate regime chosen by a country significantly impacts both its currency's value i.e. exchange rate against other currencies as well as its tradability. The regulatory framework governing the currency, degree of flexibility and existence of formal or informal commitments to exchange rate paths shapes the operational environment for market participants and ultimately the liquidity of a currency. The International Monetary Fund's (IMF) Annual Report on Exchange Arrangements and Exchange Restrictions lists out the exchange rate regimes adopted by different countries. These include:

- **Fixed Peg Arrangement:** The currency is tied to another currency or a basket of currencies, with intervention being limited and some monetary policy flexibility allowed.
  - **No Separate Legal Tender:** A country's monetary policy control is surrendered by using another country's currency or belonging to a currency union.
  - **Currency Board:** The exchange rate is fixed and the currency is backed by foreign reserves, with traditional central bank functions being limited.
- **Conventional Fixed Peg Arrangements:** The currency is tied to another currency or a basket of currencies at a fixed rate, with intervention used to maintain the peg.
  - **Pegged Exchange Rates (Bands):** The currency value is maintained within a band around a central rate, with the degree of flexibility determined by the band width.
  - **Crawling Pegs:** The exchange rate is adjusted periodically based on specific indicators, with constraints placed on monetary policy.
  - **Crawling Bands:** A combination of a crawling peg and fluctuation bands is used, with the level of flexibility dictated by the band width.
- **Floating Exchange Rates:** The exchange rate is determined by the forex market based on supply and demand relative to other currencies.
  - **Managed Float:** The exchange rate is influenced by the monetary authority, without a predetermined path or target.
  - **Independently Floating:** The exchange rate is determined by the market, with official intervention aimed at moderating the rate of change, not setting a specific level.

Figure 2: Exchange Rate Regimes



2.1.1. Bretton Woods System and Aftermath

The Bretton Woods System (BWS) was established in 1944 as an international monetary framework to facilitate the post-war global economic recovery. Based on pre-war experiences with different exchange rate regimes, BWS combined the exchange rate stability of the gold standard which was favorable for rebuilding global trade and finance with the advantage of floating rates to restore and maintain domestic economic and financial stability. Essentially under this system, different countries settled their international balances in US Dollars (USD) which were in turn convertible into gold initially at a fixed rate of $35 per ounce. The US was responsible for maintaining the fixed gold price and adjusting the dollar supply to ensure confidence in future gold convertibility. By 1959, US monetary gold stock equaled total external dollar liabilities, and by 1964, official dollar liabilities held by foreign monetary authorities exceeded the US monetary gold stock.

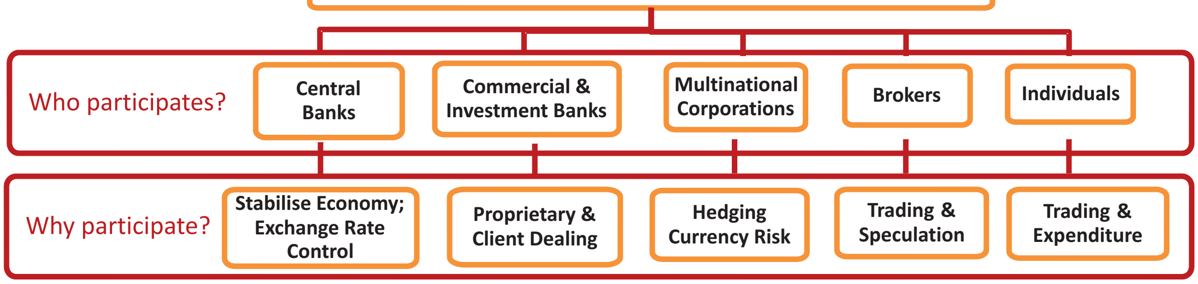
In August 1971, President Richard Nixon announced the temporary suspension of the dollar's convertibility into gold, a move that later became permanent. By March 1973, major currencies began floating against each other. Although it had been feared that the collapse of the BWS would halt the period of rapid growth, the transition to floating exchange rates was relatively smooth and timely, facilitating adjustments to the external shocks such as the sudden rise in oil prices in October 1973. The collapse of the BWS ushered in the modern FX markets as it created opportunities for market participants to benefit from trading in different currencies.

A uniform system of three-letter codes unique to each currency as per the ISO 4217 standard developed by the International Organization for Standardization (ISO) in 1978 is used in the global FX market to represent currencies in a consistent and easily recognizable manner. Currencies are traded and quoted in pairs as per their respective ISO codes where the first three-digits are the ISO code for the base currency or the currency being bought, and the last three stand for the second currency called the quote currency which is being sold. The currency pair basically indicates how much of the quote currency is needed to purchase one unit of the base currency.

2.2. Participants

Flows of funds on account of international trade and international investments form the underlying for the FX market. The global FX market is a diverse and complex arena where a wide range of participants engage in currency trading for various purposes. Multinational corporations need to exchange currencies to pay for goods and services from foreign suppliers, repatriate profits from overseas operations and manage the risk associated with currency fluctuations to their future cash flows in foreign currencies. Their foreign currency exchange requirements are facilitated by commercial and investment banks which contribute to a significant

Figure 3: Usage of FX market



portion of the daily trading volumes by also engaging in proprietary trading. Advances in technology and the rise of online trading platforms have made it easier for individual investors and small brokers to participate in currency trading.

Central banks intervene in the currency markets to manage adverse movements and excessive fluctuations in their domestic currencies' exchange rates against other foreign currencies. These interventions can be driven by domestic conditions such as the need to support export competitiveness and control imported commodity inflation, or they can be a response to external shocks that have a sudden impact on exchange rates.

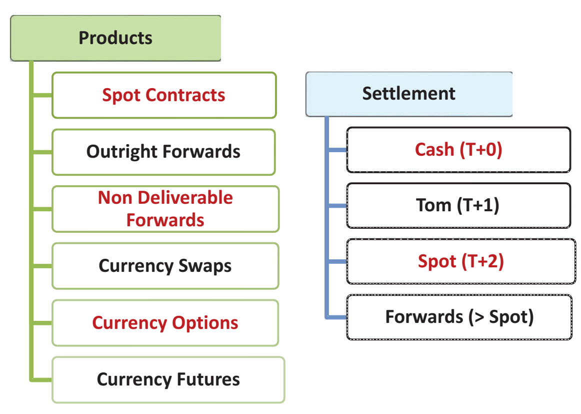
2.3. Instruments

Instruments in the FX market are generally classified on basis of the time of exchanging the currencies or cash flows. Spot is the simplest product involving the outright purchase of one currency against another. As the market deepened, various foreign exchange derivatives products have been introduced over the years to mitigate the risk evolving from volatility of floating exchange rates. Such derivatives are generally unnecessary for currencies under a fixed exchange rate regime because the exchange rates are pegged to a specific value and are not subjected to sudden volatility.

Table 1: Products in the FX Market

Product	Description
Spot	Outright transactions between two parties to buy one currency against selling another currency at an agreed price
Outright Forwards	Contracts to buy or sell a specific currency at a predetermined rate on a future date
Non Deliverable Forwards	Cash-settled agreements to exchange cash flows in two different currencies, typically involving a restricted currency, without physically delivering the currencies themselves
Currency Swaps	An agreement between two foreign parties to swap interest payments on a loan made in one currency for interest payments on a loan made in another currency.
Currency Options	Contracts that give the right to buy or sell a currency with another currency at a specified exchange rate during a specified period
Currency Futures	A futures contract to exchange one currency for another at a specified date in the future at a price (exchange rate) that is fixed on the purchase date

Figure 4: Instruments in FX Market



The FX market is unique among financial markets due to its continuous, 24-hour operation, making it a truly global marketplace. Unlike traditional stock markets that operate within set hours, the FX market never sleeps and as one major financial center closes, another one in a different time zone opens, ensuring there is always trading happening somewhere around the globe. The most active/liquid windows are when the trading hours overlap between the four trading sessions in Coordinated Universal Time (UTC):

Sydney: 9 PM - 6 AM

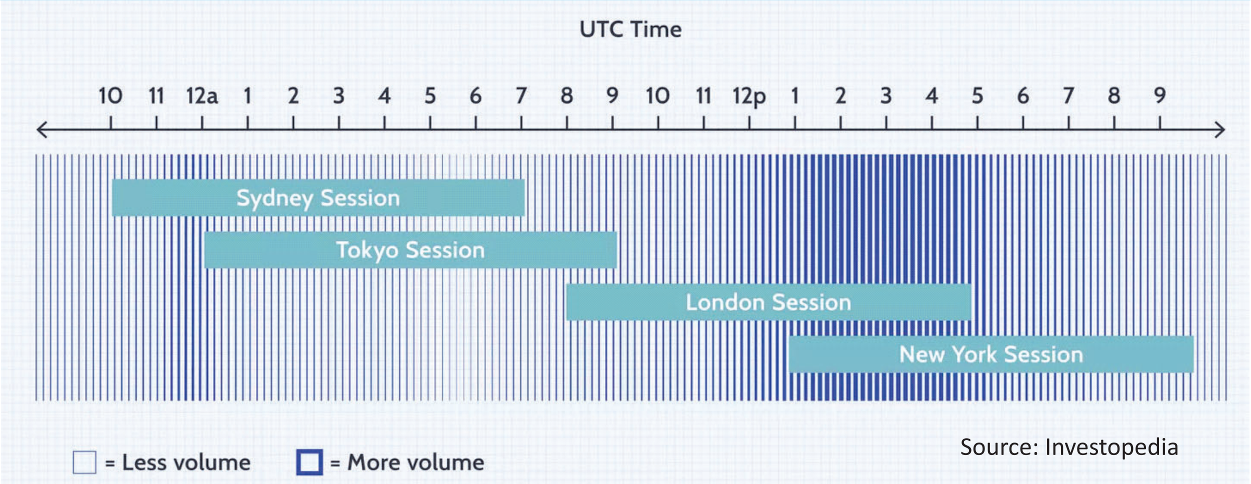
Tokyo: 12 AM - 9 AM

London: 7 AM - 4 PM

New York: 1 PM - 10 PM

This constant activity allows for seamless currency trading, providing ample liquidity and opportunities for market participants to respond to geopolitical events, economic data releases and other market-moving news

Figure 5: UTC FX Sessions



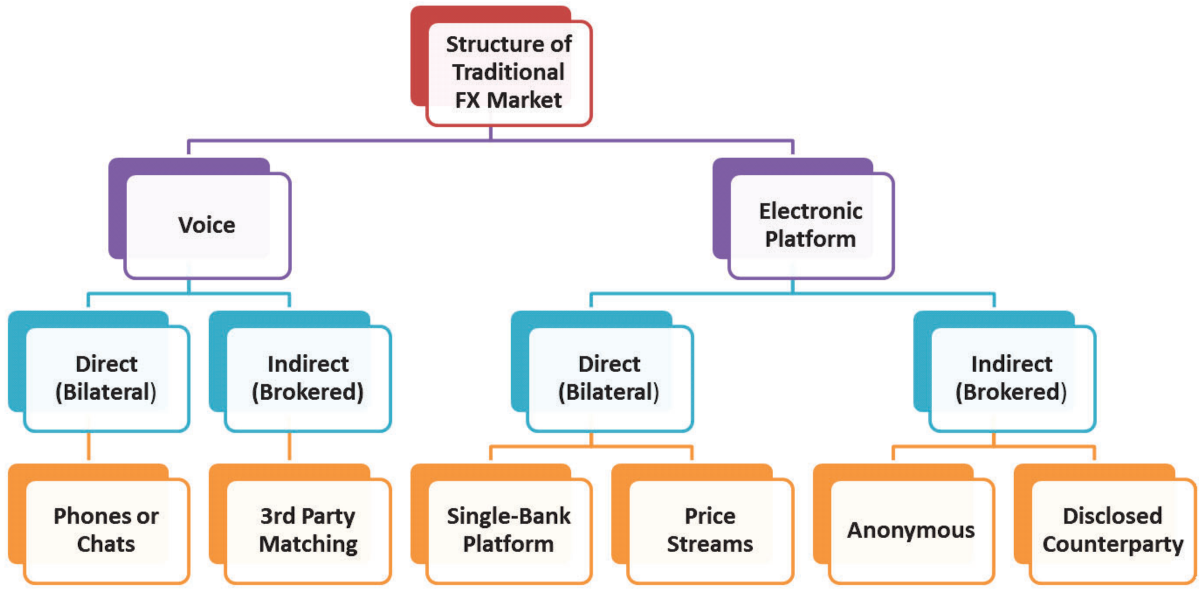
in near real time. However, settlement of transactions in the FX market, despite its continuous and global nature, follows a structured process to ensure the efficient transfer of currencies between the two parties. Based on the date of settlement, the trades are classified as:

- Cash: Settling on the same day as the transaction
- Tom: Settling on the next business day
- Spot: Settling within two business days of the transaction
- Forward: Settling on a date after the spot date

2.4. Venue and Market Structure

Traditionally FX markets were organized as over-the-counter (OTC) markets built upon credit relationships. With the change in the forms of money, currency markets have also transformed from physical to virtual locations. The modern FX market has evolved significantly from the screen-based quote system launched by Reuters in 1973. Since the 1990s, innovations in electronic trading have enhanced the speed of trading, offered participants more choice of venues and facilitated a greater variety of trading strategies by a diverse set of participants.

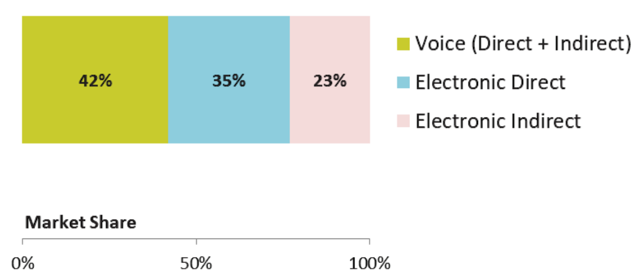
Figure 6: FX Trading Modes



Source: BIS

Increasingly activity in the global FX market is being driven by automated algorithm based trading, which the BIS Triennial Survey of 2019 stated was making the currency markets fragmented and opaque. The BIS Triennial Survey of 2022 indicated a marked shift towards direct forms of electronic trading moving away from anonymous venues.

Figure 7: Share of Trade Exection Methods BIS Triennial Survey April 2022



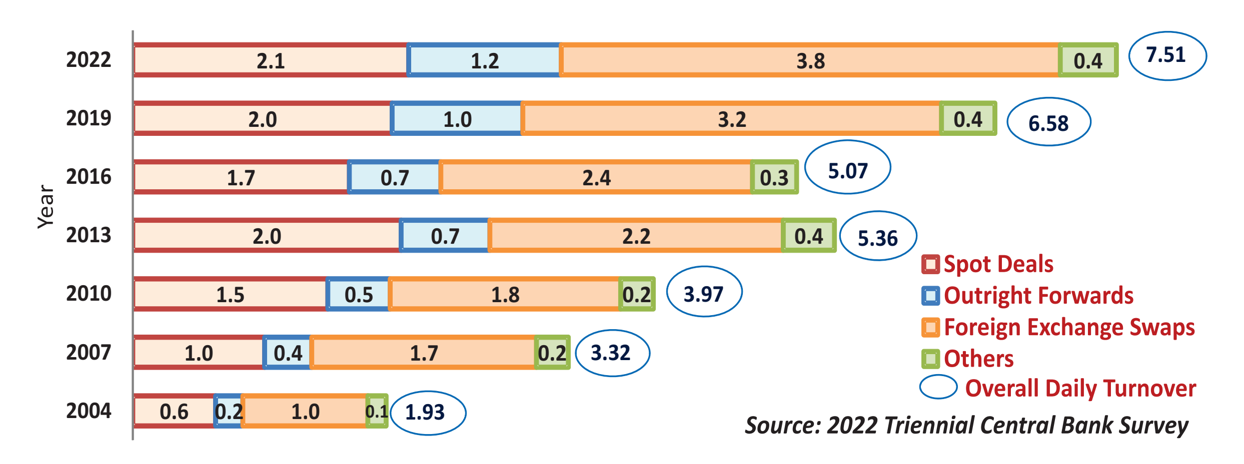
2.5. Size of Currency Trading

As per the 2022 BIS Triennial Survey, global foreign exchange market boasted a daily turnover of $7.50 trillion per day, up by 14% from the $6.60 trillion reported in 2019. Turnover included trading with financial clients, cash flows on the back of global trade and offshore trading in financial centres. The US dollar accounted for 88% of the global FX market turnover in 2022. Foreign exchange swaps followed by the spot segment dominate the trading activity.

Reporting Dealers, which comprise of large commercial and investment banks and securities houses, dominated FX transactions followed by cross-border financial institutions which include entities that operate in multiple countries. Non-reporting banks regional commercial banks, publicly owned banks, securities firms or investment banks not directly participating as reporting dealers accounted for 15% of turnover in FX market.

The substantial growth of currency trading has been driven by the roughly 45 times expansion in world trade

Chart 1: Average Daily OTC Foreign Exchange Turnover (USD Trillion)

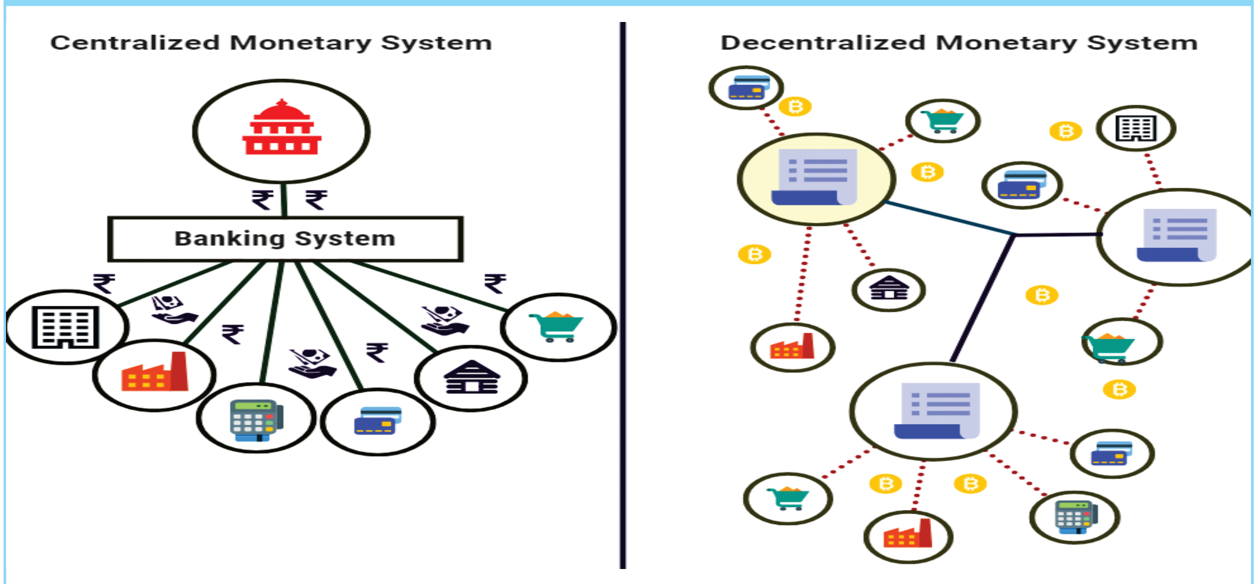


between 1950 to 2022. Since 1950, the world trade volume has grown at a compound annual growth rate (CAGR) of 8.50%, reaching $24.714 trillion in 2022. This massive growth in trade has inevitably led to increased demand for foreign exchange and related financial instruments, underscoring the critical role of the forex market.

2.6. Virtual Currencies- The New Paradigm

The technological advancements over the past 15 years have resulted in the emergence of private virtual currencies transforming the global FX market. Unlike traditional currencies controlled by central banks, cryptocurrencies like Bitcoin launched in 2009 operate on a decentralized system, free from government influence. They share the characteristics of money (durability, portability, limited supply) but exist solely as digital records secured by blockchain technology. Basically these are stored, exchanged and traded i.e. bought and sold through 'wallets' on a blockchain which records every transaction and can be accessed by anyone on the network.

Figure 8: Traditional vs Decentralized Monetary System



Trading in cryptocurrencies as well as derivatives based on them facilitated by new age exchanges boomed during the pandemic due to the massive liquidity surplus in most countries and the extremely low interest rates. However, lacking intrinsic value, cryptocurrencies are susceptible to external events and pose significant risks to investors and financial stability. Their decentralized nature also raises concerns about tax evasion and unregulated intermediaries. As a result, major central banks across the world are exploring Central Bank Digital Currency or CBDCs which are digital versions of their own currencies, offering potential benefits like security and stability but without the decentralization of crypto.

2.7. Risks in FX Market

Risks in the foreign exchange market arise due to the involvement of two or more currencies. Exchange rate risk arises from the fluctuations in currency values due to global factors such as geopolitical tensions, political instability and sovereign defaults. The international value of a country's currency is also closely linked to its transactions with the rest of the world that result in trade surpluses or deficits. Domestic macroeconomic factors such as changes in inflation, interest rates, import-export duties, and taxes also influence the exchange rate. Translation risk affects parent companies with foreign subsidiaries, as they must translate foreign financial statements into the parent company's currency, potentially affecting reported earnings and financial positions.

There are four main financial risks to consider when trading in currencies in global markets: issues due to different currency time zones, counterparty failure to fulfill obligations, difficulty in buying or selling currencies quickly without affecting prices i.e. liquidity risk, and the possibility of unexpected problems during settlements. Most of these risks are also highly interconnected. Central Counterparties or CCPs are intermediaries that significantly enhance the efficiency and safety in this market by acting as the counterparty in all transactions.

Figure 9: Risks in the Forex Market

3. Evolution of the Modern Indian FX Market

India has been a net merchandise importer including in essential commodities such as crude oil, pulses, edible oils, raw materials and components for the manufacturing industry etc. as well as precious metals such as gold. As a result, India's external sector is highly regulated to ensure ability to pay for imports with continued focus on maintaining a healthy Balance of Payments (BoP), limiting capital outflows and encouraging inflows, minimizing sharp fluctuations in the exchange rate and maintaining export competitiveness. The Ministry of Commerce and Industry regulates India's external trade (imports and exports) through the Directorate General of Foreign Trade. On the other hand, the Ministry of Finance and the Reserve Bank of India (RBI) regulate the movement of capital, foreign exchange reserves and the foreign exchange market. India has one of the world's most robust infrastructure for trading and settlement in the interbank forex market.

The evolution of the Indian forex market has followed RBI's gradual liberalising measures for both financial intermediaries and the corporate sector while retaining the focus on managing the associated risks with the existence of underlying forex exposure generally being an essential requirement for market users[1]. Although RBI permitted banks to undertake intra-day trading in foreign exchange in 1978, there was no market in the real sense as the exchange rate of the rupee was fixed against a weighted basket of currencies of India's major trading partners and banks were subject to strict regulations, including maintaining a "square" or "near square" foreign exchange position at the end of each day and current account transactions were restricted.

The push for a deep and well-functioning FX market came from the BoP crisis of 1991 following which the Indian Rupee transitioned to a market determined exchange rate system on March 1, 1993 and achieved current account convertibility in August 1994 with India accepting Article VIII of the Articles of Agreement of the International Monetary Fund. RBI's Expert Group on Foreign Exchange (Sodhani Committee) appointed in November 1994 made far reaching recommendations to develop, deepen and widen the Indian forex market.

Since the mid-1990s, RBI's focus has been on developing the institutional framework and increasing the instruments for effective functioning, enhancing transparency and liberalising the conduct of foreign exchange business so as to move away from micro

Figure 10: Brief Journey of Indian FX Market

Intra day FX trading permitted in India	1978
1991	India launches New Economic Policy
India adopts floating exchange rate regime	1993
1994	Current Account Convertibility
1995	Sodhani Committee Report
2000	FEMA replaced FERA
2001	CCIL set up
2002	CCIL commences FX settlement
Launch of FXCLEAR	2003
2005	CCIL starts cross currency settlement through CLS
CCIL adopts PvP mode of FX settlement	2015
2019	Launch of FX-Retail

[1] Development of Forex Markets in India : Review and Prospects, RBI (https://www.rbi.org.in/Scripts/BS_SpeechesView.aspx?Id=161)

management of foreign exchange transactions to macro management of foreign exchange flows. Some of the key measures included[2]:

- Replacing the Foreign Exchange Regulation Act (FERA) 1973 by the market friendly Foreign Exchange Management Act (FEMA) 1999;
- Permitting authorized dealers (ADs) to release foreign exchange for a variety of purposes;
- Setting up the Clearing Corporation of India Limited (CCIL) in 2001;
- The rupee-foreign currency swap market was allowed;
- Introduction of hedging instruments such as foreign currency-rupee options, cross-currency options, interest rate swaps and currency swaps, caps/collars and forward rate agreements;
- ADs were permitted to initiate trading positions, borrow and invest in overseas market;
- Banks were permitted to
  - fix net overnight position limits and gap limits (with RBI formally approving the limits);
  - determine the interest rates (subject to a ceiling) and maturity period of FCNR(B) deposits with exemption of inter-bank borrowings from statutory preemptions; and
  - use derivative products for asset liability management;
- Participants in the foreign exchange market were permitted to avail forward cover and enter into swap transactions without any limit, subject to genuine underlying exposure;
- FIIs and NRIs were permitted to trade in exchange traded derivative contracts; and
- RBI initiatives for putting in public domain all data relating to foreign exchange market transactions and operations.

Further easing was recommended by the Internal Technical Group on the Foreign Exchange Markets (2005) and the Internal Working Group on Currency Futures (2008) paved the way for introduction of exchange traded currency futures. While measures towards liberalizing the capital account have been guided by the reports of the Tarapore Committees on Capital Account Convertibility 1997 and 2006, since 2010, RBI has focused efforts towards internationalization of the INR as the Indian economy integrates globally. An international currency is used and held beyond the borders of the issuing country for transactions between residents and non-residents, and between residents of two countries other than the issuing country. As a result, the reports of the Task Force on Offshore Rupee Markets (2019) and the Inter-Departmental Group on Internationalization of INR (2023) have led to further relaxations in the foreign exchange market and cross-border transactions.

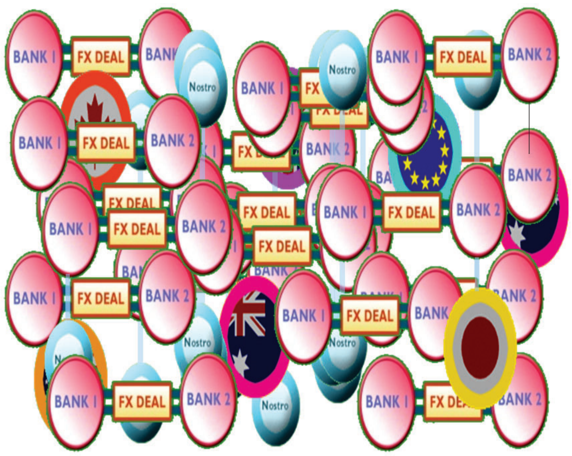
To ease access to the foreign exchange market, RBI floated a discussion paper on foreign exchange trading platform for retail participants in 2017 which paved the way for the introduction of the FX-Retail platform in 2019. Mindful of the rapid rise of trading activity in crypto currencies in India despite regulatory discomfort, RBI has initiated pilot launches of the Digital Rupee (e₹) for specific use cases since December 2022.

[2]RBI Report on Currency and Finance 2005-06 (https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/77577.pdf)

3.1. The Clearing Corporation of India Limited (CCIL)

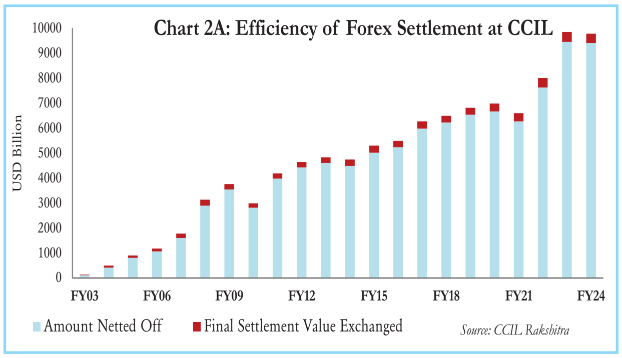
Historically, the Indian FX market relied on broker-driven trading with bilateral gross settlements. This involved complex correspondent banking arrangements across borders, exposing banks to significant settlement risks. As suggested by the Sodhani Committee, RBI set up CCIL in 2001 to mitigate risks in the Indian financial markets. CCIL, as a CCP that becomes the buyer for every seller and seller for every buyer, commenced guaranteed settlement of inter-bank USD-INR Spot and Forward trades from November 8, 2002 which was extended to Cash and Tom trades from February 5, 2004. From April 6, 2015 CCIL follows a payment-versus-payment (PvP) mode of settlement in the forex segment. The rupee leg is settled at RBI and the USD leg is settled through multiple commercial banks in New York. To mitigate settlement bank risks, CCIL conducts USD settlements through settlement banks simultaneously. CCIL's risk management processes are compliant with the Principles for Financial Market Infrastructures (PFMIs) issued by the Committee on Payment and Settlement Systems (CPSS) and International Organization of Securities Commissions (IOSCO).

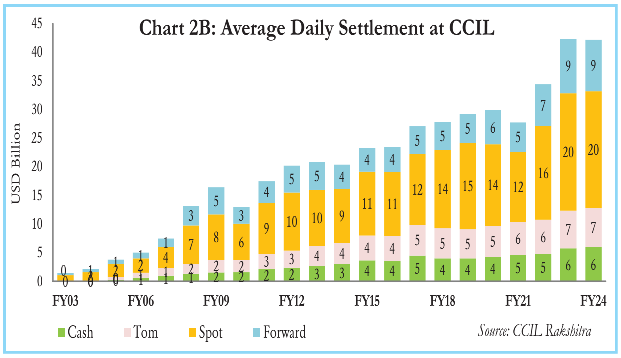
Figure 11: Pre-CCIL Indian FX Market



- **Huge credit risk due to time zone differences and gross Settlement leading to Liquidity Risk, Settlement Risk etc**
- **High counterparty risks**
- **Shallow & illiquid market**
- **Huge intraday liquidity requirement due to gross settlement**
- **Gridlock situations resulting in near settlement failures**
- **Manual processing resulting in delays and errors**
- **Absence of information dissemination resulting in lack of transparency**

CCIL becomes the CCP to every accepted inter-bank FX transaction through the process of novation and runs a multilateral netting system that nets the participants' payments and receipts in a currency, though they are due to or from different counterparties and settles the net position on a PvP basis in both the legs of the transactions. The process of multilateral netting reduces liquidity risk as well as counterparty credit risk from a gross to net basis. The reduction in the number and overall value of payments between market participants has enhanced the efficiency of the payment system and reduced settlement costs associated with growing volumes of market activity.



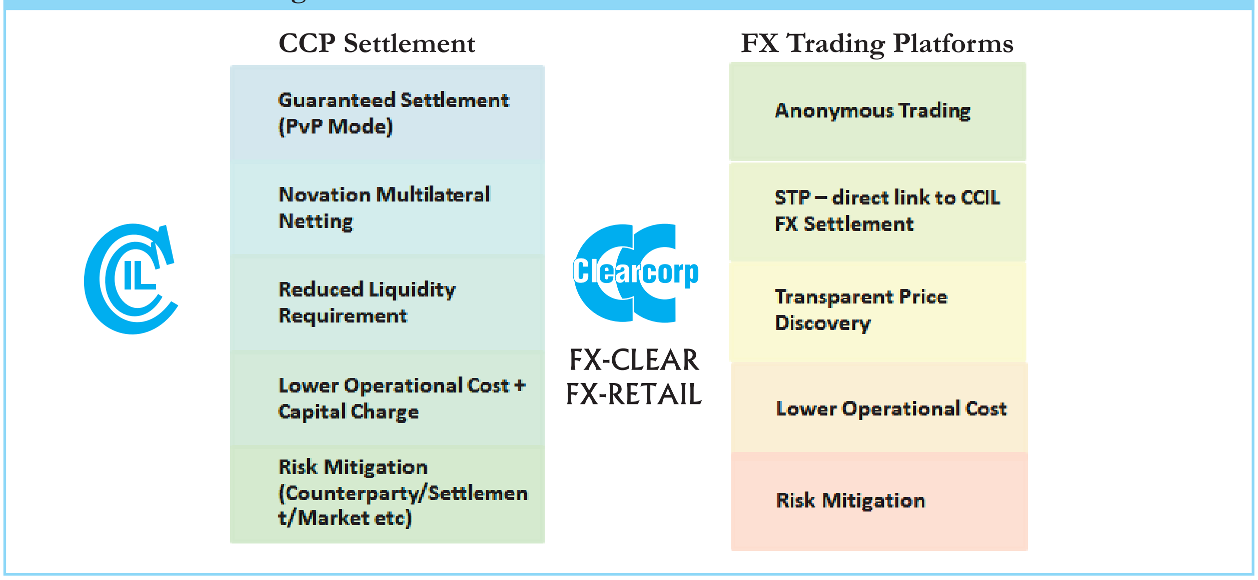


The BIS Survey shows that the share of the INR in global turnover has increased from 0.30% in 2004 to 1.60% in 2022. The sustained growth as well as the dip in FX market activity during the pandemic lockdowns followed by the subsequent revival on the back of increased world trade are evident from the volumes settled at CCIL which have grown 11 times between FY05 and FY24. CCIL's Netting Factor(%) indicates the extent of actual reduction achieved through multilateral offsetting of individual member obligations (arising out of every trade) to a single net obligation. On an average, CCIL has achieved a Netting Factor of 94.28% over the last 20 years reflecting the efficiency of its settlement system.

3.2.FX-CLEAR & FX-RETAIL

FX-CLEAR, an anonymous FX dealing platform was launched by Clearcorp Dealing Systems (India) Limited (Clearcorp), a wholly owned subsidiary of CCIL, in August 2003. The platform covers the inter-bank USD-INR Spot in Order Matching mode along with Swap transactions in Negotiation mode. All trades concluded on the Order Matching mode of the platform are guaranteed by CCIL from the point of trade. The platform offers STP (Straight Through Processing) wherein all these trades are automatically sent to CCIL for guaranteed settlement. The facility to trade on the FBIL reference rate has been enabled on the FX-Clear platform effective November 7, 2022. Through this, members can place orders in the R-Spot instrument by quoting a spread i.e. At Par, At Premium (+) or At Discount (-) to the Reference Rate.

Figure 12: Institutional Infrastructure in Indian FX Market



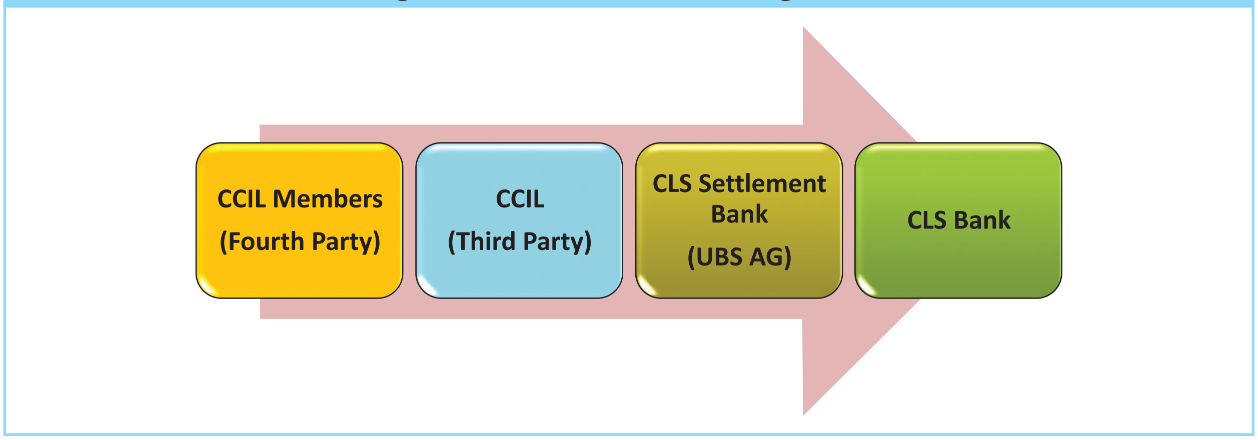
The FX-Retail platform launched by Clearcorp on August 5, 2019 provides a web-based anonymous and order driven dealing platform in USD-INR currency pair for the customers of banks which include Individuals, NRIs, Sole Proprietor, Partnership Firms, Corporates, Small and Medium Enterprises (SMEs) etc. The platform offers trading in Cash, Tom, Spot and Forward instruments (upto a period of 13 months) in the USD-INR currency pair.

3.3. Continuous Linked Settlement (CLS)

Continuous Linked Settlement (CLS) launched in 2002, is a critical global FX market infrastructure. It mitigates settlement risk by offering a real-time, simultaneous PvP settlement system for major currencies. By netting payments and providing finality, CLS enhances market efficiency and reduces systemic risk. Its membership model allows financial institutions to offer CLS services to their clients, further expanding its reach and impact on the global FX market.

CCIL facilitates the settlement of cross currency deals for banks in India in 14 CLS eligible currencies through the CLS Bank since April 2005. CCIL adopted the CLS system with a unique twist to offer Indian FX market participants the benefits of reduced credit, market, operational and liquidity and improved operational efficiency for trades in currency pairs other than the USD-INR pair. CCIL acts as third party aggregator and settles the transactions of its member banks through a designated CLS Settlement Bank. Through this arrangement, CCIL has been able to pass on concrete benefits of the CLS product viz. operational efficiencies, reduced liquidity requirement and other benefits to its member banks. The CCIL-CLS achieved a Netting Factor of 92.62% in FY24.

Figure 13: CLS Settlement Through CCIL



4. Way Forward

The rapid evolution of "money" and the markets for dealing in it exemplified by the surge in digital currencies, necessitates a broader scope for the FX market beyond traditional national currencies. India's FX market, while keeping pace with the global markets in terms of both technology adoption and regulatory supervision, is positioned for significant growth due to increased foreign participation driven by the country's rising global prominence and progressive financial market liberalization.