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Department of Economics

PAYMENT BANKS IN INDIA

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On September 1st 2018, the Prime Minister launched the India Post Payments Bank (IPPB) in order to further the cause of financial inclusion. The IPPB will have 650 branches and 3,250 access points across the country. A large section of rural population will directly become part of the formal financial system. The Post office Department is one of the latest to be linked to growing brand of Payment Banks. The advantage is that the post offices with their large network can reach every village and connect the rural people to the payment banks. It is easy for the government to disburse the huge amount of subsidies, cash programmes, Mahatma Gandhi National Rural Employment Guarantee Act (MGNAREGA), that are supposed to encourage rural development. The rural population will find it convenient to get the services at the doorstep rather than suffer alienating experience in modern day banks. The friendly and unassuming postman will play the role of bank relationship manager in the days to come. The following article brings out the salient characteristics of Payment Banks and certain issues related to them.

Payment Bank technology is hugely popular in developing countries. In Kenya, Vodafone's M-Pesa is used by two-thirds of adults to store money, make purchases and transfer funds to friends and relatives. Many service providers like Airtel have initiated Pre-paid Payment Instruments (PPI). The concept of Payment Banks in India was mooted by the Nachiket Mor Committee on "Comprehensive Financial Services for Small Businesses and Low Income Households" set up by the Reserve Bank of India in September 2013. The Committee submitted its Report in 2014.

The Payments Banks are like other banks which operate on a smaller scale without involving any credit risk. In the Union Budget 2014 – 15 presented by the Finance Minister in July 2014, it was followed by formally announcing the setting up of Payment Banks under the procedural guidelines issued by the RBI. The RBI came out with the final guidelines in November 2014 and called for applications for setting up of the Payment Banks in India. The

Payment Banks is a new idea in the history of banking. It is going to redefine banking in India.

FINANCIAL INCLUSION

In the big push given to digitalisation and digitisation during the last four years or so the domestic remittance market in India has been undergoing phenomenal changes. The RBI seeks to increase the penetration level of financial services to the remote areas of the country with the help of payments banks. The existing prepaid payment instruments (PPI model) like Airtel Money does not give pay any interest on deposits. According to the RBI the main objectives of setting up of Payment Banks will be to raise the coverage for financial inclusion. The payment banks will provide payment and remittance services by opening a small savings accounts. The payment banks will accept demand deposits restricted to holding a maximum balance of Rs. 100,000 per individual customer. The banks customers are mainly migrant labour workforce, low income households, small businesses, other unorganised sector entities and other users. They carry out most banking operations but can't advance loans or issue credit cards. They offer remittance services, mobile payments/transfers/purchases and other banking services like ATM/debit cards, net banking and third party fund transfers.

Apart from amounts maintained as Cash Reserve Ratio (CRR) with the Reserve Bank on its outside demand and time liabilities, it will be required to invest minimum 75 per cent of their demand deposits in Statutory Liquidity Ratio (SLR) eligible Government securities/treasury bills with maturity up to one year and hold maximum 25 per cent in current and time/fixed deposits with other scheduled commercial banks for operational purposes and liquidity management. The operations conform to generally accepted standards and norms. The bank should have a high powered Customer Grievances Cell to handle customer complaints.

CASHLESS ECONOMY & DIGITALISATION

The payments banks, however, cannot issue credit cards. The payment banks will distribute non-risk sharing simple financial products like mutual fund units and insurance products, etc. The payment banks do not assume credit risk. Therefore they bank cannot undertake lending activities. As such there is no danger of loan default or Non-Performing Assets. Thus payment banks face zero risk of default so do not need large capital for emergency backup.

The payment banks can be started by mobile phone companies, post offices, rural cooperative societies, corporate business correspondents, subsidiaries of scheduled commercial banks etc. The operations of the Payment Bank are fully networked and technology driven from the beginning.

The licensing of Payment Banks will help to build a comprehensive portfolio of banking and financial products and services. It will accelerate the process of cashless economy. The payment banks will supplement the formal banking and credit system by providing bank accounts to people in rural areas to send and receive money, buy goods and services through digital economy and hasten the process of digitalisation. The Payment Banks will make people less dependent on cash. The mobile wallet could become a wallet soon and over time have a big impact on m-commerce.

RBI & THE PAYMENT BANKS

In the meanwhile the RBI has invited applications for Payment Bank Licenses. It has received 41 applications for the same. The RBI on 19th August 2015 issued "in principle licenses" to 11 of these prospective applicants. These are:

1	Aditya Birla Nuvo
2	Airtel M Commerce Services
3	Cholamandalam Distribution Services
4	Department of Posts
5	FINO PayTech
6	National Securities Depository
7	Reliance Industries
8	Dilip Shanghvi, (founder of Sun Pharmaceuticals)
9	Vijay Shekhar Sharma, (CEO of Paytm)
10	Tech Mahindra
11	Vodafone M-Pesa

The RBI has other plans like issuing licenses for "Small Finance Banks". These banks will primarily be performing basic banking activities in defined areas and cater to small business firms, marginal farmers and self-employed shopkeepers among others. The RBI has received 72 applications for small finance banks. The RBI has given provisional licenses to 10 entities. Of these 8 of them are Microfinance institutions.

ISSUES RELATED TO PAYMENT BANKS

Many Bankers are of the opinion that the idea of Payment Banks is nothing new as SBI, ICICI and all other big banks are offering banking services using mobile technology. The structure of Payment banks does not support financial inclusion in all respects.

Payment banks do not offer wide range of financial services like banking, investment, insurance and pension. The payment banks can be started by commercial banks. In such a case if a Bank like SBI starts a Payment Bank it is bound to lead to price wars for gaining financial space.

The conflict of interest cannot be ruled out in the event of two mobile companies getting a Payment Bank license. As of now it is difficult to say to what extent this experiment will be successful and how the Payment Banks will impact the banking system.

Another issue is that some feel that Payment Banks will disrupt the existing structure and functioning of banks in the public and private sector. However, others who feel that Payment Banks will supplement the efforts of existing banks.

It appears that the canvas for players in the Indian financial system is increasing. Let us watch the unfolding situation.

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RUMINATIONS

COMMERCE

Department Of Commerce

Existential Association and Dissociation of the Self in Joseph Heller's Something Happened

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Something Happened is an existential novel of psychological survival. It is a reflection of the contemporary American civilization in which chaos parades as order and man rages in vacuum. Eliot Fremont – Smith defines the novel as Heller's diagnosis of the modern human spirit that is near to death.[1] Bob Slocum, the protagonist, is a corporate executive who has a low self-esteem, lacks self-confidence, and suffers insecurity in the face of authority. Slocum also suffers a deep and depressing sense of failure. He feels he is responsible for the unhappiness in his children's lives, although he doesn't know how or why. He finds his daughter merging with her environment, and Slocum can do nothing as a father, to save her. She is sometimes so barren of hope that Slocum finds himself "grieving silently alongside her, as though at an open coffin or grave in which her future is lying dead already"[2]. Slocum finds almost all the adolescents his daughter's age, unhappy. He feels it is already late to save his children. He foresees an inevitable doom for his daughter under the influence of American culture and feels helpless:

> She is going to become a lonely, nervous, contemporary, female human being…I cannot fight and nullify a whole culture, an environment, an epoch, a past…, and I have made my own adjustment to them all so contemptibly…It is not a matter of morals anymore, or even of decision; it is only a matter of time.[3]

Slocum's little son too is so lonely and forlorn that his wife cries out to him, "I can't stand it. He looks like a ghost. He's so unhappy. I can't stand to see him this way. It breaks my heart."[4] And Slocum loses his temper whenever he sees himself fail.

Revolving in Slocum's mind, are many questions on his existence. He wonders: Who put me here? How will I ever get out? Will I ever be somebody lucky? What decided to sort me into

[1] Fremont-Smith, Eliot. "Heller's Hell". **Contemporary Literary Criticism**. Ed. Carolyn Riley and Phyllis Carmel Mendelson. Vol. 5. Michigan: Gale Research Company, 1976. p. 174.
[2] Heller, Joseph. **Something Happened**. New York: Alfred A, Knopf, 1974. p. 166.
[3] Heller, Joseph. **Something Happened**, p. 180.
[4] Heller, Joseph. **Something Happened**, p. 330.

precisely this slot?[5] He wonders if he has any power over his own existence. He wants to assert his subjectivity and make his existence felt at least through rebellion, but knows he would just be treated as an object: "They would file me away."[6] He is aware of existential futility, yet cannot let go of his vain ambition of making a three-minute speech at the convention:

> We come to work, have lunch, and go home. We goose-step in and goose-step out, change our partners and wander all about, sashay around for a pat on the head, and promenade home till we all drop dead. Really, I ask myself every now and then,…is there *all* there is for me to do? Is this really the *most* I can get from the few years left in this one life of mine? And the answer I get, of course, is always…*Yes!*[7]

Slocum identifies very closely with his little son who is innocent, straightforward, and generous unlike his daughter. Slocum feels that somewhere inside every man and woman is a little boy or girl "suspended lonesomely inside its own past",[8] waiting hopefully to reconnect with the adult self. He identifies his nine-year old boy as a materialization of the compassionate part of his inner self that is weak, and a victim of people in authority. He nurtures a secret desire to kill his inner little boy in order to make himself strong and authoritative. But he loves his son so much that he will do almost anything he can to shield him from all torment and harm. Nevertheless, he dreams continuously that he has no power to help his son; on the contrary, he himself seems to harm him. Even the little boy has a vague premonition of danger from Slocum. Whenever Slocum stretches his arms out to him in love and protection, the boy winces as if Slocum was about to strike him, even though Slocum has never struck him at all. Sometimes, his son being worried all the time worries Slocum so much that he begins to dislike him. Everybody finds the son too good to be true. Slocum feels something is wrong. He feels ominous:

> Something bad is going to happen to him. I know that now. I know it will. And something bad is going to happen to me too, because it does happen to him. Perhaps it is happening to him already.[9]

The little boy fears being abandoned by his parents at some place outside home. He also fears isolation and rejection. Once, he asks Slocum how he and mother would get rid of him if they ever wanted to do so. "With hugs and kisses", Slocum answers in exasperation.[10] Ironically, towards the end of the novel, Slocum unconsciously kills his son with a tight hug that smothers him. Slocum also

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[5] Heller, Joseph. **Something Happened**, p. 210.
[6] Heller, Joseph. **Something Happened**, p. 19.
[7] Heller, Joseph. **Something Happened**, pp. 30-31.
[8] Heller, Joseph. **Something Happened**, p. 231.
[9] Heller, Joseph. **Something Happened**, pp. 230-231.
[10] Heller, Joseph. **Something Happened**, p. 235.

has dreams of missing his son at the subway, or at some public place, but he never leaves his son deliberately:

> There is only void. I feel lonely then, and it is not possible to be certain which one of us has been lost. I feel lost too.[11]

Slocum worries he will lose his son, and the inner little boy within him of which his son is the embodiment. Even in his imaginations he visualizes the absence of his son:

> I see no future for my boy … or my ability to imagine him present in mine is blunted. I view the empty space ahead without him dolorously. Silence hangs heavily. I miss him. I smell flowers. There are family dinners, and he is not present. What will I have to look forward to if I can't look forward to him?[12]

Slocum pictures Derek as a retarded adult indiscriminately resembling a secret part of his inner self that he never wants anybody to discover. This secret part of his self is a "barbarous idiot".[13] Slocum's sons are thus, materialized reflections of parts of his own inner self. The fear of his little boy's death unconsciously turns into a monstrous appetite to cause the death, so that he may be freed of the anxiety of it.

Slocum says he is unable to connect wholly with his deep, mysterious, dangerous, and rich inner self that is alien to him. But in order to disconnect himself from the guilt he is going to suffer after unconsciously causing his own son's death, he has already dissociated himself from his inner self that he calls ungovernable, and that which he will hold responsible if, through him, any tragedy befalls his son. This can be identified as a pattern of self-deception through self-alienation:

> I have a universe in my head. Families huddle there in secret, sheltered places. Civilizations reside. The laws of physics hold it together. The laws of chemistry keep it going. I have nothing to do with it. No one governs it. Foxy emissaries glide from alleys to archways on immoral, mysterious missions. No one's in charge.[14]

Slocum identifies his inner self as a microcosmic universe. And, if it is evil, it only goes on to imply that the universe at large, is evil multifold. In this sense, Slocum shifts self-reprehensibility to universal responsibility, thus reducing his burden to a negligible fraction.

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[11] Heller, Joseph. **Something Happened**, p. 236.
[12] Heller, Joseph. **Something Happened**, p. 390.
[13] Heller, Joseph. **Something Happened**, p. 391.
[14] Heller, Joseph. **Something Happened**, p. 398.

The inevitability of his life's condition features in his dreams. He believes in determinism to escape existential guilt. He pictures thus:

> Even if I'd never married, sired children, had parents, I would have had them with me anyway. Given this circle, no part could be different. Given these parts, the circle was inevitable.[15]

Slocum even dreams of Derek being dead. But then he awakens to realize that he was only wishing the idiotic part of his own self dead, and not truly his son, Derek:

> I dream he's dead also and am inconsolable when I awake because I am sorry for him and know I'm dreaming of me and don't entirely want him gone.[16]

He also conveniently erases from his memory those parts of his self he does not like, and those times of his life when he schemed of crime or acted evil. He therefore finds no continuity in his past. He thinks:

> Much of what I remember about me does not seem to be mine. Mountainous segments of my history appear to be missing. There are yawning gulfs into which large chunks of me may have fallen.[17]

As a result of his self-alienation, Slocum feels there are evil people in his brain he has no control over, and all the crimes they commit go unpunished. Psychologically, Slocum has divided his own self into an innocent human self that he is, and an evil uncontrollable self on whom he can shift the blame or whom he can hold responsible for the crime he is about to commit. This is a case of self-depersonalization. Also, all the crimes of the evil doer inside him going unpunished, assures him of no punishment afterward. Slocum also identifies Derek as his "occasional wish to be speechless and powerless again and wholly dependent once more on parents and big brothers and sisters".[18] Slocum thinks it is God's will that he gets Andy Kagle's job. But Peter Ackroyd comments that the world of **Something Happened** is one of "flatulence and self-doubt with which no god or prophet will interfere".[19] Quite significantly, Slocum's little boy has stopped talking to him. He acts angry with Slocum, and no longer comes to him for information as often as he used to:

[15] Heller, Joseph. **Something Happened**, p. 402.
[16] Heller, Joseph. **Something Happened**, p. 408.
[17] Heller, Joseph. **Something Happened**, p. 505.
[18] Heller, Joseph. **Something Happened**, p. 538.
[19] Ackroyd, Peter. "Long Longings". **Contemporary Literary Criticism**. Ed. Carolyn Riley and Phyllis Carmel Mendelson. Vol. 5. Michigan: Gale Research Company, 1976. p. 180.

He is moving away from me and I don't want him to. He is shutting me out. I see the doors closed to his and my daughter's rooms…[20]

Irving Malin's interpretation of the concept of closed doors needs to be considered here. Malin explains that Slocum should not be regarded an ordinary neurotic:

"He tends to be a symbolist. He makes doors metaphysical entities…Slocum is so obsessed by doors that he tends to regard others as shadows behind frosted glass. He cannot really allow them to be fully seen. He has to keep them hidden. Thus when his wife and children try to appear as *persons* – with ambivalent motives and needs – he retreats into his mental office. He shuts doors on them."[21]

His boy has stopped talking to him, and this becomes symbolic of his punishing conscience for what he did to Andy Kagle. Unconsciously, Slocum knows he has to kill his conscience to climb the professional ladder (unlike his son who could never succeed at rope climbing, and reaching heights), or he would always remain at the bottom. He has premonitions of his forthcoming crime:

I think I'm in terrible trouble. I think I've committed a crime. The victims have always been children.[22]

Slocum reflects on the human existential situation:

Oh, my God – we go into torment long before we even know what suffering is. We are saddled with it before we can even see. There is so much inner fright.[23]

Slocum experiences torment too as a result of his conflicting self:

Fear. Loss of love, loss of the loved one, loss of the love of the loved one. Separation. We don't want to go, we don't want them to go, we can't wait for them to leave, we wish they'd return. There seem to be conflicts.[24]

Slocum wants his little boy back. He feels he has lost him. William Kennedy rightly describes Slocum as a "woefully lost figure with a profound emptiness, a sad, absurd, vicious, grasping, climbing, womanizing, cowardly, sadistic, groveling, loving, yearning, anxious, fearful victim of the indecipherable, indescribable malady of being born human".[25] In this context, Bruno Bettelheim's

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[20] Heller, Joseph. **Something Happened**, p. 550.
[21] Malin, Irving. "Heller, Joseph". **Contemporary Literary Criticism**. Ed. Carolyn Riley and Phyllis Carmel Mendelson. Vol. 5. Michigan: Gale Research Company, 1976. p. 182.
[22] Heller, Joseph. **Something Happened**, p. 556.
[23] Heller, Joseph. **Something Happened**, p. 559.
[24] Heller, Joseph. **Something Happened**, p. 559.
[25] Kennedy, William. "Endlessly Honest Confession". **Contemporary Literary Criticism**. Ed. Carolyn Riley and Phyllis Carmel Mendelson. Vol.5. Michigan: Gale Research Company, 1976. p. 179.

analysis of Slocum's need to kill his son could be considered. Bruno explains that Slocum had no choice:

> "His attachment to his favorite son is such that they were virtually the same person. As the son was going away, rather than lose him he would kill him."[26]

Slocum finds his son on the sidewalk, bruised by a car gone out of control:

> He hugs me. He looks beggingly at me for help. His screams are piercing. I can't bear to see him suffering such agony and fright. I have to do something. I hug his face deeper into the crook of my shoulder. I hug him tightly with both my arms. I squeeze.[27]

The doctor pronounces later, to Bob, that the death of the little boy was due to asphyxiation. The lacerations were only superficial. The nurses and policemen at the hospital are very considerate and console Slocum. Slocum cries a long time in front of them, and then says slowly, "Don't tell my wife".[28] Nobody knows that Slocum has killed his own son.

Slocum's wife, daughter and little son cannot be analysed as fully developed characters. They are all parts or reflections of his inner self. The little boy personifies Slocum's innocent childish self that yearns for love, acceptance and security through relationships. His daughter is his ego. His wife is his conscience. His conscience would torment him for having killed his innocent self to become tactful, cunning, and professionally successful. So, he tells the nurses and policemen at the hospital, "Don't tell my wife". Having thus hid the truth of his crime from his wife, Slocum seems to undergo no prominent guilt or torment. He is thus a socially commended and professionally successful man who has deceived his conscience by buying his wife a new house, and has satisfied his ego by buying his daughter a new car. He tries to settle his inner conflicts through material bribery. Slocum is never shown to receive any social commiserations for the death of his son (he receives kudos instead, for his promotion); no responses from his wife or his daughter to his son's death are revealed to the readers (the wife and daughter seem very happy instead with the new house and the car): this only goes on to show that Slocum has erased his crime both from his mind, and, most significantly and symbolically, from his narration, and has distorted reality for the sake of neatness and polish. With the naïve part of his self missing, Slocum is found to live a hollow and ghoulish existence. He achieves psychological survival at the expense of existential vacuum.

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[26] Ruas Charles. **Conversations with American Writers**. New York: Alfred A. Knopf, 1985. p. 164.
[27] Heller, Joseph. **Something Happened**, p. 562.
[28] Heller, Joseph. **Something Happened**, p. 562.

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The Burrito Principle

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The Burrito Principle, a term coined by social media specialist extraordinaire Beth Kanter, answers the age-old questions (or at least age-old for social media users): When is the best time to post on social media?

It's an important question, especially for non-profits and associations that are always looking to engage as many Twitter followers, Facebook friends and Pinterest boards as they can. Posting on different social media platforms at the right time can mean the difference between your message reaching tens of thousands of people and merely hundreds. And if no one sees your organization's posts, they have no impact.

The Burrito Principle says the best times to post on social media are generally 8:30 am, 12:30 pm, 5:30 pm and 10 pm. In other words, when people are on the way to work, while they are eating their burrito for lunch, on the ride home from work and during the down time after the kids have gone to sleep. These capture the times when people have a break and can not only check their Twitter feeds or watch YouTube videos, but also have time to engage with them.

It's a great principle; one based on studies, stats and clear reason. However, there's one flaw: it generalizes too much.

If you are a non-profit or professional association looking to capture a general audience, these guidelines are extremely useful and spot-on. However, if you are an organization with a specific audience, there is a danger in reading too far into the Burrito Principle.

For example, if your association represents golf course superintendents, freelance writers, security workers or any kind of professional that doesn't work the usual 9-5 hours, the Burrito Principle can be a little misguided when trying to reach out to them. If members start work at 6 am and you tweet at 8:30 am, chances are those members are busy and won't see your content.

The most important rule is, know your audience. Once you know the patterns of those you are trying to reach, you can start posting on social media to match those patterns.

Figuring out these patterns and the right moments to post on social media may take a bit of trial and error, but there are great tools to help you put the pieces together.

Free and simple tools exist online that allow you to analyze when your posts are getting the most views and the most engagement. Google Analytics is the biggest one, but there is also Twitter Analytics (through Twitter Ads), and Twitter Reach. Using these tools is an easy and

efficient way to determine the best time to post to social media and tailor the Burrito Principle to specific goals.

Knowing your audience and when they are online is crucial to having an impact on social media. A little research and a little experimentation go a long way to establishing the right time to post for your organization.
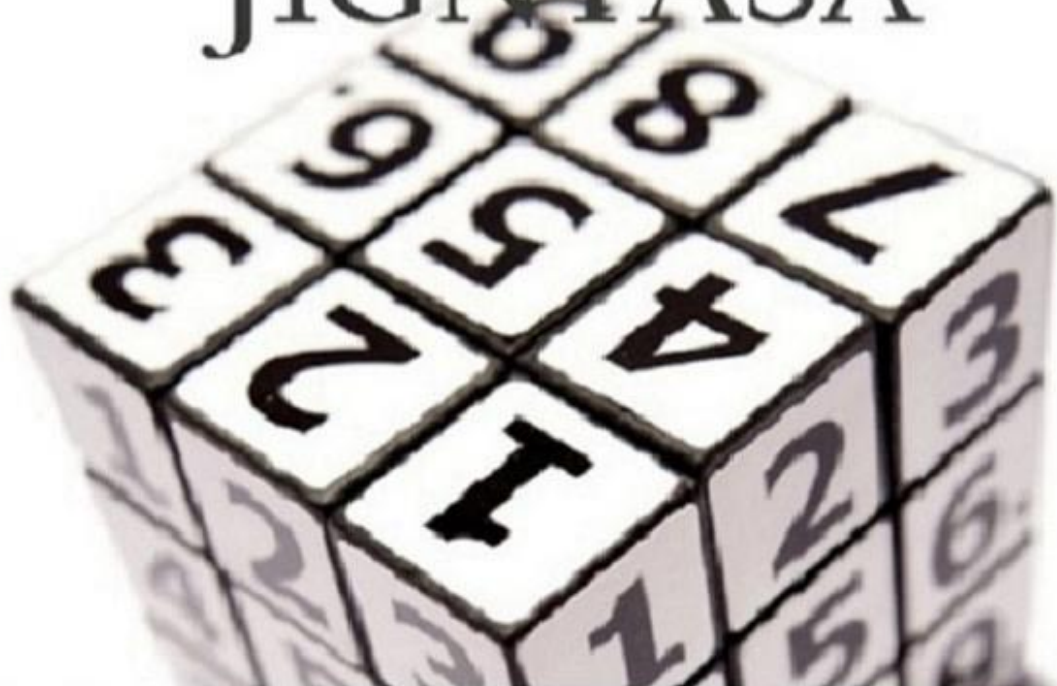
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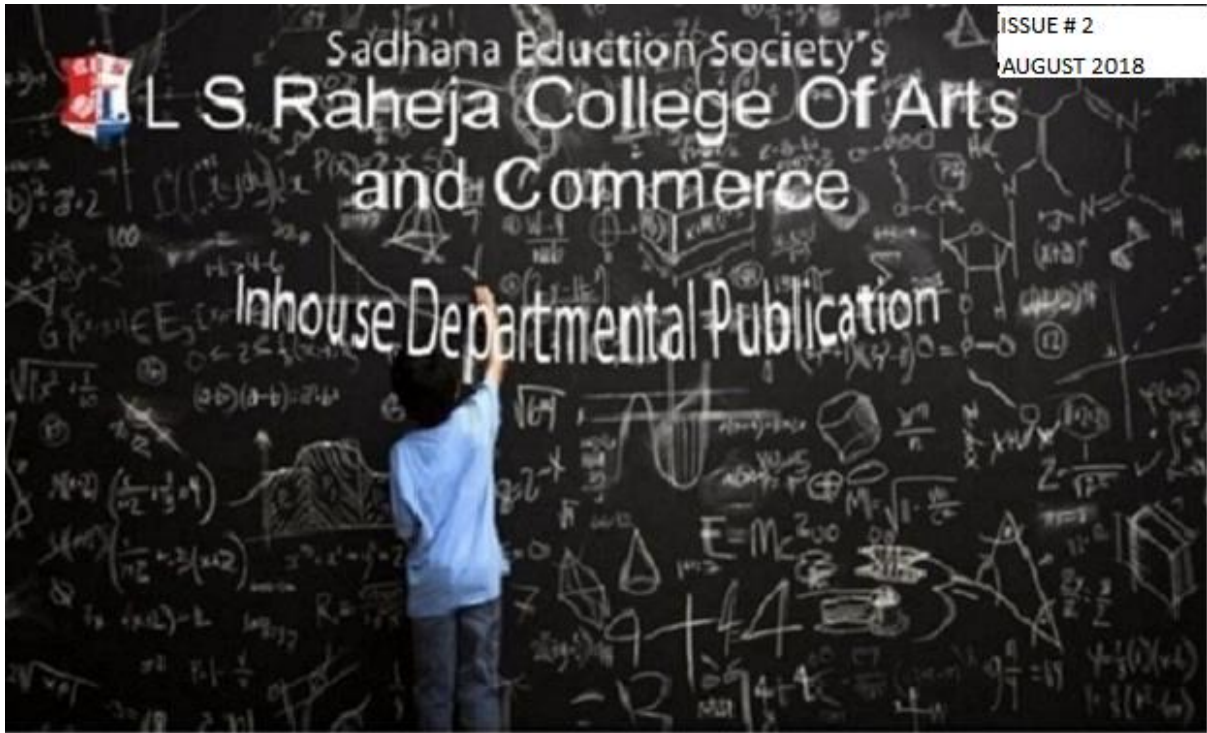
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A novel encryption method devised by MIT researchers secures data used in online neural networks, without dramatically slowing their runtimes. This approach holds promise for using cloud-based neural networks for medical-image analysis and other applications that use sensitive data.

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Outsourcing machine learning is a rising trend in industry. Major tech firms have launched cloud platforms that conduct computation-heavy tasks, such as, say, running data through a convolutional neural network (CNN) for image classification. Resource-strapped small businesses and other users can upload data to those services for a fee and get back results in several hours.

But what if there are leaks of private data? In recent years, researchers have explored various secure-computation techniques to protect such sensitive data. But those methods have performance drawbacks that make neural network evaluation (testing and validating) sluggish -- sometimes as much as million times slower -- limiting their wider adoption.

In a paper presented at this week's USENIX Security Conference, MIT researchers describe a system that blends two conventional techniques -- homomorphic encryption and garbled circuits -- in a way that helps the networks run orders of magnitude faster than they do with conventional approaches.

The researchers tested the system, called GAZELLE, on two-party image-classification tasks. A user sends encrypted image data to an online server evaluating a CNN running on GAZELLE. After this, both parties share encrypted information back and forth in order to classify the user's image. Throughout the process, the system ensures that the server never learns any uploaded data, while the user never learns anything about the network parameters. Compared to traditional systems, however, GAZELLE ran 20 to 30 times faster than state-of-the-art models, while reducing the required network bandwidth by an order of magnitude.

One promising application for the system is training CNNs to diagnose diseases. Hospitals could, for instance, train a CNN to learn characteristics of certain medical conditions from magnetic resonance images (MRI) and identify those characteristics in uploaded MRIs. The hospital could make the model available in the cloud for other hospitals. But the model is trained on, and further relies on, private patient data. Because there are no efficient encryption models, this application isn't quite ready for prime time.

"In this work, we show how to efficiently do this kind of secure two-party communication by combining these two techniques in a clever way," says first author Chiraag Juvekar, a PhD student in the Department of Electrical Engineering and Computer Science (EECS). "The next step is to take real medical data and show that, even when we scale it for applications real users care about, it still provides acceptable performance."

Co-authors on the paper are Vinod Vaikuntanathan, an associate professor in EECS and a member of the Computer Science and Artificial Intelligence Laboratory, and Anantha Chandrakasan, dean of the School of Engineering and the Vannevar Bush Professor of Electrical Engineering and Computer Science.

Maximizing performance

CNNs process image data through multiple linear and nonlinear layers of computation. Linear layers do the complex math, called linear algebra, and assign some values to the data. At a certain threshold, the data is outputted to nonlinear layers that do some simpler computation, make decisions (such as identifying image features), and send the data to the next linear layer. The end result is an image with an assigned class, such as vehicle, animal, person, or anatomical feature.

Recent approaches to securing CNNs have involved applying homomorphic encryption or garbled circuits to process data throughout an entire network. These techniques are effective at securing data. "On paper,

this looks like it solves the problem," Juvekar says. But they render complex neural networks inefficient, "so you wouldn't use them for any real-world application."

Homomorphic encryption, used in cloud computing, receives and executes computation all in encrypted data, called ciphertext, and generates an encrypted result that can then be decrypted by a user. When applied to neural networks, this technique is particularly fast and efficient at computing linear algebra. However, it must introduce a little noise into the data at each layer. Over multiple layers, noise accumulates, and the computation needed to filter that noise grows increasingly complex, slowing computation speeds.

Garbled circuits are a form of secure two-party computation. The technique takes an input from both parties, does some computation, and sends two separate inputs to each party. In that way, the parties send data to one another, but they never see the other party's data, only the relevant output on their side. The bandwidth needed to communicate data between parties, however, scales with computation complexity, not with the size of the input. In an online neural network, this technique works well in the nonlinear layers, where computation is minimal, but the bandwidth becomes unwieldy in math-heavy linear layers.

The MIT researchers, instead, combined the two techniques in a way that gets around their inefficiencies.

In their system, a user will upload ciphertext to a cloud-based CNN. The user must have garbled circuits technique running on their own computer. The CNN does all the computation in the linear layer, then sends the data to the nonlinear layer. At that point, the CNN and user share the data. The user does some computation on garbled circuits, and sends the data back to the CNN. By splitting and sharing the workload, the system restricts the homomorphic encryption to doing complex math one layer at a time, so data doesn't become too noisy. It also limits the communication of the garbled circuits to just the nonlinear layers, where it performs optimally.

"We're only using the techniques for where they're most efficient," Juvekar says.

Secret sharing

The final step was ensuring both homomorphic and garbled circuit layers maintained a common randomization scheme, called "secret sharing." In this scheme, data is divided into separate parts that are given to separate parties. All parties synch their parts to reconstruct the full data.

In GAZELLE, when a user sends encrypted data to the cloud-based service, it's split between both parties. Added to each share is a secret key (random numbers) that only the owning party knows. Throughout computation, each party will always have some portion of the data, plus random numbers, so it appears fully random. At the end of computation, the two parties synch their data. Only then does the user ask the cloud-based service for its secret key. The user can then subtract the secret key from all the data to get the result.

"At the end of the computation, we want the first party to get the classification results and the second party to get absolutely nothing," Juvekar says. Additionally, "the first party learns nothing about the parameters of the model."

Sadhana Education Society's
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Inhouse Departmental Publication

PSYnalysis

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SES'S

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ACADEMIC PROCRASTINATION: WHAT IT IS AND HOW TO DEAL WITH IT?

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Soumya is supposed to submit her project tomorrow. Instead of running the search engine on the internet, she opens another tab and checks her Instagram feed. Then she remembers that she has to also order a new cover for her phone. So, she switches to another tab and shops online on Amazon.

Almost everyone has this phase. Many put off their important tasks and choose to do what is less urgent. But about 20% of the people chronically avoid difficult tasks and deliberately find distractors, which, unfortunately are easily available.

Procrastination is the avoidance of doing a task which needs to be accomplished. It is the practice of doing more pleasurable things in place of less pleasurable ones, or carrying out less urgent tasks instead of more urgent ones, thus putting off impending tasks to a later time.

Dr. Ferrari (2003) identifies three types of procrastinators:
Arousal, or thrill seeking, who wait for the last minute of euphoric rush
Highly concerned with what others think about them are the **avoiders**, who avoid tasks for the fear of failure or embarrassment
Decisional procrastinators, postpone taking a decision on a task till the last minute

Two longitudinal studies examined procrastination among students. Procrastinators reported lower stress and less illness than non-procrastinators early in the semester, but they reported higher stress and more illness late in the term, and overall they were sicker. Procrastinators also received lower grades on all assignments. Procrastination thus appears to be a self-defeating behavior pattern marked by short-term benefits and long-term costs (Dianne M. Tice et al., 1997).

Correlational analyses revealed it was the socially prescribed perfectionism dimension that was most closely correlated with both generalized procrastination and academic procrastination, especially among males. Results also suggest that procrastination stems, in part, from the anticipation of social disapproval from individuals with perfectionistic standards for others (Gordon Flett et al., 1992).

Tice and Ferrari (2002) teamed up to do a study that put the ill effects of procrastination into context. The students were told that at the end of the session they would be engaging in a math puzzle. Some were told the task was a meaningful test of their cognitive abilities, while others were told that it was meaningless and fun. Before doing the puzzle, the students had an interim period during which they could prepare for the task or mess around with games like Tetris. Chronic procrastinators only delayed practice on the puzzle when it was described as a cognitive evaluation. When it was described as fun, they behaved no differently from non-procrastinators. Tice and Ferrari concluded that procrastination is really a self-defeating behavior — with procrastinators trying to undermine their own best efforts.

For a postponement to amount to procrastination, it has to represent poor or ineffective planning and result in a higher overall cost to the procrastinator, for example, in the form of stress, guilt, lost productivity, or lost opportunities (Neil Burton, 2015).

Some researchers differentiate between two types of procrastinators: passive procrastinators, who postpone tasks until the last minute because of an inability to act in a timely manner, while active procrastinators prefer the time pressure and purposely decide to delay a task but are still able to complete tasks before deadlines and achieve satisfactory outcomes. Ji Nam Choi (2005) showed that active procrastinators demonstrated a productive use of time, adaptive coping skills and academic performance that were almost identical to those of non-procrastinators.

Dr. Timothy A. Pychyl, Professor at Carleton University says, "Delay and procrastination are not the same things. **Let's not confuse deliberate, thoughtful delay of action with the lack of self-regulatory ability known as procrastination.**"

Why do we procrastinate?

"Emotional regulation, to me, is the real story around procrastination, because to the extent that I can deal with my emotions, I can stay on task," -Pychyl

Social scientists debate whether the tendency to procrastinate can be better explained by the inability to manage time or the inability to regulate moods and emotions.

Pychyl (2002) noticed the role of mood and emotions on procrastination. His research team gave 45 students a pager and tracked them for five days leading up to a school deadline. Eight times a day, when beeped, the test participants reported their level of procrastination as well as their emotional state. As the preparatory tasks became more difficult and stressful, the students put them off for more pleasant activities. When they did so, however, they reported high levels of guilt.

Tice and colleagues (2001) reported that students didn't procrastinate before an intelligence test when primed to believe their mood was fixed. In contrast, when they thought their mood could change, they delayed practice until about the final minute.

Sirois & Pychyl tried to unify the emotional side of procrastination with the temporal side that isn't so satisfying on its own. They propose a two-part theory on procrastination that braids short-term, mood-related improvements with long-term, time-related damage.

The idea is that procrastinators comfort themselves in the present with the false belief that they will be more emotionally equipped to handle a task in the future.

Executive functioning and Procrastination

The frontal systems of the brain are known to be involved in a number of processes that overlap with self-regulation. The characteristics associated with procrastination include disorganization, poor impulse and emotional control, poor planning and goal setting,

distractibility, poor task persistence among others. These behaviors are subsumed in the category of what is known as *executive functioning* primarily associated with the prefrontal cortex. Rabin and colleagues gathered a sample of 212 students and assessed them first for procrastination, then on the nine clinical subscales of executive functioning: impulsivity, self-monitoring, planning and organization, activity shifting, task initiation, task monitoring, emotional control, working memory, and general orderliness. Procrastinators showed significant associations with all nine subscales.

How can you deal with procrastination?
We can conclude saying that greater satisfaction with one's achievements can be gained by being punctual with assignments and not postponing one's plan of action. The traditional suggestion of maintaining order also seems to be useful. Individual psychotherapy for procrastinators can focus on these additional psychosocial factors to modify undesired behaviours.

Following could be some techniques to tackle procrastination:

- Make a **not-to-do list** along with the to-do list
- **Pomodoro Strategy**: Break your study material into chunks of 25 minutes. After you complete every 25 minutes part, take a break of 5 minutes. Repeat.
- Do the task in a **distractor- free environment:** Avoid studying in a room where you normally relax, like the room where your TV or computer is kept
- **Reward** yourself: Decide what incentive you will get on completing a task
- **Future Forecasting**: The next time you decide to not study, consider its implications on your future and be fair to it

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Inhouse Departmental Publication

SOCIAL ISSUES

Department Of Sociology

SES'S

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SOCIOLOGICAL PERSPECTIVE ON AGEING WITH SPECIAL REFERENCE TO INDIA

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The world's population is ageing: virtually every country in the world is experiencing growth in the number and proportion of older persons in their population.

Population ageing is poised to become one of the most significant social transformations of the twenty-first century, with implications for nearly all sectors of society, including labour and financial markets, the demand for goods and services, such as housing, transportation and social protection, as well as family structures and intergenerational ties.

According to data from World Population Prospects: the 2017 Revision, the number of older persons — those aged 60 years or over — is expected to more than double by 2050 and to more than triple by 2100, rising from 962 million globally in 2017 to 2.1 billion in 2050 and 3.1 billion in 2100. Globally, population aged 60 or over is growing faster than all younger age groups.

Population ageing implies increase in the number of elderly in the total population as against the other age groups. Developing nations are experiencing the phenomenon of population ageing. In India, the demographic scenario is quite perceptibly evident.   Individual ageing is characteristically different than the former.

Ageing, on a simpler note, implies changes in the body and mind of a person along with its gradual impact on social life and lifestyle. It is almost impossible to study it in a monolithic manner because of its diverse nature. Any attempt to simplify the process solely for academic convenience would be equivalent to doing unalterable injustice to it. It is important to acknowledge its holistic and yet fluid nature. Its multidimensional spread has to be explored with scientific precision.

The four characteristics of ageing as proposed by Strehler (1962) have been widely accepted in the field of Gerontology:

1. Ageing is universal, it occurs in all members of population (unlike disease).
2. Ageing is progressive, a continuous process.
3. Ageing is intrinsic to the organism.
4. Ageing is degenerative.(as opposed to developmental changes.)

Ageing is multidimensional and multi-layered process. In the academic discourse, the process of ageing can be approached in four possible ways:

1. Chronological aspect of ageing
   The number of years the person has lived, used especially in psychometrics as a standard against which certain variables such as behaviour and intelligence are measured. It refers to the age of an individual measured in days months and years, from the time the individual was born.

2. Physiological aspect of ageing
   Physiological or Biological age is a measure of how well or poorly one's body is functioning relative to one's actual calendar age.

3. Psychological aspect of ageing
   Psychological aspect of ageing refers to how symptoms and conditions such as chronic pain impact a person's mental and emotional state of health and how the mind can influence and in-fact, override the intensity, duration and frequency of pain in that person.

4. Sociological aspect of ageing
   This refers to the impact of age on changing role and status of the person and the impact on other institutions like the family. Sociologists and gerontologists study what it is like to be an older adult in a society. Social gerontology refers to a specialised field of gerontology that examines the sociological aspect of ageing.

Though the process of ageing universally exists in all human beings, it is far from being monolithic. It varies in its impact considerably from one category to another, be it a gender group, class, caste or community. Social gerontologists, based on empirical studies have acknowledged the following problems of elderly in India

1. Health problems: Ageing impacts physiology of human being in the most evident manner. Dental problems, weakening eyesight, drooping spine, receding hairline are some examples of the same. However the wear and tear is not always directly visible. Several degenerative diseases manifest eventually and are largely the result of the cumulative life style. Moreover psychological health of elderly in India is an issue rarely acknowledged or documented.

2. Financial problems: Financial insecurity is a commonest problem faced by senior citizens. Irrespective of the accumulated money and investments at ones disposal, money crunch is felt by all. The inflation and increasing demands in daily life make senior citizens feel extremely vulnerable. Elderly who worked in the organised sector do enjoy pension as well as financial benefits. However majority of the elderly belong to the unorganised sector, hence do not get benefits or have security provisions.

3. Depression and anxiety: Empirical surveys on elderly reveal a worrisome reality of existent depression and dissatisfaction among senior citizens in India. Due to feminization of women which implies more elderly women than men the reported

problem is found more in women than men. However as mentioned earlier the gravity of the problem is seriously under reported in India.

4. Loneliness: and social exclusion With changing family structure and functions in India due to globalisation, industrialisation and urbanisation , senior citizens are feeling alienated and marginalised. Empty Nest Syndrome is common. Even in the most populous city like Mumbai elderly are lonely.

5. Violence against elderly: Growing violence against elderly is one of the prominent problems in Indian Society. Physical abuse, psychological abuse as well as sexual abuse are forms of abuse reported by newspapers.

Governmental and non-governmental intervention: In India the following several measures have been undertaken for the ageing population.

1. Senior Citizen's Identity Cards : Citiizens, over 60 years of age are provided with cards issued by the social welfare department, which provides a generally recognised proof of age to elders so as to facilitate their access to concessions, discounts or priority services offered by government departments, public companies, private and commercial establishments.

2. Hindu Adoption and Maintenance Act, 1956: This act provides for the maintenance and protection of aged parents.

3. Maintenance and Welfare of Parents and Senior Citizens Act,2007. This act is a legislation enacted in 2007 initiated by the ministry of Social Justice and empowerment to provide more effective provisions for the maintenance and welfare of parents and senior citizens.

4. National Policy for Older Persons, 1999 : The National Policy on Older Persons (NPOP), 1999 envisages State support to ensure financial and food security, health care, shelter and other needs of older persons, equitable share in development, protection against abuse and exploitation, and availability of services to improve the quality of their lives. The policy also covers issues like social security, intergenerational bonding, family as the primary caretaker, role of Non-Governmental Organizations, training of manpower, research and training.

5. Indira Gandhi National Old Age Pension Scheme: The Indira Gandhi National Old Age Pension Scheme (IGNOAPS) is a non-contributory old age pension scheme that covers Indians who are 60 years and above and live below the poverty line. All individuals above the age of 60 who live below the poverty line are eligible to apply for IGNOAPS. All IGNOAPS beneficiaries aged 60–79 receive a monthly pension of Rs. 300 (Rs. 200 by central government and Rs. 100 by state government). Those 80 years and above receive a monthly pension amount of Rs.500.

6. Reverse Mortgage Loan: In simple terms, a reverse mortgage is the "opposite" of a conventional home loan. A reverse mortgage enables a senior citizen to receive a regular stream of income from a lender (a bank or a financial institution) against the mortgage of his home. The borrower (i.e. the individual pledging the property), continues to reside in the property till the end of his life and receives a periodic payment on it.

7. Old Age Homes: these are residential institutions and are therefore different from other geriatric institutions. There are broadly two categories in India, the paid old age homes where fees are charged for stay and services, and free holes run on charity and operate like shelter homes.

8. Senior Citizens Associations: these are voluntary associations which operate in a collective manner and are found in urban as well as rural India. These associations give the aged an opportunity to meet with others. It gives them a wider exposure, enhances healthy cognition of the social surroundings, making senior citizens feel younger than they actually are.

9. Day Care Centres: these are centres where Senior Citizens assemble i the morning and are looked after the whole day. The however do not house them on a permanent basis and are deemed to be semi-residential institutions. They are provided with basic amenities and requirements for the day such as meals and recreational facilities. Kerala has the highest number of day care centres, whereas Mumbai has still has less and are a recent phenomena.

10. NGOs- Since there has been a gradual increase in the population aged 60 and older, a developing country like India is unable to cope with the needs and problems of its aged populations. While the government continues its efforts to introduce programs for the elderly, the non-governmental organizations (NGOs) have played a key role in bringing to the forefront the socioeconomic and health problems of older people in the society at large. For example, HelpAge India has worked in the field of aging in India and made an impact on the lives of the senior citizens, especially those below the poverty line who are economically and socially deprived.

Dignity Foundation, Silver Innings Foundation, Harmony are some other examples of NGOs whose role is to enable and facilitate the care of senior citizens. They would als9o create awareness among the society at large about the care of the aged.

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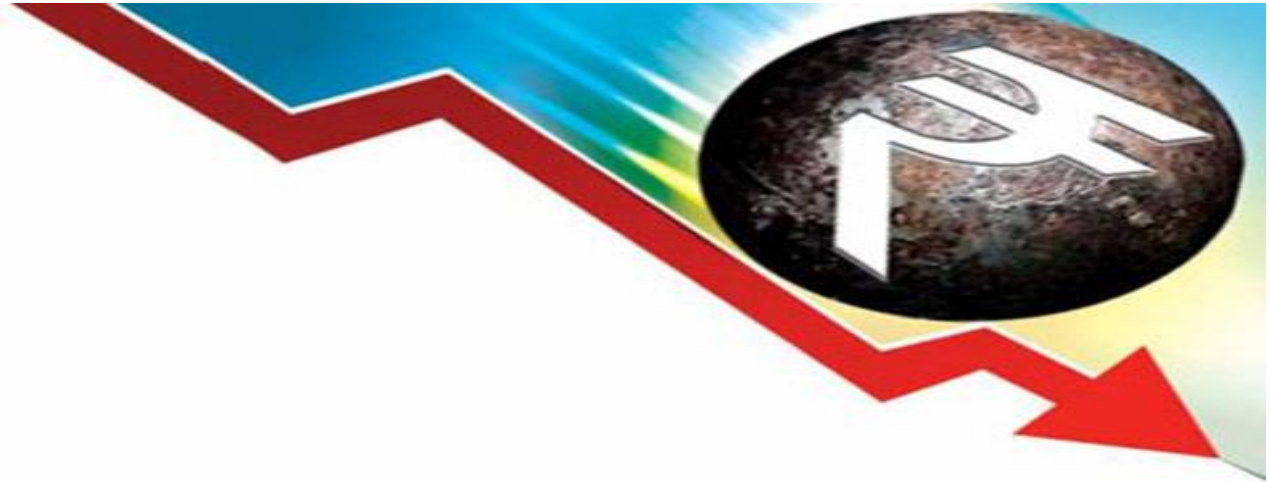
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Fall in value of Rupee and its impact on stock market

Mr. Mehul Barai.

BFM Department

Introduction :

Exchange rate stability and stock market growth are the twin economic objectives that every country needs to achieve. This is because the financial position of every economy being it developed or developing can be assessed from its exchange rate stability. Similarly Stock market serves as a transmission mechanism upon which savings are mobilized and adequately distributed across the economic sectors with the view to realize inclusive growth. In addition to the foregoing stock market perform the following functions: it boosts investors' confidence in both financial institutions and even the entire economy.

Exchange rate and stock market price are interconnected directly or indirectly, because today, world is turning into a global village due to trade liberalization and globalization. For instance, foreign investors are busy investing their capital in the stock markets world over.

Factors can cause currency depreciation are given below:

1. **Dollar On A Strong Position** in global Market: The main reason behind rupee fall is the immense strength of the Dollar Index. The record setting performance of US equities and the improvement in the labor market has made investors more optimistic about the outlook for the US economy.
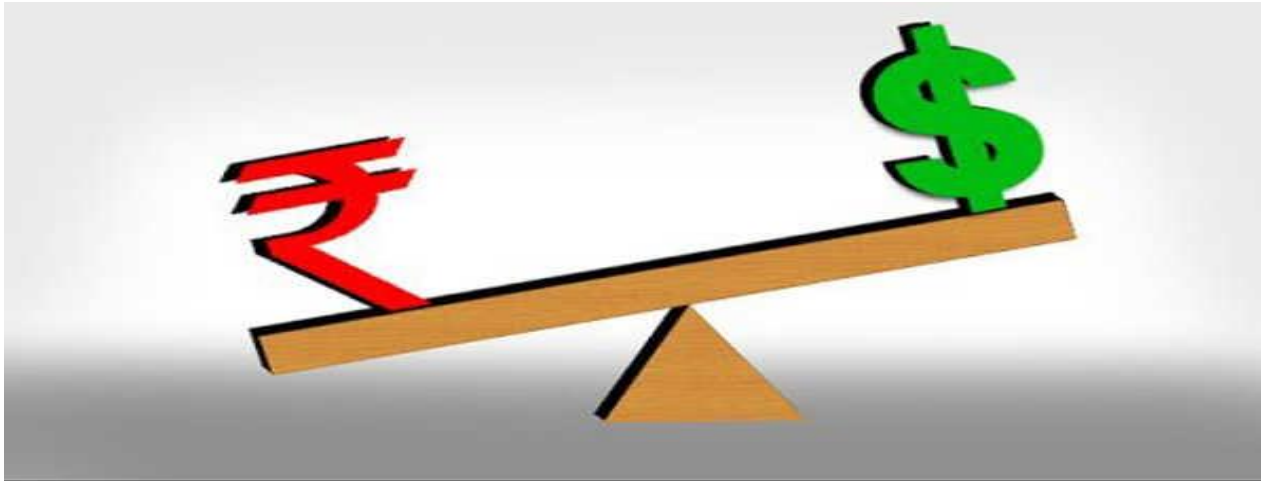
2. **Pressure of increasing Current Account Deficit :** Oil imports, amid rising crude oil prices, are leading to an increased demand for the dollar which, in turn, is making the rupee weaker.

3. **Speculations from Exporter and Importer side**. The reason of fall in rupee can be largely attributed to speculations prevailing in the markets. Due to a sharp increase in the dollar rates, importers suddenly started gasping for dollars in order to hedge their position, which led to a further demand for dollars. On the other hand exporters kept on holding their dollar reserves, speculating that the rupee will fall further in future. This interplay between the two forces further fuelled the demand for dollars and a fall in rupee.

4. **Unattractive Indian Market**: Foreign Institutional Investor's (FII's) are a good source of dollars inflow into the Indian market. As per a recent report, the share of India's FII in the developing markets has decreased considerably (till 2018). Strict political policies are also reasons of such lack of appeal. SEBI'S 10 April rules were framed in line with anti-money laundering norms. SEBI asked category II and III FPIs (not well-regulated in their countries of origin) to provide the list of their beneficial owners (BO) along with their identification and verification in a certain format within six months. Last month, it extended the deadline for the list of beneficial owners until December

5. The other significant reason for weakness in the rupee is the **rise in US bond yields** which has made the dollar attractive. The 10-year US bond yield has jumped by more than 82 basis points in the past year. The current US bond yield is more than 3%. Higher US yields are attracting investors to the US treasuries and making the currencies of the emerging , such as India weaker.

6. In addition, concerns of an **escalating trade war, high domestic food inflation** due to the likely hike in the minimum support price to farmers and the slowdown in foreign investment inflows have also created a downward pressure on the rupee

So, how does the fall in rupee impact your investments?

1. Falling rupee will keep bond yields at a higher level and may force authorities to raise **interest rates**—high interest rates can arrest the fall by attracting foreign capital
2. The eroding rupee is likely to **create inflationary pressure** in the economy by making imports costlier.
3. The weakness in rupee is also affecting **foreign institutional investor (FII) inflows**.
4. Rupee weakness **will increase the cost of holding debt** for foreign investors and could lead to outflows from debt .
5. The depreciating rupee can be **good** for **export-focused companies**. Hence, net exporters like information technology and pharmaceutical companies with a large exposure to the US stand to benefit the most.
6. **Oil marketing companies** too are a **risky** bet at this juncture

A further decline of the rupee from the current levels seems eminent due to its overvaluation in real terms, increase in oil price, increase in current account deficit ,SEBI new rules related to FPI, increase in interest rate, general election in 2019 etc.

References : Economics Times