The Beauty of Finance

Episode 21 | Everything is Everything

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Transcript

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Abstract

Finance shapes human civilization more than most people realize. What appears to be abstract speculation with numbers actually sits at the commanding heights of the economy, directing resources and enabling innovation. This episode traces the evolution of finance from simple medieval money lending between people who knew each other to the sophisticated global system that coordinates capital allocation across the world today.

Ajay and Amit explore how each financial innovation emerged from real-world pressures—joint stock companies and limited liability arose from the need to finance risky spice trade voyages, stock markets developed to provide liquidity for investors, and modern derivatives evolved to separate ideas from capital. They examine why these concepts, though centuries old, remain poorly understood in India, where populist instincts often work against the institutional foundations that make modern capitalism possible. The conversation reveals finance as an information processing system that enables people with good ideas but no capital to access resources, accelerating the pace of innovation and economic growth.

Supplementary Resources

- **The London Assurance Company and the Marine Insurance Market of the Eighteenth Century** by A. H. John (Journal article) [3]
- **The Origins of English Financial Markets** by Anne L. Murphy (Book) [4]
- **Industrializing English Law** by Ron Harris (Book) [2]
- **The Journey of Indian Finance** by Ajay Shah (Book chapter) [5]
- **The Wisdom of Finance** by Mihir A. Desai (Book) [1]

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[00:00:00] Ajay Shah: we should go step by step and see how there was a felt need. There was a problem in the world that needed to be solved.

[00:00:00] Ajay Shah: And one by one, the solutions came. And that palimpsest of layered solutions is how we ended up in the modern finance of today.

[00:00:00] Ajay Shah: So this is actually a generic learning technology. It's a generic knowledge technology, which is it's always important to see things in a historical context.

[00:00:00] Ajay Shah: It's very hard to understand physics if I give you a textbook. It's easier to understand physics. It actually makes sense if you play it in the journey of time.

[00:00:00] Ajay Shah: place it in history. Who were we? Where were we? What was the question that was the puzzle? And then how was that question solved?

[00:00:00] Ajay Shah: And that way, as we walk forward, suddenly it all makes sense. It becomes comprehensible.

Introduction: Ajay is a Lot of Fun

[00:01:02] Amit Varma: Welcome to everything is everything. I'm Amit and this is my good friend Ajay. And you know, Ajay, the other day, someone asked me, what is it like to hang out with Ajay?

[00:01:11] Amit Varma: And I said, oh, Ajay's a lot of fun. And then they said, in what way is he fun? What is he good at? And I thought about, what is Ajay good at? And I said, finance.

[00:01:19] Amit Varma: And they were like, finance and fun? What are you talking about? And I said, no, boss, it's it's like a fascinating subject. It is indeed great fun. And I unfortunately, my words were not credible enough, and it was attributed to bias.

[00:01:36] Amit Varma: But finance is a lot of fun. But the thing about finance is that most people you mention the term, their eyes glaze over, you know?

[00:01:43] Amit Varma: Either it's like commerce, accounting, or some, you know, mechanical engineering, all these dreadful things which practitioners love, but other people cannot fathom.

[00:01:54] Amit Varma: And equally, at one level, finance people are also given a bad rap by some. Like, oh, these people who are gambling with money, these speculators, and you know, people who are toying with the economy as it were.

[00:02:07] Amit Varma: And actually, you know, as I have learned from you, you know, finance is at the heart of human progress and human life. It's incredibly important.

[00:02:15] Amit Varma: And what I want to want us to do in this episode is I want you to give us a primer on what the hell do we mean by finance? How did it evolve? What is the function that it plays?

[00:02:26] Amit Varma: And how we are not all evil.

[00:02:29] Ajay Shah: The best way to do this is in a historical journey. So we should go step by step and see how there was a felt need.

[00:02:37] Ajay Shah: There was a problem in the world that needed to be solved. And one by one, the solutions came. And that palimpsest of layered solutions is how we ended up in the modern finance of today.

[00:02:49] Ajay Shah: So this is actually a generic learning technology. It's a generic knowledge technology, which is it's always important to see things in a historical context.

[00:02:59] Ajay Shah: It's very hard to understand physics if I give you a textbook. It's easier to understand physics. It actually makes sense if you play it in the journey of time.

[00:03:07] Ajay Shah: place it in history. Who were we? Where were we? What was the question that was the puzzle? And then how was that question solved? And that way as we walk forward, suddenly it all makes sense.

[00:03:19] Ajay Shah: It becomes comprehensible. So, I think that the best way is to look at this in historical terms.

Chapter 1: The History of Finance

[00:03:34] Ajay Shah:	Yeah, I freely confess. I think finance is great fun. I think finance is very important. human beings are deeply motivated by money and economics is the second most important thing in the world. And
[00:03:46] Amit Varma:	Wait, wait, wait, wait. What is first?
[00:03:48] Ajay Shah:	Uh this is a family show.
[00:03:50] Amit Varma:	Okay, continue. I didn't expect these words from you, Ajay Shah, but never mind.
[00:03:54] Ajay Shah:	And uh there's a famous line which says, Wall Street tells Main Street what to do. So Main Street is a metaphor for the real sector businesses.
[00:04:06] Ajay Shah:	You could be building a coffee shop, you could be a Sony Alpha camera maker. And these businesses loom large in our imagination. We think they're important.
[00:04:17] Ajay Shah:	We think they are good and real and earthy. They create the things that we can touch and feel. This chair is made by a real person.
[00:04:26] Ajay Shah:	The unseen, the invisible is what we don't see, which is the invisible levers of the financial system that creates the conditions by which the chair is made and indeed, guides self-interested people that, you know what, you should be making chairs and not these antique boxes from Rajasthan from the 19th century where frankly, today nobody wants these kinds of wooden things anymore.
[00:04:51] Ajay Shah:	Okay, those calls are made by the financial system. So the financial system in the term in the jargon of P.C.

[00:05:01] Ajay Shah: Mahalanobis occupies the commanding heights of the economy. He would of course, turn in his metaphorical grave when it was put like this. But finance is the essence of the information processing and the reasoning of the modern economy.

[00:05:17] Ajay Shah: And finance sends out the incentives. And then a whole bunch of people run around building the firms, building the products, the technologies that are guided by what finance thinks.

[00:05:28] Amit Varma: May I ask here that isn't there a feedback loop? Like the way you just said it, and I know you didn't mean it so simplistically, but it's not that finance Wall Street is guiding Main Street what to do.

[00:05:38] Amit Varma: Wall Street is also deciding where what Main Street should do deciding depending on what Main Street wants because after all, you know, finance will go where finance will act on incentives and it will go where there is money to be made, right?

[00:05:53] Ajay Shah: If I may resort to a cricket analogy, finance is the selector. So there is a large supply of players and finance does the choosing.

[00:06:02] Ajay Shah: And finance has to do that complex probabilistic thinking of who will deliver the right strike rate under what circumstances? And finance is the selector.

[00:06:11] Ajay Shah: So, think of Main Street as throwing up a lot of possibilities. that you know what? I can make headphones. You know what? I'm a company that makes electric vehicles.

[00:06:19] Ajay Shah: You know, I think that uh internal combustion engines are actually viable for 20 more years. Or you know what? I think internal combustion engines are passe, and we should right now be doing the electric transition.

[00:06:33] Ajay Shah: These are all rival views of the world. They are embodied in real sector firms. And all these real sector firms turn around and go to the great God of finance and say, fund me and finance chooses.

[00:06:44] Amit Varma: And finance chooses based on expected value to use jargon from a previous episode that hey, I think this is the expected value of betting on electric vehicles because the demand will be so much 10 years from now.

[00:06:54] Amit Varma: And so it is real world feeding into.

[00:06:57] Ajay Shah: And these are speculative bets. And then there will be an innovator and inventor who comes along and says, here, I have a new idea. But that choke point they have to pass through is finance because finance has to agree that yeah, this is plausible.

[00:07:11] Ajay Shah: And the greatness of finance is finance is speculative. They don't want to just be boring that I want you to have a 20-year track record. Finance knows how to bet on new ideas.

[00:07:22] Ajay Shah: Finance knows how to take chances on new people, on new ideas, on new technologies, on completely new product segments that don't exist. Finance does all this.

[00:07:31] Ajay Shah: And that is the essence, that speculative decision making inside financial firms that peering into the unknown and taking risk. But we just have to be clear. Finance chooses.

[00:07:43] Amit Varma: And just as the the complexity of the real world becomes more and more apparent with time and you find the complexity increasing with globalization and new technology and all that.

[00:07:52] Amit Varma: Finance is also really different now from where it was a thousand years ago, for example. So, and a thousand years ago, I could possibly understand what the world of finance was. Today, you know, I will look at bonds and derivatives and different financial institutions and Fintech and this and that and I have no clue what's going on.

[00:08:09] Amit Varma: So I want you to take me on the journey from there to here.

[00:08:11] Ajay Shah: Perfect. Let's start a thousand years ago. Okay, and finance was very simple really. It was simple money lending into people that you knew with unlimited liability.

[00:08:21] Ajay Shah: Okay, let me spell out the words. Step one, there was no arms length transactions. If you were going to lend money to me, you really needed to know me.

[00:08:30] Ajay Shah: Okay. And second, there was unlimited liability, meaning I was on the hawk for whatever I borrowed. There was no way for me to walk away saying that oops, you know what, my business failed and I'm not going to pay you.

[00:08:44] Ajay Shah: And it is a medieval conception that there were debtors prisons, that people were sent to jail for failing to repay on debt. Okay, so this is a primitive notion of finance.

[00:08:54] Ajay Shah: This is where it all started. Then came the pressures of the modern world, the demands of the real economy. The world started becoming more complicated and there were demands from the modern economy.

[00:09:08] Ajay Shah: In Europe, the great challenge was the problem of trading with the East. Okay, Um, since all digressions are allowed, I have to say that as a child, I never understood why people would be so crazy for pepper.

[00:09:27] Ajay Shah: Okay? Like what's the big deal that you'll get on a ship and wander around the world with like a 25% chance of dying on every voyage.

[00:09:38] Ajay Shah: For pepper. It's like, you know, I could live without pepper. I could just have salt on my omelette. It's not a crisis to not have pepper.

[00:09:47] Ajay Shah: So it's very interesting and important to ask, why were the spices from the east so important that people would literally choose to die to get those spices.

[00:09:57] Ajay Shah: And the quick answer is that the agricultural carrying capacity of Europe had reached the point where you could no longer live through winter without stored meat from summer.

[00:10:08] Ajay Shah: So the population density of Europe had reached a level where the only way to survive in winter was by storing meat from the summer into the winter. And meat would rot.

[00:10:19] Ajay Shah: So, you had exactly two choices. You would either eat rotten meat, which is subjectively not a pleasant experience. And you would then suffer disease and die. Or you could have spices in order to preserve the meat.

[00:10:34] Ajay Shah: So it was that fundamental. It was life and death. Then in 1453, the Ottoman Empire conquered Istanbul and that cut off the land route for spices from Asia, importantly from India to Europe.

[00:10:49] Ajay Shah: So 1453 is the critical year at which the great chase began that the survival of the people of Europe needed finding a sea route to India because the land route was cut off.

[00:11:02] Ajay Shah: And that gave us a great age of exploration. And then we started getting the ships and the brilliant, brilliant Portuguese systematically worked their way through the almost the edge of South America back down, the Cape of Good Hope, and then up to Madagascar, where lo and behold, they landed on a Malayali.

[00:11:27] Ajay Shah: Okay. And the Malayali knew how to ride the monsoon currents and get to Korikode. Okay. So that was the beginning of the spice trade.

[00:11:37] Ajay Shah: Now it's important to see that well after the age of exploration, they had a very complex problem which was it is not easy to get the ship across to India and back. So, as I said, there was a 25% chance that a ship would be destroyed in a cyclone, attacked by pirates, something or the other would go wrong.

[00:11:59] Ajay Shah: So you you would have heard the English word when my ship comes in, which is a phrase that denotes when I'm going to make tons of money, when I'm going to make it big.

[00:12:10] Ajay Shah: That's the phrase, when my ship comes in. Because if your ship came in, you were very rich. But there was a very high chance that your ship would not come in.

[00:12:19] Ajay Shah: Now this was a financial puzzle that imagine you and I are betting a large amount of money to outfit a ship, hire a crew, send it out to India where they would show up in Korikode and they would try to sell some wares and fill up the ship with pepper and cardamom and other wonders from Kerala and try to go back to Europe.

[00:12:44] Ajay Shah: But there is a 25% chance of a payoff of zero. So with a 75% chance you make it big, but with a 25% chance you're wiped out, you lose everything.

[00:12:54] Ajay Shah: That is the kind of complexity, and it became difficult for any one individual to put in all the money required to take these very large bets.

[00:13:03] Ajay Shah: You have to remember that Europe was not very rich then. So putting together the money to build a ship and outfit a ship and hire the workers on the ship was a considerable expense compared to the low level of income of that age.

[00:13:17] Ajay Shah: So in this puzzle came the first great financial innovations, the pressures to come up with financial innovations. Okay, there were two key innovations that came about in that age.

[00:13:28] Ajay Shah: A first innovation was the joint stock company. So instead of having one people, two people, five people pooling money. Can we open up to thousands of people pooling money?

[00:13:39] Ajay Shah: So each one places a bet, takes a risk. If it works, they do well, but if it doesn't, it goes to zero. But the amount of money that has been put on the lottery is relatively small.

[00:13:51] Ajay Shah: Okay, so households are able to participate in these risky enterprises, but the bet size that each person places is something that you can afford to lose.

[00:13:59] Ajay Shah: Okay. So this was the first level of the financial innovation. So shares and share markets and trading, all that stuff began around this real sector problem that you wanted to distribute the risk of this risky project not across two, five, 10 people, but across 200, 500, 1,000 people.

[00:14:19] Ajay Shah: And that required the concept of shares. The second important innovation was the limited liability company. Okay, so now these companies would borrow.

[00:14:29] Ajay Shah: But they had a very peculiar concept of borrowing, which is that, you know what? If it works, I'm going to pay you back, but if it doesn't, I'm just going to declare bankruptcy.

[00:14:38] Ajay Shah: And the debtors, the lenders have to just grin and bear it. The lenders get nothing. They get the carcass of the company, they get nothing.

[00:14:49] Ajay Shah: They do not have the ability to go up upstream to the shareholders of the company and demand money out of them. And you see these two things are intimately connected.

[00:14:58] Ajay Shah: I am a I'm buying 1,000 rupees of shares of Hindustan Lever. Then I want my liability to end there. Then if the company goes bad, I don't expect you to come after my assets.

[00:15:10] Ajay Shah: So these two are intimately connected that we want to create conditions for investment by large numbers of people. Then side by side with them, we have to give them limited liability.

[00:15:19] Ajay Shah: saying, look, you're taking a risk, if it works great, if it doesn't work at worst, your liability is limited to the amount of money that you put in at the start of the venture.

[00:15:28] Ajay Shah: Beyond that, nobody's going to come after you for anything else. Okay. And at this stage itself, what you've got is deep and powerful financial innovations. And if I may say, these have not crept deep into the Indian mind yet.

[00:15:48] Ajay Shah: You will endlessly find important people, powerful people in India making rookie mistakes around these things. For example, regulators get unhappy when the price of a share goes to zero.

[00:16:02] Ajay Shah: Okay, but hey, that is risk. That is the meaning of being an equity market. You will lose money. Every now and then a business will go bad and you will lose money.

[00:16:12] Ajay Shah: So this notion of consumer protection that we want to make sure that people don't make losses. This is just ignorance on the part of the policy makers and the journalists and a whole bunch of people who whine when an enterprise fails and shareholders get wiped out.

[00:16:29] Ajay Shah: Well, go on into the story of the debt. Every now and then an enterprise will fail. It is normal, it is healthy. In any normal capitalistic economy, it should be that people try things and firms fail.

[00:16:42] Ajay Shah: If you're not missing any flights, you're going too early. Okay. It is in the nature of modern capitalism that you're going to try many things and some will fail.

[00:16:53] Ajay Shah: and failure is normal and failure is healthy. But in India, we somehow have this notion that when a company fails to pay on its debts, the lenders feel entitled to bubble up to the promoter and say, but the promoter is rich and I will demand money from the promoter.

[00:17:12] Ajay Shah: And this is just wrong. That's violating the essence of the concept of a limited liability company. So in Indian populism, you will very readily hear people saying things like, there are poor companies, but there is never a poor promoter.

[00:17:26] Ajay Shah: or the company has failed to pay back on its debt, but the promoter is living the high life in town driving around in a Mercedes-Benz being photographed on the beach in Goa. This is just populism.

[00:17:39] Ajay Shah: There is absolutely nothing wrong in the legal structure of a limited liability company. The company borrows. You don't want to lend to the company, don't lend to the company.

[00:17:49] Ajay Shah: You make your calls, you figure out that is this a risk that is acceptable. But then after that, it stops there. That it is normal and okay for the equity guys to lose everything when a company fails.

[00:18:02] Ajay Shah: And it is normal and okay for the debt guys to lose a lot because they'll get the carcass of the company, they'll get some recovery rates. I find it striking that 17th century business and commercial concepts in the UK are in many ways are missing in India today.

[00:18:19] Ajay Shah: You find so many people who slip into this populist notions of hating the promoters, of going after helping the small guy who has lost money when a company went bankrupt.

[00:18:34] Ajay Shah: So I digress, but the point I want to make is how amazing these concepts were, how remarkable these concepts were. And that we should respect the cultural capability of a society to rebuild these relationships, to go away from the old world of unlimited liability and debtors prison.

[00:18:54] Ajay Shah: To this new world of limited liability and a coldness that look, we'll take risks, things will go wrong. Sometimes lenders will lose money, sometimes shareholders will lose money.

[00:19:02] Ajay Shah: It's part of the game. That's how we organize ourselves as society to mobilize large pools of money and take risks in complex ventures.

[00:19:11] Amit Varma: So I want to double down on aspects of this, but you know, paraphrase it in simple language. So you can tell me if I have understood correctly. But before that, I want to say that if a history of the world is written, it could easily be called from pepper to Peppa Pig.

[00:19:24] Ajay Shah: I didn't understand the second.

[00:19:26] Amit Varma: You haven't heard of Peppa Pig?

[00:19:27] Ajay Shah: I'm sorry, no.

[00:19:28] Amit Varma: Okay, fine. What can I say? I will I will send you links after this and introduce you to that magic. But so here's, so I'm I'll I'll I'll paraphrase where the innovation is important and and you tell me if I've understood it correctly, which is that earlier you put all your money into one ship and if that ship goes down, you're screwed, you're completely finished, and you can even go to debtor's prison if you've borrowed money to do so.

[00:19:53] Ajay Shah: Step one, the debtors come after your house. And if that money isn't enough, you go to debtors prison.

[00:19:58] Amit Varma: Exactly. Uh what the joint stock company allows you to do is that you are not putting money in one ship, you are putting money in a 100 ships. You can put you can, you know, diversify the risk that you take.

[00:20:09] Amit Varma: and therefore your chances of success are much greater. And as we would have discussed in the EV episode, you know, a 25% chance of failure is pretty horrible if you're only betting on one ship.

[00:20:21] Amit Varma: if you don't have that risk appetite. But if you're betting on a 100 ships, that means 75 of them work out and it can end up being quite plus EV.

[00:20:28] Amit Varma: And where it helps also in terms of limited liability is that it is even good for the lenders. It is not that the lenders are taking a risk and oh shit, what about them?

[00:20:39] Amit Varma: They're screwed. It's actually good for them because what happens is that if innovators take more risks, they are spreading incentives down the line.

[00:20:48] Amit Varma: If instead of 30 ships, you have 300 ships because people are putting money into them, then you're changing the incentives for the ship builders to build better ships, to put in better technology, bring in economies of scale, etc, etc.

[00:21:00] Amit Varma: And you are attracting more bright minds to the field because it is finally profitable for them to come. So even for the lenders, it actually makes a lot of sense because it's just a positive sum game all around, which is how it plays out.

[00:21:16] Amit Varma: But India has a bunch of public limited companies, limited liability, all of this, but you're saying that in terms of mindset, we're not there yet.

[00:21:22] Ajay Shah: Uh there has been a decline in the quality of thinking in India that I felt that for some time people were starting to grapple with these modern concepts.

[00:21:31] Ajay Shah: But all too often these days, we get this relapse into these two kinds of extremes. One kind of extreme is there is the word consumer protection, which is wrongly used.

[00:21:42] Ajay Shah: Okay? Like, I know a lot about consumer protection and consumer protection is not the idea that the buyer of shares should not lose money. Okay.

[00:21:50] Ajay Shah: That is just the populism of people who don't understand and appreciate the world of capitalism. And the other is this idea that liability should be unlimited, that if a promoter should be fully responsible for all the borrowing of a limited liability company set up by the promoter.

[00:22:09] Ajay Shah: There should be personal guarantees by the promoter inside the company and so on. This is just an ever present populism. There's a whole new wave of investigation agencies that have now become some of the most important players in Indian finance.

[00:22:26] Ajay Shah: And these are people who really have no knowledge and experience in the world of finance. And these are the ways in which their thinking is that thousand- year- old thinking of unlimited liability and debtor's prison and attaching blame.

[00:22:40] Amit Varma: And all progress in the world comes from people who take risks. So if you disincentivize people from taking risks, then you're sort of screwed.

[00:22:48] Ajay Shah: There is another notion in which you fundamentally quicken the pace of capitalism by going down this route. And the idea runs like this that the insight of modern finance is you want a separation between the money and the ideas.

[00:23:05] Ajay Shah: So in the old world without finance, if you have an idea, but you don't have the money, too bad. Okay, you won't be able to do anything with it.

[00:23:13] Ajay Shah: In the world of modern finance, if you have the idea, and even if you don't have the money, you're able to synthesize it, you're able to pull together equity and debt financing from other people, and then you are able to play it.

[00:23:25] Ajay Shah: And this is a recurrent theme when we talk derivatives, we're going to come back to it. That the essence of the idea is that the role in shaping resource allocation in the real economy and in shaping prices in the financial economy should go to the people with the knowledge and not the people who have inherited family wealth.

[00:23:44] Ajay Shah: So that separation is a very important principle which really quickened the pace of capitalism. The great economist John Hicks was one of the pioneers in understanding these things.

[00:23:55] Ajay Shah: And he has this beautiful observation where he says that the industrial revolution was as much about the stock market as it was about the steam engine.

[00:24:05] Ajay Shah: So our engineering and scientific mind tends to admire the machine of the steam engine that was built by James Watt.

[00:24:14] Ajay Shah: But equally, there is magic in that invisible machine of the stock market and its ways of coordinating large amounts of capital, creating incentives, dispersing risk, and creating a world of finance that is as required to build an industrial revolution.

[00:24:33] Ajay Shah: And when I was younger, I used to take these things for granted. Now that I have seen the difficulties of modern India, I feel we need to do this kind of episode because these basics are actually broken.

[00:24:45] Ajay Shah: And in so many ways, we in India are suffering from a thousand-year- old cultural baggage around basics.

[00:24:54] Amit Varma: Let's go on to the next step of the evolution. We've got stock markets, limited liability, um, you know, the joint stock company, what else?

[00:25:00] Ajay Shah: Now the next great thing that started happening was trading. Okay, you you've got to remember, none of this was designed. Okay, so think like evolution.

[00:25:11] Ajay Shah: Mother Evolution did not design the eye. The eye evolved incrementally. So like that, in the journey, you first had the problem of the ships that go to India. That was addressed by limited liability and joint stock companies and large numbers of shareholders.

[00:25:25] Ajay Shah: But the moment you have large number of shareholders, a large number of bond holders, the very natural next step is to say, you know what?

[00:25:33] Ajay Shah: I had the shares of this ship, but for whatever reason, I don't want them anymore. Can I not sell them to you? That's a perfectly reasonable and sensible idea. And then you got trading.

[00:25:44] Ajay Shah: So then you got the stock exchange where people would start trading these claims with each other. And that was another magical advance. The key insight here is standardized, fungible products that can be traded.

[00:25:57] Ajay Shah: So if we try to trade non-standard products, then it's very painful. It's like a real estate market. You know, no two flats are exactly the same, no two buildings are exactly the same, no two pieces of land are exactly the same.

[00:26:10] Ajay Shah: It's a messy artisanal market and there's all kinds of asymmetric information and there will never be a good real estate market.

[00:26:18] Ajay Shah: But if you take a company like Infosys and cut it up into a billion shares, suddenly you got 1 billion identical widgets. each of which is a share of Infosys.

[00:26:29] Ajay Shah: And they are owned and controlled by many many different people and they trade and people are buying and selling those things. And you get two pieces of magic out of that.

[00:26:38] Ajay Shah: First, you get the luxury of liquidity. So the holder of the share has complete confidence that if anything happens and I require money next week, I'll be able to sell my shares today and I'll get the money with probability one.

[00:26:53] Ajay Shah: So that was a miraculous moment because prior to this, there were no liquid assets in the world. Everything was messy. I mean, you know, gold. Again, it's messy, like it's not an easy matter selling gold.

[00:27:04] Ajay Shah: You have to end up having to melt it down, and there are concerns about purity. Uh anybody who has actually tried to sell jewelry at a store knows the horrendous discounts that jewelers impose upon the buyer.

[00:27:18] Ajay Shah: So there's a narrow class of gold products that can be sold at par. And that's in the modern world. In the old days, I'm sure it was messier. There was an endless battle of adulteration of gold.

[00:27:29] Ajay Shah: So it was a revolution in world history, the idea that here's a share and I can reliably sell it tomorrow. There is no possibility that I will not be able to sell it tomorrow.

[00:27:40] Ajay Shah: And then came the institutional development of sophisticated machinery inside the exchange so that in a few days, I'll get my money with probability one.

[00:27:52] Ajay Shah: And these were miraculous developments because they created a new concept of liquidity. Side by side with that now, suddenly, there was a price. So the prices started fluctuating.

[00:28:02] Ajay Shah: So imagine when my ship gets in, day by day, as my ship makes progress, as some fleeting bits of information come back, the price of the associated shares would fluctuate.

[00:28:13] Ajay Shah: So famously Reuters became a very, very successful, was it an organization? Was it a person? Because they used pigeons to be the first to transmit information from the Battle of Waterloo back to London, where that information could be used for trading.

[00:28:32] Ajay Shah: Because it was make or break, like would Britain win or lose in the Battle of Waterloo? And they were the first people to move that information to a financial trading venue.

[00:28:42] Ajay Shah: And in India, the the people will start whining saying you got unfair access to information, but that was the innovation. That was their contribution that they actually created a novel pathway to that information.

[00:28:55] Ajay Shah: And that is how that information started going into prices. So, the idea of a market where many many people speculate and there is a publicly visible price, and everybody's information is pulled into the price.

[00:29:09] Ajay Shah: And you see the price and either you hold your peace or if you disagree, put your money where your mouth is. You think it's too cheap, buy the stuff. You think it's too expensive, sell the stuff.

[00:29:19] Ajay Shah: Now, then the innovation start tumbling along. You think it's too costly, sell the stuff. But I don't own the stuff. So how will I sell it?

[00:29:27] Ajay Shah: Great. We'll innovate. We will invent the concept of short selling, where I'll borrow the shares because I think they're too expensive. I'll sell them on the market.

[00:29:36] Ajay Shah: And if I'm right, a few days later, their price will be lower. Then I buy it back from the market and return it to my lender. Okay? Brilliant. Now I found a way to express my view that this share is overpriced.

[00:29:48] Ajay Shah: So, now now I want short selling in order to express my view that the share is overpriced. So then you get that equality of freedom of speech that I can express my view.

[00:29:53] Ajay Shah: views if a security is too cheap. I can express my views if a security is too expensive. Okay?

[00:29:58] Ajay Shah: Once again, sadly, large numbers of important, powerful people in India will demonize the word short selling. Somehow short selling is a bad thing.

[00:30:08] Ajay Shah: And this this is failures on basic literacy around finance. These were the innovations that came around trading.

[00:30:16] Ajay Shah: So, the moment you built a joint stock company, then the next stage was to start trading the fungible shares.

[00:30:23] Ajay Shah: And the moment you said trading, then we started getting these deep concepts that I obtain liquidity, and I obtain a publicly traded price.

[00:30:31] Ajay Shah: The price is visible to all. The price would appear in a newspaper. So for a negligible price, everybody knows the price. Meaning you don't have to pay money to find out the price.

[00:30:39] Ajay Shah: This price is a public good. It's an information system. It's a statistical system. The whole world knows the share price of Infosys.

[00:30:46] Ajay Shah: It's a statistical system giving a dashboard. It's a read out of what's happening to Infosys today. And it can be used in many, many ways.

[00:30:55] Ajay Shah: If you think that the prices of software companies are doing very well, maybe you'll get excited and say, you know what? I could do that. I'll start one more software company.

[00:31:07] Ajay Shah: So that's how Wall Street tells Main Street what to do. Wall Street makes these prices and every entrepreneur is looking at these prices, wondering, you know what?

[00:31:15] Ajay Shah: These blokes put 1000 crore to build this company and it's turned into 5,000 crore of wealth. And that's nice. They've made 4,000 crore of wealth starting from 1000.

[00:31:25] Ajay Shah: And that's a journey that's not hard to replicate. I could do that. So come, let's do it. Okay, that's the thought process about how looking at the share price is constantly engaging with the minds of entrepreneurs saying, you know what? I could do that. You know what? I could do that.

[00:31:41] Ajay Shah: Or there are bad industries where the valuation of the market is very poor. Then the market is shouting, "Blokes, don't do that. Don't go there. Don't start new companies there."

[00:31:50] Ajay Shah: This is better than the planning commission built by Mahalanobis. Okay, these are the commanding heights of the economy where private people in a self-organizing system are talking to each other every day, interacting with each other through the price system.

[00:32:05] Ajay Shah: And there is no overt coordination, but then there's a whole bunch of spectators who take that public good of the price and turn around and make their own business decisions that do I want to build one more factory?

[00:32:15] Ajay Shah: Do I want to invest to grow a biscuit business? Do I want to invest to grow a cement business? It's all done by looking at the god of the stock price.

[00:32:25] Amit Varma: The great chess player, Levon Aronian, once said something which I found really beautiful, where he referred to a chess game as a conversation. Right?

[00:32:32] Amit Varma: And if you think about it, it is really a conversation because in every game, two people are discussing competing ideas of, uh, you know, what is going on on the board.

[00:32:42] Amit Varma: And the way you describe the stock market, and indeed any market is like that, is exactly like that. When you think about it, it is so beautiful.

[00:32:49] Amit Varma: It is a symphony of voices expressing opinions. And if you think a stock is too expensive and if I think a stock is too cheap, we have a trade where we both feel we are better off.

[00:33:00] Amit Varma: And there is something so delightful there. And you know, and short selling is exactly of that nature where you feel that, “Hey, you guys are overvaluing it too much. I’m going to take action.“ And etc, etc.

[00:33:11] Amit Varma: And it’s an important part of the conversation. So, you know, when people blame short sellers when things go wrong, I feel they’re just shooting the messenger.

[00:33:20] Amit Varma: Uh, you know, which is sort of pretty horrible. And at this point, we’ll give a middle of the episode reccord because you know, who can resist it, which is Frederick Hayek’s great essay, The use of knowledge in society.

[00:33:31] Amit Varma: And we’ll link it from the show notes. It’s a masterpiece, perhaps the most important essay of the last century. And it is about how prices worked, that prices are information.

[00:33:40] Amit Varma: That central planners, like Prashant Toda, you know, never say anything against Bengali unless they are planners. Uh what planners can never understand is that they simply have nowhere near the kind of information to run a society.

[00:33:53] Amit Varma: But society has all of that information expressed in the beautiful system of prices.

[00:33:58] Ajay Shah: Yeah. Uh I have a funny story. uh long ago in the early years of NSE. Uh I’ve done lots and lots of teaching. Okay, so I’ve wandered around the country teaching.

[00:34:07] Ajay Shah: And I was somewhere near Coimbatore and uh a person was telling me a story. Okay? So he was riding on a two-wheeler and he was passing a factory and he could see smoke coming out of the factory and the factory was on fire.

[00:34:21] Ajay Shah: And I said, “So what did you do¿‘ And he said, “I hit the gas and I ran to the nearest NSE broker and I sold all my shares in that company.“

[00:34:30] Ajay Shah: Okay, now just see the incentives for information to turn into the price. And this is a decentralized, distributed, voluntary information system. There's no coercion.

[00:34:41] Ajay Shah: Okay. Similarly, on the subject of speculators, you said something very precise that there is a double thank you moment in every speculative transaction.

[00:34:49] Ajay Shah: So for everybody who would like to be hostile to speculators or speculation, it's important to emphasize it is a voluntary transaction between consenting adults and there's a double thank you moment there.

[00:35:06] Ajay Shah: We shake hands. I'm the buyer, you're the seller. I think, "Wow, I got a very good deal because I'm so sure this thing is going to go up." And you're thinking, "Wow, I got a very good deal because I'm so sure this thing is going to go down." Okay?

[00:35:19] Ajay Shah: So we are both happy. It's a voluntary transaction. There's a double thank you moment. Okay? Or take short selling, even more double thank you moments.

[00:35:27] Ajay Shah: That block owns the shares. He's a long-term owner of those shares. I go to him and say, "You know what? In addition to the revenue you get from owning the share, I'd like to pay you a rental fee for taking the share away from you, paying you a rental fee for x days, and I'll give it back to you."

[00:35:46] Ajay Shah: The guy thinks, "Great. It's like I was already going to own the share. On top of that, you're going to pay me a rental fee. Be my guest."

[00:35:53] Ajay Shah: So one double thank you moment there. He's happy because he gets a rental fee. I'm happy because I get to borrow the share. Then I turn around and I sell it on the market.

[00:36:01] Ajay Shah: Again, there's a speculative transaction there. There's another double thank you moment there. If I'm wrong, I bear the consequences. If I'm right, I make money.

[00:36:09] Ajay Shah: But there are voluntary transactions between consenting adults all around. It's conducted under conditions of freedom. Nobody is telling people what to do. Okay?

[00:36:17] Ajay Shah: This is just such a clean, logical, sound system which does not require coercion.

[00:36:24] Amit Varma: So I have a question here at this point. On the one hand, I see the beauty of the price system as being part of a conversation, which is a means by which you arrive at the truth.

[00:36:34] Amit Varma: On the other hand, in this modern world, I often lament that no one cares about truth. We are engaged in narrative battles. And what we also often find in the stock market is that whereas in theory, it is a great way for me to invest in companies and to express my opinions on them and so on and so forth.

[00:36:50] Amit Varma: What also happens is that you have crazy bubbles. You know, the South Sea bubble, the tulips, blah, blah, blah. You have crazy bubbles where everything is out of whack.

[00:36:58] Amit Varma: And there people who don't really grock finance will often ask "ye to speculation hi hai, ye to aapne casino bana diya." You know, no connection with the real world. What is your price to equity ratio, etc, etc? You know, and what would be your response to that?

[00:37:14] Ajay Shah: When these institutions came up, I have glossed over some of the steps. Okay, I've magically presumed that when I go to the exchange and I try to sell my shares, I will surely be able to sell them.

[00:37:27] Ajay Shah: That's called a liquid market. These are not things to take for granted. And second, that the machinery of the market will work perfectly. That a few days later, I will uh supply my money and I will get the share, or I will supply my share and I will get the money, that these things will work frictionlessly.

[00:37:44] Ajay Shah: In the sense of uh the early literature on institution building, there arose these institutions of a stock exchange, of a clearing house, which facilitated this safe trading between strangers. So it doesn't come out of thin air, it requires institutions.

[00:38:01] Ajay Shah: And we needed to develop that institutional complexity to be able to enable safe trading between strangers. And again, in the UK, the exchange, the clearing house, all these things got developed, and that's how these things started working.

[00:38:15] Ajay Shah: Now, that said, all said and done, finance, these financial markets do occasionally go off into crazy territory, and it is just it's part of the beast.

[00:38:26] Ajay Shah: There's I think there's no deep answer to solving this. Occasionally, these things happen. So by and large, the financial system works reasonably well.

[00:38:35] Ajay Shah: By and large, financial prices work reasonably well. The occasionally things go wrong, and that's part of the game and I know no way to avoid that problem of things going occasionally wrong.

[00:38:48] Ajay Shah: Um, I in defense of the financial system, I want to say that sometimes the level of uncertainty that you're peering into is just phenomenal. So, for example, take early days of the internet. Okay, so you're looking at the early internet stocks.

[00:39:02] Ajay Shah: Are these worth 10x, 100x, 1000x, 10,000x compared to where they are right now? Who knows? Who knows what's going to happen.

[00:39:12] Ajay Shah: So, I feel it's very easy to poo poo these things with the benefit of hindsight. When you're standing there at that moment figuring out what might happen in the future, very often there is a reasonable view of phenomenal upside.

[00:39:25] Ajay Shah: So I think it's the problem that exposed things look easy. So what people look back upon as saying, "This is nonsense, this made no sense. How were we so foolish to have thought this¿' Yeah, that's with hindsight. That's 2020.

[00:39:36] Ajay Shah: But when you're standing there in the moment, often there are uh huge levels of uncertainty around possibilities that could be sky high, and then prices can go up by a lot. And again, that's how the market economy works.

[00:39:51] Ajay Shah: So I feel some of this is just uh people who are not sufficiently appreciating the richness of this world.

[00:39:59] Ajay Shah: Okay. Shall I continue on my global story of Let's go on your global story. Okay. So so far I introduced limited liability companies, borrowing, fungible securities, trading at the share market.

[00:40:12] Ajay Shah: Okay? So this was the basic machinery and this trading of fungible objects actually readily scales up. You can take debt, cut it up into pieces, and it's called a bond.

[00:40:21] Ajay Shah: You can trade currencies. So there's a whole bunch of things. You can trade standardized commodities like gold. So creating a systematic fungible traded things was a breakthrough that we got liquidity and we got the price discovery of the speculative markets.

[00:40:39] Ajay Shah: So this stuff worked very well. Okay, this takes us through to uh the early modern times.

[00:40:49] Ajay Shah: So by now, I feel we've got a reasonable description of late 19th century finance. Okay? Then when we come to the 20th century. By this time, we started getting fairly big and complex banks.

[00:41:02] Ajay Shah: Banks are an interesting complex technology. Uh you have recently done a conversation with our good friend Harshvardhan around banks. Harsh is a deep thinker. He thinks deeply about banks.

[00:41:14] Ajay Shah: Banks are pretty interesting and in some ways magical, in some ways fundamentally fragile institution where they take on huge levels of leverage.

[00:41:25] Ajay Shah: They create an illusion of liquidity out of thin air. They create an illusion of holding long dated assets while having short dated liabilities out of thin air. And there is a tension between how magical and wonderful is the thing that they create, namely the illusion of liquidity, the illusion of maturity transformation of being able to invest in long dated assets.

[00:41:51] Ajay Shah: It sounds really great and magical, but it also in a way is broken at the core. So banks are not robust and rugged organizations and the economist Merton Miller has a famous line.

[00:42:06] Ajay Shah: He describes banking as a disaster prone 19th century industry because the world history of banks is just failure upon failure upon failure, that banks tend to blow up, it tends to become a mess.

[00:42:19] Ajay Shah: And banking becomes deeply political because by and large, most of the time, politicians don't want to countenance uh grandmothers and dentists losing their money when a bank goes bust.

[00:42:33] Ajay Shah: So, if only you could be cold in a world and say to households that, "Sorry, your bank went bust. You should have exercised diligence and thought more about the bank that you invested in."

[00:42:43] Ajay Shah: If you could do that, all the problems of banking will be solved. Most of the time, most political systems are unable to do that and then you get into real problems.

[00:42:51] Ajay Shah: So banking adds value in many good times and every banking system just goes through one paroxysm of grief after another every 20, 30 years.

[00:43:01] Ajay Shah: So, once again, I'm not a optimist that this problem can be solved. There are deep human reasons why this problem won't be solved. Uh we we will have to go through one mess after another for a long, long time. So that is the next layer in the puzzle which is banking.

[00:43:21] Ajay Shah: And then we come to modern times when a whole bunch of miracles started happening and we get to modern finance. So roughly speaking, you know, if you stand in 1947, then this is the nature of finance that there is stock market, bond market, trading, liquidity.

[00:43:37] Ajay Shah: It's a global game. There's London, there's New York, there is Bombay. These are all integrated markets. There are banks and they're financing uh the financial sector is financing the real sector.

[00:43:49] Ajay Shah: All this finance is a good, healthy, important industry standing at the end of the Second World War and it is doing all these things. And then came the explosions of technology.

[00:44:00] Ajay Shah: We got technologies of uh communication, we got technologies of computation, and we got great explosions of human knowledge. And all these have come together to give you modern finance. Okay?

[00:44:14] Ajay Shah: So modern finance is three pieces. First is simple communications. You connected up London and Bombay and so now suddenly trading happens everywhere.

[00:44:23] Ajay Shah: So Ravi Narayan, one of the founding team of NSE had a beautiful line. He's to say that when the first satellite communications for NSE trading came to a small town in India, it was comparable to a railway line coming to that small town for the first time.

[00:44:41] Ajay Shah: It was a revolution. Suddenly you were connected into the main Indian market. You were not a hick town trying to place some long distance trunk calls to a Bombay broker who was on the market, who had access to the market.

[00:44:57] Ajay Shah: Suddenly everybody was an equal first class participant and that was the magic of satellite uh communications that was used by NSE.

[00:45:05] Ajay Shah: NSE was a pioneer globally in electronic trading and satellite communication when these things were brought to India. So there was just a telecommunication piece where finance is the business of bits and bites and modern telecom has basically started moving information all around everywhere.

[00:45:24] Ajay Shah: Today we use trading on a mobile phone. It would have seemed miraculous only a short while ago, but that is the nature of what modern telecom has done.

[00:45:34] Ajay Shah: The second thing that has happened is computation. We've got the ability to process a great deal of information and calculate, calculate, calculate. So finance is filled with calculations ranging from mundane to profound.

[00:45:48] Ajay Shah: The mundane stuff is just keeping books, keeping score, doing settlement, keeping accounts, processing information. All this stuff has just been magical.

[00:45:57] Ajay Shah: The way finance works today with computers is just supremely productive and efficient compared with the bad old days when people worked with pieces of paper. So the information, the cognitive power of the unaided human mind was really very limited.

[00:46:13] Ajay Shah: And that same human mind is able to do the same tasks of finance so much better because now we have uh information. There's a beautiful literature in the world of banking which tells a story of the transition from relationship banking to model based banking.

[00:46:31] Ajay Shah: And let me just tell that story. In the olden days, you had an account with your local bank and you would drop by and have chai with your bank manager and the bank manager would know you and your family and your friends. Okay?

[00:46:44] Ajay Shah: So when you went to that bank manager and asked for the loan, the bank manager knew you well and it was a relationship that had private information in the minds of the bank manager.

[00:46:56] Ajay Shah: And the bank manager would use that information to make a call on whether to give you a loan or not. And that worked very badly for underprivileged people who did not have that social relationship with bank managers.

[00:47:10] Ajay Shah: And most bank managers practiced statistical discrimination and also outright other kinds of ugly discrimination.

[00:47:19] Ajay Shah: So, you know, basically in India, women, Muslims, lower caste people were treated badly by the main line financial system. So that was the old world.

[00:47:30] Ajay Shah: Now, a key part of this story is that actually it was very expensive to hire a sophisticated, skilled bank manager who would look at the person and learn the entire family tree of that person and develop a judgment that their word is sound and make the yes no decision about giving a loan.

[00:47:50] Ajay Shah: So, while it was done, it was also very expensive because you had to put an expensive resource on understanding that person. All this has been replaced by models.

[00:48:00] Ajay Shah: Today, statistical models consume information about the person and make a prediction for the probability of default. And this has basically exploded the ability of a lender to go reach out to people where there's really no great relationship.

[00:48:18] Ajay Shah: And it is more evidence-based. There are models that predict the probability of default. So you want to get a home loan, you want to get a car loan, uh there are credit bureaus that will keep track of your past payment success or payment default.

[00:48:33] Ajay Shah: So the models are able to look at the person and make a decision and it is very low cost. You don't need an expensive resource. So it works at smaller ticket sizes.

[00:48:42] Ajay Shah: It spreads all over the country. These are miraculous gains that came from the injection of information and information processing. So this is the second pillar of modern finance, the use of information and information processing.

[00:48:56] Ajay Shah: The third pillar of modern finance was the knowledge produced by the economists. The one of the great success stories of modern economics is the contribution made by economists in building theoretical structures where knowledge and understanding about portfolios, about risk, about diversification, about international diversification was built.

[00:49:18] Ajay Shah: And that has turned around from the academia and come back into the real world. So there is just immense bodies of knowledge that have been created that have steadily come back and fed into the real world. That is really the only piece of modern economics.

[00:49:37] Ajay Shah: There are a few others, like Amazon hires a lot of economists who use microeconomics in trying to figure out how to make more money when selling us stuff.

[00:49:48] Ajay Shah: That is indeed another great success story of economics. But if you think about most parts of economics, I think the greatest success of high intellectual constructs being built in the world of economics that are being applied into practical real world systems where there are literally models that run on computers and feedback into the lives of real people that is in finance.

[00:50:14] Ajay Shah: And the greatest flowering of that is financial derivatives. Financial derivatives are a system of side bets on the main bets.

[00:50:22] Ajay Shah: So your main bet is a share price. Your main bet is a currency, your main bet is a bond price. Now you build a system of side bets on that. So it's like two people don't own the share, but they make a bet with each other. "I think this share price will go up. I think this share price will go up."

[00:50:40] Ajay Shah: So what we've done is we've extended the information processing game away from being restricted to the owners of the shares and the people with the capital to buy the shares to people on the side who actually don't have the wealth to buy large amount of these shares, but are able to take amplified bets.

[00:51:02] Ajay Shah: So that has extended the ability of the people with ideas with the knowledge, but without the capital to contribute and participate in the process of speculative price discovery.

[00:51:14] Ajay Shah: Derivatives have always been around in some ways. There are stories that go deep back in India which tell us about the presence of derivatives.

[00:51:24] Ajay Shah: So, I remember on the Bombay Stock Exchange, there is a speech done by some white guy who tells the story from the late 19th century where the quotation runs something like this, that the natives are as good as anybody in the world on trading in put and call options.

[00:51:44] Ajay Shah: Okay? So like in the 19th century, in Bombay, they're trading put and call options. Similarly, there are stories from Greece in the 6th century where there are some kinds of derivatives contracts on olive oil.

[00:51:57] Ajay Shah: So derivatives have in a way been around forever, but the fuel, the rocket fuel that brought everything together was telecommunications, computation, and the models.

[00:52:06] Ajay Shah: So the economics knowledge, all this came together and has created an explosive rise of the modern derivatives industry. So in the world of the bond market, there is a beautiful phrase that is called the bond currency derivatives Nexus. Okay?

[00:52:22] Ajay Shah: Where there is a bond market, there is a currency market, and there are the derivatives on the currencies and the derivatives on the bonds and all these are tied together as one market because every price shakes every other.

[00:52:35] Ajay Shah: It's like a single carpet. It's a single tapestry that everything is interconnected. You tug at one end and everything moves together and there are trades, trades, trades which bind everything together.

[00:52:47] Ajay Shah: So there is really one body of information of the bond price, the exchange rate and a whole bunch of the derivatives of these two. This whole thing is called the bond currency derivatives Nexus.

[00:52:59] Ajay Shah: Once again, you know, we are in a disappointing situation in India. There are people who don't like derivatives trading, who think that bonds and currencies are separate markets, are different things.

[00:53:11] Ajay Shah: Just, you know, basic economics and finance knowledge has not permeated and we are an underdeveloped country because of the lack of this kind of information, or this kind of knowledge. And one of the most pure renditions of modernity in this field is algorithmic trading.

[00:53:29] Ajay Shah: Where the way it works is that imagine stage one, uh you're the brains of the shop, right? You're the genius uh poker, uh intellectual. So you come up with ideas.

[00:53:41] Ajay Shah: You tell that bloke that uh find out whichever is the team that plays second and bet on them. Okay? What you've just written is an algorithm. Okay? What you've written is a rule that generates trades that is handed over to a clerk who is expected to shut up and do the trade.

[00:54:02] Ajay Shah: Now, why have a clerk? So uh in the 21st century, we want to live above the API and not below the API. So these instructions are turned into code.

[00:54:15] Ajay Shah: And when that code runs, that code is purring away. It's just endlessly watching the match, watching the match, watching the match. The moment the coin is tossed, okay? And you know whether Sri Lanka gets through or Zimbabwe gets through.

[00:54:28] Ajay Shah: At that instant, one millisecond later, it sends in a trade saying, "I'm betting that Zimbabwe will win." Why? Because he lost the toss. Or, sorry, he chose to chase and not set.

[00:54:40] Ajay Shah: Okay? So what you've just done is you've done the process of the design of the algorithm, which is always a human intellectual idea, and then the mundane implementation of that can and should be delegated to a program and not a clerk because we don't want to waste human labor doing these things. Okay?

[00:54:59] Ajay Shah: Human beings should compose symphonies. Human beings should not be doing mundane clerical work below the API. This is called algorithmic trading.

[00:55:06] Ajay Shah: So again, there's a whole bunch of ignorance around these words and there are people who just get angry. "Oh, how can a computer trade¿' or "Will the AI put us out of business¿' and those kinds of things or just just an instinctive distrust and a hostility towards too many clever people eating away at my livelihood.

[00:55:27] Ajay Shah: All these factors come together and there is like this toxic hostility towards modern ideas whether they're derivatives or algorithmic trading and so on.

[00:55:37] Ajay Shah: Um Let me do something politically incorrect. Uh there's a phrase in finance that is called STP, which means straight through processing. Okay?

[00:55:49] Ajay Shah: So the idea is that you do a trade and then end-to-end all the steps happen automatically without human intervention. So uh this was humorously for a long time, it was humorously called sac the peasants.

[00:56:01] Ajay Shah: Okay? The idea was get people out of doing Monday and clerical things. Okay? So automate everything.

[00:56:06] Ajay Shah:	So then the humans are doing the intellectual functions. So we should not think in the crude caricature of the AI that, "Oh, the AI is now making the decisions,“ like some science fiction movie.
[00:56:18] Ajay Shah:	The AI is a clerk. He's running a program written by the humans. The humans are in charge. It is a human that has to imagine what is a trade you want to do.
[00:56:26] Ajay Shah:	The computer can never figure out why it wants to trade. It doesn't want money, it doesn't want profit. It doesn't want anything. It's just a dumb computer. What the computer is is a great clerk.
[00:56:38] Ajay Shah:	He lives below the API, it will obey, it will obey, it will obey, it will be consistent. It won't take a break to have chai. It won't have a bad hair day.
[00:56:47] Ajay Shah:	It will be milliseconds split second precision. The program will run. That configuration of facts will come together, boom, a trade will take place. No more and no less. That is what is algorithmic trading.
[00:57:00] Amit Varma:	So I would like to clarify for everyone here that when you speak about sacking the peasants, you don't literally mean put the peasants out of a job. You mean end the peasantry.
[00:57:08] Amit Varma:	You know, the peasants because of all the value created in the world will be writing symphonies. That's kind of how technology uh that's a kind of effect technology has.
[00:57:17] Amit Varma:	I also want to say that you eloquently spoke about code purring peacefully and I want to say that I started purring peacefully when you called me a GPI. Right?
[00:57:27] Amit Varma:	You know what do you remember what a GPI?
[00:57:28] Ajay Shah:	A general purpose AI.
[00:57:29] Amit Varma:	No, no, no. A genius poker intellectual. That's what you called me.
[00:57:33] Ajay Shah:	A genius poker intellectual.

[00:57:34] Amit Varma: And it fills my heart with gladness. And before we go on to, you know, my next question, again a mid- episode recommendation because why not? When genius failed, a book by Roger Lowenstein, which is about the failure of a firm called Long-Term Capital Management,

[00:57:49] Amit Varma: who I think had a bunch of Nobel Prize academics. You were speaking about academics earlier. I think the Black Scholes model was what they

[00:57:55] Ajay Shah: By the way, the better this book came first. One year after that, there was an economist guy called Nicholas Dunbar who wrote a book on LTCM. I think it's the better of the two books.

[00:58:04] Amit Varma: It's a better of the two books. So regardless, we'll have both in the show notes. And my question for you is that I get and I completely agree with the huge net benefit of all this. After all it's come out of the needs of society. It's the wonders of technology that have sort of enabled this.

[00:58:19] Amit Varma: It's incentivized uh risk taking and building companies and all of human progress has in a sense uh been founded on this bedrock.

[00:58:28] Amit Varma: But my question is, what can go wrong? Right? What can go wrong and how do we safeguard against it? Because at various points like of course, boom and bust is part of the regular cycle, creative destruction is a healthy process, but however we have seen in finance that things do often go extremely wrong.

[00:58:45] Amit Varma: Uh what can go wrong? How do we safeguard against it?

[00:58:48] Ajay Shah: So the first thing that can go wrong is that a society can have uh a hostility towards the emergence of finance and it can stifle the emergence of finance and then you've really got a millstone around the neck around the emergence of the market economy.

[00:59:08] Ajay Shah: So that by and large is where India is that where we have gone wrong is we have failed to create the intellectual power so that state power is used to damage the emergence of finance. So that is the first thing that can go wrong, which is you can have no finance.

[00:59:24] Ajay Shah: So, it's a ludite vision. It's as bad as banning numerically controlled lathes. It is as bad as banning this machine or that machine.

[00:59:35] Ajay Shah: So the first thing that can go wrong is that a society can fail to see the integral connections between the emergence of a market economy and state power can be used in a coercive way to damage the emergence of finance and that is what has happened in India.

[00:59:40] Ajay Shah: is part one of what can go wrong. For the rest, there is a standard script of public economics that, like in many other areas, there is market failure. Okay? So there are public goods problems in finance and you need state for that.

[00:59:54] Ajay Shah: There is asymmetric information in finance and you need regulation for that. There are externalities in finance and you need state for that. So like that, the standard machinery of public economics does apply, and it can and should be logically applied to work out a list of market failures, and then a list of state interventions that address those market failures.

[01:00:18] Ajay Shah: So all over the world, you need the presence of the state and you need financial regulation and a bunch of other service functions that are led by the state, that are done by public policy. And it's difficult to create those and it takes a lot of knowledge and capability to create those.

[01:00:35] Ajay Shah: So finance cannot exist in a vacuum. It's a set of complex institutions that is undergirded by the presence of the state, and the state does many things that makes finance possible and, you know, it would take more hours to tell that full story, but right now I just want to register that.

[01:00:51] Ajay Shah: So, you can ban finance, that doesn't work. Or if you just do pure laissez faire, that doesn't work either. You need state capability and then you need that level of knowledge about finance in the drafting of laws and in building those government organizations where it will not degenerate into banning things and doing the populism of trying to protect small investors or the populism of hating rich people.

[01:01:19] Amit Varma: So I will come up with another mid-episode recommendation here, which deals with market failures and when the state should step in and what is the proper role of the state. It's it's an obscure book. I don't know if you know these authors. Let me try and remember the names.

[01:01:32] Amit Varma: Vijay Kelkar and Ajay Shah. It's a book called In Service of the Republic. Have you ever heard of it?

[01:01:37] Ajay Shah: Some obscure blokes. I think, at one point, Sachin Tendulkar told me that he's heard of this guy.

[01:01:44] Amit Varma: That's a well-played, sir. And yeah, so your book is an excellent way to begin to think about it and also to understand when the state should step in and when it should not, because overreach, I think, is a far greater problem than, you know, not doing anything at all. Commission is our problem, not omission.

[01:02:12] Ajay Shah: Amit, I've talked a lot about the main story about the emergence of finance after the industrial revolution and the computer revolution. This is the standard story that, you know, children are taught in schools, and I often stopped in that story and talked about my concerns about what is happening in India, where in some ways it seems to me that the sociological and political foundations for an acceptance of finance have often been lacking.

Chapter 2: What Went Wrong in the Middle East?

[01:02:41] Ajay Shah: And we've slipped into way too much socialism and populism and the hatred of rich people and a lack of understanding of the role of finance in society. How does that resonate with you? What do you think about that larger problem that when you go away from the main story of the emergence of the West, how does finance find its feet in other kinds of societies?

[01:03:07] Amit Varma: I think you can't think of the economy and therefore you can't think of finance without understanding society. And let me talk about this in the context of the Middle East. Recently, I got the opportunity to do a long episode of The Scene and the Unseen with the great Timur Kuran, one of the great thinkers of our time, an absolute giant and someone who's taught you personally, I think in the late 1980s, right, when you were studying in California.

[01:03:30] Amit Varma: And I wanted to speak to Timur Kuran because he had come up with the concept of preference falsification and preference cascades, which I've spoken about quite often. And his great, he's wrote this great and seminal book called Private Truths, Public Lies.

[01:03:45] Amit Varma: So, you know, after we did episode one of everything is everything, we mentioned him. He reached out to me with a long DM, very generous DM. And I obviously took the opportunity and said, "Sir, show pe a jao." You know, not in Hindi of course, because brilliant as he is, I'm not sure he understands Hindi. But he agreed to come on the show and I thought we'll talk a lot about preference falsification.

[01:04:06] Amit Varma: And I started then, you know, I obviously I'm going to read all his other books if I've called him on the show, and I was blown away by the rest of his work. There is a brilliant book called The Long Divergence, and one could say that a part two of that is his recent book that came out called Freedoms Delayed, right? And they are books about Islam in the Middle East.

[01:04:25] Amit Varma: And I was blown away and it speaks exactly to this subject, right? Now, the central question of the long divergence is this, that circa 1000 AD, the Middle East economically was very similar to Europe. You had a similar kind of economy, the same kind of vibrancy, the same kind of markets, the same kind of institutions, right?

[01:04:46] Amit Varma: But after that, as has been well documented, the Middle East kind of stayed stagnant, whereas Europe zoomed ahead and, you know, reached an entirely new level of prosperity. And it was only in the middle of the 19th century that the Middle East started catching up. Now, what could possibly be the reasons for this?

[01:05:04] Amit Varma: A three common hypothesis are, you know, suggested by people. Timur Kuran considers them false and demolishes all of them in his books. So I'll just urge people to read the books. But in short, this is what they are. Hypothesis one is that Islam is hostile to commerce.

[01:05:18] Amit Varma: And Timur shows with great data that that is absolutely not the case. Uh, Middle Eastern Muslims were dominating trade emporia for a long time, including in the Middle Ages, in places like East Africa, the Middle East itself, parts of Asia and so on. So this is a false explanation.

[01:05:37] Amit Varma: Explanation number two, that Islam doesn't allow innovation or it doesn't happen in the Middle East. Now, this is also false because as Timur shows, there was tremendous innovation in terms of government institutions and, you know, ways of taxation and all of that. There was great innovation there. It is not that they were fundamentally not innovative.

[01:05:56] Amit Varma: Hypothesis number three, which is often advanced by the great historian Bernard Lewis, and so many of us have learned about the Middle East from him and he's indeed a great historian. And Lewis's theory among others is that the Middle East/Islam was fundamentally uncurious about the rest of the world.

[01:06:15] Amit Varma: And as Timur points out, this is nonsense. It's just not true. They were very curious. They were curious, for example, about the military, they were curious about a variety of subjects. But as he says, you know, they would constantly get military textbooks and learn more and more and stay up to date, but they never got economic textbooks.

[01:06:33] Amit Varma: So these are the three reasons that scholars postulated, and all of these are false. So why did the Middle East fall behind? And there are a bunch of reasons, and one of them, and they're all ironic reasons. Reason number one is their inheritance law, right? Now, people today have this unfortunate impression of Islam as being fundamentally backward in some way and Islamic people being socially backward.

[01:06:58] Amit Varma: Circa 1000 AD, the Middle East had more progressive laws than Europe. And one example of this is inheritance. Right? A lot of Northern Europe, including, you know, the Scandinavian countries, parts of England, Northern France, Belgium, Holland, Switzerland, they had something called primogenitor, where the inheritance law was that the eldest son gets everything, right?

[01:07:19] Amit Varma: So very unfair. Only one son gets everything. Daughters get nothing. You know, so daughters routinely are just completely left out and that is their law and it's you would agree, it's a shitty law. The Middle East had a much more equitable inheritance law where it was divided among family.

[01:07:35] Amit Varma: So two-thirds of the wealth would go to extended family, and the remaining would be divided among sons and daughters. Now, daughters got half of what the sons got, which in under the modern lens is not fair, but at least they got something, right? Now you would imagine, fine, this is great, progressive law, what's the problem? Here's the problem.

[01:07:54] Amit Varma: You know, Islam per se has no law which determines how many people can be in a partnership or how long it can last, right? I'm talking about a company, that kind of partnership. But the inheritance law messed up the incentives, because if you formed a partnership and your partner died, what that would mean is that his shares would be so widely spread around that the company was basically dead and you were screwed.

[01:08:20] Amit Varma: And what this meant was it put a disincentive on long-lasting companies. So partnerships would be formed for specific tasks, right? So if, you know, you and I want to partner to for example, do a podcast, I'm thinking of the top of my head. If you and I want to do a video show like this one, we would draw up a new contract for each episode rather than draw up a contract saying do saal karenge and this is how it works and all of that.

[01:08:45] Amit Varma: We simply would not because if one of us dies, then everything kind of gets messy. And I hope both of us live a long time and we don't actually have to go through any of that. But you get what I'm saying. So one, duration is a problem, partnership tended to be very small. The vast majority of partnerships are only two people.

[01:09:03] Amit Varma: And because of this, the joint stock company also doesn't come up, that great innovation that you mentioned earlier, because the incentives are against it, partnerships aren't lasting. What do you invest in? And because the joint stock company cannot get formed, that entire ecosystem of beautiful institutions around it, like great complex laws, like modern accounting, those don't come into play either, right?

[01:09:27] Amit Varma: So you have small and ephemeral and simple companies. I think these are more or less Timur's words, small, simple, ephemeral companies that last for a time and they die out. Now, what happens in Northern Europe? You know, where primogenitor, primogenitor, whatever, I'm not good at pronunciations, is in vogue where the eldest son gets everything.

[01:09:45] Amit Varma: Shitty law, completely unfair, but at least you know that there is a successor. You can plan for the future. The future is something definite. And there, partnerships last longer, the incentives are different. Eventually joint stock companies form, eventually the whole infrastructure and ecosystem around them takes place, and it kick starts their economies and takes them to an entirely different place.

[01:10:08] Amit Varma: Now, this is example one of how a social institution puts you behind economically, right? A second example is something which when I think of it is such a marvelous innovation, right? It is something called a waqf. Now, what is a waqf? You know, people in India would be familiar with the term because you would have heard of the waqf board and all of that.

[01:10:29] Amit Varma: Now, a waqf is a private institution. Let's say you are a rich man in the Middle East, you know, you can't really leave your money to your kids properly or whatever, and the Sultan is taxing you, but he says, "Hey, so this is what we do, this is our arrangement. You set up a waqf, it's got a particular public purpose, you put, you give your money to that, that public purpose will be forever served by your money, and the ambit will be a public good."

[01:10:55] Amit Varma: So I think of it as, quote unquote, the voluntary private provision of public goods. It's like fucking miraculous. There's no coercion, there's no taxation, the voluntary private provision of public goods, right? It's such a beautiful social arrangement, so innovative. And it works for a long time, but then it kind of begins to fall apart.

[01:11:14] Amit Varma: Why does it begin to fall apart? Because the particular purpose of a waqf is set. You cannot change it, right? And initially that's a feature, that if it's given for a good cause, is used for a good cause, it's not subverted. But later on, it becomes a problem. For example, Timur gives us an example of this great caravanserai, which is like an inn, a road side inn, founded on the Silk Route, in, I think, in the mid 1200s.

[01:11:39] Amit Varma: And the idea is you serve travelers, you give them water, you give them food. But by the 1600s, the silk route is gone in the sense no one's using it anymore, but you're not allowed to shift the funds out of the caravanserai. So they are kind of stuck there. It's what Hernando de Soto would call dead capital, right?

[01:11:56] Amit Varma: You have a similar situation where you could set up a waqf for, you know, building fountains. And there is indeed The Mystery of Capital. So, mid-episode recommendation, Hernando de Soto's The Mystery of Capital. So another example of this is that you set up a waqf and the idea is we will build water fountains, right?

[01:12:17] Amit Varma: So initially it's a feature. You're providing water to all the people, you're building 30 water fountains per year. But as the centuries go by, you have piped water coming in, which becomes ubiquitous. So you do not anymore need water fountains. Instead, you need to strengthen the piped water infrastructure, but you cannot divert these funds there because these funds are tied up in making water fountains.

[01:12:38] Amit Varma: So what happened therefore was that there was this ossification where you had a whole bunch of waqfs which were no longer relevant, but all the capital was tied up there and, and, and therefore it was just a dead weight where, you know, in, in other societies, it would have been immediately reallocated and used for other things and etc, etc.

[01:13:00] Amit Varma: And here it's just kind of lying there. And and this is like, I took so much time to kind of let this sink in because here's what happened, you know, Islam in the Middle East came up with progressive social laws that was so much better than Europe and in many other senses, they had better laws.

[01:13:22] Amit Varma: However, an unintended consequence of those laws led to them remaining economically backward. And some could argue, and this is not a link made by Timur, so I'm just speculating, but some could argue that that economic backwardness then led to them becoming socially backward as well.

[01:13:38] Amit Varma: And, you know, going into extreme directions and so on. And in fact, Timur's book, The Long Divergence, is about the economic impact, and his book Freedoms Delayed is more about the political impact of this. So I, I just find that ironic, incredibly fascinating. And there is no lesson, there is no prescriptive lesson here in terms of what to do.

[01:14:02] Amit Varma: It but there's a lesson here in terms of appreciating the complexity of the world and sort of how these little accidents of history can lead you upon these strange paths of path dependence and can have these kind of outcomes.

[01:14:18] Ajay Shah: At the more narrow level, I worry a lot about joint stock companies and what we are doing in India. There is a certain isomorphic mimicry. We use the word company, but when we look at either the contents of the Companies Act or the way it is enforced, and about the thirst for unlimited liability and all kinds of other wrong state actions surrounding the word company.

[01:14:45] Ajay Shah: I worry that we are in some kind of difficult, messy, pre-modern state, and that these failures of institution building could well be disproportionately influential in holding back India's emergence.

[01:15:10] Ajay Shah: So Amit, give us your recommendations for today.

[01:15:13] Amit Varma: So, my first two besides all the mid-episode recommendations, I'd recommend you read all these three great books by Timur Kuran. Private Truths, Public Lies is of course about preference falsification, it's a seminal book, but the long divergence and freedoms delayed is are such rich books in terms of their history.

Chapter 3: Amit's Recco

[01:15:29] Amit Varma: Even if you have no interest on Islam or the Middle East, just in understanding how incentives work on human beings and how societies function. These are great books. And another recommendation I'd like to give because it's a related recommendation in a sense, in the broader theme, is the Pathan unarmed by Mukulika Banerjee, right?

[01:15:48] Amit Varma: Now, I had done an episode last year with Mukulika Banerjee, we'll link that from the show notes. And her story is this. In the late 1980s, she's kind of finishing her MA or whatever her further studies are, and she's wondering if she should do a PhD. And she asks this person for advice that should I do a PhD?

[01:16:04] Amit Varma: And this person says, "Only do a PhD if there is a question that keeps you awake at night." You know, and if, if there is a question that keeps you awake at night, then study it, figure it out, solve that problem. And the question that is keeping her up at night is this. There is this brilliant political party, this group called the Khudai Khidmatgar, right?

[01:16:22] Amit Varma: The Khudai Khidmatgar was founded in the early part of the century. It was led by this brilliant man called Khan Abdul Ghaffar Khan, also known as Badshah Khan. They believed in...

[01:16:32] Ajay Shah: Frontier Gandhi.

[01:16:33] Amit Varma: Known as Frontier Gandhi, and they believed in non-violence. And after partition, they were wiped out because they were against partition and they were against the ideas that Pakistan was founded on. So they were basically wiped out and they were finished. And Mukulika's central question which kept her up at night was the Pathans have such, there's this stereotype around the Pathans that they're violent people.

[01:16:54] Amit Varma: How did this non-violent movement emerge from there? So she spent, she spent 10 years writing the book. She spent time travelling through Northwest Frontier provinces, going from village to village to find, you know, elders who had once been in the Khudai Khidmatgar 40 years ago. And I believe Shahrukh Khan's father was once in the Khudai Khidmatgar, if I'm not mistaken.

[01:17:14] Amit Varma: And here is what she found, and this is a remarkable conclusion. What she found is that, yes, everything you say about the Pathans being a warrior tribe and all of that is true, but their ideas of non-violence did not were not imported from the West. They did not come from Gandhi. They were inherent. That is how the society would organize each other. They were organic and they emerged from within.

[01:17:37] Amit Varma: Right? And this is like a profound finding that hits at the all the stereotypes that people have of Islam. In fact, her book came out around 2001, you know, so unfortunately, didn't get the kind of wide readership that it deserved, but it is a marvelous book. And I think about it because when I think about Timur Kuran's books also addressing stereotypes about Islam, I find the Pathan Unarmed is another book that did that from me.

[01:18:00] Amit Varma: And it had a great anecdote that speaks to me in the current times, right? Mukulika was basically traveling with a guide from village to village in the Northwest Frontier province, trying to find old men who had once been in the Khudai Khidmatgar. And it would be very vague, like she'd find someone and they'd say, "Yeah, yeah, I think in that village so many miles away, there is Abdullah. I don't know if he's alive. I last met him 20 years ago." It was tough like that.

[01:18:25] Amit Varma: And she was going. And what she found was that the staple food there was beef, that was cheap. but every household would have a chicken which was very expensive, and they would only keep it for special guests. And every time Mukulika went, you know, no matter how poor the household was, out of mehmaan nawazi, they would give her the chicken. And she started to feel guilty that this is the most expensive thing and I should not have it.

[01:18:47] Amit Varma: So despite being a Hindu, she started eating beef, right? And she ate beef for the rest of her trip. And then she went back to India and she told her mother who is like a devout Hindu, practicing Hindu believes every day. She told her mother about this and her mother thought for some time and said, "Beta sahi kiya. Ye to insaniyat hai." Right?

[01:19:03] Amit Varma: And that speaks to the core of something that is also in our culture. And I and I worry sometimes that we might lose that today.

[01:19:19] Ajay Shah: I want to recommend one book and shamelessly recommend one paper. The book is Peter Bernstein, Capital Ideas. It's a bit dated, but it tells the story of the emergence of that modern stage of finance of the models and the computers.

Chapter 4: Ajay's Recco

[01:19:34] Ajay Shah: The paper is I have a recent new paper on the economic history of Indian Finance from 1947 till today. For those who are interested in Indian finance, this is a good paper you should read.

[01:19:48] Amit Varma: Marvelous note to end on. So, you know, thank you for watching. We'll see you next week. Like, subscribe. Please comment. We love to engage and see you around.

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