FINANCE 2 NOTES

2007 Statistics: Average American annual income US$34,000. Lloyd Blankfien, chief executive officer of Goldman Sachs US$68.5 million. Goldman Sachs net revenue US$46 billion. George Soros US$2.9 billion. Kenn Griffin of Citadel US$2 billion. Nearly a billion people around the world live on US$1 per day.

Recurrent hostility to finance and financiers: Those who make their living from lending are viewed as parasitical on the real economic activities. 3 reasons: (1) debtors outnumber creditors (2) financial crises and scandals seem to make finance cause of poverty (3) finance is provided by members of ethnic or religious minorities with tight-knit networks of kinship and trust.

Money is the root of most progress: Financial innovation is necessary for man's advance from wretched subsistence to material prosperity. The evolution of credit and debt is an important innovation. The financial crisis signals the twilight of US global supremacy. Behind each great historical event is a financial secret.

2006 Statistics: measured economic output of world was US$47 trillion. Total market capitalization of world's stock market was US$51 trillion. Value of domestic and international bonds was US$68 trillion. Derivatives outstanding was US$473 trillion. Volume of leveraged buyouts (takeovers of firms financed by borrowing) was US$753 billion. Securitization (mortgage backed securities, asset backed securities, collateralized debt obligations) US$3 trillion. Over the counter derivatives $600 trillion. First hedge fund in 1940. 1990 only 610 with US$38 billion. Now over 7000 with US$1.9 trillion.

Subprime mortgage: Sooner or later, every bubble bursts. Sooner or later greed turns to fear. Poor US families bought or remortgaged homes with complex loans. Loans were bundled together, repackaged as collateralized debt obligations (CDO) and sold

by New York London banks to investors world-wide (Germany, Norway). Investors became effective mortgage lenders. Claimed that interest payments were a dependable stream of income of AAA credit rating. When mortgages reset at higher interest rates after their 1 year or 2 year periods expired, borrowers began to default. Sharpest fall in house prices. Asset backed securities slumped in value. Banks were in severe difficulties as ratios between capital and assets declined. Central banks cut interest rates and offered special "term auction facilities". Obtained massive equity injections from Asian and Middle Eastern sovereign wealth funds (wealth of sheikhs and rulers).

Sovereign wealth funds: 2007 total assets about US$2.6 trillion. Predicted to be US$27 trillion within 15 years or 9% of total global wealth. Kuwait Investment Agency, United Arab Emirates ADIA Fund, Singapore GIC, Singapore Temasek. Asian and Middle Eastern Funds are expected to do global bailout of Western banks.

US$ decline in value: Ratio of a bank's capital to assets is very important. Banks have lost much more than US$255 billion. Real danger of huge contraction in credit. US output 25% of world total. Europe and Asia reliant on US market. Severe downward pressure on external value of dollar. Continuing Asian industrial development. Spike in commodity prices (eg, cement, steel).

Banks are needed: Poverty is not the result of capacious financiers (like zamindars and marwaris) exploiting the poor. Poverty has more to do with lack of financial institutions, absence of banks. Only when borrowers have access to efficient credit networks can they escape from the loan sharks. Only when savers can deposit their money in reliable banks can it be channelled from the idle rich to the industrious poor in poor countries and poor neighbourhoods of developed countries.

Mood swings: Money amplifies our tendency to overreact, to swing from exuberance

when things are going well to deep depression when they go wrong. Money enriches the lucky and smart and impoverishes the unlucky and not-so-smart. The more integrated the world's financial markets become, the greater the opportunities for financially knowledgeable people wherever they live and the bigger the risk of downward mobility for the financially illiterate. Few things are harder to predict accurately than the timing and magnitude of financial crises because the financial system is so genuinely complex.

World without money: Communists, anarchists, religious fundamentalists and hippies have dreamt of this. Yet no Communist state has found it practical to dispense with money. Hunter-gatherer societies face considerable disadvantages to the cash-free life. Hunter-gatherers do not trade. They raid. Nor do they save, consuming their food as and when they find it. Therefore, they have no need for money.

Downfall of the Inca Empire: Labour was the unit of value in the Inca Empire as under Communism. The economy depended on often harsh central planning and forced labour. The inhabitants greeted the European Spanish conquerors as "children of the sun". They had the latest European weaponry: guns and mechanical crossbows. Terror was caused by their horses. The Spanish annihilated the Inca army. There followed an orgy of Spanish plundering.

Mountains of gold and silver: The Spanish had a legend of "El Dorado", a land of gold and silver. They found a mountain 4.8 km high, a mountain of solid silver ore. The Spaniards had an insatiable lust for gold and silver that could be made into money: a unit of account, a store of value. Miners' conditions were so harsh that a system of forced labour was needed. Men between 18 to 50 years were conscripted. Mortality was 50% from poisonous mercury fumes. They had to descend 700 foot

shafts with poor ladders. Rock falls killed and maimed may. Thousands of African slaves were imported to work. The mountains yielded 45,000 tons of pure silver that was shipped to Spain.

<u>Meaning of money</u>: Money is a “medium of exchange”: it eliminates the inefficiencies of barter. Money is a “unit of account”: it facilitates valuation and calculation. Money is a “store of value”: it allows economic transactions to be conducted over long periods and geographical distances. Money must be (1) available (2) affordable (3) durable (4) fungible (5) portable and (6) reliable. Metals such as gold and solver are ideal to make coins. Powerful kings minted coins so they could collect taxes.

<u>Crusades</u>: There was a chronic shortage of metal in Europe during the Middle Ages. Demand for money was greater in the more developed commercial centres of the Islamic Empire. Europe could obtain money by exporting labour and goods or plundering during Crusades wars against Muslims. Crusades were about money and religious conversion. When Spain robbed the Inca Empire, they appeared to have broken a centuries-old constraint of metal shortage. Entire Europe received a monetary stimulus of increased money supply. The Spanish coin “piece of eight” became the world’s first global currency and helped to finance many expensive Spanish wars plus a rapidly expanding trade with Asia.

<u>Inflation</u>: The Spanish dug up so much silver that the metal itself dramatically declined in value. The cost of food had shown no sustained upward trend for 300 years. After the Inca conquest, the food prices rose markedly. It was revolutionary by medieval standards. The increased money supply removed the incentives for more productive economic activity and increased rents. Money is worth only what someone else is willing to give you for it. Without real economic growth, monetary

expansion will only make prices higher (inflation).

Trust: Banknotes are pieces of paper. They are simply promises to pay. The person you are really trusting is the Reserve Bank of India. Today, electronic money can be moved from employer to employee's bank account. Nowadays "virtual money" dominates the money supply. Cash in hand is just 11% of the entire money. Money is a matter of belief, faith in the person paying, in the Bank that issues the money, in the Bank that honours the cheques or carries out the transactions. Money is not metal. It is trust. Money can be inscribed on silver, on clay, on paper, on computer, on cowrie shells, on stones. Anything can be used as money.

Loans: The central relationship that money crystallizes is between lender and borrower. In ancient Babylon (Iraq), debts were transferable. Clay tablets read "Pay the bearer" not "Pay X". Borrowers were expected to pay interest. The idea of interest was probably derived from the natural increase of livestock. All this rested on the credibility of a borrower's promise to repay. In Latin, the root of "credit" is "credo" (I believe). Families like the Babylonian Egibi were powerful landowners and lenders.

Decimal Number System: Italy in the Middle Ages had many feuding city-states. The Roman Empire numerical system was not suited to complex calculations (I, ii, iii, iv…). The Abbasid Caliphate was far more advanced. An Italian mathematician, Fibonacci of Pisa, wrote a book, *Liber Abaci* (The Book of Calculation). It explained fractions, the concept of present value (the discounted value today of a future revenue stream), and the decimal number system. It had examples of commercial bookkeeping, currency conversions, and interest calculation. The obstacles were not economic nor political but cultural. People thought finance was sinful.

Risk: When merchants build ships and set out on long ocean voyages, it is risky.

Ships are very costly to build. On long voyages, there is much danger of ship-wreck from storms, pirates, getting lost, etc. etc. Anyone who lends money to a merchant, if only for the duration of a voyage, runs a big risk of losing it. Interest is compensation for risk. Overseas trade cannot occur without such compensation. Jews provided commercial credit. Their desks were called Banci (banks). It was sin for Christians to charge interest. It was sin for Jews to charge interest to other Jews but not to non-Jews. So Jews did all the lending business. In those days, 1. Lenders could charge extremely high interest rates 2. Law courts were important in settling disputes without violence 3. Jews were a minority vulnerable to genocide from the majority Christian debtors.

<u>Zamindars, Marwaris, Loan sharks</u>: In every country in the world, there are illegal moneylenders who lend money at very high rates to poor people. These poor people are too poor to get bank loan. In UK, 165,000 families have Pound 40 million debts to illegal moneylenders. The UK moneylenders take the poor people's unemployment Social Security payments. The standard interest rate is 25% per week. The poor cannot afford to pay such high interest rates. Soon, they owe hundreds or thousands of Pounds. Many clients are mentally retarded. Many are terrified of violence (being beaten killed).

<u>The First Bank</u>: In the Middle Ages, no family was more important than the Medicis in Italy. Originally, they were illegal moneylenders and gangsters (to frighten people into repaying debts). Then they became 1. Foreign exchange dealers 2. Bankers. Giovanni de Medici was the Pope's currency trader. He established branches in many cities (Venice, Rome, Geneva, Pisa, London, France). Medici Bank traded in "Bills of Exchange".

1. Trader T1 owes M money to trader T2 but can pay only on future date D.
2. T1 gives T2 a "Bill of Exchange" (written promise to pay M money on D date).

3. The "Bill" is Discounted (sold for less than M) to Bank. Bank gets M from T1 on D.

Interest was sinful but profits OK. Medici Bank never charged interest, only took profits. It gave depositors profits (never interest). They were very good at accounting and bookkeeping. They had many clients: if a few did not repay, it did not affect business. Medicis were very powerful politically. The Bank was copied all over Europe.

Standard Currency, Accounts, Cheques: The first modern Bank was in Amsterdam, Holland. Amsterdam was a big trading port with ships from all over the world. There were 14 different currencies. The Amsterdam Exchange Bank allowed clients to have accounts in a single standard currency. If merchant M1 wanted to pay merchant M2, the Bank would debit M1's account and credit M2's account WITHOUT coins. However, the Bank maintained 100% ratio between deposits and precious metal/coins. The Bank was secure. Each client was always guaranteed to get his money back immediately.

Creation of money: The Swedish Riksbank lent money in addition to commercial transactions. It lent money in excess of the deposits it had (fractional reserve banking). It was highly unlikely that all depositors would ask for their money at the same time. So, only a fraction of the money was kept in the Bank's safes. Example: suppose Bank A has a 10% reserve ratio. If Client A deposits $100, it keeps $10 and lends $90 to Client B. Suppose Client B deposits $90 in Bank B. Bank B keeps $9 and lends $81. M0 is the monetary base: it is $100. M1 is Narrow money: it is $100+ $90+81=$271. Fractional Reserve Banking allows creation of money. If Client A wants his $100 back, Bank A must call in Client B's $90 loan. Bank B must call in the $81 loan. M1 contracts as swiftly as it expanded. Bank failure depend on whether clients return money at once.

Financial Revolution: The very nature of money changed profoundly: no longer was it precious metal. It became the sum total of bank loans. The Spanish did not understand. They continued to borrow loans guaranteed by gold/silver and were bankrupt 14 times. The Financial Revolution preceded the Industrial Revolution. Banks played a very important role in Industrial Revolution. By substituting paper currency/transactions for limited supplies of gold/silver, they enabled commercial transactions. Barings did big business in domestic and international "Bills of Exchange". Bank of England was UK's biggest bank. Its "Bill Discount Rate" set the minimum interest rate.

Inter-Bank Settlements: Bank of England did inter-bank settlements (daily clearing sums owed by one bank to another). Example: 3,000 State Bank clients write cheques totalling $100,000 to Gem Bank. 3,050 Gem Bank clients write cheques totalling $120,000 to State Bank clients. Gem Bank pays State Bank $20,000. Both banks adjust their books. If Gem Bank does not have $20,000, it gets an "overnight loan" from Bank of England.

Gold Standard: The Pound was convertible into a fixed quantity of gold. The Government feared excessive money creation and inflation. The Reserve depended on the volume of Bill Discounting. 1/3rd of the Reserve had to be gold/silver. Strict rules caused repeated crises. The rules were temporarily suspended to prevent total collapse.

Advantages of Gold Standard: 1. Exchange rate stability for predictable pricing in trade and reduced transaction costs 2. Long term stabile prices reduced inflation 3. Governments followed prudent fiscal and monetary policies so long-term costs of borrowing reduced. Disadvantages of Gold Standard: 1. Difficulty of pegging currencies 2. Policymakers forced to choose between free capital movements and

independent monetary policy. 3. Higher volatility in short term interest rates as Central Bank tries to keep the exchange rate steady against the Gold Standard. 4. May cause Deflation 5. May transmit Financial Crises. Gold Standard was removed on 15 August 1971. The centuries-old link between money and gold was broken.

US Bankruptcy: Between 1 million to 2 million people every year become bankrupt in US. Many in Tennessee. It is stigma-free and they are physically unharmed. The world's most successful capitalist economy is built on a foundation of easy economic failure. Easy credit (ability to get loans, mortgages, etc) and easy bankruptcy. The Bankruptcy Court is very crowded and works very smoothly. There are no debtor prisons. Bankruptcy is a right under American law to encourage business. America's most successful businessmen first failed and became bankrupt before succeeding. Nowadays, US bankrupts are not businessmen but ordinary people who cannot pay medical bills. In 2007 US consumer debt $2.5 trillion or 24% of income. Breaking the link between money and gold has caused uncontrolled money expansion and credit boom. The Reserves of Banks has steadily declined. Purchasing power has declined by 87%.

Bond: In Italy during the Middle Ages, every city was fighting war with other city. The army needed lots of gold money to pay soldiers, buy equipment, etc. Venice was spending double its tax revenue. For the first time in history, the Government borrowed money from people by issuing bonds and paying fixed rate interest. People could sell bonds to each other in a Bond Market. Unfortunately, Government issued too many bonds, borrowed too much money. This caused inflation. The inflation exceeded the interest rate on the bonds. The market value of bonds dropped to 10% of their face value. The Venetian economy collapsed. Venice lost the war.

Bond Revolution: Governments/big companies issue fixed-interest-rate bonds to

raise money. Bond-holders can sell bonds in bond market at a premium (more than face value) or discount (less than face value). Internationally traded bonds $18 trillion pa. Domestically traded bond $50 trillion pa. The most powerful man in the world today is not Obama but Will Brash of Pimco, the biggest bond trader holding bonds worth $700 billion. Bond traders finance Governments and decide war and peace, inflation, etc. US bonds are called Treasury Bills and are issued by the Federal Reserve. Indian bonds are called Relief Bonds and are issued by the Reserve Bank of India. Bonds can be sold at a premium eg, Rs.113 for a face value of Rs.100 or discount eg, Rs.89 for a face value of Rs.100. The inflation rate can never be less than the Bond Interest Rate. All of us are affected (1) our old age savings are invested by institutions in Bonds. (2) due to huge size of bond market, bond interest rate sets interest rates for the entire economy.

<u>Calculation</u>: Buy 100,000 yen Japanese bond paying 1.5% per year interest. Investors worry Japanese Government will default (not pay bonds at maturity) or Yen will depreciate (reduce value). They sell 100,000 Yen bonds for 80,000 yen. Interest rate jumped to 1.88%. Your bond worth 22% less. Bond Market daily judges credibility of each Government's policies. If Government Bond debt is excessive, Government has three choices: 1. Default 2. Raise taxes 3. Cut Government spending. Bond issuers control Government policy. Bonds were invented in Middle Age Italy to raise war finance. Bonds of defeated Governments became worthless. They could only be sold at big discount pushing interest rate to very high. High interest rate made commercial transactions unprofitable. Business stopped.

<u>Annuities and Lottery</u>: In Amsterdam, Person A could pay Person B some money M to ensure an annual payment A. There were two types (1) perpetual (forever) annuity to children, grandchildren, etc. (2) lifetime (until death) annuity. Lotteries were also invented in Amsterdam to raise money for Government. The Dutch won their wars

and expanded their Empire. Investors had little fear of Government default. Risk was low. There were no discounts. Interest rates were low. Commerce boomed.

England vs France: The English fiscal system was significantly different from the French. In England, the Parliament was increasingly powerful, the professional civil service relied on salaries and not support of king, the Parliament audited the royal finances and tried to reduce the debts. In France, there was no Parliament only king, Government posts were sold, the country defaulted on debt payments, budgets were not prepared, and tax was collected by private parties.

Consol: In England, there was a thriving Bond Market where "consol", the Government bond was the dominant security traded. Bombs were highly liquid. Consols were perpetual bonds without a fixed maturity date. They could be bought back (redeemed) by Government at a price equal or higher than face value. Most successful bond ever.

Rothschilds: England fought a famous sea battle with Napolean of France at Waterloo. Rothschilds was a banking family with 5 brothers. Nathan Rothschild was the leader in London. Other brothers were in Paris, Amsterdam, Spain, etc. When gold was cheaper in Paris and more expensive in London, the Paris brother bought and London brother sold (arbitrage). Before the war, Rothschilds family bought lots of gold at high price. Because battle finished in 1 day and England won, nobody wanted to buy gold to pay soldiers. Rothschilds were facing huge losses. Nathan Rothschild used gold to buy English Government bonds on huge scale. The price of Bonds went up and up. After 1 or 2 years, he sold at huge profit. Rothschild established European Bond Market.

European Bond Market: The Rothschilds Bank was dominant in the increasingly international London bond market. They had immense capital and a good

information network. They would buy entire release of new bonds (tranche) from a government, charging commission for distribution throughout Europe to their network of brokers and investors, and remitting funds to government. They helped many governments: Prussia, England, France, Austria, Brazil, Naples, etc. They insisted that governments must issue bonds in Pound Sterling not own currency. Interest was payable at any Rothschilds Bank Branch throughout Europe not only place of sale. Rothschilds were currency traders, bullion (gold silver) traders and investors in insurance, mines, railways.

Hostility: Rothschilds were Jewish. They married relations in family and were very religious. They could permit or prohibit wars at will. This caused the most indignation. Wars reduce the price of existing bonds by increasing the risk. Rothschilds owned a huge treasure in government bonds. They stood to lose more than gain from war. In US Civil War, they remained neutral.

Post-1970s: After 1970s, the inflation has reduced and bond market has surged.

1. Inflation reduced because goods have become cheaper because of technological advances and relocation of factories to low-wage Asian countries.
2. There is world-wide transformation in monetary policy with increases in short-term rates by Central Bank loans, central bank independence and targets.
3. Trade unions demanding wage rises are weak.
4. Loss-making public sector companies have been privatized.
5. Peoples' savings are held in private pension funds that must invest in Bonds. The Government must ensure low inflation so old people can live on retirement savings.

Since Bush entered White House, the US Government debt has increased from $5 trillion to $9 trillion. By 2012, may be $12 trillion. Despite this, US Treasury Bonds interest rate has declined. This is very strange.

US Civil War: During the USA Civil War, Rothschilds neither lent money to North nor South. The North had many items to sell and safe ports. North could obtain finance. The South had only cotton. The South sold Cotton Bonds, promising to buy them back at the pre-war price of cotton and guaranteeing delivery of cotton against demand by bondholders. The South restricted supplies of cotton to England, a big manufacturer. Hundreds of English cotton mills closed and lakhs of people were baykaar. The scarcity of cotton drove up the price of cotton and Cotton Bonds. Then the North captured South's important port of New Orleans and Mississippi River so controlled shipping to/from South. This meant cotton could not be guaranteed delivery. Prices of Cotton Bonds crashed. The South could not raise money for its army from Bonds. The South began printing $1.7 billion paper money. There was rampant forgery because it was easy to copy the crude notes. Inflation exploded to 4000%. The South's economy collapsed. The South lost the war.

Effects of Bond Crash: In South America, debt defaults (when Government does not pay debts) and currency depreciations were commonplace. The social class that invests in bonds is weaker in South America. It is easy to default when most bondholders are foreigners. Countries that default risk economic sanctions (like no World Bank loans), the imposition of foreign control over their finances (like IMF policies) and sometimes, military intervention. Gladstone wanted to invade Egypt in 1882 when the Government threatened not to pay bonds. Venezuala had naval blockade by Britain, Germany and Italty in 1902 after it defaulted.

Inequality: London investors were wealthy but few in number. 250,000 persons being 2% of the population had 7% of national income half of which was bond interest. It accounted for 67% of tax revenue. Taxes were imposed on many people to finance interest payments to few people. In Europe, the defaults became less frequent. Due to gold standard, payments were more dependable. Bondholders were

top of society until First World War. High inflation is caused by:

1. War led to shortages of goods
2. Government borrowed short-term from central bank;
3. Expanded the money supply
4. Public expected inflation
5. Prices of goods rose

Money is rendered worthless and all forms of wealth and income denominated in that currency. Inflation wipes out internal Government debt (bond payments to citizens). It impoverishes the upper middle classes: senior civil servants, professionals, people on fixed salary. In effect, Government confiscates their citizens' wealth. Only businesspeople are better off. Their debts are easy to repay. They can charge higher prices. They can hoard assets and goods. The relationship between debtor and credit, between lender and borrower becomes disorganized. Commerce is affected.

War-time: All warring countries sold bonds to thousands of small people telling them it was their patriotic duty to buy. Germany and Turkey government found difficult in selling bonds. Their citizens got tired of buying. There were no foreign markets unlike England, France, etc. German Government borrowed heavily from their central bank and imposed price controls to reduce inflation. Defeat had a high price. The victors demanded the defeated pay for the war damage. The Versailles peace conference imposed an unspecified reparations liability of a huge new external debt that absorbed more than 34% of all German Government expenditure. The German people thought it was unfair and did not pay their taxes. Public money was spent recklessly. The trade unions demanded higher wages. The German Government thought inflation and depreciation would cheapen exports. Although German exports were cheaper, the rest of Europe was in Depression and could not afford to buy German products. Unemployment soared. Money was rendered worthless.

Argentina: In 1913, Argentina was one of 10 riches countries in world. Argentina Government financed the war over Falkland Island by issuing Bonds. It was huge expense. Too many bonds were issued. Inflation rose to 100% per month. The bonds became worthless. The Australes currency became worthless. Everyone in Argentina became bhikaari. Bonds market affects everyone in the duniya, whether rich or poor, in Australia or Malegaon.

Causes of Argentina's problems: political as much as financial.

1. The landowners wanted to base the country's economy on agricultural exports to Europe/USA. During Depression, there was no demand.
2. Large-scale immigration to Argentina without farmland for the new arrivals meant they remained as poor people in cities. They caused lots of political disturbance.
3. Military repeatedly intervened in politics. Besides external wars, the Government fought expensive internal war against dissidents imprisoning torturing thousands.
4. There were too many different governments and each had different financial policy. This caused disruption and uncertainty.
5. The rich businessmen did not mind inflation because costs of borrowing were less. Inflation wiped out internal debt of Argentine Government to citizen bondholders.
6. The labour class wanted higher wages so did not pay attention to inflation.

Company: The company enables thousands of individuals to pool their resources for risky, long-term projects that require investment of vast amounts of money before profits can be made. Joint-stock company means company's capital is provided by many investors. Limited-liability company means the company has a separate existence as a legal person. Investors do not lose all their wealth if the company fails. Investors' losses are restricted to the amount of investment only.

Stock market: The first joint-stock limited-liability company was invented in Amsterdam: Dutch East India Company for trading with India for spices. The cost of building ships was huge. It was too easy to lose ships in storms, pirate attacks, etc. The company needed army and forts to defend against British and Portugese. It needed factories and warehouses. Lakhs of Dutch citizens invested in the shares. The company had difficulty paying dividends. So, the first stock market was created. Dutch citizens could sell shares to one another to obtain money. The Amsterdam Bank gave people loans to buy shares.

Selling short: When people sold shares in the Dutch East India company, the company would take 3 months to transfer the shares in its records. People began to "sell short". Example: X sold shares that X did not own to Y. X would take money from Y right away. Within 3 months, X would buy shares from Z. X gave shares to Y. If the price of shares dropped in those 3 months, X would make a profit. It the price of shares rose in those 3 months, X would make a loss.

Corporate Governance: In theory, the managers of companies were monitored and disciplined by the vigilant shareholders. In practice, shareholders have little power over management. The primary discipline is exerted by the stock market. The price people are prepared to pay for a share depends on how much money their think the company will make in the future: the quality of management, the appeal of the products, the business prospects. We are human and subject to mood swings. We swing from greed to fear. Stock markets mirror this.

Financial Bubbles: Mood swings cause financial bubbles (boom then crash).

1. Displacement: Some economic circumstance creates profitable opportunities;
2. Euphoria: causes overtrading. Rising expected profits cause share price rise;
3. Mania: Price rise attracts first-time investors and swindlers;

4. Distress: Insiders sell because expected profits cannot justify the exorbitant prices.
5. Revulsion: Share prices drastically crash as everyone sells.

Further factors causing Crashes are:

1. Asymmetric information: Managers know more than outsiders and exploit this
2. Cross border capital flows: Money easily flows from country to country
3. Easy credit creation: Central Bank allows easy loans used to buy shares.

<u>Why people invest</u>: In real terms, stocks increased by a factor of 10.3 over last 45 years, bonds by 3.4, bills by 1.8. No stock market has outperformed US stock market. In most countries, stocks have outperformed bonds by a factor of about 5. Bonds are fixed income and government guaranteed. Share is a portion of company's capital. If company succeeds, there will be dividend and share price will rise. If company fails, investors lose their share money. Many businesses fail. Stocks are less predictable and more risky.

<u>John Law</u>: France's fiscal problems were especially desperate: enormous public debt, the monarchy that was bankrupt, cancellation and reduction of existing debts (Government not paying its lenders). John Law was a Scotsman who migrated to France and rose to power. He set up various institutions, ie:

1) the French Central Bank, Banque Royale. It could issue notes (paper money) that initially, could be exchanged for a fixed amount of gold or silver. The Government ordered all taxes to be paid in notes. This Bank was responsible for repaying all the Government debt. The Bank gave people loans to buy company shares.
2) a company, West Company, that had a monopoly on trade with America, owned ¼ of US land (Mississippi and Louisiana), monopoly on tobacco trade from Africa, monopoly on spice trade with Asia and collected Government taxes. The

French public and other Europeans bought shares in West Company using French notes. They paid in instalment basis.

The public expected huge profits. Everyone tried to buy shares. John Law ordered more money to be printed and more shares to be issued. The Bank loaned money to people to buy shares. The share price kept rising. John Law did publicity about the prospects of profit. When thousands of poor French immigrants died in Louisiana, the truth became clear. The share price crashed. Many rich and middle class people became bankrupt. After that, the French people did not trust banks for a long time. They became backward compared to England. They remained poor and finally French Revolution.

South Sea Bubble: In England, there was a similar South Sea Bubble. A company was set up to trade with Spanish Empire in South America. Government debt was converted into company shares. The public bought these shares. The public expected profits. The company director, John Blunt, could not control Bank of England money printing. 200 companies were set up for the same purpose by other people. The share price never went so high. The crash affected fewer people. Sir Isaac Newton lost all his money.

Great Depression: Between 1929 to 1932, the US stock market declined in value by 89%. The asset price deflation coincided with and caused the worst depression in all history. Unemployment in US was 33%. The Great Depression was a global catastrophe that saw prices and output decline in nearly every country. The international financial system fell to pieces: debt defaults by Governments, capital controls and currency depreciations. Causes of Great Depression were:

1. Germany's post First World War reparations (payments for damage caused)
2. American protectionism
3. Psychological dimension

4. Financial misconduct by crooks
5. During the First World War, non-European agricultural and industrial production expanded (eg, India). After the return of peace, there was chronic over-capacity which drove down prices. This made it hard for countries with large foreign debts.
6. Increased power of trade unions. Harder to lower wages. Higher unemployment.
7. Mismanagement by Federal Reserve (Central Bank of USA)

Benjamin Strong: Due to technological progress, productivity increased. Ordinary Americans wanted to own machines (eg, washing machine, car, etc). Companies permitted instalment payments (ie, hire purchase). This caused companies' share prices to rise. Many small investors took loans to buy shares. Benjamin Strong was very clever Governor of Federal Reserve. He maintained a reasonable balance between international obligation to maintain the gold standard and domestic obligation to stabilize prices. He prevented excessive monetary expansion during booms (ie, easy credit). He averted panics by conducting large-scale open market operations (ie, buying bonds to inject liquidity and provide credit). After he died of tuberculosis, many mistakes were made.

Causes of Great Depression:

1. Hundreds of banks failed. Merger talks to save banks failed.
2. The Federal Reserve reduced the amount of credit. This forced banks to frantically sell assets and caused more bank failures.
3. In 1932, Britain suspended the gold standard. There was a rush by foreign banks to convert US$ into gold. The Federal Reserve increased the price of gold which stopped the external drain but caused more bank failures.
4. Only in 1932 did the Federal Reserve conduct large-scale open-market operations. This was insufficient to prevent more bank failures.
5. There were rumours that the US$ will be devalued. Again the Federal Reserve

increased the price of gold which caused more bank failures.

Bank customers lost their entire life savings. Shareholders in banks lost their investments. The money supply and volume of credit decreased dramatically (M1). Milton Friedman said Federal Reserve should have bought bonds and provided easy loans and not worried about the gold and worried more about domestic deflation.

1987 Crash: The Dow Jones (US share market index) dropped by 23% on Black Monday (19 October 1987). Total fall was 1/3 or $1 trillion. It was caused by computer programs that automatically sold shares according to some formula. This computer program was used by large institutions. It caused the New York Stock Exchange Automated Transaction System to fail. There was no “circuit breaker”. However, there was no Great Depression because Alan Greenspan, Federal Reserve Governor, assured bankers and provided easy credit by aggressively buying bonds.

1995 Dot Com Crash: The computer companies and internet companies share prices were rising too much. Alan Greenspan warned of “irrational exuberance”. However, he did nothing to limit credit.

1. He underestimated the size of the problem.
2. He felt that it was not the Federal Reserve’s job to stop the profits on share market
3. He thought share price increase was due to advance in technology/productivity
4. The Russian Government debt default required him to take no action
5. The Japanese Government caused a 10 year economic stagnation when it intervened in the Japanese market to stop “irrational exuberance”.

Enron: This company was leader to all companies. Kenneth Lay, Founder, promised investors immense wealth. Utility companies (eg, providers of electricity, gas and other energy) sold directly to consumers (eg, home and business and factory).

1. Enron bought energy from Utility companies and stored it in “energy banks”.

2. Enron supplied to consumers. Enron was middle-man.
3. Enron bought assets all over the world. It was US 4th largest company 21,000 staff
4. Enron had good political connections and gave political parties huge donations.
5. Enron traded in many items including Internet broadband.
6. Enron did bogus trading (eg, employees pretended to sell Internet broadband) on fake trading floors during visits by outsiders.
7. Enron bribed utility companies to stop producing energy. There were many blackouts in California. Enron increased energy prices and charged people more.
8. Enron staff may have started California forest fires to destroy electricity cables and cause electricity shortage so they can charge higher price.
9. Enron share prices rose dramatically. Its 140 top managers average US$5.3M each.
10. Enron invented method of hiding debts in "Special Purpose Entities" (companies) so debts do not appear in consolidated balance sheet. Its debts were $38 billion (not $13 billion). Such accounting trickery is now widespread in many companies.
11. Enron staff knew what was going on. They began selling shares. The price began dropping. The Securities and Exchange Commission began to investigate. A brave Enron accountant, Sherron Watkins, told the Government/newspapers the truth.
12. Enron's Auditors, Arthur Anderson (big accounting firm), closed by the scandal.

The main losers were the Enron employees and thousands of small investors. Enron was partly caused by Greenspan's policy of providing credit after September 11 caused fears of war. This easy credit helped Kenneth Lay increase share price so much.

Risk: The most basic financial impulse of all is to save for the future because the future is so unpredictable. If we suffer in future disaster,

1. we can rely on our personal savings; or
2. we can ask people for zakat charity; or
3. we can hope Government may help us using taxpayer funds.

Hurricane Katrina: In this disaster, 1836 people died. New Orleans (big city) still remains in ruins. Insurance companies refuse to again give insurance to homes in this area. Without insurance, banks refuse to give mortgage for rebuilding. The insurance companies lost $41 billion due to this hurricane. In US, there is division of responsibility: private insurance companies cover damage caused by wind; Government insurance companies cover damage caused by flood. The private companies assessors were ordered not to help the policy holders but to avoid paying out. They wrote false reports that "Damage caused by flood not wind. Insurance won't pay". A lawyer, Richard Scruggs, fought the case and forced the insurance companies to pay. The Government spent $117 billion taxpayer money to repair the damage. In this case, private companies profited and taxpayers had to pay the true damage costs.

Probability of disasters: Disaster can be huge public matter (hurricane) or small private matter (death, illness, disability). By collecting statistics over many years, it is possible to predict possibility of disasters using statistics. Eg: 1 in 5 Americans die of cancer, 1 of 78 die in car crash, 1 in 119 commit suicide and 1 in 314 are shot. Afghanis die of starvation, disease, war. All people understand saving. They save their money or food. Tribes pool resources and take safety in numbers. Saving in advance of probable future problems is the fundamental principal of insurance.

Historical Insurance: The insurance schemes historically used were based on gambling. Nobody understood the mathematical nature of the risks involved.

1) In 14th century Italy, ships were insured for 15%-20% premium. Insurers were not

specialists but other merchants.

2) After the Great Fire of London in 1966 which destroyed 13,000 homes, the first fire insurance company was established.
3) Edward Lloyd's coffee house in London was gathering place of Insurance Society. The members' liability was unlimited: they could become bankrupt.
4) Three big insurance companies were established: Sun Insurance, London Assurance and Royal Exchange Assurance. All were run on Pay-as-you-go basis. This means:
   a) premiums were collected;
   b) nothing was invested to earn income;
   c) payments and profits were made from the premiums collected in that year.

<u>Scottish Ministers' Widows Fund</u>: Modern insurance was invented in Scotland by 2 church ministers, Robert Wallace and Alexander Webster. The Church had a Pay-as-you-go scheme to help widows and children of ministers who died. This system was not satisfactory. Wallace and Webster established the SMWF that:

a) collected premiums,
b) invested premiums,
c) earned income, and
d) paid widows pensions from income.

They used mathematics to accurately:

1) calculate how much premium to charge
2) predict future income from investments and
3) predict future deaths and payouts.

Their calculations were wrong by 1 pound only. Due to success, this model was copied all over Europe and created a large insurance industry. It became respectable for ordinary people to obtain insurance. Even fighting soldiers got life insurance.

Insurance companies became the largest investors in the world and dominate global finance markets. They are very large shareholders and control many important companies.

Statistical foundation of insurance: Wallace and Webster used much mathematics.

1. Probability theory: French mathematician Blaise Pascal discovered probability (the chance that an event may occur expressed in mathematical terms)
2. Life expectancy: John Grant collected London mortality statistics according to cause of death and compiled them into a table. Edmund Halley improved the statistics by including age at death. He invented Halley's life tables: tables recording the probability of a person of a certain age dying in a year.
3. Certainty: Jacob Bernoulli discovered that inferences could be drawn with a degree of certainty when large numbers of events were involved. The occurrence of an event in the future follows the same pattern as observed in the past.
4. Normal distribution: Abraham de Moivre established the bell curve of the normal distribution. Most results can be distributed along a curve according to their variance around the mean or standard deviation. 68.2% of the results are within + or - 1 standard deviation of the mean.
5. Utility: Swiss mathematician Daniel Bernoulli discovered utility. The utility (benefit) resulting from any small increase in wealth is inversely proportional to the quantity previously owned. Eg: An extra slice of bread is more useful to a starving man than to a well-fed man. The value of an item should be based on its utility.
6. Inference: Thomas Bayes invented the famous statistical Bayesian formula. Expected utility is the probability of an event x payoff received when event occurs.

The Welfare State: The rich are few and poor are many: tax the rich to pay the poor. "Welfare state" was invented in Germany by Bismarck to win popular political support of "janata". It was copied by Churchill in England to win popular political support of "janata". World Wars damage was so great that private insurance companies could not afford: the Government had to help. Anyway, there are always people who are too poor or too silly to obtain insurance. In "Welfare State", every citizen is taken care of by Government from birth to death for every problem (if study get scholarship, if sick get medical benefits, if lose job get unemployment benefits, etc). Benefits of welfare state:

1. Everyone has equal opportunities.
2. Damage caused by some events is too much for private companies to cope.
3. Universal and compulsory membership removes need for costly advertising.
4. The larger numbers permit more stable statistical averages.
5. Economies of scale are available (you get better price for large order).

Japan's Welfare State: Disasters kept hitting Japan: earthquakes, tsunami, great fires (houses are made of wood and paper), world wars, Great Depression, war with China. Japanese Government needed healthy and educated soldiers and workers for their wars. Japanese Government provided social security in return for military service. Nowadays, Japan has the most successful welfare state in the world.

1. Japanese people are very patriotic and obey the Government rules "dil say".
2. Japanese people are homogenous: they discourage immigration.
3. Japanese people obey rules and do not claim benefits without real need. In West, people try to cheat and obtain maximum benefits even when they are not entitled.
4. In Japanese society, old people are respected, loved and taken care by children. In West, old people are put into nursing homes (increasing Government expense).
5. Japanese bosses try to keep their workers even during bad times. Western bosses

immediately fire workers to increase their own profits (burden on Government).

6. In Japan, trade unions are not so powerful. In West, trade unions force employers to pay higher wages without increased profit or productivity.

When entire Japanese society is so DISCIPLINED and OBEDIENT, taxes are ½ of England's taxes and all Japanese benefit. Japan leads the world in life expectancy, industry, life-style, education and equality. In West, hard-working people feel discouraged because they see lazy people benefiting from taxes they pay. Nowadays, even Japan is in trouble because:

1. more than 21% of Japanese society over 65years and
2. many self-employed people (like small business) not saving for old age.
3. Nearly 75% of Japanese tax revenues is spent on Japanese welfare
4. Life insurance companies and pension funds are in financial trouble.

Stagflation: Milton Friedman invented the word. It means inflation accompanied by stagnant economic growth. The money supply increases because the trade unions demand higher wages without higher profits, and Government has to pay "janata" all types of social security benefits. At the same time, there is no increase in industrial output: the same numbers and types of goods are available. Result, prices increase. Friedman advised Governments to become tough: he discouraged welfare. His ideas are used by World Bank and International Monetary Fund when lending to poor countries. They force poor countries' Governments not to spend on medical and education, etc.

Chile's General Pinochet: In 1973, Chile's Marxist President Salvador Allende was overthrown. His attempt to turn Chile into a Communist state had ended in total economic chaos. With output collapsing and inflation rampant, Chile was bankrupt. The generals installed General Pinochet to reduce Government deficit (main cause of inflation). Pinochet was a military dictator who tortured and executed thousands.

Despite human rights abuses, Milton Friedman and others helped him balance the budget, tighten money supply and liberalize trade. He cut Government spending by 27%. The backlash against welfare started in Chile. It was also essential to foster the link between property rights and political rights required for capitalism.

Chile's new welfare system: The old universal system of welfare contributions was pay-as-you-go (ie, contributions were used to fund payments not invested for future). The practice of entitlement had replaced the principle of thrift. Pinochet reformed this. In the new system, workers paid their premiums into their own Personal Retirement Account. Each person felt he was saving his money for his own retirement. He had incentive for individual effort and responsibility for own future. Public responded enthusiastically. 70% of workers switched to the new system. The administrative and fiscal costs were enormous. Not everyone had a full-time job so not everyone contributed. However, the Government covered those left out under alternate scheme.

Chile's Democracy: The economic reforms paved the way to democracy. The savings rate was 30% of Gross Domestic Product GDP. Money saved was invested into Chilean infrastructure (roads, rails, schools, hospitals, etc). The growth rate in 15 years before was 0.17%pa and in 15 years after was 3.28%pa. The poverty declined to 15% (compared with 40% in the rest of South America). After 10 years, people demanded political rights. After a peaceful referendum, Pinochet gave up power.

US Welfare: Social Security provides a state pension to each retiree. Medicare covers all health costs of elderly and disabled. Income support and other health expenses mean total cost of federal welfare is 11% of GDP. Health costs before retirement are covered by private insurance that 47 million Americans do not have. People with regular, formal employment have such policies paid by employers. Due to rapid

increase in old people (21% over 65years) who do not have enough savings, the costs of Medicare rises at double inflation to 24% of all taxes by 2019 or US$34 trillion (4 times current debt).

Hedging: The origins of hedging are agricultural. For a farmer planting a crop, the price after harvest is crucial. If the price is lower (higher) than he expects, he will make a loss (profit). A futures contract allows him to protect himself by committing a merchant to buy his crop when it is planted at an agreed price when it is harvested. The merchant bears the risk of price fluctuations. In the USA after the World Wars, the supply and demand and prices fluctuated wildly. A true futures contract is a standardized instrument issued by a Futures Exchange and is tradable. There are a set of rules to enforce settlement and an effective clearinghouse. The Chicago Produce Exchange was the first hedging market. For a long time, there was public unease about hedging, a feeling they are like gambling casinos. It was not until 1970s that futures could also be issued for currencies and interest rates and 1982 for stock market. Nowadays, the world is divided into: people who can afford hedge and people who cannot afford hedge. Most big corporations can hedge against unexpected increases in interest rates, exchange rates or commodity prices, future hurricanes or terrorist attacks. Ordinary households cannot. Households can only afford insurance or need Government welfare or use own savings.

Derivative: All future contracts are derived from the value of the underlying assets.

1. A call option is the right (but not the obligation) to buy an agreed quantity of a particular commodity or financial asset from the seller (writer) at a certain future time (expiration date) for a certain price (strike price).
2. A put option is the right (but not the obligation) to sell an agreed quantity of something at an agreed price at a future date.
3. A swap is a bet between two parties on the future path of interest rates.

4. A pure interest rate swap allows two parties already receiving interest payments literally to swap them allowing someone receiving a variable rate of interest to exchange it for a fixed rate in case interest rates decline.
5. A credit default swap offers protection against a company's defaulting on its bonds
6. Weather derivatives like natural catastrophe bonds allow insurance companies to offset the effects of extreme temperatures or natural disasters by selling the so-called tail risk to hedge funds. The buyer of a cat bond is selling insurance. If the disaster specified happens, the buyer must pay out an agreed sum or forfeit his principal. In return, the seller pays an attractive rate of interest.

The vast proportion are custom make and sold over the counter OTC by banks which charge commission. In 2007, $596 trillion of derivatives were there.

<u>Mortgage</u>: People believe that it is smart to own property. The more you own, the more money you make. People all over the world try to own their own house. There is nothing safer than lending money to people with property. If they default on their loan, you can repossess their house. Even if they run away, the house remains. In US, the single most important source of funds for a new business is mortgage on the businessman's house. Banks are less strict about lending money to people who want to buy property (mortgage). In 2006, it was 99% of US GDP. It created a housing boom.

<u>Politics of house ownership</u>: For most of history, house ownership was the exclusive privilege of an aristocratic elite (zamindars). Estates were passed from father to son. Everyone else was a tenant paying rent. Only landowners were allowed to vote. In UK, 40 million acres of 60 million acres are still owned by only 189000 families but aristocracy is not dominating politics. The decline of aristocrats was financial. Land values soared after the Napoleonic wars and Industrial Revolution. Wars caused the

price of farm products to soar. The aristocratic dominance of the politics meant steady income from public taxes. The aristocrats borrowed money through mortgages. They either improved their land or squandered the money. Farm products' prices dropped because all over the world, there was more agriculture, transport was cheaper and tariffs were abolished. Farm income dropped. Many aristocrats could not pay their mortgage interest. Their lands were repossessed. Aristocrats became beggars. Election laws changed to give everyone right to vote, whether landlord or tenant.

Early mortgage: In USA 1930s the mortgages were short-term from 3years to 5 years and not amortized. People paid only interest until the final date when the entire principal was due. The difference between mortgage interest and high-grade corporate bond was 2%. Very few people took mortgage. They were in trouble in Great Depression when they lost their job. There were over ½ million foreclosures. The house prices plummeted between 20% to 50%. Construction industry collapsed.

Roosevelt's New Deal: US President Roosevelt had a New Deal Policy. Many new government agencies /projects revived economy after Great Depression. Most successful was radically increasing janata homes ownership. US is the first property owning democracy and perfect antidote to Communist revolution by poor janata. Public housing was built with 15% of budget. Rest was spent to help mortgage market. Mortgage repayments were tax-deductible. Home Owners Loan Corporation refinanced mortgages on longer terms (80% of purchase price for 20 years) and amortized payments (both principal and interest repaid in instalments). Every region had a Savings and Loan Association (S&L) which took in deposits and lent them out as mortgage-loans. Government guaranteed S&L deposits. If S&L collapsed, depositors were safe. Fannie Mae, Freddie Mac were Government banks that issued bonds, bought mortgages and lowered mortgage interest rates. Home ownership was

60% by 1960.

US Race Riots: A real estate developer in Detroit built a six-foot high wall through the city. One side lived white; other side lived black. The bankers only lent to white. Blacks were regarded as uncreditworthy. Redlining (practice of giving entire suburb a negative credit rating) caused segregation (separation of black and white). Blacks could only obtain mortgage with much higher interest rates. This is the hidden financial dimension of the Civil Rights struggle. Anger at such discrimination caused Detroit riots. 7200 arrested and 3000 buildings burnt and looted. Army troops with tanks and machine guns came. The Government created Ginnie Mae to help blacks own homes. Redlining became a criminal offense. US banks were required to lend to blacks.

Thatcher politics: Conservative and Labour Governments in UK all built public housing. 1/3 to ½ of all new housing was Government built. Nowadays, they are ugly tower blocks in housing estates that are dangerous and violent suburbs. Difference was Conservatives allowed landlords to charge high rent and evict tenants. Labour imposed rent controls and tenant protection. Thatcher allowed tax deduction for mortgage payments. She sold the Council houses at cheap prices to the tenants increasing home ownership to 67%.

Boom and bust: Government initiatives meant that mortgage interest rate was less than inflation. The banks were losing money. Ordinary people were profiting. By 1970s, Governments wanted to reduce inflation. Government raised interest rates. This caused many ordinary people to default on their higher interest mortgage. Boom became bust.

S&L Debacle:

1. US deposit holder in S&L was insured upto $100000 deposit.

2. S&L could give maximum 5.5% interest to deposit holders.
3. S&L mortgage rates were set low by law.
4. S&L had to invest money in safe investments only.

When inflation happened, Federal Reserve increased interest rates. S&L deposit holders moved their money to higher interest earning assets. S&L were losing income on low-interest mortgage. Government changes allowed:

1. S&L to increase mortgage interest rates
2. S&L increase interest rate on deposits
3. S&L allowed to invest in risky assets.
4. Government continued to insure S&L deposit[s upto $100000.

This caused big boom and mawalli log took advantage.

Empire S&L: Empire S&L paid excessively high interest rates to attract depositors. Empire S&L bought plots of land at low price, sold plots at high price to purchasers who borrowed from Empire S&L. 1984 flats construction in Dallas was excessive compared to demand. Buildings were paid by Government guaranteed deposits. Empire S&L had huge liabilities and few assets. It collapsed. Government Insurance FSLIC collapsed. Taxpayers paid $153 billion. Today, derelict buildings all over Texas.

Securitization: Lewis Rainieri was chief mortgage trader at Salomon Brothers, big New York investment bank. When S&L began to sell their mortgages desperately trying to avoid bankruptcy, he bought them at very low prices. (eg, A owes $100,000 due in 10 years time to B. B sells mortgage to C for $80,000 payment right away. A now owes C $100,000). He bundled thousands of mortgages together (eg, 5,000 mortgages each $100,000 = $500 million) as backing (security) for a new type of bond called RMBS CDO Residential Mortgage Backed Security Collateralized Debt Obligation, alternative to Government or corporate bond. Lumped together, interest

payments for mortgages were subdivided into strips with different credit risks. This process was called Securitization. It fundamentally transformed business. The Government insured S&L deposits so RMBS CDO were supposed to be safe Government or Investment grade AAA credit rating. In 2007, $4 trillion RMBS CDOs were sold being 56% of total.

Subprime mortgage:

1. President George Bush wanted everybody in US to own their home. He told Fannie Mae and Freddie Mac not to examine the loan applicants carefully, but easily give them loans to buy house.
2. After terrorist attacks of September 2001 attacks, there was danger of US business slowdown and recession. The Federal Reserve increased money supply by making loans available for very low interest to encourage business.
3. Brokers gave NINJA (No income, No Job, No Asset) mortgage loans to poor families (usually black or Latino) who could not afford and did not understand. Subprime means “below prime” or “below standard” mortgage that is too risky. Reasonable banker will never approve such a mortgage to such poor clients.
4. Subprime mortgage had special features. During initial 2 year Teaser period, interest rate was low. After 2 years, ARM Adjustable Rate Mortgage increased the rate by huge amount. Eg: 9.75% first 2 years, then 9.125% above 5% benchmark short term rate at which banks lend each other money (London Interbank Offered Rate Libor).
5. As long as interest rates remained low, people had jobs and real estate prices continued to rise, poor families could afford. Otherwise, the poor family could not afford and the bank foreclosed. Poor family lost house.
6. Broker had earned fat commission. Due to securitization, the Bank did not bear the loss. Instead, the Bank had quickly sold the mortgage debt to foreign

bondholders. The subprime mortgage crisis became a global problem and caused large bank failures world-wide. Risk was allocated to those least able to understand it. Those who knew best the flakiness of subprime loans, the people who dealt directly with the borrowers and knew their economic circumstances, bore the least risk.

Consequences of subprime mortgage:

1. Negative equity: When the property prices fell to 50%, the debts were greater than the home values. Negative equity affects 10% of all US homes.
2. No recourse loan: When there is a default, the lender can only collect the value of the property. He cannot seize other property like car or money in bank or put a lien on future wages. This gives borrowers a strong incentive to default.
3. After subprime crisis, about 8.4% of all homeowners lost their homes.
4. Many people had paid off their mortgages. They remortgaged their homes with subprime mortgages to get money to: (a) do renovations (b) pay off credit card debts or (c) to buy new consumer durables. Total of such remortgages was $9 trillion.
5. The hedge funds who had bought RMBS CDOs were first to suffer (Bear Stearns).
6. Hedge funds had borrowed huge amounts of money (leverage) from banks to buy RMBS CDO. The banks had lent money to hedge funds lost (Merrill Lynch)
7. The banks had hidden subprime-related loans in off-balance sheet entities called conduits and SIV (strategic investment vehicles). These were companies and trusts controlled by the bank but distinct from it and having own accounting.
8. Banks had borrowed short term loans (commercial paper and overnight interbank loans) to re-lend to subprime-related borrowers. Fears rose about counterparty risk (danger that other party in financial transaction may become bankrupt). The

banks stopped lending money to one another: they stopped trusting each other. (That is why students had difficulty obtaining HSBC DD for non-HSBC banks).

9. Banks sold off cheaply (Bear Stearns). Banks were nationalized (Northern Rock). Many hedge funds were bankrupted. Loss exceeds US$1 trillion.
10. Home ownership reduces labour mobility and slows economic recovery.

De Soto: was a famous economist. He calculated that the total value of the real estate occupied by the world's poor amounts to US$9.3 trillion. People in shanty towns do not have secure legal title to their homes. Property cannot be used as collateral for a loan. This is a fundamental constraint on economic growth. If you cannot borrow, you do not have capital to start a business. In backward countries, it is difficult to establish legal title (eg, 1 year in Bangladesh to transfer home). In Western countries, the system is reliable, cheap and quick (eg, 3 days in Australia). Only with a working system of property rights can the value of a house be properly established, can it be bought and sold, can it be legally used as collateral for loans. Excluding the poor prevents effective taxation and reduces the legitimacy of the state. Poor countries are poor because they lack secure property rights. Poor countries are more likely to fail as democracies because they lack an electorate of property owners. Democracy is the only way to make investors feel safe. Later studies show that when poor person owns their hut, they take good care (paint it, repair it) but it remains extremely difficult for them to get loan.

Microfinance: The Nobel prize winner, Muhammad Yunus of Bangladesh, understood the benefit of making small loans to women. He set up Grameen Bank in 1983 in Jobra Village. It made microloans to 7.5 million women most with no collateral (security). The borrowers were members of a 5-member group (koota) that meets weekly and informally shares loan repayments. Total loans to date is $3 billion. Initial finance was from aid agencies. Now, $650 billion deposits were

received to become entirely self-reliant and even profitable. This system has been imitated world-wide. Bankers found that women are better at managing money than men. Women use money to buy animals for farms and to set up their small business (sewing, coffee shop, etc). UK Government has set up network of credit unions for poor suburbs of their large cities. Some microfinance banks charge too much interest (80%) to make money not to help poor.

BRICs: The most astonishing shift in the global balance of financial power has been the rise of China. The Chinese economy has achieved extraordinary growth in past 30 years (GDP increase 8.4% pa). Calculated projections of GDP from BRIC (Brazil, Russia, India, China or Big Rapidly Industrializing Countries), China would overtake US by 2027. China has demographic time bomb of one-child policy that means 20% of population is male without female partner. This causes social unrest in China.

China's Financial Non-Development: 300 years ago, the North American colonist had a standard of living not significantly superior to Chinese peasant. Between 1700 and 1950, China suffered an absolute decline in per capita income. Britain and its colonies experienced unprecedented growth because of industrial revolution. Annual GDP 1.57% compared to –0.24% for China. Factors:

1. The conquest of the Americas and imperial expansion
2. the conversion of the Caribbean islands into sugar producing colonies relieved the pressure on European agriculture (unlike Chinese diminishing agriculture returns),
3. Nearness of coal fields to locations of industrial development
4. Development of military technology that could be used in industry also

However, there was a financial side to this. Due to unified China, there was no chance for European-style finance (capital markets, commercial bills, bonds, shares). Chinese Government printed money to finance debts. Coins metal was more easily

available than in Europe. When modern financial institutions finally arrived in China, they were seen as Western imperialism and patriotic backlash against foreign influence.

Imperial rule: Globalization is integration of international markets for commodities, manufacture, labour and capital. It is not a new development. Enterprising businessmen in Europe and North America saw opportunities throughout Asia. The key technologies could be transferred anywhere. Communication delays had been dramatically reduced after laying of international undersea cable network for telephone and telegraph. Capital was abundantly available. Equipment was affordable, energy available and labour abundant. Textiles in China and India should have been profitable. British investors were ready to risk their money overseas. Over 1 billion pounds were invested. It left a legacy of bitterness and colonial exploitation. The 2 giants cut themselves off from the global markets from 1950s until 1970s. The key problem with overseas investment was that it is hard for investors in London to see what a foreign government or overseas manager is doing when they are so far away. Most non-Western countries had highly unreliable legal systems and different accounting rules. If a foreign trading partner defaulted on its debts, there was little an investor could do. Solution was imperial rule.

China's Opium Wars: William Jardine and James Matheson set up a trading company in the southern Chinese port of Canton. They imported opium from pre-partition India (Pakistan-Afghanistan). Emporor Yongzheng prohibited opium because of high social costs of addiction. He sent official Lin Zexu to stop this trade once and for all. Lin blockaded the godowns and dumped 20,000 chests worth 2 million pounds into the sea. Jardine went to London to lobby the UK Government. UK Government sent British Navy and Chinese Navy was no match. Canton was blockaded and surrendered after 10-month siege. Hong Kong became British colony.

After signing of Convention of Chuenpi and Treaty of Nanking, opium could be traded in 5 Chinese ports. British collected Chinese customs duties and used them to pay interest on British Government bonds. British citizens were not subject to Chinese law and disregarded Chinese law. For China, the first Opium War brought humiliation. Drug addiction exploded. Christian missionaries abused traditional Confucian beliefs. The Taiping Rebellion was a peasant revolt against a discredited royalty. Between 20 million to 40 million Chinese died.

International Diversification: Matheson set up breweries, cotton mills, insurance, ferries, railways. It was very easy for an average income Londoner to invest and buy shares. Shares were traded in 40 foreign stock exchanges throughout the world. Prices were reported in the British financial press. London Stock Exchange listed bonds issued by 57 sovereign and colonial governments. In 1913, there were $158 billion bonds of which 48% was foreign investment. British investors had advantages:

1. There were higher returns on investments in capital poor countries;
2. The gold standard stabilized foreign currency exchange rates;
3. Foreign governments were increasingly fiscally responsible and balancing budgets;
4. Rise of British imperial power ensured safety of their investments through armies.
5. The British Government implicitly guaranteed the investments through their armies.
6. British introduced system of rule of law (British style property rights and law courts)
7. British introduced non-corrupt administration (Indian Administrative Service)
8. Overseas British investors could collect unpaid debts in colonies because the legal system was the same and they had armies, etc

Mood before World Wars: Investments were made in assets that increased London's political power: railways, ports, mines. Political independence seemed very remote possibility. Over time, the yields and volatility of the bonds declined steadily. Political risk was falling. Various diplomatic alarms had little effect on the bond market. There was a long-term rise in liquidity due to increased gold production and financial innovation (eg, companies) and savings banks attracted deposits from lower and middle class families. These economic trends encouraged optimism. A major war would be catastrophically destructive and lead to bankrupt nations. All the great nations were financially interdependent. The richest country had the most to lose. Another view is that the World Wars were a backlash against globalization, rising tariffs and immigration restrictions. War was welcomed by European farmers who had been undermined by the decline in food prices and emigration of surplus rural labour to the Americas.

First World War: In 1914, Gavrilo Princip assassinated the heir to the Austrian throne, Archuke Ferdinand, in Sarajevo, Bosnia, Yugoslavia. When investors understood that war was imminent, many things happened.

1. The insurance premiums for shipping increased dramatically.
2. Bond and stock prices crashed.
3. Exchange rates went haywire as international creditors tried to obtain payment.
4. Jobbers on the Stock Exchange who relied heavily on borrowed funds to buy shares became bankrupt. As sell orders flooded, the value of shares dropped.
5. Commercial bill brokers were owed substantial sums by continental counterparties unable or unwilling to remit funds.
6. This impacted acceptance houses (merchant banks) who had accepted the bills.
7. The banks who lent millions every day short-term to the bill discounters lost.
8. Ordinary people tried to exchange bank notes for gold.

9. Governments closed markets and banks for many months to stop all business.
10. Governments suspended the gold standard. People could not convert notes for gold.
11. Governments postponed payments that were due to bondholders by many months.
12. Governments rescued banks and big companies. Money supply expanded massively.

Despite all these measures, hyperinflation occurred, especially in the defeated countries. Government bond holders were severely punished: they lost everything.

After the Wars,

1. Governments imposed exchange and capital controls.
2. Governments restricted trade, migration, investment imposing protectionist tariffs.
3. Many Governments declared bankruptcy and defaulted on payments.
4. Many countries achieved near-total economic self-sufficiency (autarky).

Bretton Woods: From the 1930s until late 1960s, international finance and globalization was dead. At Bretton Woods, the Allies met in 1944 to devise a new financial architecture. Trade would be progressively liberalized and free trade revived. Free capital flow was out: restrictions on capital movements would remain. Even tourists would not be allowed more than a pocketful. Capital sums would flow across national borders only from government to government. Exchange rates would be fixed not to the gold standard but to the international reserve currency, US$. The 2 guardian institutions were International Monetary Fund (IMF) to regulate exchange rates and World Bank to rebuild countries shattered by war. Governments had a "trilemma" where a country could choose any 2 out of 3 policies:

1. full freedom of cross-border capital movements
2. fixed exchange rates
3. independent monetary policy oriented towards domestic objectives.

The West chose 2 and 3. There was a conflict between these when the Government tried to ensure full employment by increasing public sector deficit. US exploited its status of reserve currency. Capital controls tightened not loosened as time passed.

<u>End of Bretton Woods</u>: Bretton Woods was deeply disappointing to developing countries. American aid was attached to political and military conditions not always in the best interests of the recipient country. It is doubtful that capital injections solved the problems of most African, Asian and Latin American countries. Much aid was disbursed but most was stolen or wasted. There was an excessive home bias (the donors demanded that recipients buy goods and services from them only not any cheaper source). Nixon severed the final link with the gold standard by ending gold convertibility. This ended Bretton Woods.

<u>Arab oil wealth</u>: After the price shocks caused by Arab-Israeli wars and Arab oil embargo, central banks provided easier credit leading to inflation. With currencies floating again, offshore markets like Eurobond market flourished. The 1970s saw revival of non-Government capital export. Western banks obtained rapidly growing riches of oil-exporting countries. Borrowings by Latin American and East European countries quadrupled. Many countries defaulted and declared bankruptcy. Fantastic sums of Arab oil wealth was lost and wasted. Instead, if Arabs had invested in Muslim countries (eg, hospital, university), would be better. There were no armies to enforce repayment (like British imperials). Instead, the IMF and World Bank put conditions on future loans.

<u>Washington Consensus</u>: The 10 conditions attached to IMF and World Bank loans:

1. Impose fiscal discipline (balance budget, Government spend only what it raises)
2. Reform taxation
3. Liberalize interest rates

4. Raise spending on health and education
5. Secure property rights
6. Privatize state run industries
7. Deregulate markets
8. Adopt a competitive exchange rate
9. Remove barriers to trade
10. Remove barriers to foreign direct investment

IMF/World Bank Problems: "Hot:" money that had been outlawed at Bretton Woods was popular again.

1. IMF /World Bank forced purchase of US goods from US companies.
2. They supplied arms to keep ruthless dictators and corrupt leaders in power.
3. The costs of "structural adjustment" was borne by poor people. In the 1990s, anti-globalization protests began.
4. Economist John Perkins said leaders were assassinated for opposing
5. US. Nobel Prize winner Joseph Stiglitz said many World Bank policies like premature capital market liberalization, caused global instability.
6. Jobs in poor countries were systematically destroyed.
7. Benefits to the well-off and especially very well-off in developing countries.

Hedge Fund: The 1980s saw the rise of the economic hit men. Making a hit meant making a billion dollars on a single, successful speculation (gamble). These men had no real interest in pursuing American imperialist agent. They did not work for public sector institutions like IMF. They ran entirely private businesses called hedge funds. These were pools of lightly regulated, highly mobile capital ("hot money"). Features:

1. Cold, calculating absence of loyalty to any particular country.
2. Sheer scale of the money.
3. Pioneered the technique of borrowing from investment banks to take speculative

long or short positions far in excess of the fund's own capital.
In past 10 years, numbers of hedge funds and volume of assets managed exploded. Now attracting pension funds and university endowments. Attrition rate is high (many bankrupt). Returns have declined from 18% to 7.5%. Increasing scepticism that returns reflect general market movements (beta) and not skills of asset management (alpha). Main purpose to enrich managers (eg, manager take US$57 million of US$62 million profit). John Paulson earned US$3.7 billion from bets against subprime mortgages. 390 funds each have more than US$1 billion assets. Top 100 control 75% of assets. Top 10 control total US$324 billion assets.

Reflexivity: a Hungarian Jew educated in UK and migrated to USA. He established Quantum Fund. His theory of "reflexivity" means: Financial markets cannot be regarded as perfectly efficient because prices reflect ignorance and biases, often irrational, of millions of investors. Market participants operate with bias. Their biases influence the course of events. This may create the impression that markets anticipate future developments accurately but in fact, it is not present expectations that correspond to future events but future events that are shaped by present expectations. It is the feedback effect: investors' biases affect market outcomes which in turn change investors' biases which again affect market outcomes. This is reflexivity.

Soros Success:

1. 1969, he was long real estate (property to sell in future thinking price would rise).
2. 1971, he was long Japan.
3. 1972, he was long oil and bank shares.
4. 1973, he was long defence company shares after hearing Israeli complaints about US arms after Arab wars.
5. 1985, he was short Western Union (after invention of fax, telegraph declined). He was short US$ (after Group of Five Plaza Accord).

6. 1992, he bought German currency using US$10 billion loans in British pound sterling. He predicted the rising costs of German reunification would drive up interest rates and Deutschmark. The UK Government signed European Exchange Rate Mechanism ERM policy of stable exchange rate between Pound Sterling and Deutschmark. When pound sterling fell by 20%, he repaid loans cheaply.

Black Scholes Model: Fisher Black and Myron Scholes developed a revolutionary theory of pricing options. Robert Merton hoped to make money from this Formula. The Formula predicts how to price an option contract. If a share is worth $100 today and you believe it will rise to $200 after 1 year, a strike price of $150 would be nice. How much should you price the option for? 5 variables in Very Complex Formula:
1. current market price;
2. agreed future price (strike price);
3. expiry date of option;
4. risk-free rate of return in economy as whole
5. expected annual volatility (likely fluctuation in price between purchase and expiry)

Merton and Scholes won Nobel prize for their Formula. Assumptions:
1. Markets were efficient (movement of share prices could not be predicted);
2. Markets are continuous, frictionless and completely liquid;
3. Returns on stocks follow normal, bell-curve distribution

Formula was based on 5 years' data. If 11 years' data was used, would have captured 1987 market crash. If 80 years' data was used, would have captured 1917 Russian debt default. Partners established Long Term Capital Management Fund.

Long Term Capital Management: Investors were mainly big banks (Merrill Lynch, Swiss private bank Julius Baer, Swiss bank UBS). Minimum investment $10 million. Partners took 2% of assets and 25% of profits every year. Investors were locked in

for 3 years. LTCM borrowed to invest. So confident that 1998 leverage (debt to capital ratio) was 31:1 for US$134 billion. Simultaneously pursuing multiple, uncorrelated trading strategies: 100 with 7600 different positions. How all different bets go wrong at once? Exploited price differences in different markets. Many firms copied LTCM.

Volatility: In 1998, equity markets dipped so volatility went up instead of down. Higher volatility went, more money LTCM lost and higher was its leverage. Weakened by political upheaval, declining oil revenues and botched privatization, the ailing Russian financial system collapsed. Desperate Russian government defaulted on its debts (bonds). This followed the 1997 Asian crisis. This had contagious effects on all markets. Stock markets collapsed. All the different markets moved downwards, nullifying the protection offered by diversification. The firms that copied LTCM all panicked sold. Correlations had gone to 1. In the long-term, Formula Assumptions may be OK. In short-term, emotional humans swing between greed and fear. Buyers stopped buying. LTCM had illiquid assets could not be sold at any price. LTCM lost $1 billion begged Soros help. He refused. Fearful failure would spread, Federal Reserve organized US$3.625 billion from 14 banks. Investors having US$4.9 billion got US$400 million.

Chimerica: China breakneck industrialization and urbanization is the last and greatest achievement of Communist planned economy. In China, new bridges, railways, buildings, factories, etc. Unfettered private enterprise. Fastest growing economy has avoided Debt Trap by requiring direct foreign investment. Instead of borrowing from Western Banks, foreigners must build factories in China. Large lumpy assets cannot be easily withdrawn in crisis. Average US income $34000, Chinese income $2000 per year. Most investment from Chinese savings and overseas Chinese. Cautious after years of instability and not used to credit, Chinese save an unusually high

proportion of their income. Now, China is banker for Western countries. 2007, US borrowed US$400 billion from China. China has current account surplus of US$262 billion.

<u>Chimerica caused Subprime mortgage crisis</u>: China employs vast population to manufacture and export goods to insatiably spendthrift US. To ensure irresistibly cheap exports, China buys US$ keeping Chinese currency exchange rate low. China has US$1 trillion forex reserves. US wants good times, cheap Chinese goods. Companies outsource to China cheap labour. US Government borrows low interest China loans. 20% of China exports to US. Companies profit huge. More China willing to lend US, more US willing to borrow. Cheap loans and easy money in US is underlying cause of surge in bank lending, bond issues, derivatives, hedge funds and subprime mortgage. After Crisis, China is powerful. It can lend money to struggling US banks but does not:

1. China lost money in US stock market;
2. Justifiably afraid that worst yet to come for Western bank, unknowable impact of US recession on US$62 trillion outstanding credit default swaps.
3. Serious political tensions with US. China doing unfair competition and currency manipulation. US loosening money supply, helping big banks, manipulating finance.

US$ depreciated by 25% since crisis began. Significant increase in prices of food, fuel, raw materials, commodities. China facing inflationary pressure. China imposed price controls and export prohibitions. China extraordinary scramble for African natural resources. China building imperial empire. Perhaps next war caused by political tension between US and China? Similar to World Wars involving Germany?

<u>Cognitive traps</u>: cause human beings to make wrong financial decisions are:

1. Availability bias: base decisions on information that is readily available instead of

data that is really needed.

2. Hindsight bias: attach higher probability to events after they have occurred rather than before they occur
3. Induction: Formulate general rules on basis of insufficient information
4. Fallacy of conjunction or disjunction: Overestimate probability that all seven events each of 90% probability will all occur. Underestimate probability that one of seven events each of 10% probability will occur.
5. Confirmation bias: look for confirming evidence of initial hypothesis not evidence that disproves it
6. Contamination effect: allow irrelevant but proximate data to influence decision
7. Affect heuristic: preconceived value-judgements interfere with assessment of cost and benefit
8. Scope neglect: prevents proportionately adjusting what willing to sacrifice to avoid harms of different orders of magnitude.
9. Overconfidence in calibration: Underestimate confidence intervals within which our estimates will be robust
10. Bystander apathy: abdicate individual responsibility when in a crowd.
11. Failure of invariance: Risk aversion for positive outcome; risk seeking for negative outcome. Example
    a) someone gives you $1000 with 50% chance of gaining $1000
    b) someone gives you $2000 with 50% chance of losing $1000
    c) someone gives you $1000 with 100% chance of gaining $500
    d) someone gives you $2000 with 100% chance of losing $500.

    Probably prefer (c) to (a) but (b) to (d). Note: (a) equal (c). (b) equal (d)

Explanation: People may be overconfident and over-optimistic. They may focus on overly specific scenarios for the future to the exclusion of all others. They may not

recall any past liquidity crisis in memory. They may overestimate the predictability of the past and underestimate the surprise of the future. They may not realize the difficulty of preparing for liquidity crisis without hindsight (experience). They may prefer gambles with higher payoff probabilities, neglecting the value of the stakes. They may conflate positive information about benefits of technology and negative information about risks. They may be contaminated by movies where financial system is saved. Or extremely unpleasant prospect may spur them to seek arguments that liquidity will not dry up without equally frantic search for reasons why. If question is “Why aren’t more people doing something?” everyone is looking at everyone else to see what they are doing and trying to APPEAR posed and unflustered.

Evolutionary Economics: Money is driving force behind human progress. Coordinating mechanism that allocates capital to most productive uses by business and households. If capital goes to the wrong uses or is not used, economy will operate inefficiently and economic growth will be low. Financial history is series of ups downs, bubbles busts.

1. So much uncertainty about future. Calculable risk is different from uncertainty. Again and again, unimaginable event occurs whose risk cannot be calculated (sep 11).
2. Heuristic Biases of individuals play a critical role in creating volatile financial markets. Human behaviour has innate inclination to swing from euphoria to despair. People do not understand finance and suffer from Cognitive traps.
3. Financial evolution: Many similarities between biology and finance
    a) Genes: business practices allow information stored in organization to pass on
    b) Spontaneous mutation: Innovation sometimes technological
    c) Competition between individuals for resources

d) Natural selection. Market allocation of capital and human resources
e) Speciation: Different financial products and institutions
f) Extinction: In 3 years, 30% of all new businesses fail.

Financial evolution: Primitive financial forms (loan sharks) are not extinct yet. Big successful firms may devour smaller ones. However, economies of scale are not only driving force. Real drivers are adaptibility to new conditions and opportunities. Telephone banking, Internet banking, hedge funds, mortgage backed securities, over the counter trade. Diseconomies of scale with bureaucratic pressures and quarterly reports. Evolution always subject to big disruptions, geopolitical shocks and financial crises. Great Depression 1920, Great Inflation 1970. 2009 collapse of shadow banking system of off-balance sheet accounting entities like structured investment vehicles SIV and conduits. Can Western banks go through this crisis without fundamental change to international accords (Basel I and Basel II) governing capital adequacy? In Europe, bank capital is less than 10% of assets. In 1900, it was 25%.

Moral Hazard; Evolution occurs within regulatory framework. New rules and regulations can make previous good practice suddenly disadvantageous. Stated intention of regulators is to maintain stability and protect the consumer and real economy. Companies in non-financial industries (manufacture) are considered less critical to economy. Collapse of major financial institution is avoided at all costs. How far does the government's implicit guarantee to bail out banks create the problem of moral hazard? Encouraging excessive risk taking on assumption that Government will save you? Experience of 1990s Japan is warning. The Government supported the entire banking sector. This caused economic dead weight and dragged entire economy. The possibility of extinction cannot be and should not be removed by excessive rules.