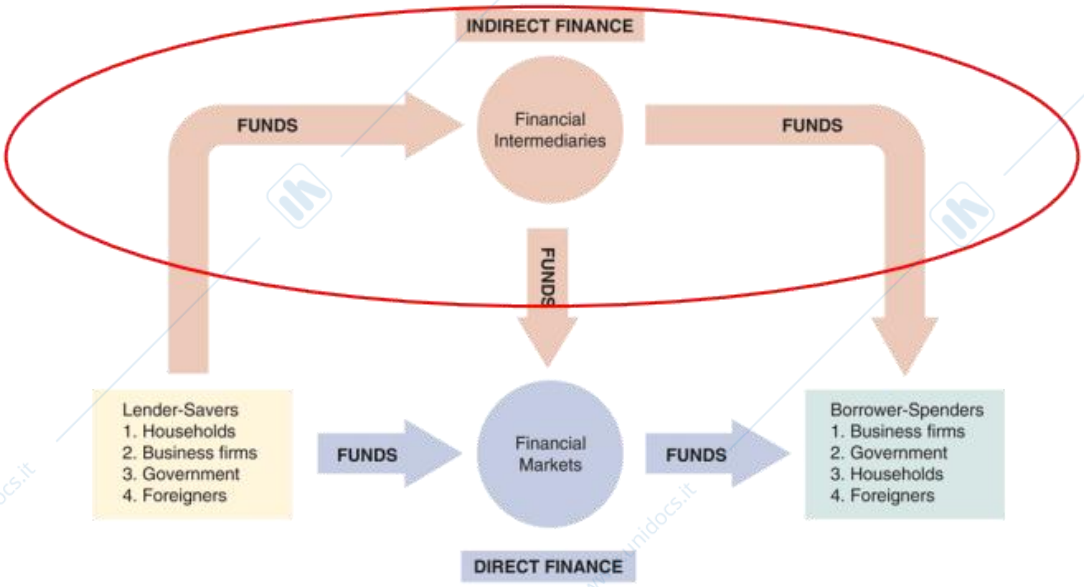
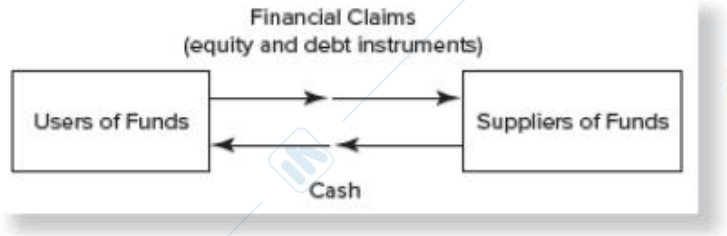
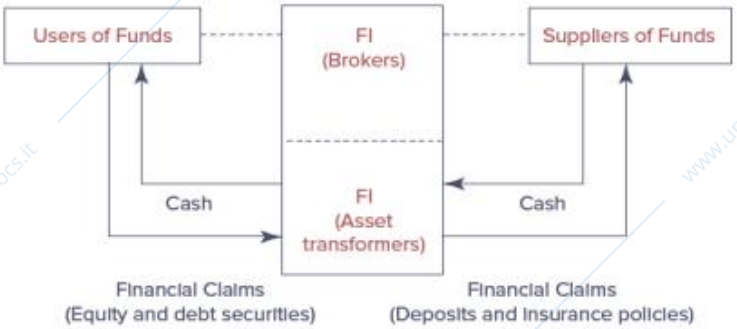
2. Introduction to Financial System



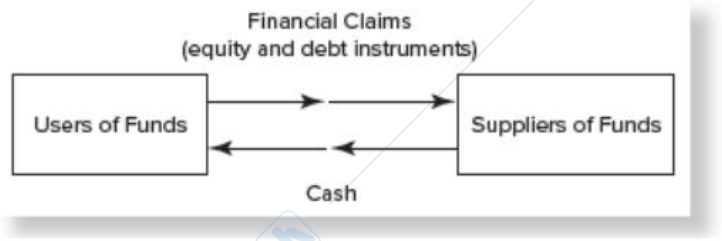


Flow of Funds in a World without FIs

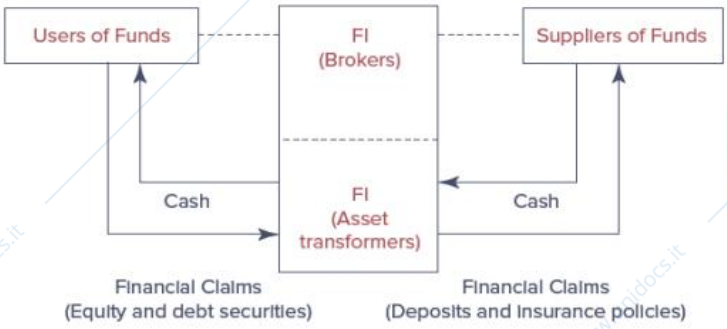


Flow of Funds in a World with FIs

- ***Indirect Finance***
  - Indirect finance involves the use of financial intermediaries.
  - Lender-Savers are entities with excess of funds that they wish to lend. They give funds to Financial Intermediaries, which act as middlemen between lender-savers and borrower-spenders. Then, Financial Intermediaries will give funds to Borrowers-Spenders, which need funds for various purposes.
- ***Direct Finance***
  - Direct finance bypasses financial intermediaries. Lenders-Savers provide funds directly to Borrower-Spenders through financial markets.

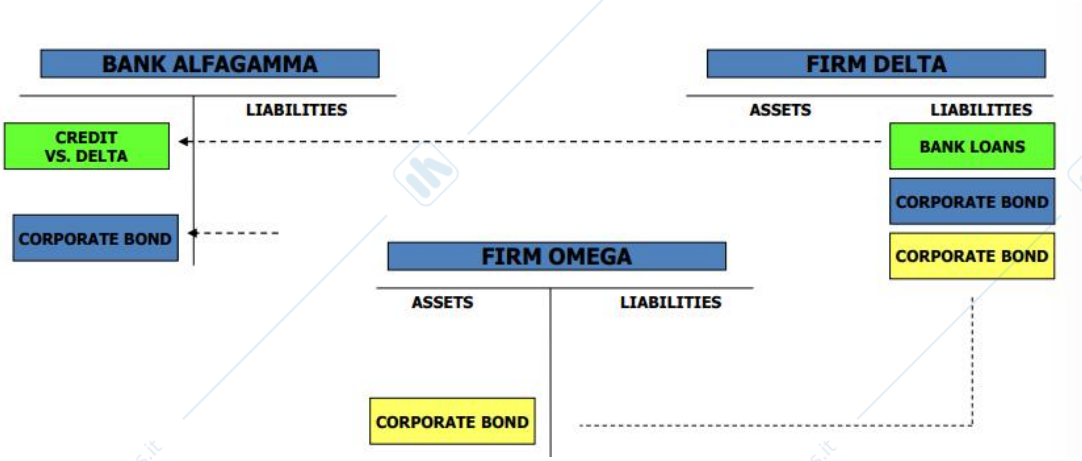


Flow of Funds in a World without FIs



Flow of Funds in a World with FIs

- ***Direct Finance***
  - Users of funds (need funds) will give Financial Claims (*equity instruments*, which is a portion of their activity, "stocks", or *debt instruments*, which are promises to pay back the debt, "bonds") to Suppliers of funds (excess of funds), in change of cash.
- ***Indirect Finance***
  - In this case, we have Financial Intermediaries, which are composed by Brokers and Asset Transformers.
  - Brokers connect Users of funds with Suppliers of funds, while Asset Transformers transform funds merging them from various sources and allocating them to different investment opportunities.
  - Users of funds provide Financial Claims (equity and debt securities) to Asset Transformers, which will transform them into other types of Financial Claims (Deposits and Insurance Policies) to give to Suppliers of Funds in change of cash, that will be given to Users of funds.



- Financial activities compare in the **balance sheet of both operators**.

- The firm DELTA is the borrower of the bank (User of funds) with ***bank loans***.
  - So, in DELTA's liabilities we can find the ***bank loan*** and in bank ALFAGAMMA's assets we have the ***credit v. DELTA***.
- The firm DELTA is also issuer of corporate bonds.
  - The bank and the firm OMEGA (Supplier of funds) are bondholders of **corporate bonds** (in bank's and OMEGA's assets, we find corporate bonds, while in DELTA's liabilities, we find the issued bonds)
- The bank is lender of DELTA with bank loans

Financial Institutions

Intermediaries that meet the needs of economic agents.

- They produce/hold/trade Financial Assets and offer other financial services
- The core of their balance sheet is *Financial Assets and Liabilities*
- Earnings on Financial Assets are the most important income from ordinary operations
- They are exposed to ***financial risks***
- They are ***highly regulated***

Function of FIs: Indirect Finance

They play the role of middleman.

- The intermediary obtains funds from savers
- Then it makes loans/investments with borrowers (**Financial intermediation**)
- This is the primary method of moving funds from lenders to borrowers
- It is needed because of transaction costs, risk sharing and asymmetric information

Why do FIs exist and why there are different types?

These questions are answered by the **theory of financial intermediation**, developed since the second half of the last century and consisting of several complementary theoretical elements.

They explain the reasons for the existence of financial intermediaries and for their functional diversification.

- Removal of the hypothesis of market perfection
- Transaction costs, uncertainty, limited rationality, divergence of preferences among exchangers and information asymmetries.

- **Transaction costs**

  Financial intermediaries make profits by reducing transaction costs.

They reduce transaction costs by developing expertise and taking advantage of economies of scale.

A financial intermediary's low transaction costs mean that it can provide its customers with *liquidity services*, that make it easier for customers to conduct transactions.

- ✧ Banks provide depositors with checking accounts (accounts for everyday operations) that enable them to pay their bills easily
- ✧ Depositors can earn interest on checking and savings accounts and convert them into goods and services whenever necessary.

➢ **Risk sharing**

Another benefit of Financial Intermediary's low transaction costs is that they can help to reduce the exposure to risk through **risk sharing**.

- ✧ Financial Intermediaries create and sell assets with lesser risk to one party in order to buy assets with greater risk from another party.
- ✧ This process is called **asset transformation** because risky assets are transformed into safer assets for investors.

Financial intermediaries also provide methods for individuals and businesses to ***diversify*** their asset holdings, because low transaction costs allow them to buy a range of assets, merge them and sell rights to these diversified merged assets to individuals.

➢ **Asymmetric information**

Another reason Financial Intermediaries exist is to reduce the impact of ***asymmetric information***, when a party lacks crucial information about another party, impacting decision-making.

We can have *adverse selection*, when a party has more information about the other party, leading to a situation where the less informed party makes decisions that can result in unfavorable outcomes, and *moral hazard*, when a party is more likely to take risks because he/she doesn't have to deal with its consequences.

Types of Financial Institutions

➢ *Commercial banks*

Depository institutions whose major assets are loans and major liabilities are deposits. Their loans have a broad range (consumer, commercial and real estate loans). Commercial banks' liabilities include more nondeposit sources of funds, such as subordinate notes.

➢ *Thrifts*

Depository institutions of saving associations, saving banks and credit unions. They generally perform services similar to commercial banks, but they tend to concentrate their loans in one segment, such as real estate loans or consumer loans.

➢ *Insurance companies*

Financial institutions that protect individuals and corporations (policyholders) from adverse events.

Life insurance provides protection in death, illness and retirement, while property casualty protects against personal injury and losses due to accidents , theft, fire and so on.

- *Securities firms and investment banks*

Financial institutions that help firms issue securities and engage in related activities, such as securities brokerage and securities trading.

- *Finance companies*

Financial intermediaries that make loans to individuals and businesses. They don't accept deposits but they rely on short- and long-term debt for funding.

- *Investment funds*

Financial institutions that merge financial resources of individuals and companies and invest in diversified portfolios of assets.

- *Pension funds*

Financial institutions that offer savings plan through which fund participants accumulate savings during their working years before withdrawing during retirement years. They are exempt from taxation.

- *FinTechs*

Financial institutions that use technology to deliver financial solutions which compete with traditional financial methods.

Supervisory Authorities

The *critical nature of functions performed* and the need to prevent failures in the system justify the extensive regulatory activity.

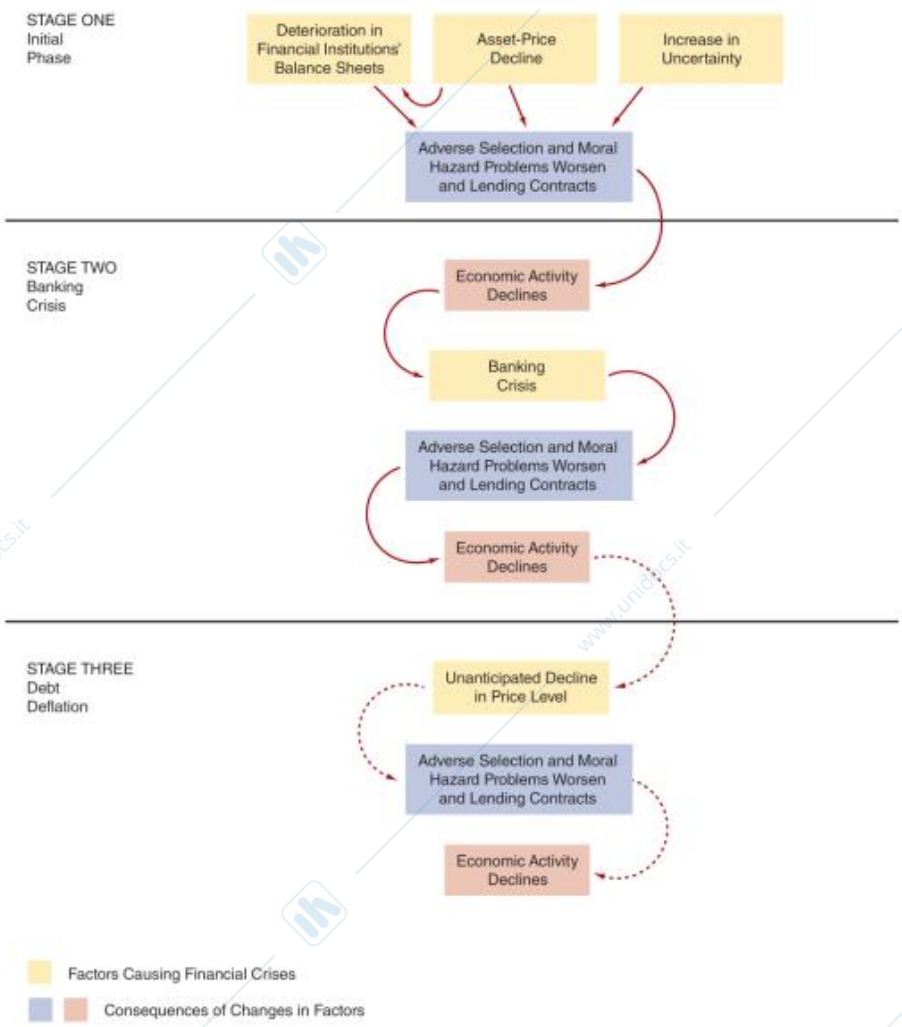
The need to prevent "failures" in the system is linked to the costs of crises and to their impact on the trust of participants and on the development of the economy.

The globalization of financial intermediation makes it even more important to increase ***supervisory activity*** and ***harmonization*** of regulations at international level.

3. Financial Crises

Financial crises are major disturbances in financial markets characterized by intense declines in asset prices and firm failures.

A financial crisis occurs when there is a significant disorder in the flow of information within financial markets. This disorder can cause malfunctioning or stop functioning completely.



Stage One: Initial Phase

Financial crisis can begin in a several ways:

1. Credit Boom

The starting point can begin with **mismanagement of financial liberalization or innovation**.

- Elimination of restrictions
- Introduction of new types of loans or other financial products

This can cause a credit boom, where there is a lack of risk management.

Goverment weakens incentives for risk management and depositors ignore risk-taking.

Finally, loan losses accumulate and asset values fall, leading to a reduction of capital.

Financial intermediaries reduce lending (**deleveraging**) and banking funding falls as well.

Then, no one is left to evaluate firms and the system loses its primary institution to address adverse selection and moral hazard.

Loans (and economic spending contracts) become scarce.

The lending boom turns into lending crash

2. Asset-Price Boom

A financial crisis can also begin with an asset-price boom, where asset values exceed their fundamental values.

When the bubble cracks and prices fall, corporate net worth falls as well and moral hazard increases because firms have little to lose.

Financial Intermediaries also see a fall in assets, leading to deleveraging

3. Increase in Uncertainty

A financial crisis can also begin with an increase in uncertainty, with effects of stock market crashes or failure of major financial institutions.

With information hard to come by, moral hazard and adverse selection problems increase, reducing lending and economic activity.

Stage Two: Banking Crisis

Deteriorating balance sheets lead financial institutions into insolvency and, if severe, even a *bank panic*.

Panic occur when depositors are unsure which banks are insolvent so they all withdraw all funds immediately, generating the default of the intermediary and the overall financial system, which is based on the "trust" of people.

So, the collapse of an institution can cause collapse in public confidence and generate the phenomenon of "bank runs" and the contagion of the entire system (domino effect).

As cash balances fall, Financial institutions must sell assets quickly, deteriorating their balance sheet.

Adverse selection and moral hazard become severe and it takes years to recover.

Stage Three: Debt Deflation

If the crisis also leads to a large fall in prices, debt deflation can occur, where asset prices fall but debt levels don't adjust, creating debt costs.

This leads to an increases in adverse selection and moral hazard, which is followed by a decrease in lending. Economic activity remains depressed for a long time.

Cases

Several historical cases can be considered.

The most important are:

- The Great Depression
- The Global Financial Crisis of 2007-2009

4. Fintech

> *Fintech refers to the application of technology to finance (Arner et al., 2016).*

Nowadays, unregulated entities use technology to provide financial solutions that in the past were only offered by regulated financial intermediaries.

> *FinTech is a technology-enabled innovation in financial services that could result in new business models, applications, processes or products with a material effect on the provision of financial services (FSB, 2017).*

It is a "horizontal" phenomenon in the financial services sector developing within the digital economy framework.

It describes a wide variety of innovations, both by Financial Institutions and new entrants.

The financial sector has always been a huge user of technology, but we move from a **"closed approach"** (technological innovation was internally directed) to an **"open approach"** (technological innovation comes from ideas, skills and capital outside the financial sector).

How do we get to Fintech?

- Increased computing power
- Development of ***digital economy***

- ***"Digital" becomes mainstream***

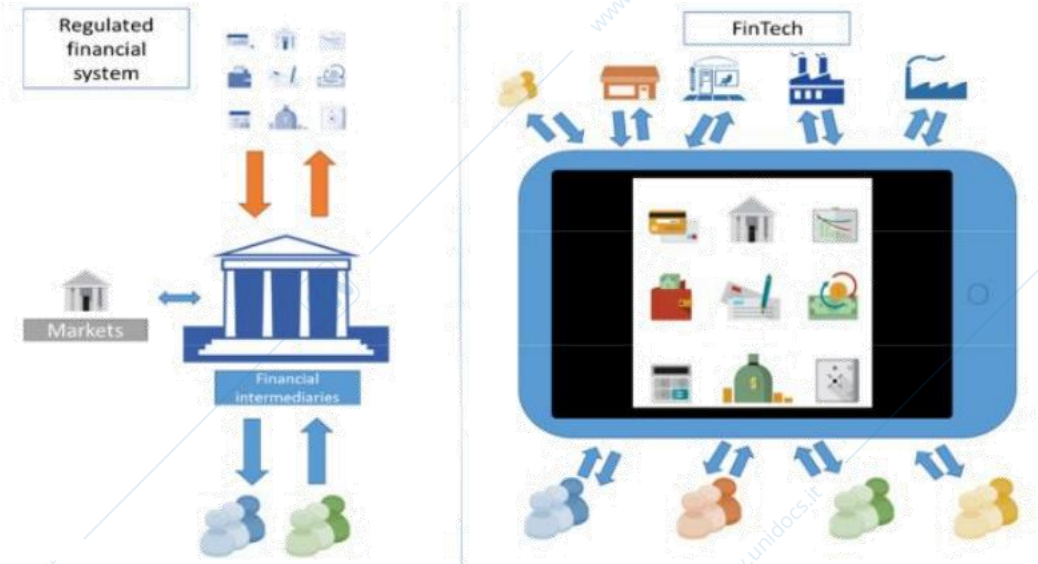
The digitalization of economic and social relations promotes the development of "environmental conditions" where technology can create, connect and coordinate diverse services, removing space and time limitations, expanding access for individuals and small businesses to markets. (*Uber, Airbnb, Amazon*)

Technological evolution as enabling factor for customer change

Social (S), Mobile (M), Analytics (A) and Cloud (C).

Redefinition of Financial System

FinTech fits within the regulated financial industry, while TechFin represents the broader relationship between technology and finance.



The traditional financial system is complex, involving multiple layers (markets, intermediaries) between markets and consumers.

FinTech simplifies access to financial services by integrating them directly into technology that consumers use (mobile apps, etc.).

Supply and Demand Factors that explain the evolution of Fintech

- **Supply Factors**
  - ✧ *2008 Global Financial Crisis*, which left a bad brand image and resulted in banks pulling back some lending activities
  - ✧ *Macroeconomic conditions*, in particular the low-interest rate environment, which put pressure on profits and increases incentives of FIs to cut out costs
- **Demand Factors**
  - ✧ Increasing prevalence of mobile technology
  - ✧ Demographics

Changing Relationship between Banks and Fintechs

Fintech have several advantages relative to banks.

- ✧ They aren't restricted by regulators, legacy IT systems or branch networks
- ✧ They don't need to protect existing businesses and benefit from an innovative mindset, agility and a consumer-centric perspective

While some were initially concerned about the end of banks, retail banks still have and will have huge advantage.

Three "big Cs": Customers, Compliance and Capital

- ➢ **Most fintech CEOs expect increasing fintech-bank partnership in the future**

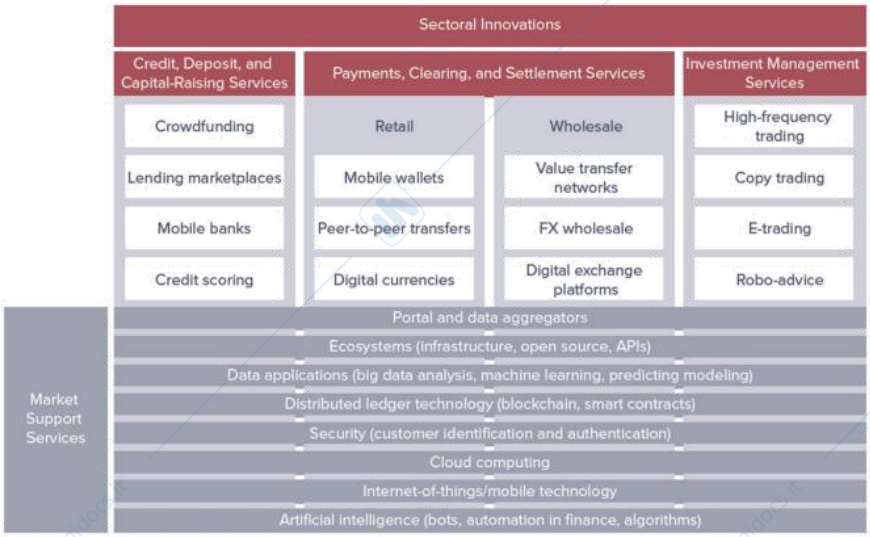
This demonstrates that fintechs and banks can have mutually beneficial partnerships in which

- ✓ Fintechs can influence the banks' reputation
- ✓ Banks can influence fintech companies' technology infrastructure

Relationship with functionaries

This progression highlights how technology and artificial intelligence are transforming financial services from traditional models to more distributed and automated systems. It's a succinct outline of the innovation within the banking industry.

Types of Fintech innovations



Recent Developments

Payments, Clearing and Settlement Services

- ***Mobile Wallets***

Apps on the mobile service that store payment information from a credit or debit card (Apple Pay, Samsung Pay and Google Pay)

- ***Peer-to-Peer Payments (P2P)***

They allow customers to use a bank account or a credit/debit card to pay friends and family from their mobile phones (PayPal, Venmo and SquareCash)

- ***Digital Currencies***

They combine new payments system with new currencies that are not issued by a central bank (Bitcoin (BTC), Litecoin (LTC), Ether (ETH) and XRP (XRP))

  - Cryptocurrency: digital currency in which encryption techniques are used to regulate the generation of units of currency and verify the transfer of funds, operating independently of a central bank.
  - Central Bank digital currencies (CBDCs): new form of digital central bank money that can be distinguished from reserves or settlement balances held by commercial banks at central banks

- ***Value Transfer Networks***

Corporate customers' need for modernization in payments is strong and more fintech providerss of all sizes and types are turning their attention to wholesale payments innovation. (Cambridge Global Payments and Transpay)

- ***Business-to-Business Payments (B2B)***

For example, Acquisition of Fraedom by Visa and partnership between Square and Handshake

- ***Foreign Exchange Wholesale (FX)***

For example, Qonto partnership with Kantox.

With the development of Dynamic Hedging platform, FX management fintech Kantox enables its B2B clients to eliminate the risk of market volatility and integrate and automate the entire process into its operational software.

- ***Digital Exchange Platforms***

Crypto exchanges are building systems to stabilize the blockchain ecosystem by connecting the traditional business world with the digital cryptocurrency world.

This connection requires incorporating fiat currencies, like the Hong Kong Dollar (HKD), into digital exchange platforms.

To invest in crypto, individuals must first convert their fiat currency to crypto.

Top cryptocurrency exchanges for USD deposits include Coinbase, CoinMama, GDAX, Kraken, CEX.io, Local Bitcoins, BitStamp, Gemini, BitFlyer, BitQuick, and PaxFul.

Credit, Deposit and Capital-Raising Services

Fintech innovations include crowdfunding, lending marketplaces, mobile banks and credit scoring.

- ***Crowdfunding***

Way of raising money through the collective effort of family, friends , investors and customers. (KickStarter, CrowdCube, Indiegogo and GoFundMe)

- ***Lending marketplaces***

Part of nonbank lending industry that makes loans to consumers and small businesses. (LendingClub, OnDeck, Avant, GreenSky, Kabbage, and SoFi)

Investment Management Services

Fintech provide solutions for high-frequency trading (HFT), copy trading, e-trading and **robo-advice**.

- HFT allows trades to be executed in micro-seconds
- Copy trading allows millions of individuals to trade FX on platforms such as Trade360, FxPro, eToro, ZuluTrade, and TradingFloor.
- ***Robo-advice*** is an online service that provides automated portfolios based on your preferences

Market Support Services

- ***Distributed Ledger Technology (DLT)***

Digital system for recording the transaction of assets in which the transactions and their details are recorded in multiple places at the same time.

  - They have no central data store or administration functionality
  - Database held and updated independently by each participant in a large network
  - Every single participant on the network processes every transaction, coming to its own conclusions and voting to make certain the majority agree with the conclusions.
  - At last, the distributed ledger has been updated and all nodes maintain their own copy of the ledger.

Blockchain is a particular type of DLT, wherein it bundles transactions into blocks that are chained together and then transmit them to the nodes in the network

- ***Artificial Intelligence (AI) and Machine Learning***

- Artificial Intelligence is the application of computational tools to address tasks traditionally requiring human sophistication.
- Machine Learning is a subcategory of AI, a method of designing a sequence of actions to solve a problem (algorithms) which optimize automatically through experience.

Machine Learning algorithms are used to identify pattern that are correlated to other events of patterns.

Regulatory Approaches to Fintech

Two significant changes to EU regulations have strenghtened the position of fintech industry as competitor to traditional banking:

- **General Data Protection Regulation (GDPR)** is the world's strongest set of data protection rules, which enhance how people can access information about them and places limits on what organizations can do with personal data. (2016)
- **Payment Services Directive 2 (PSD2)** seeks to make payments more secure in Europe, boost innovation, and help banking services adapt to new technologies. (2015-2018)

Open Banking phenomenon emerged from PSD2, which forced EU's and UK's biggest banks to release their data in a secure and standardized form so it can be shared more easily among authorized organizations online.

5. Insurance Companies

Insurance deals with **Pure Risks**.

Pure risk in insurance refers to a type of risk that involves only the possibility of loss or no loss, with no potential for financial gain.

Pure risks can't be eliminate because:

- It involves costs not always compensated by benefits
- They are linked to key business/personal operations

There are **two ways** to pure risk management.

INTERNAL WAY

The individual accumulates savings with which to meet possible losses.

The problem is that there are ***insufficient savings***, both by time and by quantity.

EXTERNAL WAY

The individual organizes with other individuals to ***collectively manage it***.

There are **two types**

- *NOT DELEGATED*
- *DELEGATED*

The difference is the subject on whom the negative consequences will fall.

- **Not Delegated**

When pure risk management is not delegated, it means that the organization retains full control and responsibility for identifying, assessing, and mitigating pure risks internally.

The individual and others who may suffer the consequences pay, on a pro-rata basis, the part of the loss.

Mutual fund

A self-managed entity which collectivizes the losses incurred by one or more members.

It may be *preventive* or *subsequent*.

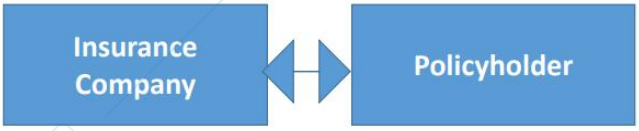
There is the obligation to pay "supplements".

The risk is beared by fund members.

- **Delegated**

The individual mandates a third party, upon the payment of a sum (premium), to pay him any contractually agreed losses.

This is the case of Insurance Companies.



Insurance companies are in the business of assuming risk in place of their customers in exchange for a fee (***premium***).

Most people purchase insurance because they are **risk-averse** and they would rather pay a **certainty equivalent** (premium) than accept that they will lose their goods (house or car).

The Insurance contract (art.1882 of Civil Code)

It is the contract by which the ***insurer***, against payment of a ***premium***, promises to compensate the ***insured*** (within the agreed limits) for the damage caused by a claim or to pay a capital sum (**annuity**) on the occurrence of an event relating to human life.

Insurance Companies

They are intermediaries EXCLUSIVELY engaged in the **business of insurance**.

Their corporate purpose may also include the exercise of **re-insurance**.

They are also specialized operators by **line of business** (life and non-life).

They can be organized in two ways:

- ***Stock company*** owned by shareholders and is profit-oriented
- ***Mutual insurance company*** owned by policyholders and attempts to provide the lowest cost insurance

It is necessary to distinguish between the **insurance company** and the **distribution channels** (*product factory* vs. *distribution factory*).

ICs as financial intermediaries

Typical function

They assume pure and demographic risks given by the insured, through contracts of homogeneous nature and against payment of a premium.

ICs conduct a ***process of financial intermediation*** ("heavy intermediation") because they interpose themselves between the final exchangers.

They offer ***negotiated solutions (policies)*** to meet the investment and security needs of surplus units, while meeting the financial needs of fund borrowers

ICs as institutional investors

As institutional investors, ICs collect company revenues in advance (premiums).

> A typical feature of these operators is the **inversion of the business production cycle**, where there is a mismatch between when the policyholder pays and when the insurer provides the service.

Significant resources are invested in financial and real estate assets (less).

Investment in financial market for time horizons consistent with commitments made to the insured.

The sums invested are the company's debt towards insured (**Technical Reserve**).

Technical Reserves are the stock of resources, adjusted based on estimated future charges for compensating insured parties.

Management Profile

Economic and financial equilibrium =

Premiums cover claims costs, operating expenses and shareholders remuneration

1. Insurance business quantifies premiums based on assumptions about the ***probability of occurrence*** of the adverse events, the amount of ***final benefits*** and the consistency of ***operating costs***.
2. Puts part of the amounts in ***reserve*** to cover future costs
3. Manage them by investing them in assets with stable and minimal returns
4. Develops management techniques to identify risks faced by the insurance company

The analysis leads to separating the business into two different and complementary areas:

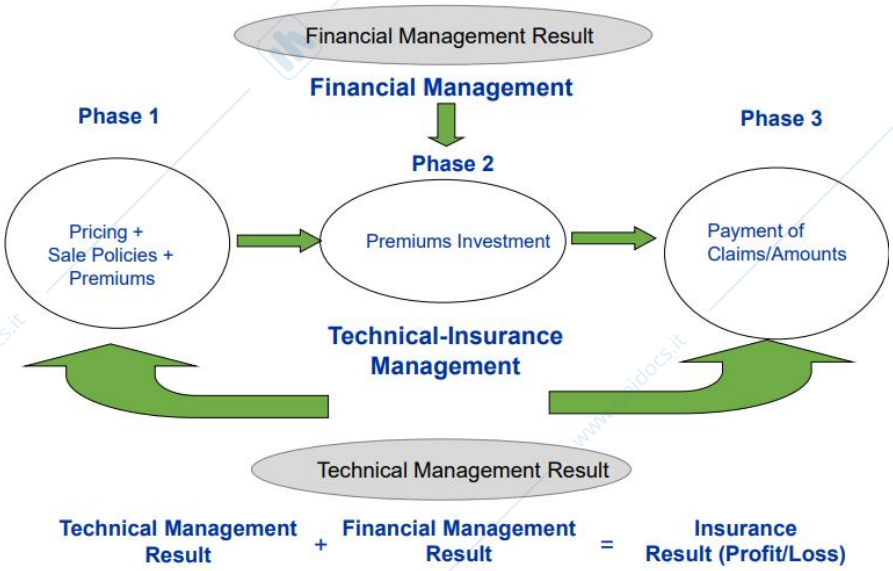
- **Technical-Insurance Management**

It deals with strategic choices of company specialisation and assumes pure risks, creates and manages the risk portfolio, transfer the risk to other

companies (passive reinsurance and co-insurance), inspects claims and assesses and settles claims.

- **Technical-Insurance Management**

It administers financial assets from premium payments.



Selling Insurance

Primary function is to compensate policyholders for specified events in exchange for premiums.

Insurance providers can be ***underwriters*** or ***brokers***.

It is necessary to distinguish between ***insurance company*** and ***distribution channels***.

Type of Insurance

IC is classified in two groups:

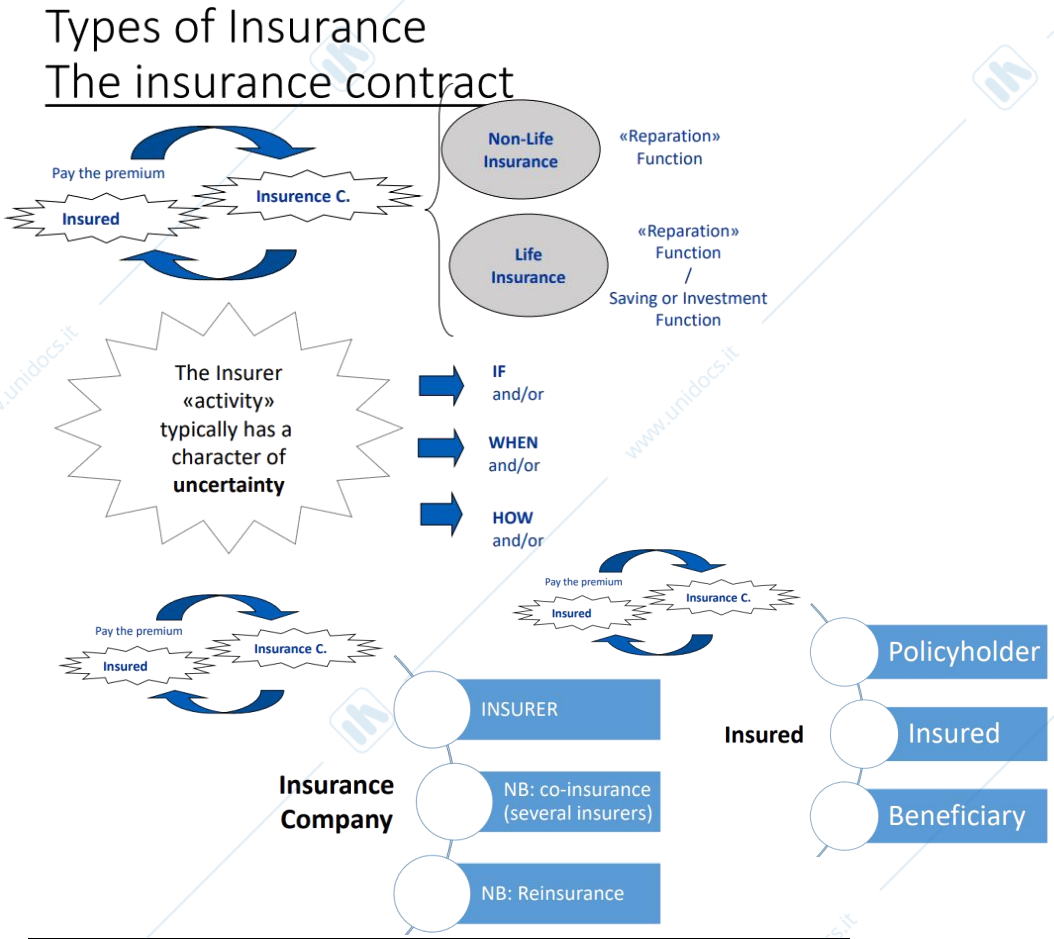
- ***Life insurance***

  Policies that protect against death, illness and retirement.

- ***Property-casualty insurance***

  Policies that protect against personal injury and liability due to accidents, theft, fire and other catastrophes.

ICs also sell a ***variety of investment services***.



Adverse Selection and Moral Hazard in Insurance

Asymmetric information plays a large role in the design of insurance products.

→ The "insured" has more information than the IC

Adverse selection problem raises the issue of which policies an insurance company should accept.

- Those most likely to suffer from loss are the most likely to apply for insurance.
- In the extreme, insurance companies should turn anyone who applies for an insurance policy.

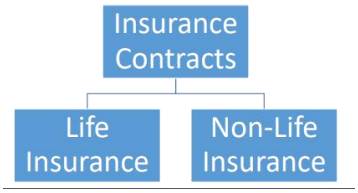
However, insurance companies have found **reasonable solutions** to deal with this problem:

• Health insurance policies require a *physical exam*.

• Preexisting conditions may be excluded from the policy.

Moral hazard occurs when the insured fails to take proper precautions to avoid losses because losses are covered by the insurance policy.

- Insurance companies use ***deductibles*** to help control the problem of moral hazard



Life Insurance

Life insurance companies pool the risks of individuals to diversify away some of the customer-specific risk.

Because of this they can offer insurance services at a lower cost than they could achieve on their own.

Life insurers transfer **income-related uncertainties**, such as those due to retirement.

Role of Actuaries

Actuaries play a key role in reducing risks of underwriting and selling life insurance.

With **traditional life insurance**, actuaries analyze mortality, produce life tables and apply time value of money concepts to produce life insurance, annuities and endowment policies.

With **health insurance**, actuaries analyze rates of disability, mortality, fertility and other problems.

Other activities

- Sell **annuity contracts**, which are saving contracts that involve the liquidation of those funds saved over a period of time.
- Manage **pension plans** (tax-deferred savings plans)
- Provide accident and **health insurance**

There are four types of life insurance: *ordinary life*, *group life*, *credit life*, and *other activities*

- **Ordinary life policies** are marketed on an individual basis and include term life, whole life, endowment life, and variable life
  - ***Term life***

    It is the closest to pure life insurance, has no savings element attached and beneficiary receives payout at the time of the individual's death during the coverage period
  - ***Whole life***

    Protects the individual over an entire lifetime rather than for a specified covered period

- ***Endowment life***

It combines a pure (term) insurance element with a savings element

- ***Variable life***

Invests fixed premium payments in mutual funds of stocks, bonds and money market instruments

- ***Universal life and variable universal life***

- **Group life insurance** covers a large number of insured persons under a single policy and may be *contributory* or *noncontributory*

- *Contributory*

Requires both the employer and employee to cover a share of employee's cost of insurance

- *Noncontributory*

Cost of employee's insurance is paid entirely by the employer. Employee doesn't contribute to the cost of insurance.

- **Credit life insurance** protects lenders against a borrower's death prior to the repayment of a debt contract (mortgage or car loan)
- **Other activities** of life insurers include the sale of annuities, private pension plans, and accident and health insurance

Annuities represent the reverse of life insurance.

> Life insurance involves *building up* a fund and eventually paying out a *lump sum*, while annuities involve different methods of liquidating a fund over a *long period* of time.

Health Insurance

Health insurance policies are vulnerable to the *adverse selection problem* and most health insurance is offered through *group policies*.

Policies must be priced assuming *adverse selection*.

In USA, health insurance is a **hot topic** in the political environment, focusing on *increased costs* and *availability of coverage*.

- ✓ Insurance programs are attempting to shift costs to employers.
- ✓ Health Maintenance Organizations are another attempt to keep costs down.

In ITA, health insurance market is not very developed because public coverage is still relevant.

Property & Casualty Insurance

Property insurance protects businesses and owners from the risk associated with ownership.

> ***Named-peril policies***: insures against any losses *only* from perils specifically named in the policy.
>
> ***Open-peril policies***: insures against any losses *except* from perils named in the policy.

Casualty insurance (**Liability**) protects against financial losses because of a claim of negligence.

Reinsurance allocates a portion of the risk to another company in exchange for a portion of the premium.

Main property and casualty lines include

Fire insurance

Protects against fire, lightning and removal of property damaged in fire.

Homeowners multiple peril insurance

Protects against multiple perils of damage to a personal residence or property, as well as liability coverage against financial consequences of legal liability resulting from injury to others.

Commercial multiple peril insurance

Protects commercial firms against perils similar to Homeowners MP.

Automobile liability and physical damage insurance

Protects against losses resulting from legal liability due to ownership/use of the vehicle and theft or damage to vehicles.

Liability insurance (others)

Underwriting risk results when premiums generated on a given insurance line are insufficient to cover claims and administrative expenses, after considering investment income generated.

It can result from:

- Unexpected increase in loss rates (***loss risk***)
- Unexpected increase in expenses (***expense risk***)
- Unexpected decreases in investments yields or returns (***investment yield/return risk***)

Loss Risk

Claims loss risk is actuarially *predictable* relative to **premiums** earned.

- Maximum levels of losses are more predictable for property lines than for liability lines or life business
- Loss rates are more predictable on low-severity, high frequency lines than on high-severity, low-frequency lines

Reinsurance is an alternative to managing risk on a P&C insurer's balance sheet.

- **Loss ratio** measures actual losses incurred on a specific policy line.

Less than 100% means that premiums were sufficient to cover losses.

- **Expense ratio** is calculated as expenses incurred divided by premiums written.

Two major sources of expense risk to P&C insurers are **loss adjustment expenses**, related to relate to the costs involved in settling a loss, and **commissions/other expenses**.

P & C Key Ratios

- **Combined ratio** is a measure of overall profitability of a line.

  Loss ratio plus the ratios of loss adjustment expenses, acquisition costs, and policyholder dividends to premiums earned.

If less than 100%, premiums are sufficient to cover both losses and expenses.

- **Investment yield** is calculated as net investment income divided by premiums earned.
- **Operating ratio** is a measure of overall profitability

Combined ratio minus the investment yield.

Regulation

The legal framework for the insurance sector is primarily based on **EU legislation**.

- Regulations, Directives, Decisions, Recommendations, and Opinions are tools used by the EU for insurance regulation

Regulations are general and binding in all elements and directly applicable in Member States, for full harmonization.

Directives bind Member States as to the results to be achieved, but leave the choice of methods and form used.

Regulatory (RTS) and implementing (ITS) technical standards (EIOPA) are of ***growing relevance in the insurance framework***.

Guidelines issued by EIOPA are aimed to support convergence in the application of provisions contained in the Directives.

Fundamentals of Insurance

There are seven basic principles all insurance companies are subject to

- There must be a relationship between the *insured* and the *beneficiary*.
- The insured must provide *full and accurate information* to the insurance company.
- The insured is *not to profit* as a result of insurance coverage.
- If a *third party compensates* the insured for the loss, the insurance company's obligation is reduced by the amount of the compensation.
- Insurance companies must have a *large number of insured* to spread out the risk among many policies
- The *loss* must be *quantifiable*
- Insurance company must be able to *compute the probability* of the loss occurring.