CCA & DRM
In the framework of EU Integration

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Jean Monnet Module: Disaster Risk Management in the framework of EU Integration

Concepts of insurance and reinsurance in DRM

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Outline of presentation:

FIRST PART

Risk financing instruments against disaster risks
Insurance Products offered for Disaster Risk Management
The contributions of insurance industry
Challenges of insurability in cases of disasters

SECOND PART

The mechanics of Catastrophe Bonds
Actors in the Catastrophe Bonds
Why to invest in Catastrophe bonds

First Part

Risk financing instruments against disaster risks
Insurance Products offered for Disaster Risk Management
The contributions of insurance industry
Challenges of insurability in cases of disasters

Risk financing instruments against disasters

Approaches	***Examples of Instruments***
Non Market Risk Transfer	✓*Government assistance (taxes) for private and public sector relief and reconstruction funding* ✓*Kinship arrangements* ✓*Some mutual insurance arrangements* ✓*Donor Assistance*
Market Risk Transfer	✓***Insurance and reinsurance****, Micro Insurance,* ✓*Financial Market Instruments,* ***Catastrophe Bonds***
Inter-temporal risk spreading	✓*Contingent credit (financial market instrument),* ✓*Reserve fund,* ✓*Microcredit and savings*

Non Market Risk Transfer

Ex-post instruments are sources that do not require advance planning.

Focus on response after event

- budget reallocation,
- domestic and external credit,
- tax increase,
- donor assistance.

Inter-temporal risk spreading

Ex-ante risk financing instruments require pro-active advance planning

- Contingent credit (financial market instrument),
- Reserve fund,
- Microcredit and savings

Market Risk Transfer

- Insurance and reinsurance,
- Micro Insurance,
- Financial Market Instruments,
- Catastrophe Bonds

Insurance

premium

policy limit

deductible

Home Insurance

•Not a mandatory insurance

•Home coverage is provided in case of catastrophic events such as earthquakes, hurricanes, floods, cyclones, etc

•To recover a loss it is usually used the method of replacement costs

•The home insurance is partial and is considered a coinsurance which implies that a part of the loss is covered by the insurance company and the rest by the owner.

"Did the three little pigs have enough insurance to rebuild their home?"

Automobile Insurance

•A mandatory insurance

•Car insurance in a natural disaster is often overlooked because people assume the plan they have will cover any damages.

•Common auto insurance policies typically cover costs associated with driving: collisions, injuries, and property damage.

•Comprehensive auto insurance- including high winds, floods, and earthquake

•*Life insurance gives you a second chance at life even after you are gone*.

•Does it cover accidental deaths resulting from natural calamities?

•In the case of group life insurance may pose additional cost to the insurer if the insured are all located in the same area of the disaster.

Health insurance and employee insurance.

This type of insurance covers the risks of health damage from disasters and it provides coverage for medical expenses, diagnosis, hospital service, medication, etc.

It also covers the payments to the insured in the event that income is interrupted by his/her disability.

"Your policy does cover wind damage, but not from huffing and puffing."

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Liability insurance

•include coverage of elements from catastrophic events.

•building liability and rented buildings

•damages caused by lack of protective measures or negligence related to technical regulations.

"Yes, all our flambé dishes come with injury, liability insurance."

Business Interruption Insurance

- covers the loss of income that a business suffers after a disaster

- The income loss covered due to disaster-related closing of the business facility or due to the rebuilding process after a disaster

- Differs from property insurance - physical damage to the business

- Covers the profits that would have been earned.

"Hey, do you sell flood insurance?"

Commercial and industrial property Insurance

- Covers the loss of income that a business suffers after a disaster
- The income loss covered due to disaster-related closing of the business facility or due to the rebuilding process after a disaster
- Differs from property insurance - physical damage to the business
- Covers the profits that would have been earned.

Agricultural Insurance

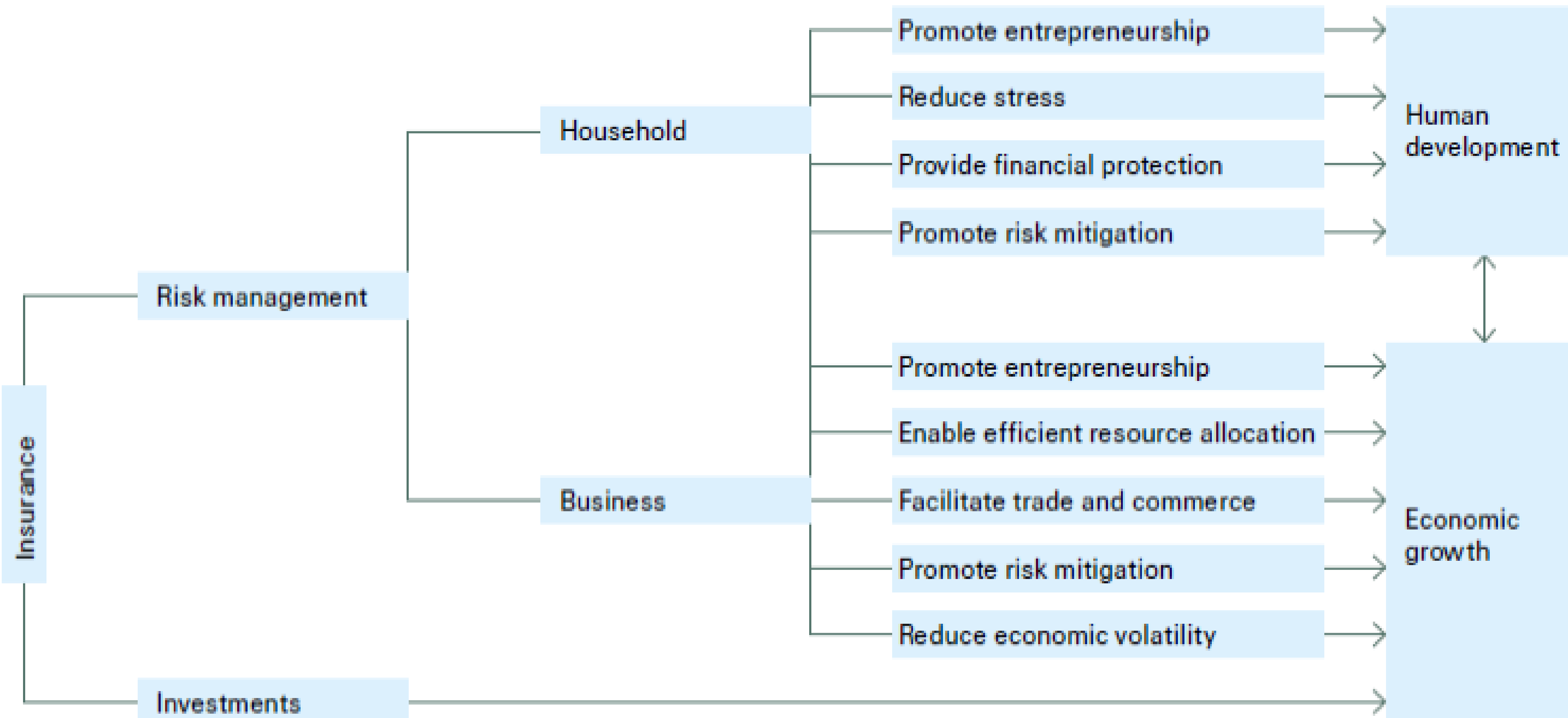
•Agriculture is one of the sectors experiences numerous natural catastrophic disasters.

•protects against loss of or damage to crops or livestock

Agricultural insurance has great potential to provide value to low-income farmers and their communities, both by protecting farmers when shocks occur and by encouraging greater investment in crops

“Don't worry, the first 30 years of farming are the hardest.”

The contributions of insurance industry



Source: Swiss Re Institute.

Various barriers caused by demand and supply concerning insurance

Demand-side barriers (9 factors)

Affordability: There is a negative correlation between the price of goods and demand for them. Yet in emerging markets demand for insurance remains very low even when subsidies are provided

Liquidity constraints: Lack of finance is one of the most serious barriers for consumers as individuals

Trust: This is even more evident in emerging markets where payment of valid claims can hardly be enforced because the legal system does not function properly.

Awareness: There are findings which show that consumers with high financial literacy are likely to have higher demand for insurance.

Quality of Service

Insuring SMEs in emerging markets: insurance of SMEs in emerging markets which is much lower than health and agricultural insurance

Informal risk sharing: There are findings which prove that strong informal networks have been a barrier to the health insurance schemes of the

Behavioural biases: 1. Loss aversion 2. Self-control

Cultural factors: In the case of natural disasters the lack of risk-preparedness culture associated with the dependence of the government or non-government funding relief is a serious barrier.

Various barriers caused by demand and supply concerning insurance

Transaction costs: Premium collections and distribution costs, underwriting costs and the costs to very insurance claims comprise the administrative costs for the insurers. All these costs result in the increase of the insurance price

Adverse selection and moral hazard: The insured may become less careful after buying insurance which may result in either less preventive efforts or increase loss amount in case of a shock (ex-post moral hazard).

Regulation: A liberal insurance market needs detailed and effective regulations on market conduct, competition laws so as to enable the balance between market stability and value of consumers

Institutional setting: If the legal system and regulatory environment are weak and ineffective they have a negative effect on the insurance market

Challenges of insurability in cases of disasters

How insurance companies can calculate and diversify risk?

- Calculation of the risk to a property- as the probability of loss can be multiplied by the amount of loss upon occurrence.

- Infrequency of historical disaster losses.

- The climate changes are affecting the calculation of the probability of the disasters which makes it difficult to consider historical data as a source of disaster estimation.

- Covariance risk

Challenges of insurability in cases of disasters

How can insurance companies provide coverage?

The availability of funds for the payout and decision making whether to insure a certain disaster risk or not depend on factors like:

1. the amount of money the insurance company has in reserve
   Inability of an insurance company to accumulate financial reserves ends up in the reduction of financial capacity of the entire insurance industry
2. the reinsurance available (the insurance purchased by the insurers to protect their contracts)
   To cover large damages of serious disasters it is necessary that reinsurance industry provide funds to the insurance companies as the latter have inadequate financial reserved to cover damages.
3. the amount of damage of the insured events
   if the insurance company fails to encourage mitigation and prevent losses then it is more difficult for insurance companies to continue providing insurance for hazard risks

Challenges of insurability in cases of disasters

How do insurance companies obtain profitability?

profitability is what motivates insurance companies to insure disaster risks

Insurance premiums constitute primarily the insurance revenues for disaster risks.

Insurance companies find it difficult to adjust rates because of climate change and increase of population in areas of disaster risks, which result in lower profits and decreased insurability.

An immediate step to be undertaken by insurance companies is to set prices for premiums on disaster insurance contract with the consumers

Challenges of insurability in cases of disasters

What challenges do insurance companies face negotiating with consumers?

Some of the challenges which make negotiations of the customers with the insurers difficult are

1. unrealistic optimism and expectations

   more optimistic about their damages caused by disasters than the insurance companies

   The consumers do not rate their disaster risks accurately

2. unwillingness to maintain relationships with the insurers

   So the disaster insurance is ineffective because of the failure to negotiate long-term contracts

3. beliefs about the role of governments after disasters

   government assistance my result in charity for disaster because people believe that they will be helped by the government in case of a disaster and they do not have to purchase insurance

Challenges of insurability in cases of disasters

Why do consumers hesitate to purchase insurance?

1. Economic considerations

   more optimistic about their damages caused by disasters than the insurance companies

   the consumers do not rate their disaster risks accurately

2. Psychological characteristic

   they have proven also to be irrational as they do not understand considerably what is the appropriate amount of insurance they should purchase.

3. Risk preferences and perceptions

   A consumer's interest to purchase insurance increases due to his/her belief that a disaster is expected to affect him/her as an individual.

   Apart from that insurance purchase increases in relation to geographical proximity to disasters

4. Demographic characteristics:

   being females or older ages the level of insurance purchase is lower

   disaster insurance purchase is likely to increase in the case of higher social classes

Second Part

The mechanics of Catastrophe Bonds
Actors in the Catastrophe Bonds
Why to invest in Catastrophe bonds

Market risk transfer
Financial Market Instruments – Cat Bonds

Participants

Participants

- **Issuers** → government entity, corporation or a pension fund intending to cover an unexpected extent of longevities.
- **Structuring agents** → Investment banks or the capital markets sections of a major broker or insurer
- **Ratings agencies** → Standard & Poor (S&P)
- **Performance index compilers** → Standard & Poor (S&P)
- **Investors** → Pension funds, endowment funds and hedge funds

Other Actors

Other Actors

Industry loss index compilers

PERILS in Europe are the main compliers of the industry loss estimates which conduct confidential surveys “insurers, agents, adjusters, public officials, and others.

Media

The news on CAT bonds, insurance-linked securities, and reinsurance capital and investment are covered by the Bermuda-based online web site ARTEMIS (www.artemis.bm)

Why to invest in catastrophe bonds?

1. return from them is not correlated with macroeconomic factors in this way it enables profitable diversification qualities to portfolios of more traditional asset classes.

2. the poor performance is likely to be self-correcting
   The investors are enabled to recover from some of their losses after a natural disaster as the insurance premium increases (and thus the potential returns to catastrophe risk securities) in a relatively short period

3. A final benefit of investing in catastrophe bonds is that the likelihood of incurring extreme losses is far lower than the chance of benefitting from extreme returns

Critiques of Catastrophe Bonds

1. Their ability to contribute in addressing climate change risk or increased systemic risk

   It is argued that the least likely to be insured through this system are the most vulnerable. The poorest regions are the most exposed to the risk of climate disasters and they have to pay the most for financial protection because of the climate insurance tools

2. CAT bonds as a source of systemic risk

   this kind of business operates in offshore areas where there are less strict regulations on capital requirements and discloser of financial information

3. Catastrophe modeling and the pricing of cat bonds

   The complexity of catastrophe models needs the contribution of meteorologists, geologists, structural engineers, and actuaries to create the models and as a result the final outcome may be unreliable and ineffective

Concluding remarks

"I think we need to take another look at your risk-management strategy."

- Disaster risk finance is a challenging issue, especially in developing countries

Thank you
for your attention

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