1a. Regulation: The role for the ICP
1b. Regulation: The IAIS regulatory framework
1c. Regulation: The economic and legal considerations
2d. Function: Conditions of Effective Insurance Supervision

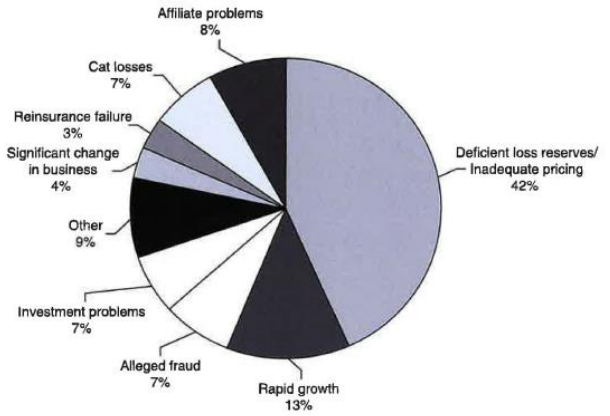
Brown & Klein – Insurance solvency regulation: A new world order?

II.A. Principles for Solvency Regulation

- In presence of market failures, optimal regulation will attempt to replicate the conditions of a competitive market and maximize social welfare. Possible if regulators have perfect information and can determine and implement the correct market solutions. In practice, not all market failures can be remedied by regulation and ability to correct specified market failure outweigh costs of regulatory intervention.
- Market failures: asymmetric information, principal-agent problem -> lead to excessive financial risk.
- Solvency regulation attempt to address prospect of negative externalities associated with insurer's failure, 'contagion' and 'crisis of confidence' with negative effects on industry. Reasonable goal to minimize or limit social cost of insolvency (full minimize costs may exceed benefit), by setting fin. Standards, and take action.
- **II.B. Political Economy:** intersection of politics and economic interests, due to difference between national and state-level politics and interactions with economic concerns (e.g,: international implications).
- A) Insurer may favor less regulation; OR B) financially strong may favor stringent: 1) compliance less costly compared to others; 2) less stringent, weak insurer may operate and take away business; 3) failure due to inadequate regulation may tarnish reputation. (effective & efficient) Regulators may be at disadvantage in negotiating changes to regulation as insurance industry has more technical resources than regulators).
- **III.A. Economic Trends:** 1) % of Insurance GDP vs Total GWP – in US increase, more important role in US economy; 2) growing integration of interdependence of financial market – sale thru certain channels, holding company with bank, shareholding – more susceptible to problems on financial markets, e.g. systemic risks. 3) Globalisation of insurance and financial services markets – concern of quality of supervision of foreign companies operating in jurisdiction, and 'regulatory equivalence' between countries
- **NAIC Solvency Modernization Initiative:** 1) capital requirement; 2) risk management; 3) corporate governance; 4) group supervision; 5) reinsurance; 6) statutory accounting and financial reporting. Subject to support by individual states. To raise standards up to other countries (e.g.: Solvency 2)
- **International Standards:** IAIS promotes convergence of market conduct and prudential requirement, adopt ICPs (roughly equivalent to banks under Basel Accords)

IV. Causes of Insurance Company Failures:

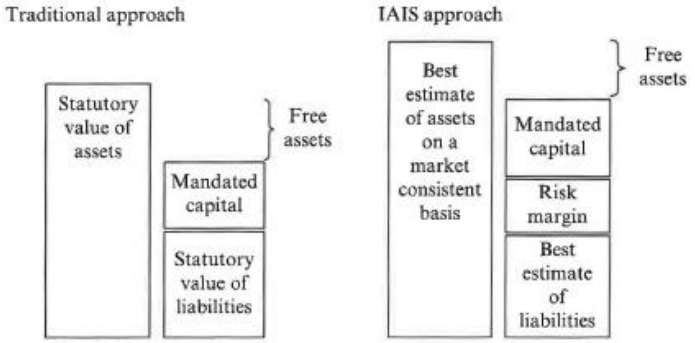
- Frequency of P&C impairments from UW Cycle & Catastrophe, Life & Health from macro-economic factors, changes in interest rates and declines in asset values.



V. Principal Areas of Regulatory Attention:

- **A. Capital Regulation:** cushion to absorb adverse financial developments (unexpected claims). Fixed capital requirement, volume-based or risk-based.

- **Model-based:** deemed superior to formula based, compel insurers to take more forward-looking and comprehensive view, tailored to fit insurer's specific needs and circumstances. Many already performing capital modelling in ERM. Concerns: error to input assumptions, over-reliance, deliberate manipulation.
- **SMI Capital Adequacy:** focus on material existing or emerging risk and method to combine risk charges (covariance adjustment) thru: 1) intro of explicit P&C catastrophe risk charge; 2) Identifying and applying defined statistical safety level to relevant historical data where appropriate when considering new risk types or reviewing existing risk factors; 3) refinement to invested asset risk charges & review of impact of asset valuation reserve on calculation of RBC ratios; 4) explicit risk charge for operational risk.
- US formula-based preference (except Catastrophe): comfort with RBC, state regulators do not have expertise, RBC on minimum standard and other tools for trigger action



- **IAIS:** *Figure 8.8 Traditional versus IAIS approach*
- **Optimal Standards?:** view that 'solvency ratios' preferable where more complex methods do not sufficiently greater benefit to justify higher costs. Properly designed, model-based potentially superior.
- **B. Corporate Governance:** limitation by quantitative, so use qualitative. On-site risk examination on management, to identify and mitigate all significant risks, if not adequate need corrective measures. Solvency II Pillar 2, insurer need to conduct ORSA.
- **IAIS:** Principles of Corporate Governance: 1) promote transparent and efficient market, comply with law, delineate responsibilities among government actors; 2) protect stakeholders' right; 3) treat shareholders equally; 4) recognize rights of stakeholders and encourage cooperation; 5) disclose significant matters regarding corporation; 6) provide strategic guidance for firm and effective monitoring of mgmt. & BOD.
- Unclear when principle is met, regulator discretion (without clearly defined standards) .
- **C. Group Supervision:** US originally focus only insurance legal entities. Recently, Financial Analysis Working Group (FAWG), if insurer/group pose issues in multiple states, report to regulator but cannot intervene. Solvency II require supervisors to evaluate every member of an insurance group. IAIS ICP 23 recommends supervisors engage in both entity and group supervision.

Klein – Principles of Insurance Regulation: Practices & Reforms

- In imperfect world, standard of "workable competition" reasonably approximates perfect competition (joint surplus from trade of producers and consumers is maximized), where government remedies improves market efficiency and enhance social welfare. (promote and restore economic efficiency)
- Potential market failures: (1) severe asymmetric information problems; (2) principal-agent conflicts.
- Systemic risks: market experience severe instability, potentially catastrophic, caused by idiosyncratic events or conditions in financial intermediaries. Links between firms, one failure cascade to another.
- Market problems: undesirable market outcomes – high price, unavailability of cover – resulting from conditions affecting cost of risks, rather than violations of conditions of workable competition.
- Optimal regulatory framework: minimize cost of insurer insolvency, promote pricing of insurance at marginal cost, promote reasonable state practices, provide incentives foo insurers to police their own practice and those of agents, and provide optimal amount of insurance.

- US: regulators focus on insurers compliance with prescriptions rather than prudence of management and action and overall financial risk. EU: principles-based, emphasis on maintaining adequate "solvency margin: and competence/judgment of management.

Current Practices	**Potential Reforms**
Capital Standards • US: minimum capital & RBC. • RBC weakness: (1) rely on accounting values that can be manipulated for favourable regulatory assessments; (2) omit non-quantified risks e.g. operational; (3) no explicit adjustment for insurer's size or catastrophe exposure.	• EU Solvency II, Standard Model (small insurer – less resources) vs Internal Model (can fit better with insurer circumstances). • Model-based approach compel insurer to take forward-looking and comprehensive view of financial risk and determine regulatory capital amount better tailored to fit insurer's specific needs and circumstances.
Investments • 2 forms: (1) set of rules and constraints to deter form investing too heavily in high-risk asset. (Defined Limits); (2) develop and implement prudent investment policies. (Defined Standards) • Stress testing of life insurers policy reserves could be expanded to other areas and risk exposures. • Over-reliance on credit rating agencies assessment of default risk with mortgage/asset-backed securities (higher rating despite higher risk)	• Regulators should take initiative and "reclassify" investments as to their credit quality if agencies underestimated their default risk. • Pillar 1 of Solvency II, quantitative investment limits and asset eligibility will be eliminated (covered under SCR, subject to prudent person principle). If new risks emerge that are not covered by SCR, EC can adopt temporary investment limits and asset liability criteria while standard formula being updated.
Financial Reporting & Monitoring • US file annual and quarterly statements. • Layers: may be redundant, but in US is viewed as essential to assure domiciliary regulators taking appropriate action against insurers in distress. • Rely on early warning system (IRIS & FAST), as RBC standards are relatively low. IRIS and FAST systems use relatively broad indicators that tend to lag behind actual events.	• IRIS is public, changes are less frequent, while FAST is easier and frequently modified. • Stress testing of life insurers policy reserves could be expanded to other areas and risk exposures. • Risk-focused Surveillance Framework: (1) risk-focused exams; (2) offsite risk-focused financial analysis; (3) examination of internal/external changes in organization; (4) annual supervisory plan for each insurer by regulator. • Other: ORSA (Pillar 2 of Solvency II), corporate governance (more use of qualitative methods)
Intervention • US: (1) actions to prevent financially troubled insurer from insolvent; (2) delinquency proceedings. • Progressive: conserve & rehabilitate (to maintain coverage availability and avoid adverse effects on policy-holders), then liquidate and dissolve. • Regulators bear burden of proof if insurer resisted corrective action and need to be resolved in court.	• How much leverage regulators can exercise in compelling insurer to lower financial risk, even if it still exceed regulatory requirement and compliant with regulations from quantitative perspective. • Principles vs rules-based: regulators can exercise greater discretion and take actions whenever they believe a company not properly managing financial risk.
Price regulation • Strong cost pressures compel insurers to raise prices and regulators resist market forces to ease impact on consumers. • Supply of private insurance evaporates and state mechanisms are forced to cover the gap (e.g.: Florida Homeowners exit due to rate constraints post hurricane) • Decrease incentives to reduce risks that can lead to rising claim costs	• Rate deregulation: price in competitive markets would be "actuarially fair" and not excessive. Price gravitate to lowest possible level necessary to cover cost of efficient insurer, "fair profit. • Enable regulators to allocate more resources to address true market failures. • EU rate deregulation, except indirect affect insurance prices – e.g. France Bonus-Malus.

Market Conduct • US concerns less on scope of market conduct regulation and more with methods used to regulate. • States subject to extensive duplicative and costly examinations that focus on minor errors and too little on major patterns of abuse.	• Maximise reliance on self-regulatory mechanism, target regulatory investigation and enforcement to significant problems.

1d. Regulation: Micro-insurance market

Biener – Regulation in Microinsurance Market

- Topic: (1) Review existing evidence of insurance regulation's successes & failures in conventional markets, (2) apply lessons to microinsurance requirements (3) identify situations when regulations may be able to improve microinsurance market conditions or deleterious effect.

Recommendation	**Examples** *(Recommendations for Microinsurance Regulation)*
1. Reduce market entry barriers	• Reconsider **licensing requirements**, in light of innovative uses of technology and partnerships for product distributions • Employ risk-based capital requirements. • Define microinsurance in a way that minimizes incentives for regulatory arbitrage. • Recognize the need for higher returns on lower-priced and often riskier products.
2. Encourage market demand	• Provide and support comprehensive risk management educational initiatives, including insurance literacy. • Encourage and make available effective risk mitigation strategies. • Enhance underlying services, such as health care. • Enforce regulations and demonstrate intolerance for corruption and fraud.
3. Encourage market efficiency	• Offer data and management support. • Provide training to agents, actuaries, underwriters, and insurance managers. • Allow and encourage involvement of international reinsurers and alternative risk transfer mechanisms.

- **2. Rationale for Insurance Regulation:** regulations fall into 3 categories: pricing, solvency, and market (product licensing, marketing, claims handling, market access and underwriting)
- Market failures in insurance tend to arise due to greater levels of information and power form insurance carriers relative to consumers, common to personal lines (e.g. microinsurance). Insurer control on contract wording and enforcement, consumer may not have capability to understand, refute.
- Market conditions leading to actual market failure (rationale for government intervention) vs conditions resulting in undesirable market outcomes (e.g. lack of affordable coverage due to high risk)

Criteria	**Sub-criteria** *(Criteria for Successful Insurance Regulation)*
1. Adequate	• Enact and enforce laws that provide effective framework for competitive markets, establish reasonable solvency standards and regulation as primary means of protecting the public. (pace, without undue delay and subject to reasonable implementation timetable) • Establish, make public and enforce appropriate and consistent rules and procedures for identifying and dealing with financially troubled insurers. • Establish insurance regulatory agency that operates in national interest and has sufficient resources to efficiently, effectively, and impartially enforce insurance laws and regulations. .
2. Impartial	• Government should ensure that regulation and enforcement are applied with consistency and impartiality between competitors, irrespective of the nationality.
3. Minimally intrusive	• Limited to (1) justified as providing meaningful protection; (2) minimally intrusive to accomplish in purpose.

	• Subject only to regulatory oversight essential to protect the public, governments should allow the market to determine: (1) what financial services should be developed and sold; (2) the methods by which they are to be sold; (3) prices at which they will be sold. • Ensure insurance customers have access to information sufficient to enable informed & independent judgement as to: (1) insurer financial condition; (2) benefits & value of products.
4. Process should be transparent	• Existing insurance laws and regulations easily available to the public, including to consumers, business, insurers and other financial services providers. • In crafting proposed insurance laws and regulations: (1) make proposals easily available to the public; (2) invite comments on proposals; (3) allow sufficient time for interested parties to provide comments; (4) provide justification for decisions to accept and reject comments; (5) establish and communicate a fair process by which decisions considered arbitrary or unjust can be challenged.

- **2(b) Microinsurance:** financial arrangement designed to protect low income people against specific perils in exchange for regular premium payments proportionate to the likelihood and cost of risk involved.
- **2(c) Microfinance (MFI):** insights from MFI regulation: (1) industry-specific approach to MFI governance; (2) incorporation of countries specificities to cover specificities of macroeconomic environment and different stages of development; (3) sufficient regulatory capacity and quality; (4) recognition of limitations of corporate self-controls when strong systems of transparency, monitoring and enforcement are lacking, common in developing economies
- **3. Challenges in Microinsurance Regulation:**

Issue	Possible Regulatory Response
1. An effective definition of microinsurance should avoid encroaching or distorting other insurance market	• Define boundaries to fit specific situations where market failures exist. *Define by: (1) limit of insurance or premium below designated level; (2) market served-policyholder income below level; (3) characteristics insurer/distribution channel-asset size. Inappropriate definition may prevent participants entering market, hence restrict product innovation and goal of improved competition.* • Avoid opportunities for market arbitrage (regulatory arbitrage-utilizing more favorable law in one jurisdiction to circumvent less favourable regulation elsewhere).
2. Encourage innovations to reduce the influence of adverse selection and moral hazard that generate from relatively high admin costs due to low coverage and low premium levels	• Encourage low-cost distribution channels (e.g. cellphones for issue policy, pay premium, claims etc.) and innovative partnerships. • Facilitate licensing procedures that account for the lower product complexity and the preference for intermediaries familiar to the consumer. (balance with the need to protect consumer) • Provide certainty of allowable returns, given the need for higher returns on smaller premiums for a market to develop. *Similar to MFI higher rates than conventional loans, higher returns rate for Microinsurance should not be forbidden.*
3. Enhance product quality and consumer knowledge to address high levels of skepticism (lack of trust)	*Microinsurance high rates of fraud, anti-selection and moral hazard. Target population generally lack of experience with insurance.* • Identify and offer programs to enhance financial literacy, including understanding how the community benefits from some (but not all) members receiving compensation for losses. *Group Insurance, where members are provided similar coverage without individual underwriting, can maintain low admin costs, reduce adverse selection (members not selecting insurance), reduce moral hazard.* • Assure availability of underlying benefits, such as healthcare, covered by any available policies. • Assure high-quality claims payment and claims payment processes (not too restrictive, build trust), including a defined complaint mechanism.

4. Facilitate the transition of small, informal microinsurance schemes to regulated entities.	*Informal e.g. local religious entity or community organization. Vulnerable to law of small numbers, ill-informed providers of coverage and misplaced trust.* • Consider capital requirements that are different from those of traditional markets. • Support access to reinsurance and other risk transfer solutions • Provide training to assure a knowledgeable and capable workforce. • Enforce laws against corruptions to build up trust.

- **4. Review of Current Regulatory Schemes:**

Area	Description
1. Defining the product and market	• Product Characteristics (Brazil, India, Mexico, Peru) – coverage, terms, insured age, maximum levels of coverage, classes, etc. • "Economically disadvantaged" target population to be served (Taiwan) • Risk-taking entity: Mutual Benefit Associations (Philippines)
2. Distribution	• Narrowly defining types of entities or individuals allowed to sell coverage (existing distributors category, only selling microinsurance or both)
3. Product design and pricing	• Policies to be easily understood and require specific logo. Simple terminology. • Limit term of coverage and no more than one peril per policy (to reduce complexity for low financial literacy of target population) • Instead of restricting rate (or premium subsidies) which have detrimental effect (e.g. restrict coverage), suggest to increase resources which is more effective by (1) improve earning opportunities for underserved; (2) educating about risk; (3) provide mechanism to improve insurer efficiency such as data/expertise sharing; (4) lower cost and increasing access to needed service e.g. healthcare.
4. Prudential (solvency)	• Conventional capital requirement often too high for small policies sold by locally organized microinsurers. Can hinder market entry. • Philippines allow MBAs to register with regulatory authorities and increase capital over time. Microinsurers capital requirements lower than conventional. • South Africa currently has long and short-term (lower) capital requirement, microinsurance may be lower.

1e. Regulation: Major markets (EU, US, Asia)

Eling2 – Insurance Regulation in US and EU

- 3 main trends in regulatory solvency: (1) movement toward integrated total balance sheet – affect assets and liabilities interdependence; (2) greater focus on flexible, principles-based (e.g.: individual risk models for target capital; (3) inclusion of qualitative (e.g.: assessment of management of regulatory framework)
- Major factor to higher insurer insolvency costs: (1) financial condition of insurer prior to insolvency and managers' moral hazard incentives; (2) regulatory forbearance; (3) regulatory management of receiverships

US	EU (Solvency II)
• Static & rule-based. • Limited by state-based framework. Federal can supersede, but only done selectively. • Use NAIC to coordinate & support regulatory activities (model laws, susch as RBC – but states not required to enact them) • Regulators focus on compliance rather than competence and prudence of management.	• Fluid & principles-based (incl. qualitative) • Advanced methods; ERM, DFA. • Solvency I was derived by volume numbers (premium and claims) rather than specific risk situation, leading to undesired incentives. (e.g.: underpricing ==> lower capital requirements but #risks grown)
Quantitative Regulations for Capital Requirements:	**Quantitative Regulations for Capital Requirements:**

<table>
<tr><th>US</th><th>EU (Solvency II)</th></tr>
<tr>
<td>

Capital exceeds higher of 2 standards (fixed minimum by states & NAIC RBC).
NAIC RBC formula, factors * accounting values (assets, liabilities, premiums) to produce RBC charges, then sum and subject to covariance adjustments: e.g.: $RBC = 0.5[R0 + \sqrt{R1^2 + R2^2 + R3^2 + R4^2 + R5^2}]$
*0.5 merely to increase insurer reported RBC ratio.
R0: Investments in affiliates
R1: Fixed-income assets (interest rate and credit risk)
R2: Equity assets (market value risk)
R3: Credit (risk associated with reinsurance recoverables)
R4: Loss reserves (risk associated with adverse loss development)
R5: Premiums (risks of underpricing and rapid growth)
Total Adjusted capital (TAC) compared to RBC, if lower than certain level, more severe action required (examine, seize insurer).

Table 8.1 RBC action levels
<table>
<tr><th>Action level</th><th>Percent of ACL</th><th>Requirements</th></tr>
<tr><td>Company action</td><td>200</td><td>Company must file plan</td></tr>
<tr><td>Regulatory action</td><td>150</td><td>Commissioner must examine insurer</td></tr>
<tr><td>Authorized control</td><td>100</td><td>Commissioner authorized to seize insurer</td></tr>
<tr><td>Mandatory control</td><td>70</td><td>Commissioner required to seize insurer</td></tr>
</table>

Static approach on historical/reported values. Unlike DFA consider range of future scenarios.
Omit operational risks, catastrophe, insurer size.
Standard rules-based models drawback: lack of flexibility to handle individual situations, limiting ability to assess wide range of insurance risk profiles, increase possibility of systemic problem arising from entire industry responding to a condition in the same or similar way.

</td>
<td>

Focus on enterprise risk management approach towards capital standards, integrated solvency framework that covers relevant risk categories and dependencies.
2 levels: MCR and SCR (target/economic capital).
SCR: Economic capital at 99.5% VaR 1-yr horizon. Cover insurance, market, credit and operational risks.
MCR: Approaches: 1) Compact: 1/3 of SCR; 2) Modular: 90% VaR.
SCR and MCR by 1) Standard model from regulator; 2) Internal model after approved by regulator. No one-size-fits all, and can trigger innovation in insurer risk management practices.
Assets and liabilities estimated at market value. Liabilities value (technical provision-best estimate + cost-of-capital-based risk margin) is based on current exit value (amount transfer contractual rights). Ensure realistic picture of insurer's risk capacity, esp. compared to situation where balance sheet values for regulatory.
Market-consistent valuation require sound financial methods that account for relevant uncertainties in the cash flows. Future cash flows estimated and risk adjusted by reducing and discounting with risk-free/adjusted interest rate. Options in contracts may require option pricing methods in estimation.
Correlation matrix (Corr_ij) given by regulator: $SRC = BSCR + OpRisk + LAC = \sqrt{\sum_i \sum_j Corr_{ij} \cdot SCR_i \cdot SCR_j} + OpRisk + LAC$
UW risk for non-life & health: (1) premium & reserve risk – from fluctuations in timing, frequency and severity of insured events, claims settlement; (2) catastrophe risks – from significant uncertainty of pricing and provisioning assumptions related to extreme or exceptional event.
Principles-based increases complexity and costs of regulation to insurer (time and resources to implement) and regulator (control all individual models). Can create inconsistencies in application of standards across organization and reduce comparability.

</td>
</tr>
<tr>
<td>
Qualitative Elements of Supervision:

Accounting for non-US RI ceded, need collateral to receive accounting credit. To qualify as "Port of Entry" (POE), use eligible state. National & POE RI then subject to financial strength rating,
Insurer file quarterly and annual report to state (layers) domiciliary regulator -> non-domiciliary -> NAIC. Audit by in-house financial analyst or examiner for accuracy.
Insurance Regulatory Information System (IRIS-public) – static, quantitative ratios; & Financial Analysis Solvency Tools (FAST-regulator only) – computerized analytical

</td>
<td>
Qualitative Elements of Supervision:

Pillar II of Solvency II.
Supervisor review process: evaluation of strategies, processes and reporting procedures of insurer, risks the insurer faces or may face and assessment ability. Regulator also review adequacy of insurer's methods and practice to identify possible events or future changes in economic conditions that could have unfavorable effects on its financial standing.
Insurer should have regular practice of assessing overall solvency needs on their specific risk profile (ORSA). Supervisor have right to access all relevant data

</td>
</tr>
</table>

US	EU (Solvency II)
routine "scoring system", assigns different point values on ratios for different ranges of ratio results. • NAIC Financial Analysis Working Group, query domiciliary regulator about company status and steps taken to address any problem. If not OK, can compel regulator to taka actions deems necessary. Group power from non-domiciliary regulators suspending insurer's license to write business in their jurisdiction. • NAIC "Insurer Profiles System" & customized financial ratios. Periodic (3 to 5 years) and targeted company financial examinations. • Other sources: SEC filings, claims-paying ability ratings, complaint ratios, market conduct reports, correspondence from competitors and agents, news articles, and anecdotal info. • US regulators tend not to engage in consultations with management to assess competence and future plans, do not perform DFA and not require company to do so. • Regulatory actions: (1) actions to prevent a financially troubled insurer from becoming insolvent (hearing, conferences, corrective plans, restriction on activities, cease & desist, supervision); (2) delinquency proceedings against insurer for conserving, rehabilitating reorganizing or liquidation. • Guaranty associations (GAs) in each state, cover portion of insolvent insurer's unpaid claims obligations. Insurers recoup assessments through rate surcharges or premium tax credits. May create moral hazard.	(including held by outsourcing service provider plus right to on-site inspections). • Regulators can compel insurer to undertake remedial actions if qualitative analysis reveals problems even if insurer exceeds SCR (by requiring additional capital above SCR). • Fundamental principle of Solvency II is that regulators may not prevent insolvencies at any price. Benefits of increasing capital requirements should be compared with the cost of failure. • Guaranty mechanisms is not covered by Solvency II, but generally available in EU member countries.
Transparency and Market Regulation: • Financial statements and reports are available to public, but regulatory assessment no. Rating agencies use reports and qualitative methods, to grade financial conditions – rating easy to interpret. • Rates of personal auto, homeowners and workers' compensation is regulated in all states but may differ. Policy forms and product are closely regulated. • Marketing, underwriting and claims adjustment fall under "market conduct: regulation. Aim to enforce fair practices based on regulators interpretation. • Intermediaries must be licensed in each state.	**Market Entry, Rate Regulation and Profit Distribution** • 1994: "country-of-destination principle" – market entry regulation simplified significantly throughout EU. Once insurer receive license, valid for all other member countries. To obtain license, fulfil minimum capital (I mil euro for non-life) and submit 3-yr business plan. • Direct rate regulation was common until 1994, then eliminated with 3rd Generations Insurance Directive. Some still regulate conditions that affect determination of premium, e.g. France bonus-malus. • Insurance contract law not yet harmonized (due to divergent histories, underlying theories of legal systems), i.e. right of withdrawal, disclosure & documentation requirements, freedom of contract (cannot refuse applicant, discriminate price – Moto TPL). German automobile insurance contract terms strictly regulated, but allow pricing differentials • Surplus participation, German life insurers obliged to share 90% of profit to policyholders. • Insurer receivership not yet harmonized, as extremely wide-ranging intervention power by national supervisory authorities, special arrangement for insurance within country-specific legislation. (e.g. Court of Bankruptcy rather than supervisor)
Empirical Evidence on Effectiveness: • RBC ratios make marginal contribution to insolvency prediction. FAST fared better. Could be improved by incorporating more info and better methods, such as financial strength ratings and cash-flow testing. Rating process may include qualitative (claims-paying ability) • Strict pricing regulations in many state jurisdiction. Rate regulation does not benefit consumer by providing consistently lower premiums, can cause significant market distortions (cutbacks in supply, coverage	**Empirical Evidence on Effectiveness:** • Efficiency analysis (data development, stochastic frontier analysis). • 1994 deregulation was to improve market efficiency and enhance consumer choice through more competition. Evidence on efficiency gains is mixed (limited evidence for single countries, number of years. • French bonus-malus (age, sex, driving experience) efficiently dial with adverse selection, explain individual distribution of accidents and individual choice.

US	EU (Solvency II)
availability, diminished service quality, higher claims costs) by substantially restricting rates. • Life insurer's efficiency deceases as number of states operate increases due to compliance costs, delay in new products, regulatory barriers in entering state markets. Higher costs from inefficiency passed to consumer.	• Market transparency via disclosure requirements, insurer to submit annual report covering essential and concise information on solvency and financial condition. Transparent process with public disclosure expected to result in market participant forcing appropriate behavior, encourage strong and solvent industry. • Evidence of market discipline in EU insurance market still limited, compared to US market or other financial services.

2a. Function: Rating Agencies

Feldblum – Rating Agencies

- See Exam6U Questions. Refer to any exam 6U notes if available.

2b. Function: Market Discipline in Insurance

Eling1 – Market Discipline in Insurance

- Market discipline – ability of customers, investors, intermediaries and evaluators to monitor and influence a company's management. (**new:** incl. managerial decisions ;**old:** risk sensitivity of debt prices & spreads)
- (Insurance) Monitoring, e.g. intermediaries & evaluators assess financial strength and service quality. Influencing by market participants to managers is more skeptical due to asymmetric information, costly monitoring, principal-agent problems, conflict of interest among stakeholders. Legal environment that make shareholder activism (hostile takeover) difficult.
- Shareholders perspective, monitoring and incentive contracts can be combined to mitigate agency problem, and other mechanisms: reputational concerns, competitive labour markets, threat of takeover/dismissal/bankruptcy.
- Limiting influencing: (1) small risk of bank run; (2) personal lines, individual policyholders relatively small in terms of contract volume, limit ability to affect decisions.
- Facets of market disciplines:

Who?	Customers and investors (direct monitoring and influencing)			Intermediaries and evaluators (direct and indirect monitoring and influencing)		
	Customers	Investors-stockholders	Investors-bondholders	Rating agencies	Auditors/ analysts	Agents/ brokers
How?	Risk-sensitive customer demand	Risk-sensitive stock prices	Risk-sensitive bond yields	Product and company ratings	Recommendations to investors	Recommendations to customers
Measurement	Growth in premiums and policies/lapse	Equity prices	Debt yields	Rating changes	New recommendation	New recommendation
Relevance in insurance	High	Limited	Limited	High	Limited	High

- Measurements: Banks use stock prices or yields on debt, but insurance many companies are mutual or not traded on capital market (or small fraction on free float), and major debt not traded (reserves). Alternative is customer-driven, e.g: premium growth or lapse rate. But premium is not price of insurance (quantity x price), and comparing insurers is difficult as different underlying assumption. Hence, focus on risk sensitivity of customer demand (for insurance coverage) and investor willing ness to pay (for equity and debt):

Market signal with regard to risk situation (input variable)	Signal given by	Market reaction (output variable)
Investor-driven market discipline		
Annual and interim reports with outlook	Company	*Investors' willingness to pay reflected in* Stock prices Bond yields
Ad-hoc disclosure	Company	
Director´s dealings	Company	
Analysts' comments	Analysts	
Company financial strength ratings	Rating agencies	
Takeover bids	Competitor	
Customer-driven market discipline		
Product ratings	Rating agencies	*Customer demand reflected in* Premium growth Lapse
Surplus participation	Company	
Complaint statistics	Regulator	
Statistics published by associations	Insurance associations	

- Market discipline is 3rd fundamental pillar in Solvency II, expectation of transparent market will require less overt intervention by regulators as market participants force appropriate firm behaviour. Extent of which market discipline can be relied on fir successful regulation, depends on strength of its influence.
- Market discipline cannot completely replace regulation in Insurance, "third-party problem", where third party claimant ahs no contractual relationship with either insurer or policyholder, hence cannot agree to some low safety level in regard to insurer's default, hence need solvency requirements and regulation.
- *3.1 Evidence for market discipline in banking:* (1) stock prices, debt and deposit growth (2) investors in bank stocks have strongest incentives to be risk sensitive, while market discipline in debt hampered by safety net.
- Other aspects: (1) strength of market discipline depends on lie of business , e.g.: difference in credit card, commercial and industrial lending, which carry penalty in terms of higher spreads; (2) difference on ownership structure, i.e. government-owned less discipline; (3) market discipline depends on level of competition (market discipline more effective in curbing greater risk taking in strong competition); (4) international differences, much work needs to be done to level playing field.
- Almost all studies address monitoring element of market discipline. Testing however reveals nothing on influencing. One study directly measure influence regression using equity returns and expected managerial behaviour, result show market influence is weak.

3.2 Evidence for market disciplining in Insurance:

- **Changes on equity prices (investor-driven)**: 1 study show no price reaction to rating changes, another asymmetric responses (downgrade cut price, upgrade little effect), difference possibly due to structure of ratings data, event study methods and timing of data. Overall there is evidence for market discipline in insurer stock prices.
- **Price of Insurance (customer-driven):** implications rather than direct tests of market discipline. Negative relationship between price proxies and firm risk (consistent with market discipline but lower price also cause greater risk – difficult to identify cause and effect). Also, risk sensitivity of policyholder where increase in default risk severely affect policyholder willingness to pay. In a transparent setting, market discipline will work, knowing differences in default risk severely affects policyholder behavior.
- **Consumer Influences (customer-driven)**: using AM Best ratings as risk measure to study relationship with life insurer lapse rate, some evidence of market discipline with positive relationship between risk and lapse. P&C significant premium declines following rating downgrades (esp low rate firms, commercial lines – no guarantee associations – GAs increases risk taking). Life insurance demand declines after rating downgrade.
- Opaqueness of insurers, limit monitoring element of market discipline. Difference in opacity affect adverse selection for investors in insurers equity which should directly affect market discipline.
- Informational limitations and regulatory environment major role in level of market discipline, esp. on incentive conflicts between principals and agents. Regulatory more appropriate where info limitation, market discipline effective when more info is available.
- Liabilities for insurance opaquer and more complex, e.g.: duration of claims payments and difficulty to predict loss amount (information asymmetry), can create illusory values (greater discretion in loss reserves).

- Harrington (2005): Based on analysis of **risks sensitivity**, **buyer sophistication**, **search costs** and **franchise value**, market discipline: High in RI, Moderate in Life, P&C, Low in Banking
- *3.4 Facilitators and impediment to market discipline in insurance:*
    - GAs: Amount of insurance sold increase, reduce monitoring incentives, negatively market discipline.
    - Indirect/Implicit market distortion: "too-big-to-fail" concept, where govt. rescue troubled bank or insurer for fear of financial contagion.
    - More complex product (ownership structure, nature of business) impedes market discipline, e.g.: dozens RI arrangements intended to diversify risk, but reduce transparency & mask problems.
    - Judgment-proof problem: compulsory insurance, individuals simply buy cheapest insurance with no regard to insolvency risk.
    - Increase in financial leverage increases company risk, e.g. Life Insurer higher than P&C.
    - Marker discipline stronger in commercial line than personal lines (less resource, competence to do efficient monitoring. But, personal line directly affect individual own wealth, but commercial have less personal impact, can create moral hazard, lowers efficiency of monitoring in CL.
    - Agency effects more common in mutual, which generally have lower informational requirements than stock insurers. If necessary information is available, customers will discipline insurance companies by changing their demand. However cost of information must be taken into consideration, consistently available and standardized form so can understand and compare.
- Conclusion: effective market discipline framework requires: (1) stakeholders consider themselves at risk; (2) able to observe risk efficiently, at reasonable cost. Only then will work. Results in reduction in willingness to pay (price effect) or reduction in demand (quantity effect). This then result in influencing effect that can manifest directly, managers shifting risk exposure, or indirectly, regulators acting on the signal.

2c. Function: Discrimination in Insurance

Avraham – Discrimination and Insurance

- **EU:** use of sex (M/F) as actuarial factor must not result in differences in individuals' premium and benefits. Possible to cover gender-specific insurance (e.g. Prostate or Breast cancer, but this option is prohibited for pregnancy and maternity). Indirect correlation is not prohibited (e.g. big car for men, vice versa). Pension plan allow for differences in males and females justified by actuarial factors, but not life insurance.
- **US:** baseline prohibition "unfair discrimination between individuals of the same class and essentially the same hazard", but "refusal, limitation or rate differential" can apply on "sound actuarial principles" or "reasonable anticipated experience".
- *Inconsistent across State Statutes:* US laws primarily governed by state not federal.
    - *Cross-state:* Montana forbids, while California requires gender discrimination.
    - *Cross-line:* Genetic info not allowed in health, but not regulated for life or disability
    - *Cross-characteristics:* Obamacare allow gender in health underwriting decisions, but not race.
- ***I**nconsistent by Courts:* Interpretation of "unfair discrimination". Some court may allow age, sex, zip-code (motor insurance), race (homeowner insurers) based on statistical/actuarial risk, but some not allow.
- *Inconsistent by Legal Commentators:* vast majority of legal & philosophy scholars writing on discrimination did not write in context of insurance, while scholars of insurance have not considered discrimination. Neither camp can justify the tremendous variation in law, e.g.: race discrimination is repugnant but gender is acceptable, even with statistical correlation. Or should be disallowed due to insurer have no control.

Unique Features of a Theoretical Framework

- Egalitarian "fair" means "just/equal" practices, where insurer drop analysis of characteristics is normatively repugnant (e.g. race, gender) **VS** actuaries & economists "fair" & "efficient" where pay premium reflecting risk (classifier that substantially correlates with risks) perhaps based on business necessity.

- Philosophers agree that any conception of unfair discrimination must include some disadvantageous (& not merely differential) treatment of people based on their perceived membership in a socially salient group. Disagree on what such discrimination exactly means and what makes it unfair.
- Insurer evaluate in good faith insured's individual risk based on readily available statistical data for that group, hence no longer intentional discrimination, but rather statistical discrimination.
- Moreau's view that discrimination is wrong as violate deliberative freedom, where decisions on how to live insulated from effects of normative extraneous features, e.g. skin colour/gender, but unclear on actuary risks (mortality risks of gender) is normatively extraneous feature.
- Kahlenberg view discrimination is wrong when treats people disadvantageously based on immutable traits, but sometime protection to mutable traits (religion) and vice versa (deny blind people car insurance).
- Forbidding discrimination unravel entire insurance market or negatively affect others.

Moral Requirements from a Theoretical Framework

Factor	**Description** (Relevant Factors for Fair Discrimination)
1. Characteristics	• Determine whether characteristics are controllable or immutable. One should not be disadvantaged for things one has no control over. More tolerable when choice is involved. • Determine whether characteristics changes over lifetime (age – all get the same chance to be on winning side or losing side over the course of lifetime) or stays fixed. • Determine whether characteristic constitute cause rather than correlation. Legal commentators demand causal relationship between classifier & risk, actuaries believe correlation is enough. • What extent that characteristic is good predictor of risk? Better predictor more tolerable. • Determine whether discrimination on characteristic perpetuates negative stereotypes of subordinates disadvantaged group. • Historical use of characteristic as method of discrimination is relevant.
2. Line of Insurance	• Importance (to insured's autonomy and participation in the polity) of each insurance line varies. (e.g.: health vs travel). Argument for or against discrimination in the healthcare context have greater moral, economic and constitutional implications, as health is social good, but traveler's insurance is economic commodity, where no moral duty necessarily to ensure equitable access.
3. Nature of Discriminatory Treatment	• Harshest type of discrimination is to never issue a policy because of some characteristic, others include refuse to renew/cancel policy based on some characteristics. • Another form involves restricting coverage that might harm disadvantaged groups. • Fairness may mean allow high risks into pool, but can still discriminate against high-risk insured by simply charging high premium.

Tradeoff between Equality and its Consequences

- Actual cost of discrimination to be considered: (1) impact of prohibition on discriminations on disadvantaged group; (2) efficiency losses in insurance markets stemming from prohibition on discrimination, one group cross-subsidizes another, lead to adverse selection – insurers conduct more detailed investigation of each applicant, and raise premiums for everyone, poorer dropout. (3) impact of allowing and prohibiting discriminations on insured's primary behavior – e.g.: genetic testing, people might deter from genetic test, prevent early detection of disease.
- Death spiral theory (chain negative events) is theory well-accepted by economists, empirical evidence is mixed.

Frees – Discriminating (Pricing) Actuary

- *1.1 How Insurers Discriminate:* 1) Issuance, renewal or cancelation – refuse to market/insure/renew or cancel policies based on characteristic; 2) Coverage – restrict or lower coverage that might harm disadvantaged groups; 3) Pricing – different premium, fair, controllable vs increase cost for all in pool.

- *2.1.1 Actuarial Fairness – Pooling and Solidarity*: Pooling of risks, hence shared responsibility among a group of people, plus understanding of equality and justice, creates insurance solidarity, which emphasizes mutual responsibility, reciprocity and shared understanding of fairness.
- *2.1.1 Responsibility & Actual Fairness*: fairness depends on nature of the pool:
    - **Small group if like-minded individuals:** little difference between notion of fairness for individual and pool collective.
    - **Stock Insurance Company**: risk transferred from insured to insurer, fairness means each customer pay for their own risk only (actuarially fair – based on expected value)
    - **Government**: social insurance, subsidies from one group to another, redistribution of risk or income, large variation in how strictly the principle of actuarial fairness is followed.
    - **Group Insurance**: depend on who own the pool and nature of contractual arrangement. E.g.: employer/university pays all or major portion vs own premium pays other claims**.**
    - **Mutual Company**: policyholder are customers and owners. Amounts of cross-subsidies among groups or socialization would be greater.
    - **Takaful**: offers, not as a bilateral contract, but transfer of known risk to a collective enterprise, pooling resources to aid one other in the event of loss.
- *2.1.3 Insurance as a Social Good:* benefits the general public (e.g.: health insurance likely social good wjere access to certain level healthcare guaranteed for all, while life insurance is private economic countries, enhance financial security but voluntary/not necessity). If insurance is social good, whether public has equal access to product, whether there is impact on select group at disproportionate disadvantage with members of similar group (hard for insurer to address but important for public acceptance)
- *2.2 Characteristics of Sensitive Variable*: when regulators do not permit use of a variable, it is thought as creating a protected class. How to determine variable is fair:
    - **Control**: If insured has control over an attribute, generally acceptable variable for insurance.
    - **Mutability**: Does variable change over time? (e.g. age) Tolerable if all get same chance to be on winning side and losing side over course of a lifetime.
    - **Statistical Discrimination**: should have predictive value, more tolerable.
    - **Causality**: generally acceptable to use if is known to cause insured event, much higher bar than mere correlation.
    - **Limiting or Reversing the Effects of Past Prejudice:** does the trait perpetuate negative stereotypes, including historical use as method of discrimination.
    - **Inhibiting Socially Valuable Behaviour**: does using trait prevent socially desirable activities (e.g. genetic testing may deter public from getting it)
- *2.3 Indirect Discrimination*:
    - *Proxy Discrimination*: Indirect statistical discrimination, based on facially-neutral characteristic, but correlates with protected class (engine-gender; geographical area redlining-avoid minority). 2 types of proxies: (1) Identifiable surrogate (2) algorithm proxy summarizing multiple variables.
    - *Disparate Impact*: whether impact which puts members of protected group at disproportionate disadvantage compared to members of similar group (outcome of interest)
    - *Legitimate business necessity:* may be legal even if produce disparate effect.
- *3.1 Economic – Adverse Selection, Moral Hazard and Incentives*: Information Assymetry
    - *Adverse Selection*: (1) The more information insurer have about policyholders, more effective is risk classification, resulting in better marketplace for all; (2) Insurer have less information than competitor, hence innovative insurer target best risks (on top – cream skimming)
    - *Moral Hazard*: insured have incentive to take on more risks with insurers.
    - *Incentives:* introducing risk mitigation tools to reduce impact of insured events (sprinklers)

- *3.2 Economic Efficiencies*: achieve by competition forces buyers to pay maximum demand price, sellers charge minimum supply price. Without risk classification is not allowed, price not reflective risk, reduced pool of insured, hence decrease in efficiency (low risks out, rising premium). 2 types of rate regulation: (1) rate suppression – reducing average rates for all consumers – reducing insurer return; (2) rate compression – reducing rate for high-risks relative to others – distort insurance supply and reducing competition.
- *3.3 Price Discrimination*: charging different prices for identical products (not possible in perfectly competitive market due to other firms), however insurance is a norm for risk-based price discrimination.
    - *1st degree:* based on insured willingness to pay – common in large commercial where buyers sophisticated and willing to negotiate
    - *2nd degree*: based on quantity
    - *3rd degree*: different price for different consumer group – common in personal lines, e.g. lower price for new business to attract switching.

  Appropriate for Insurance? Aspects different from other marketplace: (1) Ability to discriminate – Insurer (2) Does not facilitate new markets; (3) Undermine utmost food faith – info used for other purpose, can undermined public acceptance; (4) Undermine justifications for risk-related pricing; (5) Distributional effects of price discrimination – cross subsidies, and uneven effects on different parts of society. Firms may unwittingly discriminate to achieve business goals like maximize profit and increase retention.
- *4.1 Actuarial Aspects of Rate Regulation – Pricing:* Jurisdiction that is silent om rate regulations, influence by supply and demand, cost not sole determinant, other factors include availability of alternatives, marketing considerations like customer loyalty.
- *4.2 Extent of Regulation*: (1) Active – regulator heavily involved in determining rates, dictate rates, or requiring approval. (2) Open Competition.

Prohibition by Line of Business: Rate regulation is common in automobile, health, workers compensation, medical malpractice, and homeowners, all are markets which insurance is mandatory or universal coverage is socially desirable. Insurance rate regulation tends to be absent from commercial insurance, firms do not suffer the same imbalance if information asymmetry since they have more resources than individuals.

- *5.1 Unisex Risk Classification*: EU prohibit gender insurance discrimination, men and women to **receive equal treatment to access and supply** of goods and services. US Supreme Court prohibit on separate mortality tables for men and women (either women pay more or receive less benefit – lower mortality)
- *5.2 General Insurance & Credit-based Scoring*: US credit-based insurance score includes prior credit performance (late payment), current levels of indebtedness (bankruptcy), length of credit history (age of oldest account), pursuit of new credit (new accounts), types of credit (credit cards) to predict insurance loss and how well individuals manages their money. Regulated due to **potential correlation with suspect classification (race & income)**. Statistical discrimination is sound but causal is uncertain.
- *5.3 General Insurance and Price Optimization*: make adjustment to cost-based method that incorporate customer demand (retention, competition, profitability, market share). Critics argue that insurer profits are **raised on individuals that less shop around, fewer market option** and less market power, hence unintentional proxy discrimination.
- *5.4 Life Insurance and Genetic Testing*: **sensitive** (eliminate 'genetically defective' individuals), **not under control of individual**, **change over time**. Since it is new, unsure **if statistically or economically significant** for risk assessment for insurance. Insurer worry of information asymemetry, since voluntary, can lead to anti-selection, where poorer risks purchase more insurance, while better risks avoid insurance. Health insurance less impact as government-provided.
- *5.5 Big Data*: insurer may use **other information not provided directly** by individuals (privacy). Complex algorithm on many traits, **proxy discrimination may be unintentional**, and opaqueness of machine-driven algorithms, hence less transparency (despite may accurately assess risks)

- *5.6 COVID-19*: (Prohibition on discrimination based on diagnosis) regulation to prevent discrimination based on diagnosis – whilst similar to medical history, not best interest of society. (Proxy Discrimination) affect certain ethnic groups more and mortality rates related to age. (Summary) Societal concerns dominate and prohibition based on diagnosis is warranted, increasing customer confidence. Currently lack of data about predictive abilities, unlikely competition will be affected.
- *6.1 Strategies for Mitigating Proxy Discrimination*:
    - **Community Rating**: remove ability to discriminate entirely, community rated plans where all policyholders pay same price, common in social insurance schemes.
    - **Approved Variables**: specify variable that may be used instead of may not be used.
    - **Actuarial Justification**: require disclosure of the source of actuarial or statistical data, to justify use in rating. (transparency-oriented reforms)
    - **Limited Prohibitions**: only restrict use of protected variables.
    - **No Restrictions**: case for most lines of commercial business.
- *6.2 Linear Model Strategies*: model only non-protected information. When variable is dropped from "full" model, other factors serve as proxies (regression result change with removal of variable).
- *6.4 Machine Learning Approaches:*
    - **Potential source s of unfairness:** (1) Data – can be heterogeneous and create bias; (2) Algorithm
    - **Fairness conditions:** (1) Calibration within groups; (2) Balance for negative class; (3) Balance for positive class. Trade0offs between notions of fairness.
    - **Discrimination prevention:** (1) pre-processing – remove discrimination info from historical data; (2) in-processing – incorporating changes in the model learning phase by constraint; (3) modifies fitted regular model to remove discrimination.
    - **Holding data of protected variables:** (1) trusted 3rd-parties to store data necessary for incorporating fairness constraints; (2) building collaborative online platform; (3) using unsupervised learning and pedagogically interpretable algorithms for selective testing and exploration.

2e. Function: Partnership between private & govt in disaster, catastrophe and health insurance
4c. Govt/Industry: North American govt & private insurance program

Kousky – Risk Management Roles of Public and Private Sector

- Evaluates: National Flood Insurance Program (NFIP), California Earthquake Authority (CEA), Florida wind pools, Terrorism Risk Insurance Act (TRIA), Flood Re in UK, potential for all hazards disaster insurance.
- Perceived lack of availability or affordability of disaster insurance led to government to intervene in disaster insurance markets. NFIP: 1968, Florida: Hurricane Andrew 1992, CEA: 1994 Northridge Eq, TRIA: 9/11, Flood Re: 1953 & 2000 UK floods. Well-functioning disaster insurance likely to require govt. intervention.
- Forms: quasi/fully govt disaster, direct insurance vs govt. reinsurance, single peril vs comprehensive, take-up voluntary vs mandatory, ex post assessment vs ex ante (RI), no or incentive for risk reduction.
- Few premium fully reflect risk at structure-based level: (1) likelihood & consequences of future losses difficult to estimate; (2) averaged over large areas; (3) cross-subsidized or discounted (e.g. affordability). Large variation in claims paying ability and financing: CEA-capital 1-in-250yr, NFIP-treasury lending.

Roles: Risk Communication

- Insurance can play role in communicating risk thru risk-based premium, where hidden/unexplained cross-subsidy or discount may lead people to believe they are safer than they actually are. Justification for charging different rates should be thru other policy mechanism, e.g.: vouchers for lower income.
- CEA website details earthquake risk for different California counties, info on what structures suited for retrofits. NFIP provide flood hazard maps (prob > 1-in-100), but not ideal communication tool, may lead to

believe if live outside is safe, all areas within equally risky. Federal Alliance for Safe Homes (FLASH), various agencies create education programs, home safety, insurance guidebooks, etc. to make safety improvements

- Recommendations: (1) make structure-specific risk information available to property owners and communities: risk score/metric for each hazard; (2) provide homes in risk-prone areas with seals of approval or risk scores based on susceptibility to different hazard – inform buyers on how well prepared to withstand future disasters & cost effective mitigation measures one should consider, inspection by independent, certified individuals; (3) develop community maps delineating current and future flood risk and showing how this risk varies within the 100-year floodplain and beyond (climate change, sea-level rise, changing storm patterns); (4) coordinate efforts to promote synergies and avoid duplication of effort.

Roles: Risk Reduction

- Estimated 10% of eq/flood-prone households implemented mitigation, underestimate risk or future disaster and potential benefits of mitigation. Misaligned incentives: local govt reap benefit of economic development (increased tax) but bear none when disaster occurs, hence lack incentive for strong building code or limit development in high-risk area.
- Homeowners reluctant to invest in measures if upfront costs strain household budget and payback period is too long. Incentive by premium reduction greater than annual loan cost.
- Potential problems with state-mandated premium discount, that dose not reflect claims payment, where discount given without undertaking any mitigation measures -> insurer leave state w damaged financial.
- Recommendations: (1) expand federal & state fundings for predisaster mitigation measures and buyout for riskiest properties; (2) examine how insurance premium reductions could create incentive for investing in mitigation measures in combination with low-interest loan tied to property to spread upfront costs; (3) promote funding and financing using underutilized programs; (4) Convene expert group to investigate better ways of incorporating full costs of insuring structure over its life into decisions as input fore determining where and how to build property. Include impact of climate change on likelihood and consequences on future natural disasters.

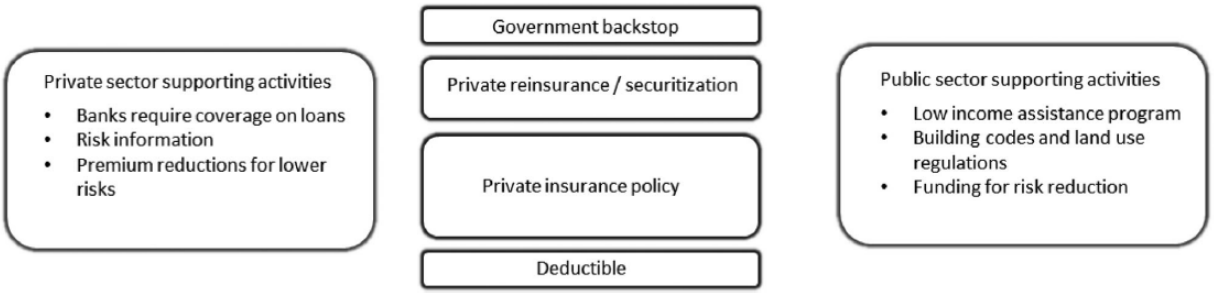
Roles: Risk Transfer

- Roles of pubic role complementary to private: (1) make disaster insurance affordable for low-income households (equitable); (2) providing public RI against cat losses beyond capabilities of reinsurers and risk transfer instruments; (3) mandating insurance, if widespread take-up rates is a policy objective (efficient)
- Widespread take-up, decrease need for federal relief. Requirement from banks/lenders, bundling of flood and earthquake insurance into homeowners' coverage as condition for mortgage
- All-hazards policy numerous benefits: (1) purchase multiple policies is inefficient and confusing; (2) claims settlements delayed, as to determine exact cause of loss (and which policy cover), lawsuits.
- Recommendations: (1) Develop federal assistance program for low-income households to help cover costs of disaster insurance; (2) Government protection against cat losses not covered by private reinsurance, level be identified to thru a study; (3) Analyze when and how risky properties could be cede to a government residual market and how those risks would be financed; (4) Promote more effective relationship between state regulators and insurance companies and innovation in product offering for disaster line (study on conditions to allow insurers to charge risk-based premiums).

Proposed Program:

- See Kousky (if available) pg188,189,190 for comparison table of insurance programs: NFIP, UK Flood Re, Flo. Citizens Property Ins. Corp., Flo. Hurricane Catastrophe Fund, Calif. Earthquake Auth. (CEA), TRIA.
- Table compares: 1) Coverage, 2) Take-up rate/mandate, 3) Financing, 4) Claim Paying Ability (1-in-#years), 5) Incentives/Mandates for Risks Reduction, 6) Affordability Addressed?
- Some of the example insurance are also covered in other readings (McAneney) and see also exam 6U questions for some example questions on NFIP, TRIA.

Layering Disaster Losses



-
- Future Research: (1) Finer-scale risk communication – more accurate, better mapping; (2) Higher Take-up – problems: lack info on risk, lack capital, respond to perverse incentive, value proposition: effectiveness of rebates for those who have not suffered loss; (3) low-income households – how much assistance is needed (assistance rather than cross-subsidy) and what form and what mitigation could be offered; (4) New Policy Models – incetivizing residents in hazard-prone areas, createive partnerships.

Govt Insurance Study Note

- See Exam6U Questions. Refer to any exam 6U notes if available.

McAneney – Govt. sponsored Natural Disaster Insurance Pools – Aust.

- Reducing direct economic costs of cat events: (1) mitigation measures; (2) reducing financial impact on those directly affected with costs sharing (government/charitable aid, insurance)
- Geographic Information Systems (GIS), remote sensing and simulation modelling – improve pricing, or withdraw areas deemed too high risk. Tropical cyclone reinsurance pool – reduce premium.
- US:
    - NFIP: only federal catastrophe market, others by states. Cover riverine and hurricane flood. Deficit.
    - Texas Windstorm Insurance Association: All Texas P&C require to participate in pool, covering coastal counties, losses excess of revenue paid by Catastrophe Reserve Trust Fund.
    - Florida: Citizens funded by premiums, regular assessments on insurers, government and agency securitires, bonds. Shortfalls by policyholder surcharges, emergency assessments and bond issues. Florida Hurricane Catastrophe Fund (FHCF), low cost reinsurance cover for future hurricane loss, concentrating Florida's hurricane risk within state rather than diversifying around the world.
    - California Earthquake Authority (CEA)
- Non-US:
    - NZ Earthquake Commission (EQC): automatic first loss cover for valid claims (eq, volcano, hydrothermal, tsunami, flood etc.) for all policyholders of residential fire insurance. Premium from compulsory levy to all homeowner policies, transfer to Natural Disaster fund)
    - Spain Consorcio de Compensacion de Seguros (CCS): indemnify insurers for natural disaster claims. Cover life, fire and natural perils, motor, PA. Most insurers rely CCS rather than cover themselves.
    - France Caisse Central de Reassurance (CCR), public-private partnership providing government-guaranteed RI. Uniform price regardless of risk. Choice of CCR or private market RI.
    - UK Flood Re: provide cover for problematic risks, premium that is capped and subsidized by levy on all other insured homeowners at market price. Flood Re also seek RI from RI market. Losses above 200 years is responsibility of government.
    - Netherlands: Delta Works physical protection/barriers.

3. Pricing of Risk

- Many pools choose not to impose risk-reflective premiums upon policyholders, low-risk subsiding high-risk.

- NFIP does not collect sufficient premium (lower premium for old house) to build reserve for long-term future expected flood losses, funded by borrowing from Treasury.
- Florida: Increases capped at 10%. Sensitivity of disaster insurance schemes to temporal volatility of event losses, lower than normal sequence of loss. Government guarantees is valuable in the reverse.
- CEA: premium required by legislation based on modelled estimates of expected losses. But political and consumer pressure at initial using coarse 19 rating zones only (lower level of premiums in high risk areas). Non-CEA offered reduced the overall level of premiums especially in high risk areas.
- TWIA: catastrophe loss modelling. Properties with stringent construction codes, subject to premium discount. Not able to cover 2nd event in successive seasons (unlikely, but climate change).
- **4. Dealing with Deficits:** govt pools provide low cost insurance to high-risk properties, so funding of deficits becomes important: 1) Borrow from treasury; 2) issue bond; 3) pool, which otherwise require rates sufficient to cover years of catastrophic loses; 4) depopulation plan, encourage private to assume govt. policies.
- **5. Encouraging Mitigation:** 1) discount on mitigating measures on building; 2) provide info on flood-prone area; 3) support R&D. Charging uniform fees however discourage risk-reducing measures.
- **6. Discussion:** political intervention (set premium too low), where govt pool compete with private as insurar of first resort, rather than last resort. NFIP phasing out discounted rates for "grandfathered" properties and other repetitive-loss buildings. Insurance terms may reduce risk long term (e.g. Flood Re not available for new houses – hence reduced houses on floodplains)
- **7. Australian examples to incentivizing resilience:** too soon to judge whether risk-reflective premiums is affecting land use planning decision. E.g. Suncorp (high market share and only significant company offering flood) exit from Brisbane flood, govt. build levees.
- **8. Implications for policy:** how to increase societal resilience jn the face of future catastrophic events in fair and affordable manner. Risk reflective premium by private sector will inevitably lead to situations where they may choose not to insurer certain households. Insurance is risk-transfer (with accurate pricing), not a risk-reduction mechanism (from financial sense), not risk-reduction. Insurance premiums provide transparency on cost of risks, but govt do not have immediate financial incentive to acknowledge this. Plus can reward for risks reduction, without requiring legislation.

OECD – Private Health Insurance

- Private insurance role: 1) financing level, reimburse cost of care; 2) care providing level, thru managed care.
- Healthcare 3 competing models: (1) Bismark, Germany – Professional enrolment through compulsory contributions from employers & employees; (2) Public health monopoly, ensuring universal social protection; (3) mix-system (US) where health insurance is not compulsory)
- Tend to have hybrid of 3 systems. Private mainly supplementary to public cover. Country examples:
    - **US & Switzerland:** highly privately financed system, where private intervenes even in primary care.
    - **Germany & Netherlands:** wealthiest, independent workers, most civil servants excluded from social health insurance, hence left to their own initiative.
    - **France, Canada, Japan, Austria & Denmark:** private health insurance is supplementary to the public scheme, and provides co-payment & deductibles or covers specific services not taken into account by public financing.
    - **Ireland & Australia:** possible to "opt out" of public scheme, but private health insurance is highly regulated in order to be accessible to most part of the population.
    - **UK, Sweden, Norway, Finland & Portugal:** public financing and providing system, private health insurance represents a small market, insuring mainly access to private providers.
    - **Poland:** recent privatization, hence insurance markets remain narrow, due to lack of maturity of insurance markts and to an inherited quasi-universal public coverage.

- Premiums are growing Market liberalization in Euro should allow further growth, but international competition remains low. Transition countries demand for service/product is increasing.
- Financed by 3 basic models:
    - **Risk-based calculation:** 1) Individual – scarce in OECD countries, individual contract premium calculated on risk-based criteria (age, gender, health status), higher for older/weaker, allowed to deny access to high-risked individuals or impose waiting period; 2) Group – through employer, with more people, insured enjoy lower premiums based on experience-rating, fewer incentive to have recourse to risk selection.
    - **Community-rating:** policyholders pay according to income, disregarding risk and receive benefits according to needs. Allow more equitable access to supplementary health insurance. Regulation is necessary – whole-life investments, no selectivity and risk-equalisation (shared among insurers)
    - **Funding:** part of premium accumulated in a fund that allows for no premium adjustment owing to age, more suited to ageing population who may find difficult otherwise to get supl. Insurance.
- Range of benefits: 1) co-payment of practitioners' fees, drugs, specific treatments not covered by public shemes; 2) avoid long-waiting list of public providers & more freedom for GP treatments; 3) long-term care; 4) income replacement during sickness or disability.
- Issues to assess performance of healthcare systems: 1) efficiency – achievement of goals to improve personal health, responsiveness to customer aspirations & cost-minimisation; 2) equity – fairness.
- Advantages: 1) upgrade quality of health care provision; 2) alleviate public burden and insuring tailored and free-choice services to patient;
- Constraints from growth: 1) equity – insurance for "good risks". 2) cost-minimisation is not achieved, e.g. US is most private, but most expensive (due to financing arrangement, asymmetry of info, competition – managerial and advertising costs)
- Issues: 1) Competition – traditional vs mutual vs managed care organisations – different prudential and tax regulations. 2) Information access – require risks be identified and classified, but medical information is sensitive, preventing abuses is difficult.
- <u>Innovative regulatory policies to remedy market failures (maintain equilibrium of efficiency & competition with equity):</u> 1) favour group insurance contracts but exclude non-working population, community rating but less competitive and oligopolistic market; 2) long-term risk – prevent insurers from increasing premiums with age and support part of the risk for aging; 3) portability of rights – previous benefits retained after change of employer, by preventing cancellation or retain pre-existing conditions & waiting periods; 4) Funding or Partial Funding.
- Other developing trends: 1) new regulation on compulsory long-term care insurance; 2) Surge of new private health insurance product (medical savings); 3) Marketing of private health care electronic cards; 4) Establishment of equalization funds between insurers.
- <u>Curbing costs through health care:</u> 1) formal agreements between insurers and specific providers to managed care (HMO-Healthcare Maintenance Organisations)– financing and delivery of health services are integrated to control costs – however restricted freedom of choice for consumers; 2) Preferred Provider Organization – more flexible; 3) Medically formed call centre – direct to most appropriate health care service – reduce unnecessary consumptions.

3a. Conduct: Consumer protection

3b. Conduct: Intermediaries

3c. Business Conduct

3d. Conduct: Information Transparency and Disclosure

IAIS CC 6.1.1 Consumer Protection

- **2.1 Role of intermediaries:** product can be complex, rely on advice of intermediaries (agents/brokers), required to be licensed. Required to: 1) demonstrate knowledge of insurance product they will sell; 2) pass background character check; 3) obtain adequate insurance against liability from professional negligence.
- **2.2 Policy holder information:** times when consumers are most in need of information:
    - **2.2.1 Point of sale – Info from consumer:** insurer/intermediary ascertain current risk situation (existing policy, claim history, insurability, needs) then recommend appropriate coverage at best price (incl. optional deductibles an sub-coverages). Info written and signed on policy application, misrepresentation can lead to denial of claim, payment reduction or criminal prosecution.
    - **2,2,2 Point of sale – Info to consumer:** on product (risks, benefits, obligations, charges) and other matters. Provide info on policy, eff/exp date, limits & deductible, premium, tax & fees, intermediary contact info and relationship, Alternative Dispute Resolution (ADR).
    - **2.2.3 Renewals and Cancellation:** adequate notice if intend to renew, residual market (high-risk insurance) contact should be provided. Cancellations reasons: non-payment of premium, misrepresentation of significant fact, fraudulent claim.
    - **2.2.4 Submission of claims:** max time insurers may take to perform each steps for claimants
- **2.3 Consumer outreach efforts:** by supervisors, government agencies, industry associations, etc. educate consumers on insurance coverage, costs, etc (also by website). Premium comparison also can be helpful.
- **3.1 Coverage provisions:** ensure documents comply with laws, easy to read and understand and do not conflict with the public good.
- **3,2 Readability:** written and printed in a way that average person can understand them (conversational).
- **3.3 Rates:** ensure rates not excessive, inadequate or unfairly discriminatory
    - **3.3.1 Actuarial capacity:** pricing is complex, require skills and resources. Rates that are too high theoretically will be self-policed by consumer. Insufficient premium may cause insurer insolvency.
    - **3.3.2 Checking for unfairly discriminatory rates:** if higher premium for certain policyholders but not correlated with increased risk, or controlled variables.
- **4.1 Deceptive and unfair marketing and sales practice:**
    - Using advertising/sales material, mass marketing activities that are false or deceptive.
    - Selling products through inadequately trained intermediaries
    - Selling consumers more coverage than they need
    - Misrepresenting product coverage, rates, terms or benefit.
    - Making unfair/incomplete comparison among insurance policies.
    - Fraudulently posing as and insurer or intermediary.
- **4.2 Unfair UW practice:** maintain written guidelines to help determine which risks to accept/decline. Refusing to insure just because being rejected is unfair.
- **4.2.1 Unfair discrimination in UW:** social discrimination not based on actuarial statistics, but judgment alone, based on race, gender, income, etc.
- **4.3 Unfair rating practices:** must adhere to rating manuals that detail steps to calculate premium
    - Charging premium not in accordance with filled rates and rating manuals.
    - Permitting illegal rebating, commission cutting or other kickbacks.
    - Applying credits and deviations in an inconsistent or discriminatory manner.
    - Charging higher/lower premiums due to reason not directly to insurance risk (gender, race, etc.)
- **4.4 Poor administration of policyholders accounts:** (can lead to denial of return premium, delay in claims payments) maintain accurate acct of: 1) provision for premiums paid but not yet earned, incl. amount of money to be returned if cancelled; 2) Cash surrender values, benefit amounts, outstanding values in permanent life policies, plus allocation of such funds to proper investment portfolios; 3) Policyholder dividends that have been paid/payable for insurance policies that provide participation in profits.

- **4.5 Ways to combat unfair business practices:** 1) requirements for obtaining and maintaining an insurance license, ensuring adequate knowledge, experience and financial resources to conduct operations fairly and reliably; 2) insurers maintain internal controls to prevent unfair, deceptive or unprofessional business practice; 3) insurers, supervisors and ombudsmen can provide consumers with opportunities and methods to submit complaints against such practice; 4) supervisors may be empowered to carry out onsite investigations into the business conduct of insurers and intermediaries suspected of engaging in such practices, action: fines, revocation or registrations.
- **5. Claims and complaints handling:** usually under financial stress, examples of ways avoid paying: 1) denying claim without conducting reasonable investigation; 2) needlessly delaying investigation/payment; 3) requiring unnecessary or duplicate documents; 4) paying or offering to pay less than reasonable amount
- Follow internal guidelines and procedures for fair & prompt handling of claims, incl. review by senior management of claim that exceed threshold, steps required, timeframes for investigation & processing.
- **5.1 Consumer Complaints:** supervisors learn of complaints: 1) directly from consumers; 2) through inspections of insurers' complaint database; 3) through formal reports from insurers on claims and claim handling; 4) from ombudsmen, official appointed to investigate consumer complaints.
- **5.2 Alternative dispute resolution methods:** complaints that do not get satisfactorily resolved, hence litigation is an option. ADR usually involve assistance of neutral party (ombudsperson) knowledgeable in the type of issue under dispute. Decisions binding on insurer but nor consumer, can take to court.
- **6.1 Investigation of business conduct:** deal with treatment of policyholders, claimants, insured and beneficiaries regarding claims handling, underwriting, rating, policyholder service, complaint handling, and marketing & sales. Supervisor conduct onsite investigation / offsite supervision tools, should be fair, unbiased, transparent, open to public inspection, known in advance to the industry.
- Supervisor inspect insurer's compliance with the following standards: 1) insurer initial contacts with claimants within required timeframes; 2) insurer conducts timely investigations; 3) claims are resolved in a timely manner; 4) insurer responds to claim correspondence in a timely manner; 5) claim files are adequately documented; 6) if clear liability and coverage, insurer does not offer unreasonably low amount.
- **7.1 Insolvencies:** indicators of insurer remain in business: sound business model, good corporate governance (experienced management). If insolvent, consumers face risk that existing and future claims may not be paid, and services may no longer be provided.
- **7.1.1 Guarantee funds:** pay the claims of insolvent insurers, funded by levies (pre-funded or charged only during insolvency) from licensed insurers in proportion to each insurer's prorated market share. Usually cover certain types, with limits. Priority to consumers and small business.
- Negative consequences: 1) contributions passed to consumers in higher premiums; 2) penalize prudent business practices of solvent insurer by paying imprudent practices of insolvent competitors; 3) large insolvencies can strain guarantee funds and leave claimants with fraction of reimbursement entitled; 4) safety net may entice insurers to underprice products and lower underwriting standards.
- **7.2 Monopolies:** insurer or group of insurers, exert control, price tends to increase and coverage options diminish. Residual market mechanisms (mandatory pool for unattractive risks) grow. Insolvent monopolies can exceed resources of guarantee funds.
- **7.3 Licensing criteria:** 1) sound corporate governance; 2) experienced and reputable management team, viable business plan; 3) adequate capital to support current and planned operations.
- **8. Privacy of consumer information:** sensitive info (e.g.: medical records, lifestyle, credit card, credit reports, claims history). Safeguards: 1) prohibition from obtaining info under false pretences; 2) maintain procedures to safeguard such info; 3) Inform consumers of insurer privacy policies and practices; 3) allow consumers without penalty to opt out of allowing information to be used or disseminated.

- **8.1 Information security programs:** Goals: 1) ensure security and confidentiality of consumer information; 2) protect against anticipated threats of hazards to security and integrity of information; 3) protect unauthorized access or use of info that could result in harm or inconvenience to consumers.
- Include procedures to: 1) train staff to properly implement program; 2) test or monitor program's key controls, systems, and procedures regularly; 3) require service providers to implement appropriate measures to safeguard insurer's customer information while it is in their possession.
- Adjust program for changes in: 1) relevant technology and its application; 2) sensitivity of consumer information; 3) internal and external threats to this information; 4) business arrangements: M&A, outsourcing, consumer information systems.
- **8.2 Privacy notices to consumers:** written notices regarding insurer's use of personal information as well as any rights the consumer may have to further restrict dissemination of such info.
- **9, Cross-border issues and distance marketing:** multiple jurisdictions, including "distance marketing" such as internet. Problems arise when insurers sell in jurisdiction in which they or products are not licensed. Worldwide coverage, where understood laws of jurisdiction policy was sold, or risk located should prevail.
- Internet Insurance risks: 1) lack of intermediary to explain product and advise customer; 2) uncertainty over whether the insurer or product are authorized in consumer's or any other jurisdiction; 3) unwanted dissemination of private consumer info; 4) difficulties in enforcing claims or benefit payments.
- Supervisor should provide info to public whether and how local legislation applies to cross-border offering of insurers (e-commerce), issue warning notices to consumers to avoid transactions with unsupervised.
- **9.1 IAIS Multilateral MoU:** reduce cross-border problems by developing working relationships with counterparts elsewhere. This is a written statement of intended cooperation.

IAIS CC 7.1.1 Market Analysis

- **2. Role of market analysis:** *research carried out to understand the current state of a market* (not only description and analysis of the past, for informed action) *and help predict its future*. Not one-off process, is systematic, repeatedly performed activity
- 1) Proactive: studying and analysing trends during "normal" development", to help predict future and inform supervisory actions. 2) Reactive: study impact of extraordinary market events (catastrophe, company failure), to better predict and manage such events in the future.

3e. Function: Distribution Risks

IAA Risk Book 9 – Distribution Risks

Key messages:

- Although financial sustainability often not threatened by risks in distribution system and marketing practice, these can lead to significant financial and reputational harm from lack of new business or poor quality, affecting income, brand value and value as a going concern.
- Distribution risks can result in risks to a distribution channel, to insurer's business and finan. sustainability.
- Some similar to operational risks (unpredictable) but significant reputation and financial risks.
- Perceived concerns on sustainability or brand impairment can result in rapid deterioration of size and effectiveness of insurer's distribution system.
- Insurance market conduct supervisors are charged with ensuring sales and service of policies are made in a manner that delivers acceptable value to consumer. Consumer protection requirements (suitability standards, disclosure requirements). Common for actuaries to sign off accuracy of illustrations of new sales/in-force policies that clearly explains the mechanics of complex/long-term products and provide advice on suitability of sales to customers.

- Because of importance of this risk, actuaries are involved in estimating the quality of sales, assessing policy performance in pricing insurance products and helping identify and measure distribution and conduct of business risks as part of assessment of overall ERM for effective management of these risks.

2. Introduction

- Insurance are complex, and are sold rather than bought, hence full of opportunities and risks.
- 3 primary forms of "distribution risk": 1) risks to distribution channel itself, thru quality and sustainability of distribution channel, affecting earning and sustainability of relevant insurers; 2) risks to the quality or volume of insurer's insurance policies caused by actions of distribution channel; 3) risks to insurer as company and future sales capacity, incl. decreased volume, quality of business, misselling, moving book of business, that may be inconsistent with policyholders' interest.

3. Risks to the Distribution Channel

- Examples: 1) Deterioration of agent continuity from an aging sales force; 2) Skilled salespeople but not skilled at managing field relationships and operations; 3) poor reputation of agents due to past inappropriate or fraudulent sales; 4) new sources of competition (mobile/internet sales); 5) intense competition in same type of distributions; 5) poor sales management – uncompetitive pricing, compensation and support service; 6) overconcentration on single agent/customer; 7) agents that are more focused on generating high sales volume than generating quality or profitable sales.
- Reputation risk to insurer, from adverse publicity of agents or other insurers, bad claim practices, etc. esp. if tied to a single insurer.

4. Risks to the Quality or Volume of the Insurer's Policies Caused by the Distribution Channel

- <u>Risk selection:</u> may be inconsistent with pricing assumption (anti-selection, moral hazard, fraud). Agents may be focus on volume than profitable sales. If more than 1 insurer, can split business directing worse quality to one insurer, hence adverse risk selection. Agent can also gather incorrect or incomplete info regarding quality of risk, resulting in insurer making incorrect underwriting decisions.
- <u>Policyholder behavior:</u> premature cancellation, non-payment of premiums, moral hazard on claims amount and fraud. Agents can also influence inappropriate exercise of policy options (e.g. exchange of one to another) that may not benefit policyholder but agent through incentives.
- <u>Policyholder interfaces:</u> lack of effective and convenient customer interface (website, call-centre) can cause significant brand damage to insurer and distribution channels.
- Actuaries regularly monitor policy experience and develop expectations regarding policy performance and policyholder behaviour (lapse, renewal, expenses etc.). Complaint resolution metrics (type, resolve%, timeliness) can provide useful feedback to insurer and supervisor.

5. Risks to Insurer Caused by Distribution Channel Activities.

- <u>Concentration risk:</u> overreliance on a single distribution channel/agent/insured, could 1) adversely influence corporate policy, pricing levels or underwriting decisions; 2) adversely affect profitability; 3) terminate significant amount of business.
- <u>Outsourcing risk:</u> if management of distribution channel outsourced (e.g. managing general agent), insurer has less control of channel. High acquisition costs but offset by services provided (fast recruitments, new markets) that the insurer no longer fund directly. Careful oversight to overcome direct loss of control.
- <u>Partnering risk:</u> responsibility for various function split between partners (banca, retail network, etc.). More parties involved in acquisition and servicing, greater likelihood of inadvertent or intended risks (bankrupt, misaligned motivation, ineffective coordination, lack of exit strategy). Conflict of interest (partner exerting influence), premium collections.

- Cost vs Control: risk of higher compensation, support cost and effective oversight. Care is needed to ensure agent does not benefit more than policyholders.
- Up-front compensation: reduces the incentive of agent to keep a policy in-force, promoting replacing policies for large commission, rather than insurer recovering initial up-front costs, and long-term benefit to policyholder on their investment component.
- Expense recovery risks: fixed expense not covered by additional new business / total volume/ greater lapse or non-renewal.
- Rogue agents: agent act in manner inconsistent with insurer's policies and riles, or collude with 3rd party to take advantage of insurer (modifying policy without insurer consent, charging unauthorized fees, fraud). Identified through monitoring, inquire peer companies or supervisor on prospective agent.
- Tax payments: tax status of agents might change retroactively, resulting in tax payment/penalty.
- Technology/regulations: new can cause current distribution process irrelevant or overly expensive.
- Uncollected chargebacks: commission chargeback becomes uncollectable when agent leaves.
- Multi-level marketing: agents compensated upon recruitment of new, eventually benefit no one.
- Political risks: change in government, fraud or kick-backs are proven, significant adverse impact.
- Ineffective or unsuitable distribution channel: develop low quantity or quality if sales and poor public image for insurer. Not appropriate for the needs, knowledge or culture or target market.
- Management resource risk: time by top management and employees in agent relationship to maintain loyalty, might divert from important strategic issues and towards quantity than quality of business.
- Inappropirate product and pricing governance: mitigate by design products suitable with distribution channels used and target markets, and costs consistent with desired level of competition and risk tolerance.
- Sponsorship risks: deterioration in reputation of sponsor, resulting in reduction of marketing potential.

6. Consumer Protection/Selling Risks

- Protection of consumers against inappropriate market conduct risks is quite important and should be within scope of insurer's ERM (fair business conduct, responsible pricing and claims management).
- Supervisors: assuring that contractual promises are kept by regulatory standards and supervision, ensuring customers are treated fairly and are sold policies their insurance needs, hence may regulate or monitor rates (rates approval), products (policy form approval, minimum standards of illustration and disclosure) and agents (remuneration limitation, licensing). Certain agent rules may not be suitable where no agent involved, or fall in cracks between supervisors with specified responsibilities.
- ERM: consist of both operational (process) and strategic (business model is followed), involving early identification and avoidance of inappropriate market conduct, which can lead to lack of sustainability and sound financial condition (prudential solvency risks). This is also a symptom of ineffective governance and lack of control over the distribution process.
- Inappropriate market conduct and lack of consumer protection can result from asymmetry of knowledge regarding insurance, feature, complex practice. More pronounced in individual, less developed markets. Conduct risks (failure adhering to regulation) have been significant driver of operational risk losses.
- In highly regulated jurisdiction, actuaries involved in policy illustration (values and description of contents, subject to actuarial standards), objectively and accurately prepared)
- User-friendly educational information and clear and concise disclosure suitable to market concerning the workings of insurance, can help mitigate asymmetry and enable customers to make more well-informed decisions. Less complex and clearly written policies and features can help.
- Fairness in treatment include ensuring rates charged are not unfairly discriminatory, e.g. excessive premium in credit life/health where consumer more concern of loan than insurance, hence may subject to excessive premiums) and policy fine print inconsistent with policyholder expectations. These result from ineffective competition at consumer level and lack of informed choice.

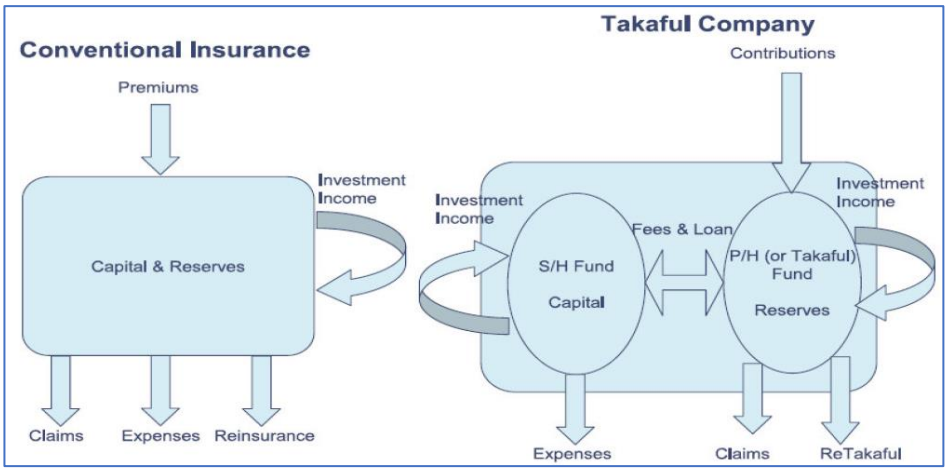
- Supervisors concern on distribution led to licensing that ensure agents have achieved and maintain acceptable level of knowledge of insurance policies and needs.
- Missold policies due to up-front compensation, substantial fines to insurers or compensation to consumers. Conflict of interest that incent agent to churn business, rather than servicing, leading to misseling/fraud.
- Increased disclosure of compensation and used of fees charged to insurer's customer instead of compensation by insurer. Limited expense to provide value to consumers.
- Initial agent screening, training, c.e. on product features, proper sales techniques, etc. to provide consumer protection and manage sales risk, Non-agent: sales audit, customer satisfaction surveys.

7. Conclusion: risks protected using:

- KPI of individual agents, addressing customer complaints by type, retention rate, surges in sales not seen company-wide, and possible fraudulent red and yellow flags seen in new business.
- Use of actuarial standards for suitable policy illustrations of long-term products where applicable.
- Agent and consumer education as to suitable consumer needs for the offered products.
- Possible independent and accountable function (ERM) including monitoring of sales practices, suitability processes and their risks.
- Regulatory requirements that govern market conduct and sales practices as well as reviews that assess effectiveness of insurer in disciplining/educating/managing its distribution systems.

4a. Govt/Industry: Islamic Insurance / Takaful

Swartz – Takaful



- 1) al-maisir: gambling; 2) gharar: uncertainty – pay from combined pool of contributions; 3) riba: interest, making money on money. Investment restricted to interest-free system. Distribution of wealth: people encouraged to contribute money for mutual help in times of need, without accumulation to small minority (e.g.: inheritance).
- Mutual cooperation, where insured is also the insurer, shares in profit or loss. Elements of philantrophy and benevolence should be reflected to differentiate pure regulated and standardized commercial ventures.
- Contributions are made into risk pool, then direct and indirect expenses and claims are paid. Surplus is shared amongst participants. Deficit made up with additional contributions from participants or interest free loan from the operator. Pay from a common fund.
- Operation supervised by independent Shari'ah Supervisory Board.
- Mudarabah: limited partnership/profit sharing. Tabarru: donation, (life scheme) relinquish certain amount of contributions to fulfil obligation of mutual help and joint guarantee.

- Advantage: up-front costs minimized, transparent charging of fees on contribution, community (surplus for zakat or projects which are common group – school etc.), ethical structure, free from riba, expense paid to shareholders are explicitly transparent.
- Hitches/bottlenecks in operations: challenges in emerging markets (immature banking, poor communication infrastructure), misconception that it is only from Muslim, lack of awareness financial strength/stability.
- When somebody enters takaful scheme, not supposed to have intention of making money, but share wealth by contribution to tabarru. Takaful operator shall ease burden of family.

Thanasegaran – Harmonisation of Takaful Regulation

- 'Evolving regulations' (significantly different across jurisdictions and lack uniformity), 2nd highest risk factor affecting the industry, next to 'rising competition'. Attention focused on operational efficiency and solvency requirements within their jurisdictions.
- Separation of participants' and shareholders' funds, takaful operators paid explicit contractual fees from the return on investments by managing participants' funds on their behalf. Remaining surplus (uw profit) shared by participants.
- Insurance is based on contract of buying and selling, takaful contributions treated as tabarru (donation) and mudarabah (silent partnership) to remove element of gharar (uncertainty).
- Takaful models:
    - Mudharabah – operator manage the investment and underwriting function, net surplus in takaful pool is shared between participants and takaful operator based on agreed ratio. (Brunei, UAE, Indonesia)
    - Wakalah – fee-driven, takaful operator manages the investment and underwriting for a fixed fee (irrespective of returns) and does not share in the surplus of funds, reverts to participants. (Sudan, UAE, UK)
    - Hybrid – Wakalah for underwriting, mudharabah for investment management (Malaysia, Bahrain)
    - Wakalah Waaf – legal entity through initial donation from shareholders for benefit of participants, investment and returns from fund (not the donation), may be used to pay claims, other similar to Wakalah model (Pakistan)

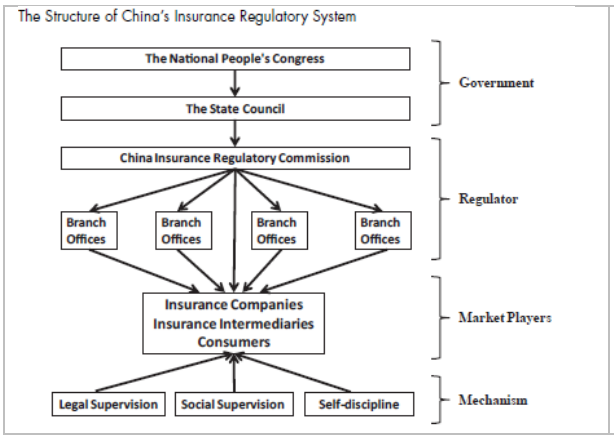
Refer Thanasegaran pg354 for core takaful principles in various countries.

- **IFSB and Core Insurance Principles:** corporate governance issue in takaful not the core takaful principles. Objective: provide benchmark for takaful supervisors in adapting, improving and establishing appropriate regulatory regimes, address regulatory issues (risk management, financial stability), provide appropriate consumer protection in risk and disclosure, support orderly development of takaful industry in terms of business models, product design and marketing.
- **Benchmarking against CIP in Australia and UK:** Utmost good faith, in Malaysia (provides remedies for breach), Iran (materiality from insurer's perspective) and Saudi Arabia (lacks remedy). Australia (Statutory warning), UK (Inquiry-based disclosure, reasonable care to answer insurer's questions fully and accurately). Takaful being less mature than UK insurance market, may pose greater resistance to inquiry-based disclosure, as greater burden and costs on operators to amend proposal forms.
- Basis of contract clause (remove cover even if misrepresentation is not material), removed in Malaysia.
- Insurable interest; only in Saudi Arabia, Sudan and Iran (contract void and refund if lack of insurable interest)
- Goode claims settlement practice. Australia, ASIC exercise powers against insurers who do not comply with the duty of utmost good faith in handling or settlement of claim.

4b. Govt/Industry: China Insurance Regulatory System

Chen – Development and Regulation of China's Insurance Regulation

- Initial regulatory emphasis on market behavior, then solvency regulation , information disclosures, standardized contracts and procedures, expand right of consumers, enhance market functioning.
- Regulatory philosophy, initially on promotion and development of domestic insurance industry (coach), then changed to creating fair and orderly market environment (judges). Solvency & Market conduct.
- Market: Life insurance ~ 3x P&C, 77.12% in auto for P&C. Private health is small. Social Insurance from Govt.: Basic Old-Age Insurance, Basic Medical Insurance, Occupational Injury Insurance, Unemployment Insurance and Maternity Insurance.
- Far from mature when compared to other countries, density & penetration below world wide average.
- 80s, only served by PICC, by govt. 21 in 1996, then 126 by 2010. Some growth due to entry of foreign insurers, and WTO where open to foreign investors.

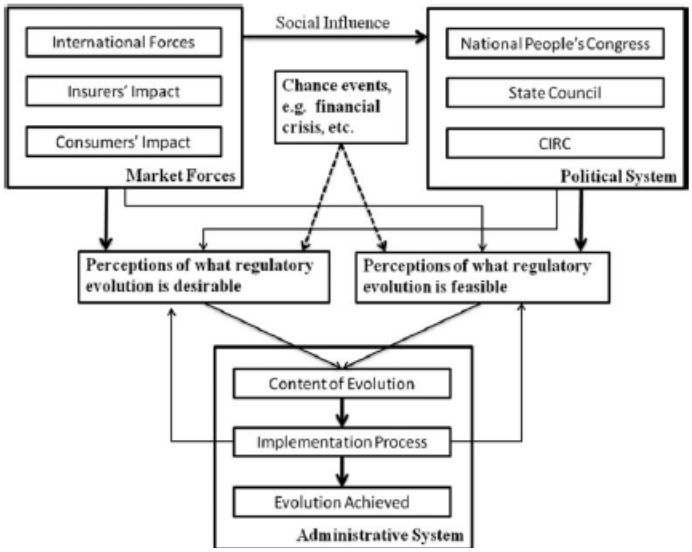


- NPC pass law. Administrative regulation pass developed by State Council (e.g.: foreign insurers, motor liability rules). Department rules by CIRC (direct supervision, comparable to other countries supervisor)
- Self-regulation due through insurance industry association (IAC, city level). Legal supervision by action of courts (benchmarks for personal injury compensation), social supervision by media and private citizens.

- IAC aims: 1) constrain unfair activities by formulating industry standards and professional industry guidance; 2) promote honesty in professional ethics and establish complete system of accountability; 3) strengthen self-discipline management of insurance professionals and intermediary agencies by supervising business activities and enforcing compliance through penalties. (important in developed markets).
- **Evolution–Asset Management Regulation:** initially restricted to bank deposits, government bonds, corporate bonds and funds stipulated by State Council. Gradually expanded to securities, but remain restrictive in comparison to those in other countries.
- **Evolution–Solvency:** initially only basic guidelines regarding minimum solvency requirements. 2001 WTO, used ratio-based monitoring system, standards for recognizing asset, and measures to deal with distressed companies. 2008, dynamic risk-based solvency framework. On-sire & Off-site examinations on operations, activities and financial situations (e.g.: irregular operations, fee collection irregularities)
- **Evolution–Insurance Protection Fund:** 2005 guaranty fund initially supervised by CIRC then to China Insurance Protection Fund Ltd. Co. Provides full compensation up to 50k yuan for non-life, 90% for individual & 80% for institutional for above 50k yuan. Life transfer to other life insurer, and compensated for the fund losses transferred. Examples of 2 capital injections dur to improper management.
- **Evolution–Insurance Rate Regulation:** when only single govt-owned insurer, govt-set rates were natural. New entrants has govt. experiment with relaxation, but most product line still under strict rate regulation. Control: 1) upper limit to prevent monopoly pricing; 2) set lower limits to prevent vicious price competitions. Mainly on 2nd of concerns of blindly pursue market share with relatively homogeneous products.
- Private passenger auto example:
    - Wave 1 (1988-93): entry new market players, rate require govt. prior approval. New players cut rates to pursue greater market shares. Failure and in the end, insurers require to issue same contract form, govt-set rates for each region, no room for differentiation.

- Wave 2 (2001-06): WTO and CIRC, allow insurers to implement own insurance product provisions and rates. Failed again due to underpricing. In response, CIRC set up 3 universal contract forms (different cover combination), with premium standards.
- Wave 3 (2011-): CIRC put solvency requirements on insurers who wish to apply for flexible rate-making authority, to prevent poor insurers from excessive price competitions and competitive rate setting will not lead to unstable markets. Insurers granted flexible rate must report contract provisions and rates to CIRC, including rates assumptions and actuarial analysis support.

- **Evolution–Disclosure and Consumer Protection:** most concern difficulty in claims filing. 2009 modification: 1) formatted provisions in contracts to protect consumers from overlooking important terms and condition; 2) right to terminate contracts restricted to situations when insurer can terminate contracts restricted to insurer can demonstrate insured engaged in improper and fraudulent behavior; 3) procedures and time limits for claims payment. Recently, companies must release info to public on website and newspaper.
- **Regulation of Foreign Insurers:** gradually loosen restrictions on location, products, reinsurance, ownership. Example: 1) foreign non-life cannot underwrite TP liability for motor vehicles; 2) foreign investors <=50% holding in life insurer – foreign insurer still small share and struggling.



- **Perspectives:**
- Institutional history and context important determinants of evolution of institutions in response to pressures for change. China changes from planned economy to socialist market economy.
- Political systems shapes perceptions on what evolution is desirable and administrative systems determines what is feasible, together, determine speed and direction of response.
- Certain institutional weaknesses (limited regulatory capacity, commitment, accountability fiscal efficiency) in developing countries make effective regulation more difficult and should be accounted for when designing regulatory system.
- China regulatory capacity and fiscal efficiency strong due to long history of state administration.
- Evolution from strong planned economy with socialistic political systems, leaves China with strong economic bureaucratic actors in almost every economic field -> strong top-down administrative interference in market operations (expanding market, but neglect consumer protection initially)
- Lack of effective constraints on govt. actions make limited commitment and accountability issues significant.
- **Modenization:** early drafting of modification, rounds of review, opinions from consumers. These legislative processes allowed interests of stakeholders considered in developing the law, accountability can be increased.

Frees – Appendix – Regulation by Jurisdiction

1.1.1 US Federal Laws and Regulations (1st 37% of world gdp 2017)

- *1964 Civil Rights Act*:- limit the use of gender in retirement benefit.
- *Equal Employment Opportunity Commission*:- discrimination in the following types: age, disability, equal pay/compensation, genetic information, harassment, national origin, pregnancy, race/color, religion, retaliation, sex, and sexual harassment
- *Genetic Information Nondiscrimination Act of 2008 (GINA):-* prohibits covered health insurers from discrimination on basis of genetic information (genetic test results, family medical history, use of genetic services)
- *Section 1557 of Patient Protection and Affordable Care Act of 2010 (ACA)*:- no exclusion or denied benefit on the basis of race, colour, national origin, sex, age and disability.
- *Fair Housing Act 1968*:- prohibit discrimination in housing-related activities (interpreted incl. homeowners insurance) on race, colour, religion, sex, disability, familial status or national origin.
- *Equal Credit Opportunity Act 1974*:- prohibit discrimination on basis of race, color, religion, national origin, sex, marital status, or age in credit transaction.
- Insurance discrimination largely unregulated at federal level, states primary regulators.

1.1.2 US State Laws and Regulations

- *McCarran-Ferguson Act 1945:-* states regulate and tax business of insurance. Coordinated by NAIC – chief insurance regulators for 50 states, DC and 5 US territories. FIO in 2010 – information gatherer for IS Congress on insurance matters, limited authority on covered agreements with other nations, representative to IAIS.
- Lack of uniformity: 9 states ban age in auto, 6 states ban genetic testing in disability insurance, 2 states ban used of location or zip code in p&c.
- May allow use of rating variable, but place restriction on use (e.g.: credit score but do not allow increase rate for renewal risk should credit worsen). Some prohibit variable use in rating algorithm but allow in UW.

1.2.1 EU Directives (2nd 22% of world gdp 2017)

- European Commission executive branch and propose new laws (insurance directives – allow members freedom to interpret demands of EU law within own legislative traditions)
- *2004 Gender Directive:-* requirements have to be interpreted and implemented in each country by national legislation. NAIC promulgates model laws and regulations, but not required to enact them.
- *1994 Third Generation Insurance Directive:-* pricing deregulated, result in intensive price competition and lower prices or increase in some cases.
- *Article 10 of the Treaty on Functioning of the EU 1957:-* combat discrimination based on sex, racial or ethnic origin, religion or belief, disability, age or sexual orientation.
- *Report on EC Civic Consulting 2010:-* patchwork across countries, majority prohibits discrimination on racial/ethnic origin, religion/belief and sexual orientation. Age & disability less uniform
- *France bonus*-malus on Auto:- rate levels not controlled, but mechanism of adjustment (ser by law) are standardized, considering driver's past experience.
- *Belgium & Italy:-* limit use of non-risk based factors in pricing of insurance.

1.3 China (3rd 10% of world, gdo 2017)

- *Insurance Law 1995, (mod 2002 & 2009) Item 114:-* set premium rates fairly and reasonably, which should not harm the legitimate rights and interests of policyholders, insured and beneficiaries. Does not specifu how to judge the "fairness" and "reasonableness".
- No Insurance discrimination prohibitions.
- *Auto Insurance Rate Making Procedures and Core Content 2002:-* insurance rating schedules reasonable without any discrimination content. No specify definition and extent of discrimination.

- *Compulsory & Voluntary Auto Insurance:-* Compulsory strictly regulated, only factors are vehicle type and past claim experience. Voluntary change since 2015, where pricing formula on benchmark pure risk premium (vehicle usage and type as factors), surcharge rate (<=35%) and rate adjustment coefficient (NCD, traffic violations, underwriting and channel.
- *China Life Insurance Mortality Table (2010-*2013):- 3 products (annuities/pension, term life insurance, whole life insurance), factors age, gender.
- No laws or regulations prohibiting use of disability, race or religion related factors,

1.4 Japan (4th 5% of world, gdo 2017)

- Financial Services Agency (FSA) – regulator. General Insurance Association of Japan (GIAJ) – promote sound development and maintain reliability of GI business in Japan, participate in IAIS. General Insurance Rating Organization of Japan (GIRO) – non-profit, gather industry statistics and representative rates.
- *Compulsory Auto Liability Insurance (CALI)*:- premium rates calculated by GIRO, classify by type, size, use, non-profit, pay for killed/injured by insured vehicle.
- *Voluntary:-* TP liability (BI as excess over CALI &PD) + PA + OD. Prior 1998, product similar across firms, rate and policies strictly regulated and UW was limited. Liberalized to prior approval system by FSA that evaluate based on principle (reasonable, adequate, not unfairly discriminatory). Rating factors include driver's age, gender, driving history, usage, pattern of use, geography, vehicle type, safety features, multi-car ownership. Differentials between highest and lowest rated group within 300%. (150% for gender)
- Mitigating discrimination – relatively homogeneous culture. Organization work closely with member insurers prior to legislative action.
- *Life Insurance Association of Japan:-* members to not use genetic information. (not legislative)

1.5 Australia (10th 2% of world, gdo 2017)

- *Age Discrimination Act 2004 (ADA), Sex Discrimination Act 1984 (Cth)(SDA), Racial Discrimination Act 2004 (Cth)(RDA), Disability Discrimination Act 1992 (Cth)(DDA);-* DDA prohibit genetic info in insurance. Age, disability and gender allowed in insurance by ADA, DDA, SDA.
- *Section 46 DDA:-* 46(1) apply to refusal to offer, 46(2) terms and conditions on which it is offered.
- No exception of race discrimination, even with actuarial relevance. No stand-alone religious anti-discrimination law. Legal obligation under International Covenant on Civil and Political rights.
- *Religious Discrimination Bill 2019 (Cth):-* unlawful to discriminate on ground of religious belief or activity in a range of areas of public life. No insurance exception
- Each state and territory has own anti-discrimination acts with own insurance exceptions.
- Compulsory Third Party (CTP) required in all states and territories, provide compensation for people injured of killed when insured vehicle is involved in accident, highly regulated, regarded as social safety net or social good, pricing factors vary by states (ACT community rated – standard rate, Victoria use class, postcode, eligibility for pensioner discount, NSW use more factors).

IAIS CC 7.1.1 Market Analysis (Details)

2. Role of Market Analysis

- **2.1.1 Regular Market analysis:** aware of material changes in market conditions that may impact insurance, insurance sector and other financial. Risks includes: 1) jeopardized financial soundness; 2) poor conduct when serving policyholders; 3) unavailability of products; 4) unfair competition and misuse of market poser; 5) changes In market environment.
- **2,1.2 Market Analysis: past** (developments)**, present** (situations) **and future** (trends, potential risks and plausible unfavourable)**:** require timely, well defined, reliable, and accurate data; understandable & unambiguous definition of analysed factors & indicators; stable analytics methids. Risk tolerance limits and threshold when interpreting results.
- **2.1.3 Market Analysis: quantitative and qualitatitve** (non-measurable)**:** 1) ICP cover disclosure and transparency toward the market; 2) reasonable data of
- **2.1.4 Market Analysis: market wide reporting:** give policyholders and market participants clear view of business activities, performance and financial position. Sufficiently detailed aggregated market data should be make publicly available by supervisors – for comparison on performance and activities.
- **2.1.5 Market Analysis: systematic reporting:**