CDP DATA ANALYSIS

Corporations on the Road to Low-Carbon Economy

By Henri Mikkola

CDP & BACKGROUND

- CDP started in London 2000
  - Independent non-profit organization
  - Delivers information related to climate change, water scarcity and deforestation
  - Promote transparency through surveying and announcing
  - 5 different programs – collects data through questionnaires
  - First questionnaire (climate) sent 2002; 230+ responses
  - 2016 in numbers: 5600+ companies, 530+ cities, 820+ institutional investors globally
- The thesis originates from 2050 targets
  - Highest emitting companies achieving regarding carbon management?
    - What institutional affects facilitate and hinder the change towards low-carbon economy
  - Participated in CDP – seen as forerunners
    - In total 252 companies (top 100 each year, 2010 - 2015)

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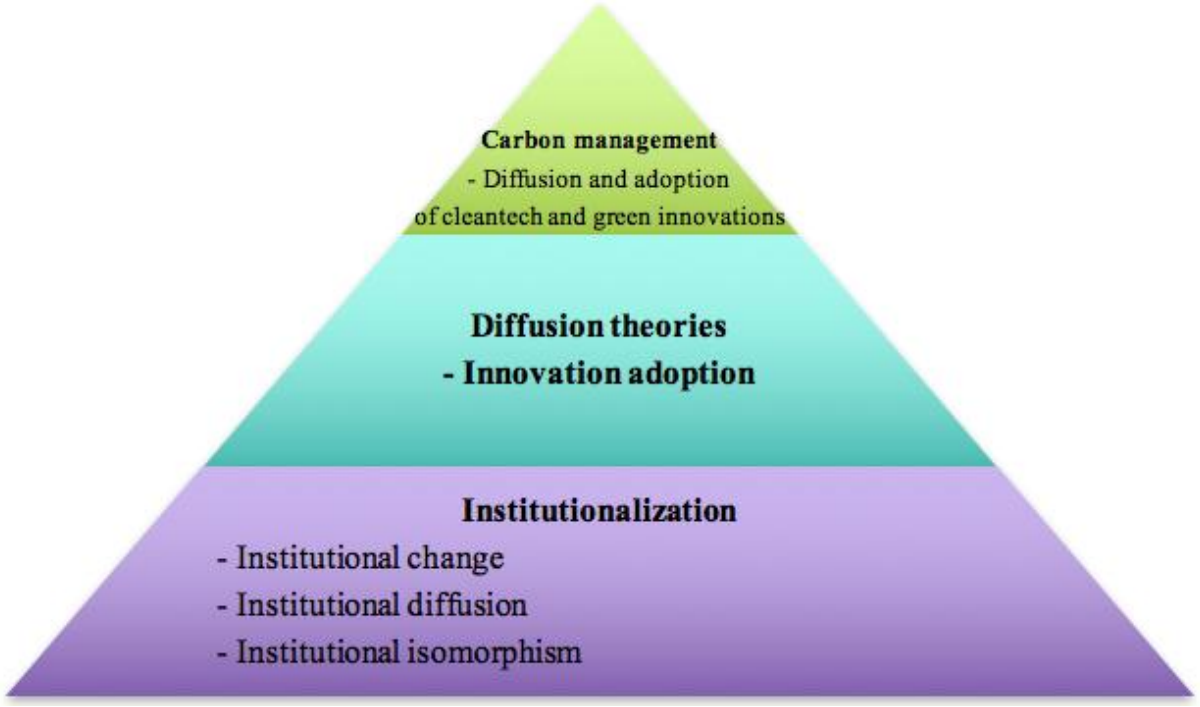

THEORETICAL FRAMEWORK

- Institutions – 3 pillars
  - Regulative, Normative, Culturally-Cognitive
  - Institutionalization is the process (creating, sustaining, changing)
  - Organizations are the agents of institutional change
- Institutional diffusion
  - Related to traditional diffusion models
  - Isomorphism in the center of institutional diffusion
  - 3 pillars mechanisms (pressures): coercive, normative and mimetic
  - Isomorphism = similarity

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RESEARCH QUESTIONS

- 1 Have companies adopted and engaging in carbon management?
  - Study emissions trends, country & industry level differences, and emission reduction targets and initiatives
- 2 What institutional drivers and barriers affect carbon managements diffusion (management)?
  - Study risks and opportunities, risk and opp. management, country and industry level differences
- 3 How widely and deeply carbon management is diffused; institutional isomorphism and isomorphism pressures?
  - Study carbon management integration to strategies, governance, highest responsibility of climate change, incentives for managing emissions and reaching targets, engaging with policy makers, NGOs and research in the field
- 4 Can we identify decoupling? (Related to isomorphism)
  - State that they mitigate emissions but within their actions do not (conflicting institutional pressures, internal efficiency requirements e.g.)

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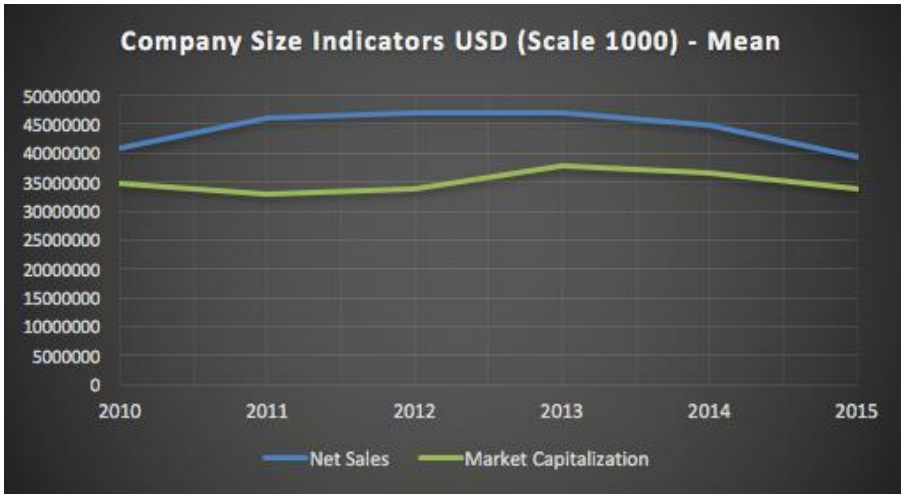

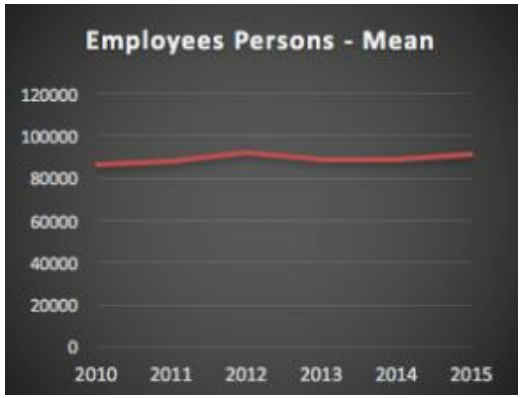

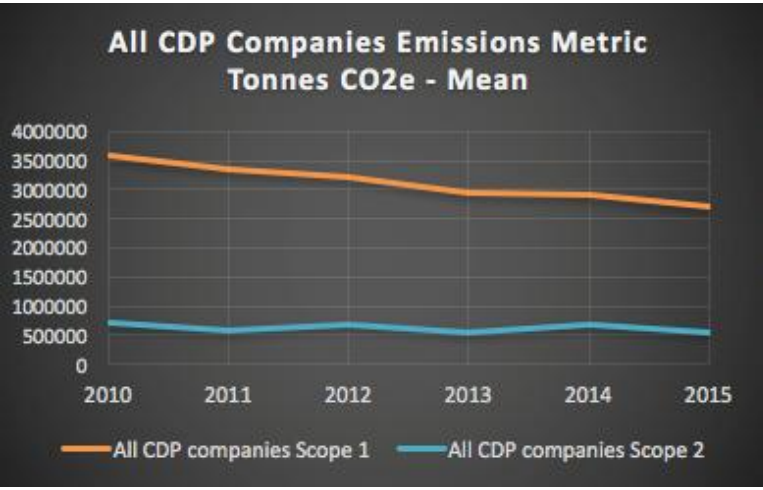

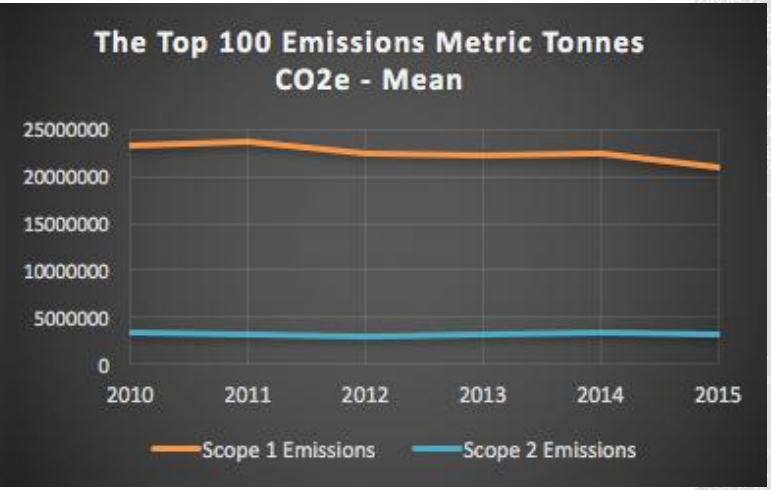

DESCRIPTIVE DATA

- Net sales converted to USD
- Scope 1 and 2 emissions are actual emissions in metric tonnes CO2e
- Scope 1 emissions = direct emissions from sources owned or managed
- Scope 2 emissions = indirect, actions of the company but controlled/managed by another company (consumption of purchased electricity)
- 2010 to 2015 more companies reported emissions (1400 to 1800)

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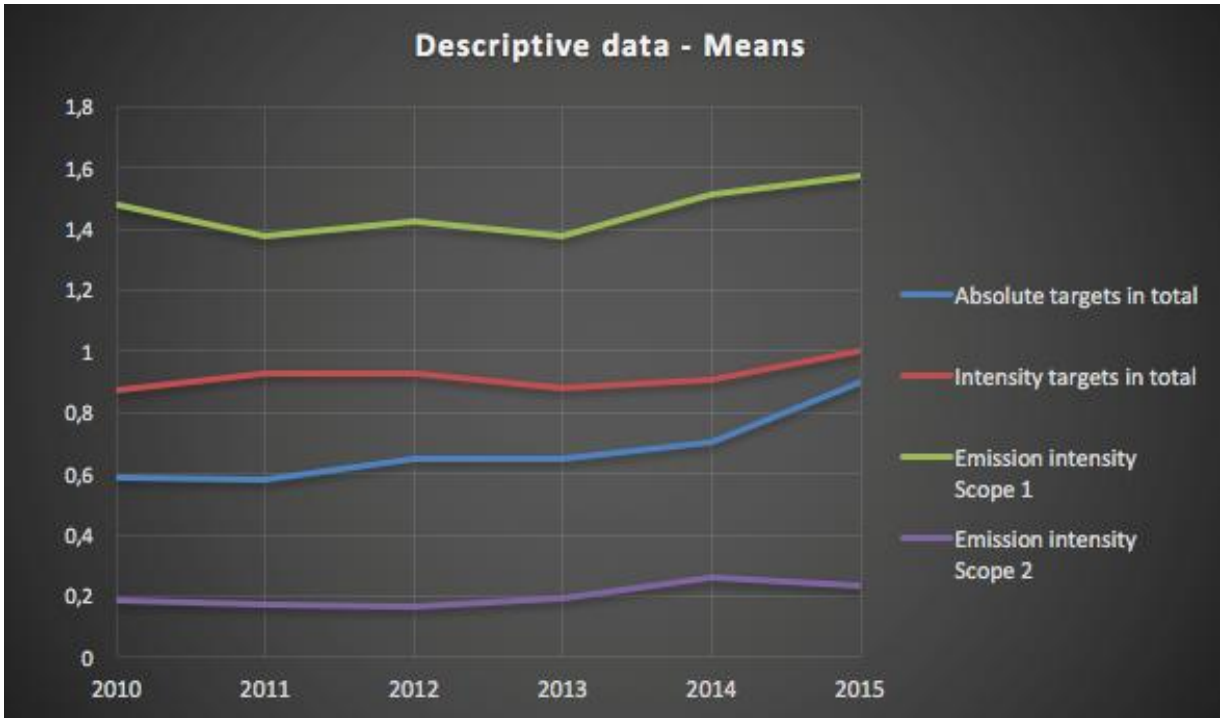

DESCRIPTIVE DATA

- Absolute emission reduction targets (CDP) future reductions in actual emissions
- Emission intensity targets (CDP) future reductions in emissions normalized to a business metric
- Emission intensity Scope 1 and 2 (Emissions / Net Sales USD Scale 1000)
- Participation rate each year 81 – 82% (out of 252)

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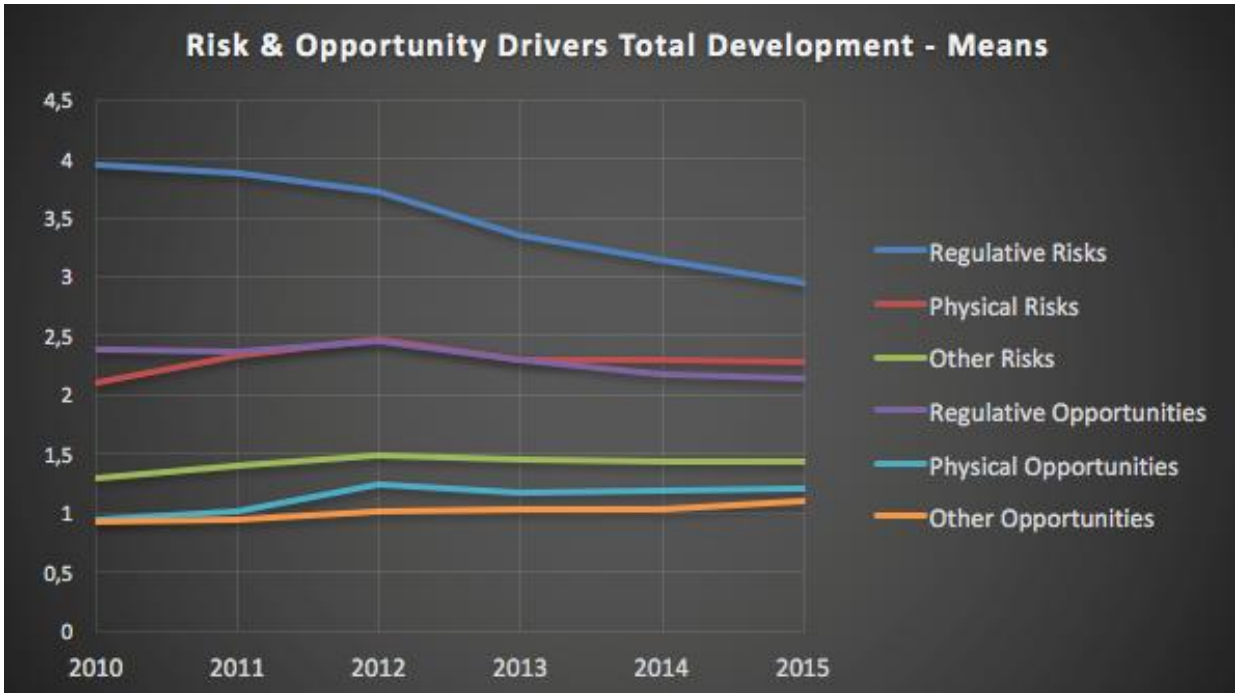

DESCRIPTIVE DATA

- Risks and opportunity drivers identified by companies in total, development from 2010 to 2015
  - = Carbon taxes, change in mean temperature, changing consumer behavior
- Timeframes set for these drivers changed
  - "Unknown" timeframe decreased
  - Short timeframes (0-1year) decreased significantly
  - Longer timeframes on clear rise
  - = Companies distinguish and set timeframes for risk and opportunities to further in the future

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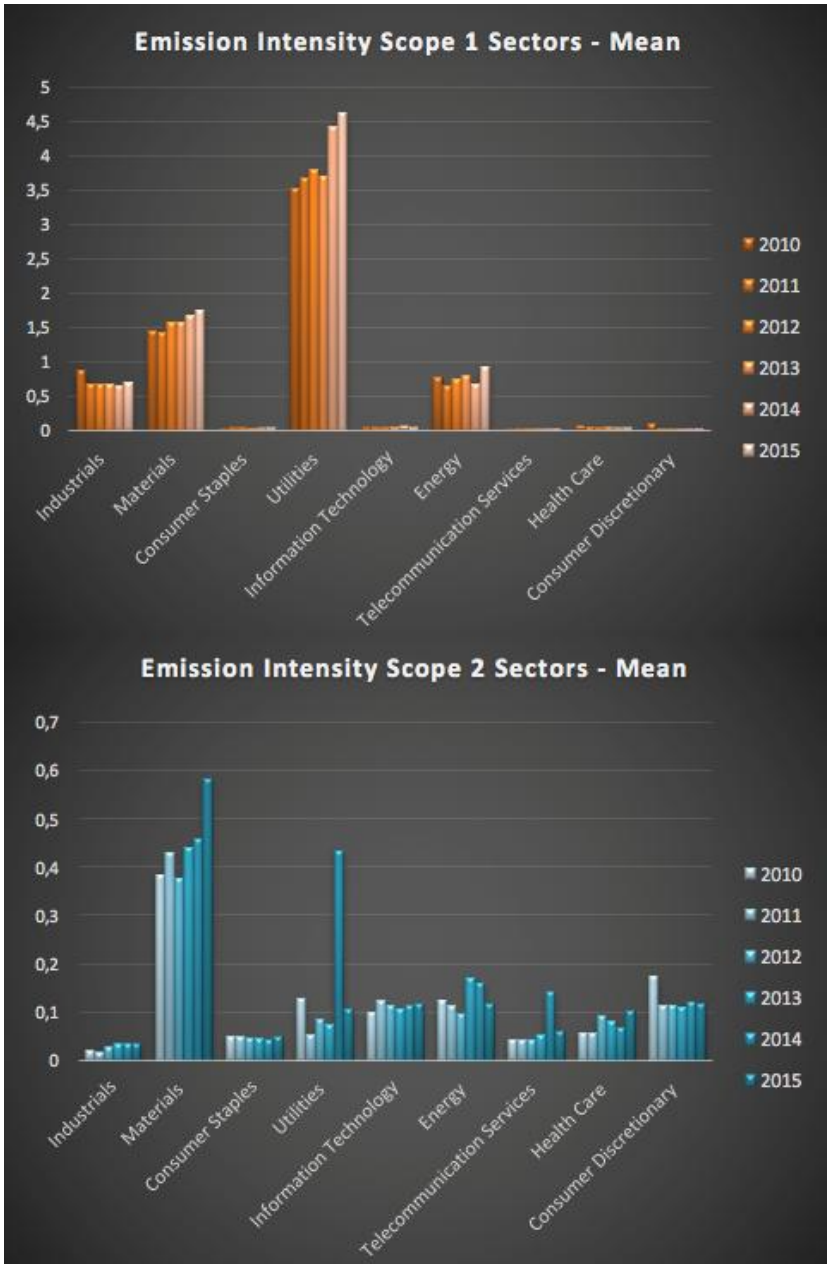
DESCRIPTIVE DATA – EMISSION INTENSITIES BY SECTOR

- Industrials: Transportation, capital goods
- Materials: Chemicals, metal & mining, construction materials, paper and forest
- Consumer staples: Food, household products, food & staples retailing
- Utilities: Electric & multi-utilities, independent power producers, renewable energy, energy traders
- IT: Semiconductors, technology hardware, IT consulting, Internet software
- Energy: Oil, gas, coal
- Consumer discretionary: Hotels, restaurants, automobile, homebuilding



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PRELIMINARY RESULTS – FINANCIALS VS EMISSIONS LINEAR REGRESSIONS (LR)

- Higher EBIT-, Gross profit- and Cash flow -margins now when;
  - Higher SC 1 emission intensity now and in the near future (+1 +2 years)
  - Decreasing emissions costly?
- Higher Debt / Total Assets now when;
  - Higher SC 1 emission intensity now and in the near future (+1 +2 years)
  - Higher ratio indicates higher financial risk – high leverage
  - Do not want to invest to carbon management?
- Higher Return of Assets % now when;
  - Lower SC 1 and SC 2 emission intensity now and in the near future (+1 +2 years)
  - Higher earnings generated from invested capital; can afford to decrease emissions
  - Industry dependent figure
- Higher current ratio now when;
  - Lower SC 1 emission intensity now and next year (+1)
  - Assets relative to liabilities: higher the ratio the better (to certain extent)
  - Good financial health, are able to pay back their liabilities – able to mitigate emissions

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PRELIMINARY RESULTS – RQ1 (LR)

- Are companies engaging in carbon management (Descriptive)
  - Absolute Scope 1 and 2 emissions decreased (To some extent)
  - Scope 1 and 2 emission intensities on the rise (Net sales decreased)
  - More absolute and intensity targets set by companies
- Country differences - The more reported data from
  - South America or Russia + CIS and East Europe = Higher SC 1 emissions
  - Russia + CIS and East Europe = Higher SC 1 emission intensity
  - West Europe or Oceania = Lower SC 1 emissions
  - West Europe or South America = Lower SC 1 emission intensity
- Industry differences
  - Utilities = Higher SC 1 emissions
  - Materials, Consumer staples, Telecommunication services = Higher SC 2 emissions
  - Industrials, Consumer staples, Information Technology, Energy, Telecommunication services, Health care and Consumer discretionary = Lower SC 1 emission intensity

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PRELIMINARY RESULTS – RQ2 (LR)

- Institutional drivers and barriers to carbon management (the more)
  - Risks are distinguished = Higher SC 1 emissions
  - Risks distinguished now = Higher SC 1 emission intensity now and next year
  - Opportunities distinguished now = Lower SC 1 emission intensity now and next year
- The more regulative risks are distinguished the higher the SC 1 emissions
- The more physical climate change related opportunities distinguished the lower the SC 1 emissions
- Scope 2 not statistically significant
- Further analysis to be conducted – QDA Miner

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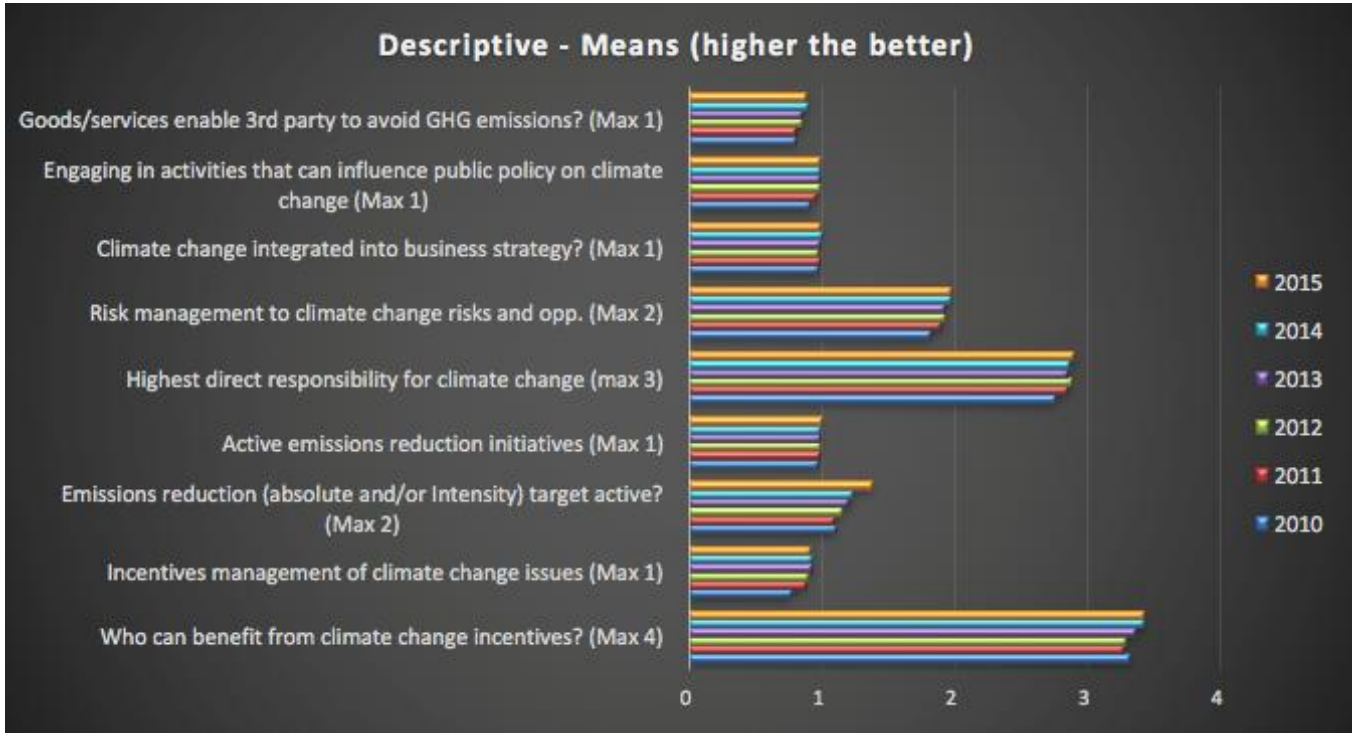
PRELIMINARY RESULTS – RQ3 (LR)

- Carbon managements diffusion
  - A lot is being said
  - Preliminary results do not quite correspond
  - Decoupling?
- The more employees can benefit from climate change incentives
  - = Lower the Scope 2 emission intensity (+1 year)
- Goods/services enabling 3rd party to avoid GHG emissions
  - = Lower the Scope 2 emissions (+1 +2 years)



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WHAT NEXT

- Panel regressions – fits better with the data
- QDA miner to analyze qualitative text, especially regarding risk and opportunity drivers further descriptions
- Generate more specific hypotheses to each RQ to be tested
- Combine results with theoretical background and provide possible explanations

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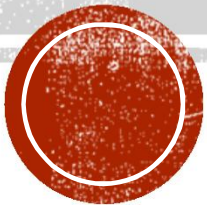
THANK YOU!



Questions & comments?

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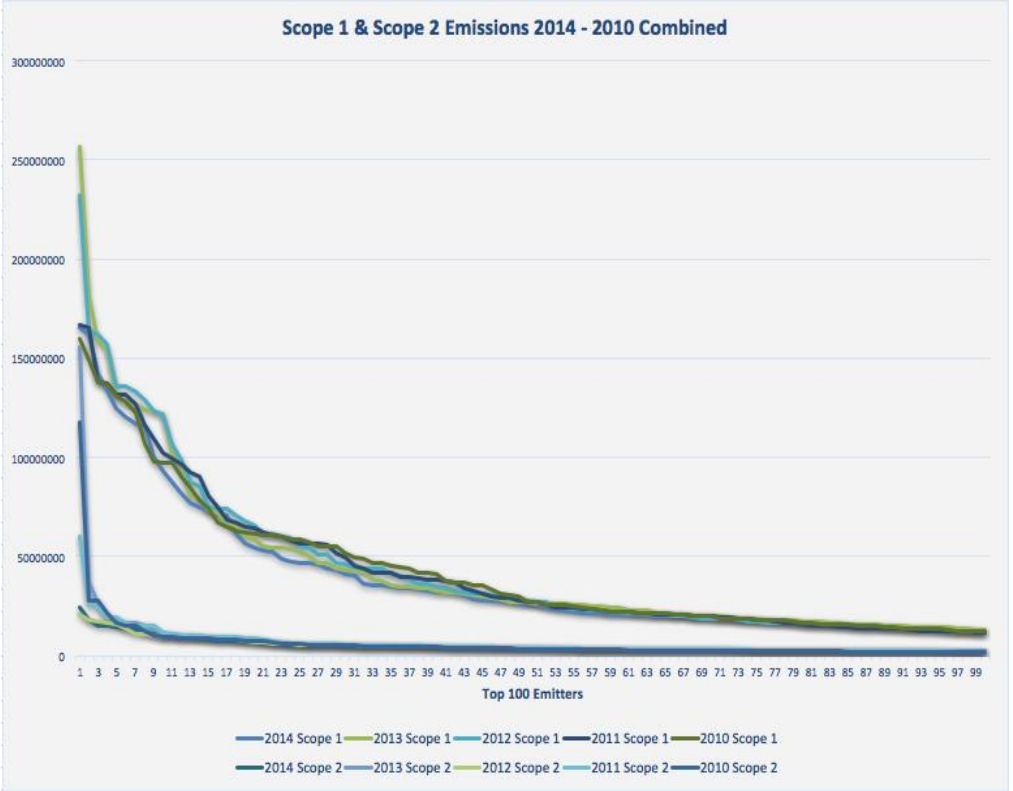
APPENDIX

	Regulative	*Normative*	*Cultural-Cognitive*
Basis of compliance	Expedience	Social obligation	Taken-for-grantedness Shared understanding
Basis of order	Regulative rules	Binding expectations	Constitutive schema
Mechanisms	Coercive	Normative	Mimetic
Logic	Instrumentality	Appropriateness	Orthodoxy
Indicators	Rules Laws Sanctions	Certification Accreditation	Common beliefs Shared logics of action Isomorphism
Affect	Fear Guilt/ Innocence	Shame/Honor	Certainty/Confusion
Basis of legitimacy	Legally sanctioned	Morally governed	Comprehensible Recognizable Culturally supported



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