

CEFG Group

**Assembly of Investment Chairs 2019: Sustainable
Finance and Climate Risk**

University of Otago Auckland Centre, 27 November

Ivan Diaz-Rainey



OTAGO HOME

Climate & Energy Finance Group (CEFGGroup)

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Climate & Energy Finance Group (CEFGGroup)

The Climate and Energy Finance Group (CEFGGroup) undertakes high-quality, rigorous, quantitative and independent research in the areas of climate finance, sustainable investing, energy markets and carbon markets.

The group is a founding member of the Global Research Alliance for Sustainable Finance and Investing ([GRASFI](#))

- **One of the largest groupings in climate finance in the world**
 - Faculty = 12 UoO staff (Greg Sise + Simon Cox)
 - Students = 10 students (PhD + Masters)
- **Differentiation**
 - principally from **finance, economics and accounting disciplinary background**. Most climate finance groupings emanate from either a climate science or general social sciences background.
 - **inter-disciplinary and policy/practitioner relevant research**
 - **few climate finance research groupings in Asia & Australasia**

- **Resources**



GLOBAL RESEARCH ALLIANCE

FOR SUSTAINABLE FINANCE AND INVESTMENT



Universität
Zürich ^{UZH}



UNIVERSITY OF
TORONTO

Imperial College
London



Maastricht University



THE LONDON SCHOOL
OF ECONOMICS AND
POLITICAL SCIENCE



Universität Hamburg

DER FORSCHUNG | DER LEHRE | DER BILDUNG



COLUMBIA UNIVERSITY

IN THE CITY OF NEW YORK



Frankfurt School of
Finance & Management
Bankakademie | HfB



清华大学

Tsinghua University



MACQUARIE
University
SYDNEY-AUSTRALIA

Stanford University



UNIVERSITY OF
CAMBRIDGE



UNIVERSITY OF
WATERLOO



UNIVERSITY
of
OTAGO



Yale University

GRASFI Emerging Relationships

INAUGURAL MEETING
One Planet SWF Research Forum
Élysée Palace, 9th July 2019



Carbon pricing and system linking: Lessons from the New Zealand Emissions Trading Scheme☆☆☆

Ivan Diaz-Rainey^{a,*}, Daniel J. Tulloch^b

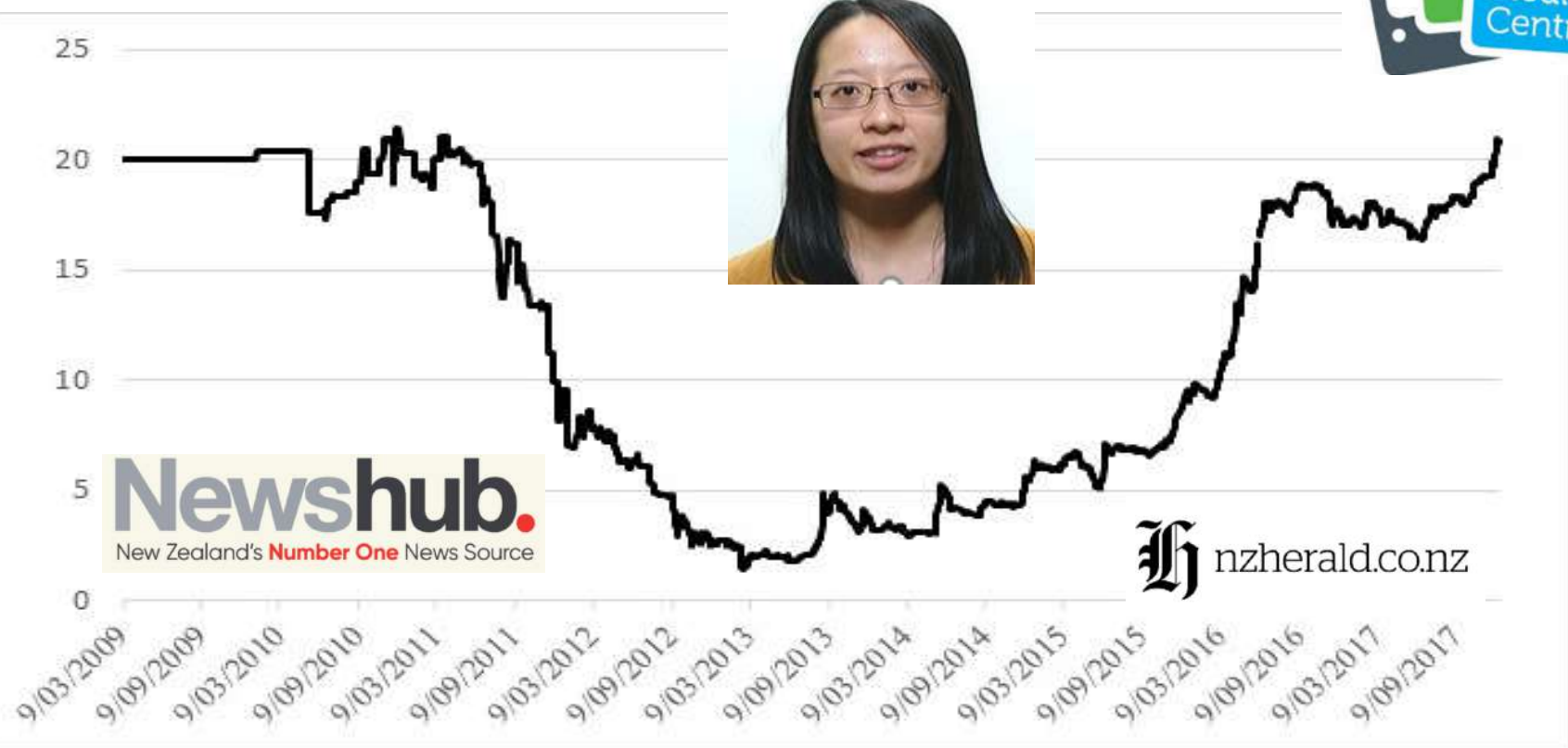


Figure 7. Price of NZU's from September 2009 to December 2017



Science and the stock market: Investors' recognition of unburnable carbon

Paul A. Griffin ^a✉, Amy Myers Jaffe ^b✉, David H. Lont ^c✉, Rosa Dominguez-Faus ^b✉

CONTEMPORARY
ACCOUNTING
RESEARCH

RECHERCHE
COMPTABLE
CONTEMPORAINE

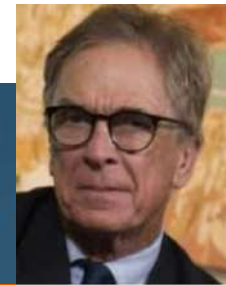


Original Article

The Relevance to Investors of Greenhouse Gas Emission Disclosures*

Paul A. Griffin, David H. Lont, Estelle Y. Sun

Climate Activist Investors: AGM resolutions



Trump vs. Paris: The impact of climate policy and climate risk on U.S. listed Oil and Gas firm valuation



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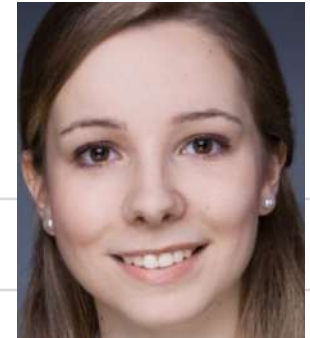
Renzhu Zhang
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Green Energy Finance in Australia and New Zealand

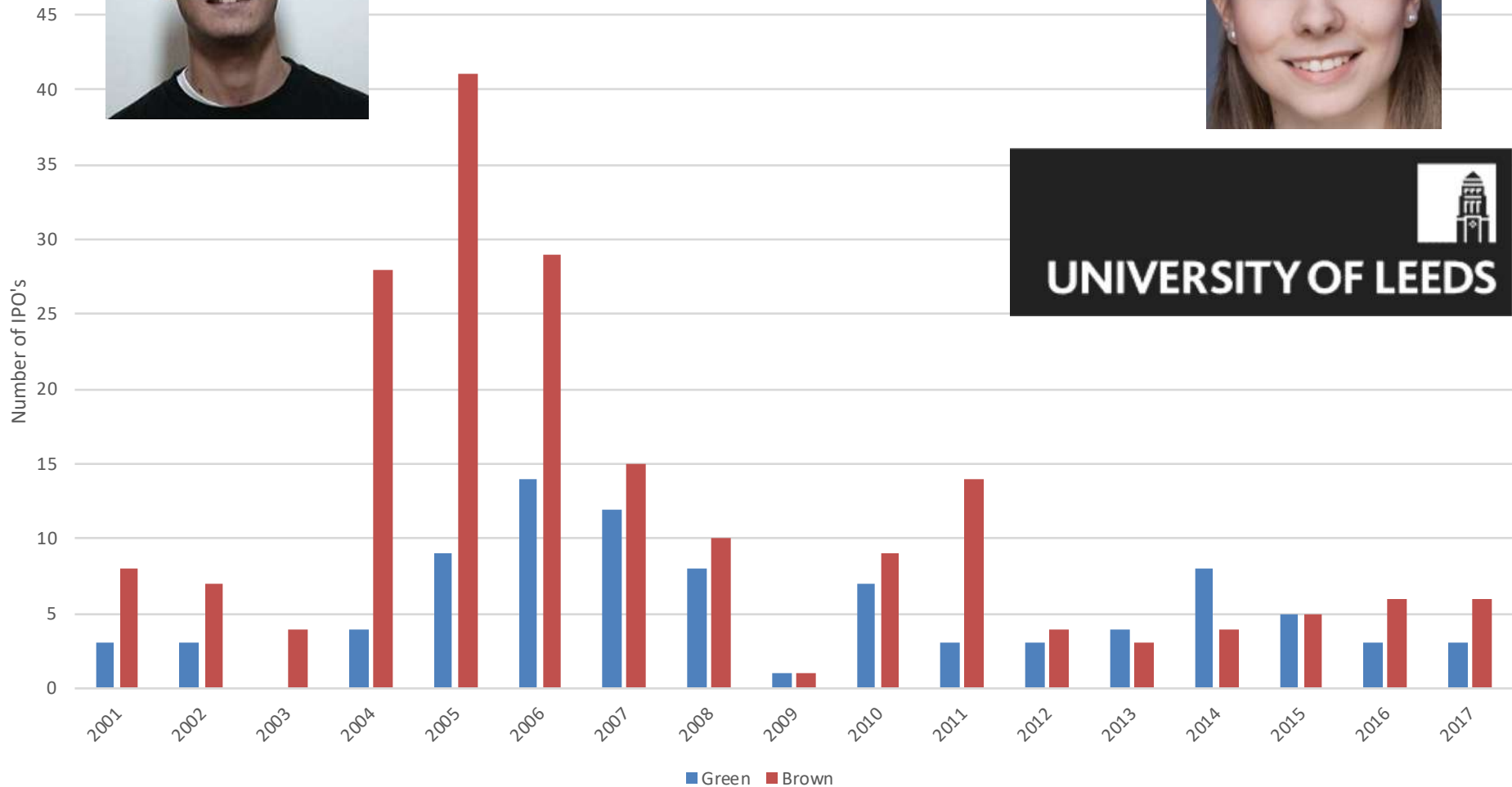


Country	Total Spend (\$US Billion between 2004 and Q2 2017)	Standard deviation of annual % change over 13½ year period	Population 2017, thousands	Spend per cap	GDP per cap, nominal US\$ 2016	Spend on RES over 13½ year period as % of 2016 GDP per cap	Spend relative to mean spend (=5%) for 13 largest economies
China	702.7	0.49	1,409,517	499	8,113	6.1%	23%
US	605.5	0.39	324,459	1,866	57,436	3.2%	-35%
Germany	298.9	0.26	82,114	3,640	41,902	8.7%	74%
Japan	266.1	0.31	127,484	2,087	38,917	5.4%	7%
UK	163.1	0.49	66,182	2,464	40,096	6.1%	23%
Italy	107.9	0.85	59,360	1,818	30,507	6.0%	19%
Spain	101.7	0.68	46,354	2,194	26,609	8.2%	65%
India	100.5	0.43	1,339,180	75	1,723	4.4%	-13%
Brazil	95.5	0.71	209,288	456	8,727	5.2%	5%
France	71.0	0.61	64,980	1,093	38,128	2.9%	-43%
Canada	57.7	0.41	36,624	1,575	42,210	3.7%	-25%
Australia	44.9	0.46	24,451	1,836	51,850	3.5%	-29%
Korea	20.5	0.42	50,982	402	27,539	1.5%	-71%
Other	530.8	0.23					
NZ	2.6		4,706	545	38,345	1.4%	-72%

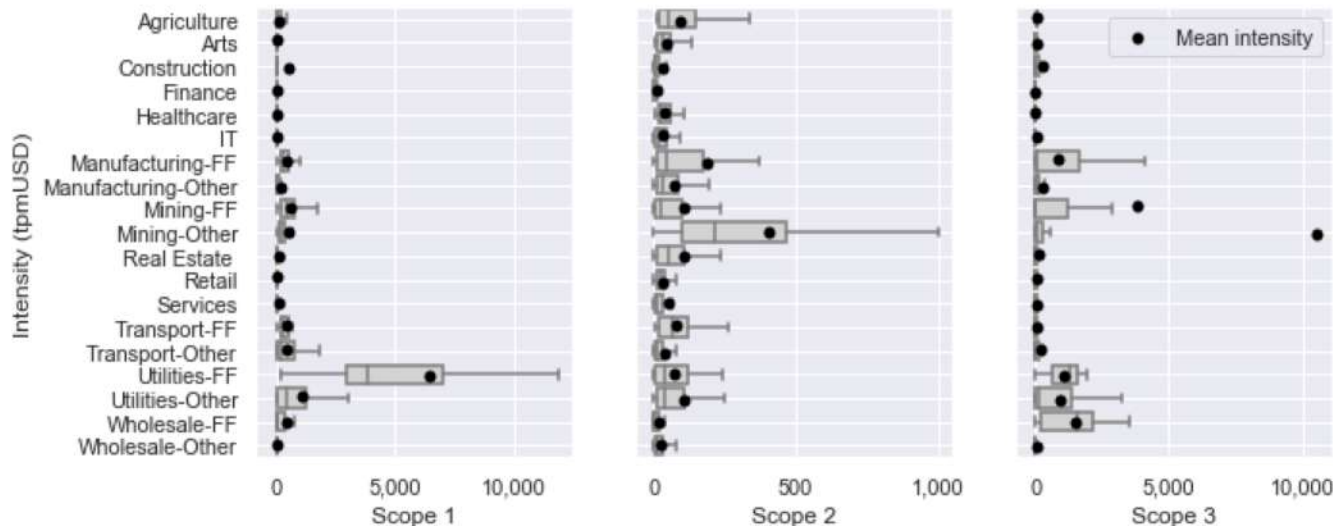
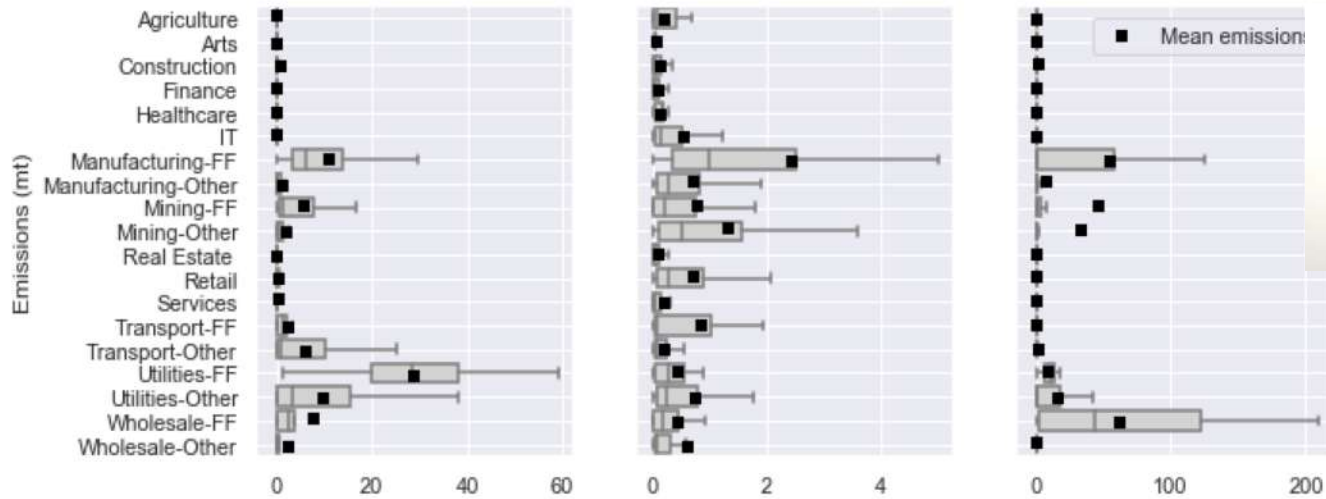
IPOs in Europe: Green vs Brown



Green and Brown IPO's Over Time



Predicting Carbon Footprints Using Machine Learning



**Investors:
only some
companies
disclose**

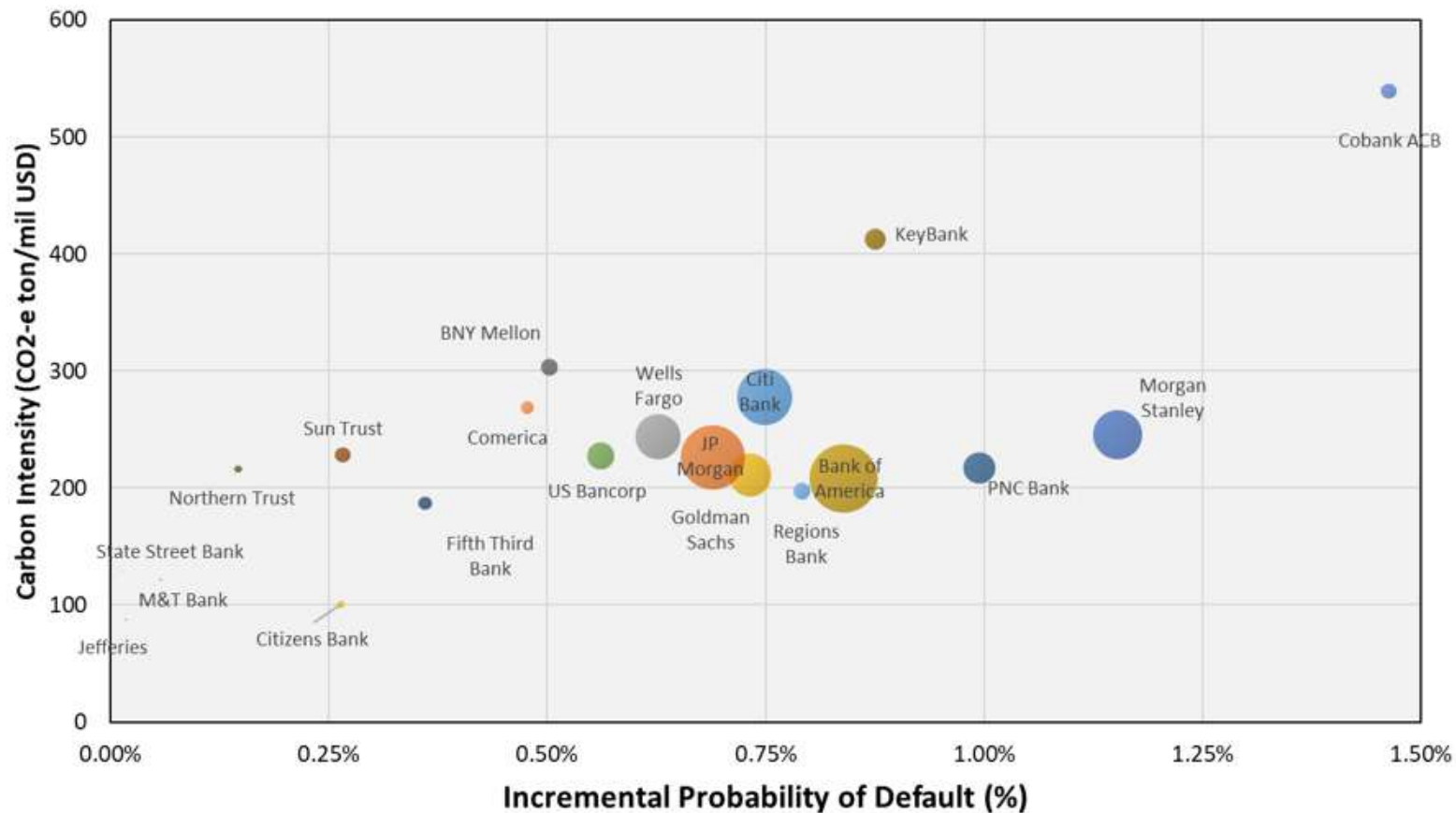
**Companies:
Cost of
calculating
footprint are
large**

Transition risk: US Bank Loans



- **Syndicated loans**
- **First bottom up analysis**
- **Can differentiate bank by transition risk**
- **Stress testing**

(a) 2°C Pathways



Physical Risk: Natural Disasters and Risk in Asian Commercial Banks



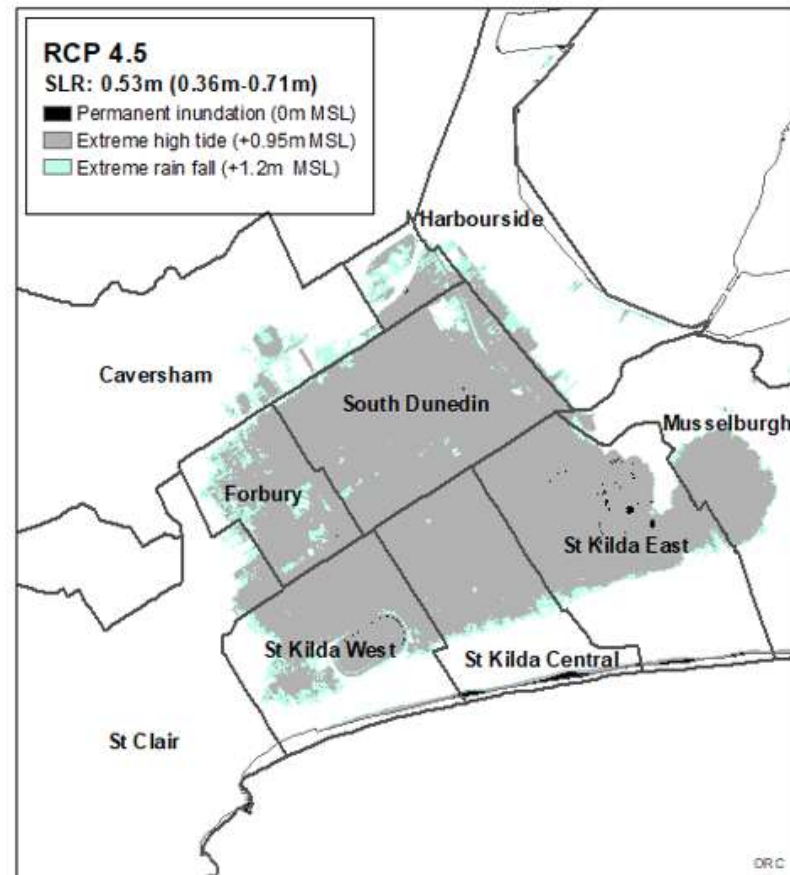
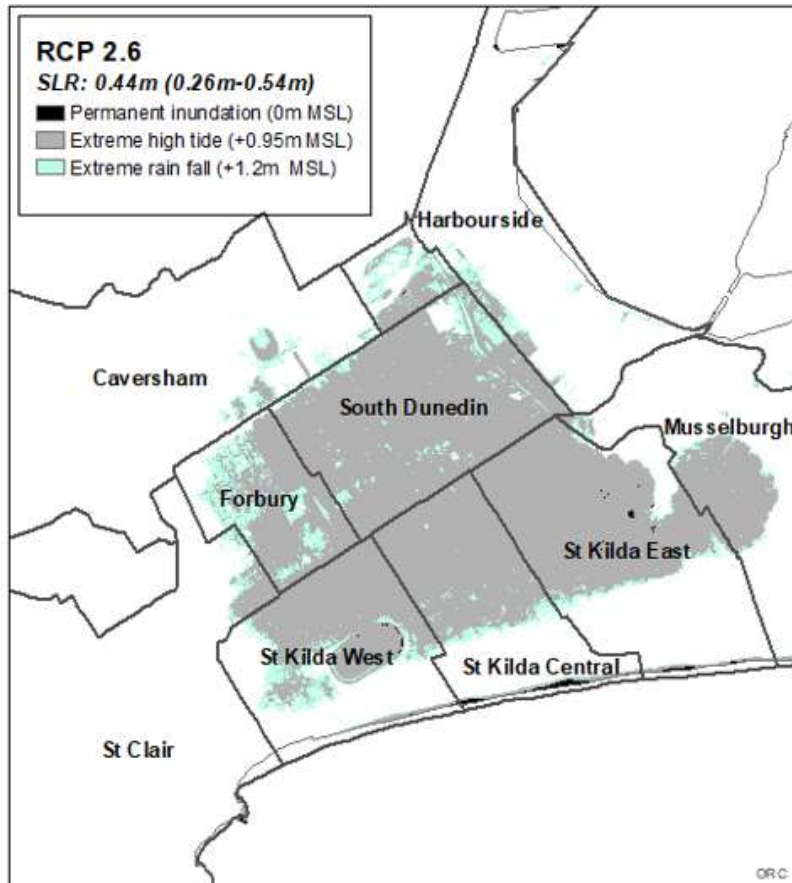
Physical Risk: Microfinance Institutions



Physical Risk: NZ Stranded Real Estate



Figure 9 – The Impact of SLR on Flooding Possibilities by 2100 |



Teaching / Education > SFF

- **FINC420 Climate and Energy Finance:** Climate risk in integrated O&G; energy utility simulation; ESG; carbon markets
- **Masters in Sustainable Business**
- New?
 - UG Sustainable finance course
 - Masters in Sustainable Finance
 - Executive/NGO Education & AOIC next year?

Research

- We want your input? > Sebastian closing session
- Maori economy / investments?
- Climate risk in NZ banks? > intensive dairy & debt
- Climate transition risk in NZ equities > Hamish