



# Central banks and the climate crisis

22<sup>nd</sup> March 2022

*'Climate change and central banks: mission impossible?'*

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# Central principles

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- 3 strands:
- Central bank central bank monetary policy tools
- Bank stress-testing and climate-related losses
- Radical uncertainty

# Strand 1: Central Bank Mandates – Monetary Policy

Bank of England, (3<sup>rd</sup> March 2021):

*“I am today updating the MPC’s remit to reflect the government’s economic strategy for achieving strong, sustainable and balanced growth that is also environmentally sustainable and consistent with the transition to a net zero economy”*

US:

FSOC, Report on Climate-Related Financial Risk (2021)

The Supervision Climate Committee (SCC) and the Financial Stability Climate Committee (FSCC)

Climate stress-testing

EU:

TFEU and ECB Statutes

Lagarde (2020): *“whatever we have”* to fight climate change

# Strand 1: Corporate bond buying; Oft-cited by academics, think-tanks and policy groups

FOUNDATION FOR EUROPEAN  
PROGRESSIVE STUDIES  
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FEPS Policy Brief  
June 2020

Two issues, assuming legal mandate can cover this:

1. Role of bond-buying in unconventional monetary policy

2. Effect of such interventions

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## GREENING THE EUROPEAN FINANCIAL SYSTEM

Three ideas for a progressive Sustainable Finance agenda

*The ECB's monetary policies have an implicit carbon bias. The eligibility criteria for collateral or unconventional purchases do not consider climate risks but rather rely on traditional credit ratings that fail to factor in climate exposures. Thus, monetary policy implicitly sanctions the financial markets' mispricing of climate risks, amplifying the financial stability risks of extreme climate events. This requires the ECB to green its balance sheet.*

HOUSE OF LORDS

Economic Affairs Committee

1st Report of Session 2021–22

## Quantitative easing: a dangerous addiction?

- UK QE (2021): Total £895bn
- £875bn Gilts
- £20 billion of corporate bonds

*In this inquiry we took oral evidence from prominent monetary policy practitioners and experts. We would like to thank in particular those witnesses from overseas who gave us the benefit of their knowledge and experience, including... Christina Parajon Skinner, Assistant Professor of Legal Studies & Business Ethics at The Wharton School of the University of Pennsylvania... Finally, we would like to thank our Specialist Adviser for this inquiry, Professor Rosa M Lastra, Sir John Lubbock Chair in Banking Law at Queen Mary University of London.*



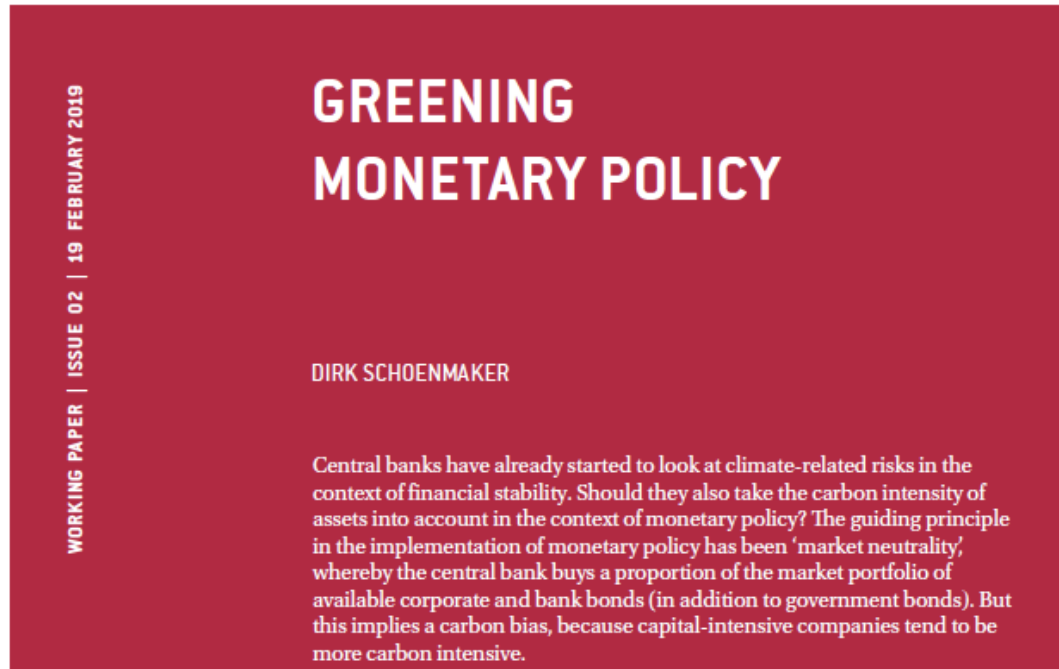
Reserve Bank credit, related items, and reserve balances of depository institutions at Federal Reserve Banks	Week ended Mar 9, 2022
Reserve Bank credit	8,870,119
Securities held outright <sup>1</sup>	8,444,997
U.S. Treasury securities	5,751,291
Bills <sup>2</sup>	326,044
Notes and bonds, nominal <sup>2</sup>	4,960,714
Notes and bonds, inflation-indexed <sup>2</sup>	388,233
Inflation compensation <sup>3</sup>	76,300
Federal agency debt securities <sup>2</sup>	2,347
Mortgage-backed securities <sup>4</sup>	2,691,358
Unamortized premiums on securities held outright <sup>5</sup>	347,696
Unamortized discounts on securities held outright <sup>5</sup>	-20,412
Repurchase agreements <sup>6</sup>	0
Foreign official	0
Others	0
Loans	27,670
Primary credit	2,061
Secondary credit	0
Seasonal credit	0
Primary Dealer Credit Facility	0
Money Market Mutual Fund Liquidity Facility	0
Paycheck Protection Program Liquidity Facility	25,609
Other credit extensions	0
Net portfolio holdings of Commercial Paper Funding Facility II LLC <sup>7</sup>	0
Net portfolio holdings of Corporate Credit Facilities LLC <sup>7</sup>	0
Net portfolio holdings of MS Facilities LLC (Main Street Lending Program) <sup>7</sup>	28,998
Net portfolio holdings of Municipal Liquidity Facility LLC <sup>7</sup>	6,907
Net portfolio holdings of TALF II LLC <sup>7</sup>	2,526



## Eurosystem holdings under the asset purchase programme

Changes of holdings (previous month)	ABSPP	CBPP3	CSPP	PSPP	APP
Holdings* in January 2022	26,740	294,407	316,646	2,504,428	3,142,221
Monthly net purchases	-45	2,376	6,272	12,095	20,698
Quarter-end amortisation adjustment and redemptions of coupon STRIPS					
Holdings* in February 2022	26,696	296,783	322,918	2,516,523	3,162,919

# Impact on spreads



*“We find that a modest tilting approach could ... lower the cost of capital of low carbon companies by 4 basis points...”*

Schoenmaker (2019)



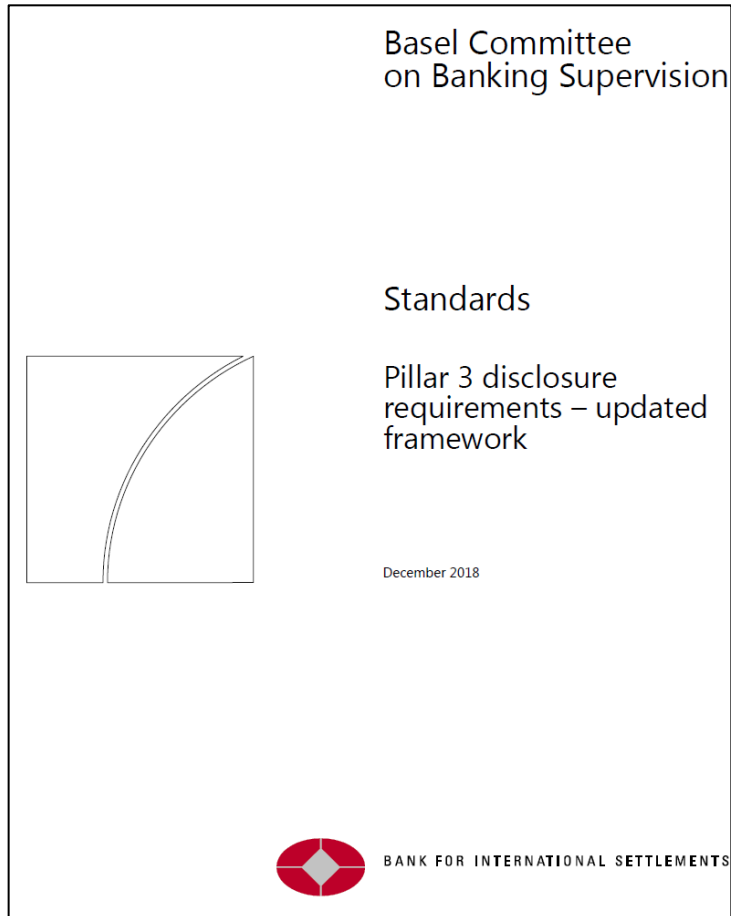
# Strand 2: Financial stability

- Second argument concerns financial stability
- Focuses on two distinct regulatory instruments:
  - Capital requirements
  - **Stress-testing**

# Stress testing for banks and climate risks

- Specific asset classes exposed to climate risk rather than banks' overall balance sheets.
- Stranded assets
- Difficult to implement, although arguably 'the most powerful prudential tool we have at our disposal for safeguarding the resilience of the financial system.' S.G. Cecchetti (2015)
- Goodhart, *In Praise of Stress Tests* (2014)

# Basel III Pillar 3 Disclosures



- Disclosure requirements for credit risk, operational risk, leverage ratio, credit valuation adjustment (CVA) and overview templates on risk management, risk-weighted assets (RWA) and key prudential metrics. It also covers new disclosure requirements to compare RWA outcomes of banks' internal models with RWA calculated according to the full standardised approaches.

## HSBC UK Bank plc: Pillar 3 Disclosures at 31 December 2021

Table 37: IRB Advanced – Credit risk exposures by portfolio and PD range (CR6)

PD scale	Original on-balance sheet gross exposure £m	Off-balance sheet exposures pre-CCF £m	Average CCF %	EAD post-CRM and post-CCF £m	Average PD %	Number of obligors	Average LGD %	Average maturity years	RWAs £m	RWA density %	Expected loss £m	Value adjustments and provisions £m
<b>AIRB – Corporate – Other</b>												
0.00 to <0.15	178	130	51.1	257	0.08	93	15.0	2.0	35	13.8	–	–
0.15 to <0.25	135	18	45.1	142	0.21	174	17.0	1.3	22	15.1	–	–
0.25 to <0.50	128	18	76.4	143	0.38	122	20.0	2.0	41	28.4	–	–
0.50 to <0.75	78	1	44.9	83	0.63	101	21.0	1.6	27	33.1	–	–
0.75 to <2.50	366	34	110.3	385	1.79	21,535	20.0	1.5	178	46.6	1	–
2.50 to <10.00	62	638	–	62	3.87	57	17.0	1.4	31	49.8	–	–
10.00 to <100.00	11	–	566.7	11	17.87	20	20.0	1.0	10	90.7	–	–
100.00 (Default)	72	–	856.3	72	100.00	18	21.0	1.0	129	179.2	7	6
<b>Sub-total</b>	<b>1,030</b>	<b>839</b>	<b>14.9</b>	<b>1,155</b>	<b>7.34</b>	<b>22,127</b>	<b>19.0</b>	<b>1.6</b>	<b>473</b>	<b>41.0</b>	<b>8</b>	<b>6</b>
<b>AIRB – Corporate – SME</b>												
0.00 to <0.15	–	–	–	–	0.13	–	37.0	1.0	–	12.8	–	–
0.15 to <0.25	2	2	21.0	2	0.22	25	15.0	1.6	–	7.0	–	–
0.25 to <0.50	–	–	–	–	0.37	–	45.0	1.0	–	1,484.1	–	–
0.50 to <0.75	–	–	45.4	–	0.63	–	45.0	1.0	–	37.5	–	–
0.75 to <2.50	–	–	57.0	–	0.91	6	36.0	4.1	–	59.6	–	–
2.50 to <10.00	–	–	–	–	3.69	–	45.0	1.0	–	72.5	–	–
10.00 to <100.00	–	–	–	–	–	–	–	–	–	–	–	–
100.00 (Default)	–	–	–	–	–	–	–	–	–	–	–	–
<b>Sub-total</b>	<b>2</b>	<b>2</b>	<b>22.3</b>	<b>2</b>	<b>0.33</b>	<b>25</b>	<b>17.0</b>	<b>1.9</b>	<b>–</b>	<b>15.9</b>	<b>–</b>	<b>–</b>

# Morgan Stanley Int. Pillar 3 Regulatory Disclosures Report, 30 June 2021

**Table 43: IRB approach – CCR exposures by portfolio and PD scale (EU CCR4)**

MSI Group	EAD post-CRM \$MM	Average PD %	Number of obligors #	Average LGD %	Average maturity Years	RWAs \$MM	RWA density %
<b>Corporates</b>	<b>63,803</b>	<b>0.74%</b>	<b>10,647</b>	<b>45.21%</b>	<b>1</b>	<b>32,463</b>	<b>51%</b>
0.00 to <0.15	35,770	0.07%	4,900	44.97%	1	9,644	27%
0.15 to <0.25	6,212	0.20%	328	51.52%	2	3,729	60%
0.25 to <0.50	12,172	0.34%	2,954	42.77%	1	6,672	55%
0.50 to <0.75	1,535	0.71%	347	45.00%	1	1,305	85%
0.75 to <2.50	4,626	1.32%	243	45.00%	1	4,524	98%
2.50 to <10.00	3,212	6.99%	1,297	45.45%	1	5,966	186%
10.00 to <100.00	246	27.91%	574	45.00%	0	623	254%
100.00 (Default)	30	100.00%	4	45.00%	1	-	0%

# Deutsche Bank, December 2020

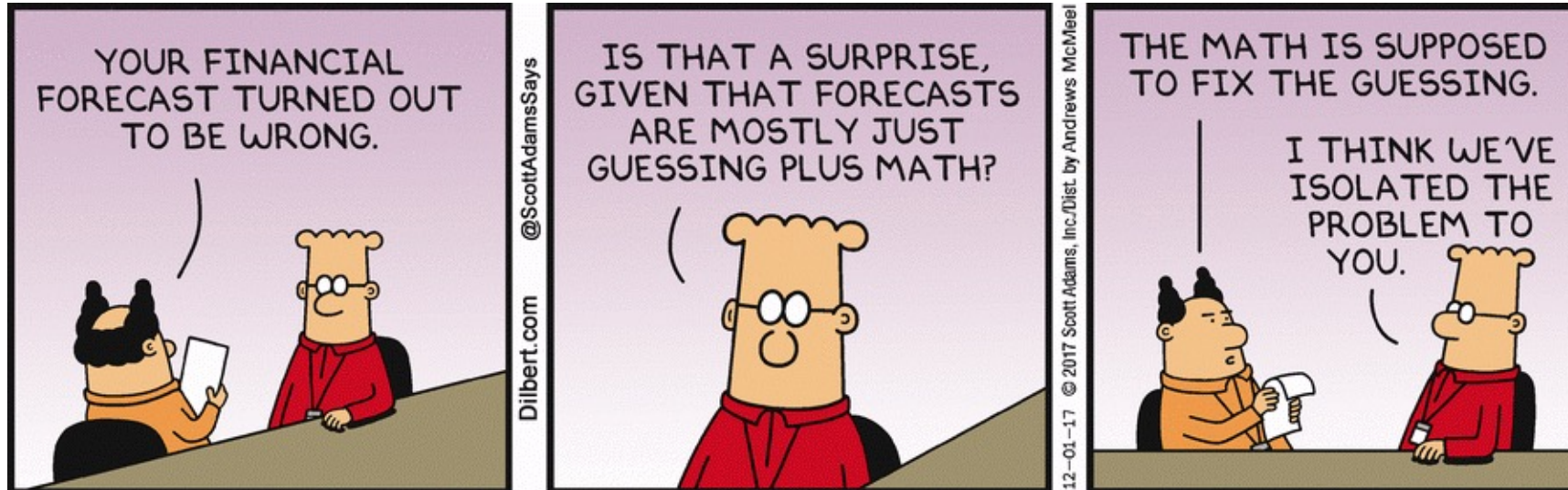
## EU CR6 – AIRB approach – Credit risk exposures by exposure class and PD range

in € m.  
(unless stated otherwise)

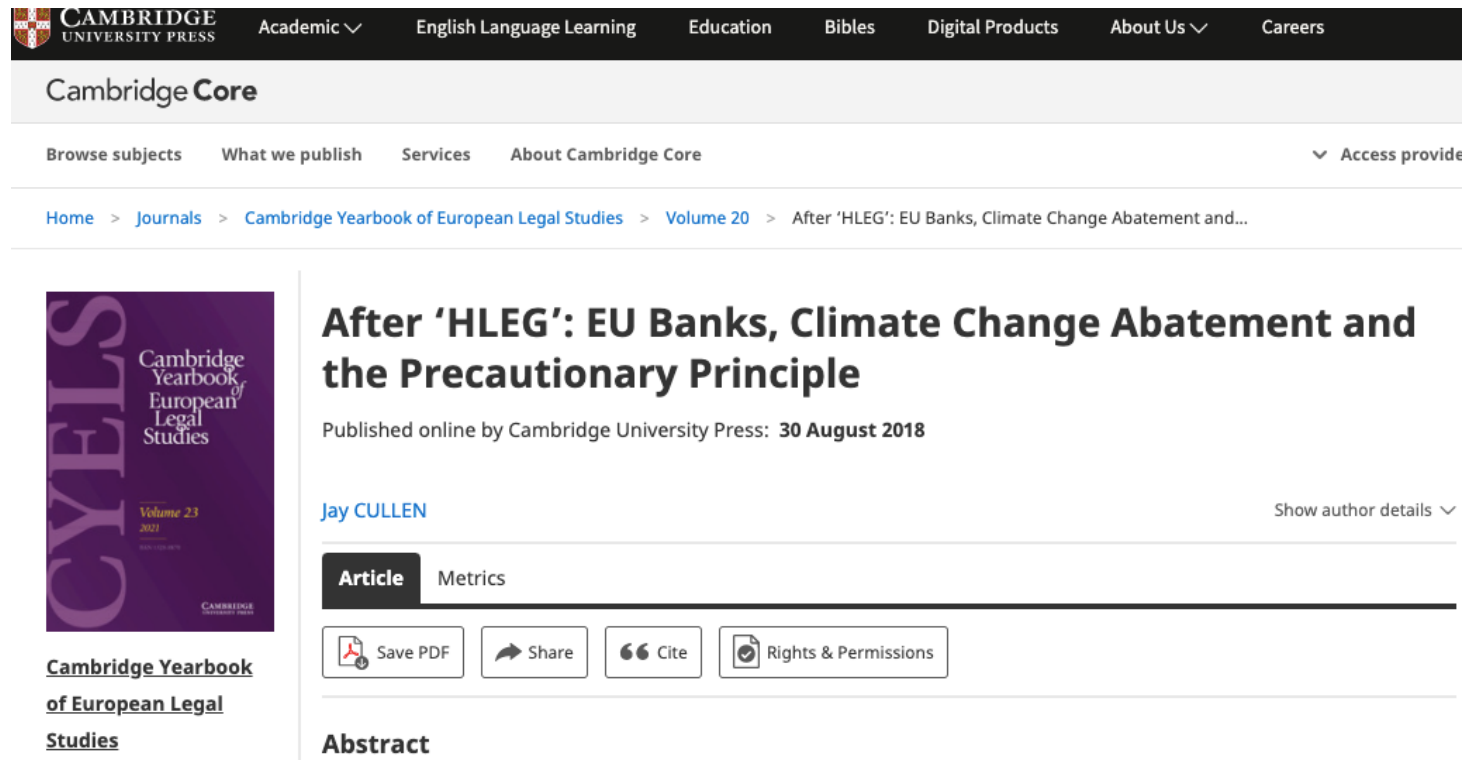
Dec 31, 2020

	a	b	c	d	e	f	g	h	i	j	k	l
Exposure class/ PD scale	EAD gross	Undrawn commitments	Weighted Credit Conversion Factor (CCF) (in %)	EAD net, post CRM and post-CCF	Average PD (in %)	Number of obligors (in 1,000s)	Average LGD (in %)	Average maturity (in years)	RWA	Average RW (in %)	Expected Loss	Value adjustments and Provisions
<b>Corporates</b>												
0.00 to <0.15	64,451	93,650	31.09	93,523	0.08	21.4	31.98	2.1	16,377	17.51	24	–
0.15 to <0.25	17,675	16,000	29.72	22,150	0.23	5.6	29.01	2.4	6,168	27.84	15	–
0.25 to <0.50	18,825	14,138	33.48	22,525	0.39	5.8	26.78	2.2	7,502	33.30	24	–
0.50 to <0.75	15,971	12,351	31.34	18,706	0.65	5.0	22.01	2.4	6,958	37.19	28	–
0.75 to <2.50	28,970	17,691	30.28	30,118	1.47	6.3	22.37	2.6	15,812	52.50	99	–
2.50 to <10.00	26,190	24,844	29.67	30,365	5.46	3.8	17.78	2.5	18,905	62.26	286	–
10.00 to <100.00	5,449	3,748	31.11	5,210	16.50	1.0	16.70	2.3	3,971	76.22	138	–
100.00 (Default)	14,681	2,868	32.68	13,285	100.00	1.8	34.38	2.7	2,684	20.20	4,309	–
<b>Sub-total</b>	<b>192,211</b>	<b>185,290</b>	<b>30.93</b>	<b>235,884</b>	<b>7.03</b>	<b>50.6</b>	<b>27.16</b>	<b>2.3</b>	<b>78,376</b>	<b>33.23</b>	<b>4,922</b>	<b>5,001</b>
Dilution risk	0	0	0	0	0	0	0	0	0	0	0	0
<b>Sub-total incl. dilution risk</b>	<b>192,211</b>	<b>185,290</b>	<b>30.93</b>	<b>235,884</b>	<b>7.03</b>	<b>50.6</b>	<b>27.16</b>	<b>2.3</b>	<b>78,376</b>	<b>33.23</b>	<b>4,922</b>	<b>5,001</b>

# Strand 3: More philosophical problems



# Radical uncertainty



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**After 'HLEG': EU Banks, Climate Change Abatement and the Precautionary Principle**

Published online by Cambridge University Press: 30 August 2018

Jay CULLEN Show author details

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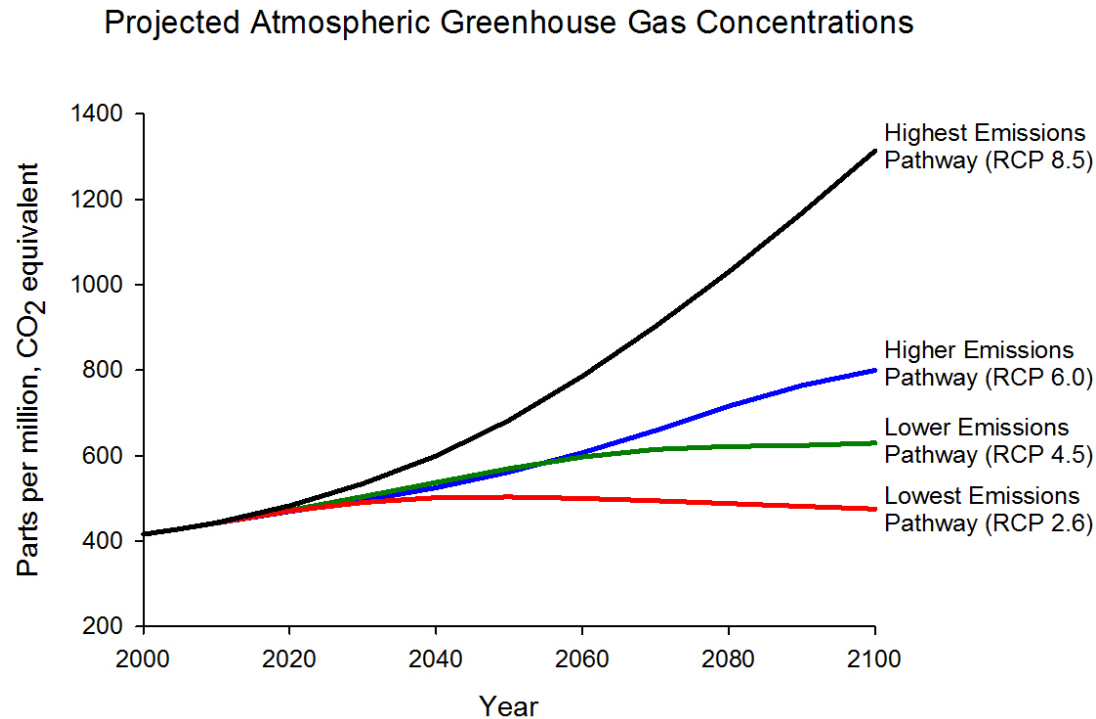
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**Abstract**

- *Along with analysis of wider market conditions, **investors need accurate data. The more incomplete or opaque the data and analysis, the more inefficient are markets.** Yet the climate-related risks and opportunities businesses face are **currently shrouded in secrecy.** Having information on such risks would allow investors to back their convictions with their capital, **whether they are climate optimists or pessimists, evangelicals or sceptics.** It would also permit corporates not only to meet investor demand for information, but also to **position their businesses to win**, rather than be left behind in, the transition to a low-carbon economy ... **The more transparent and effective we make markets, the more we will all benefit (Carney, 2017)***



# Uncertainty



1. Structural uncertainties

2. Data interpretation

3. Non-linearities in the climate system

- “We find that the expected ‘climate value at risk’ (climate VaR) of global financial assets today is 1.8% along a business-as-usual emissions path. Taking a representative estimate of global financial assets, this amounts to US\$2.5 trillion. However, much of the risk is in the tail. For example, the 99th percentile climate VaR is 16.9%, or US\$24.2 trillion.”
- Simon Dietz, Alex Bowen, Charlie Dixon & Philip Gradwell, ‘Climate value at risk’ of global financial assets, April 2016

# What is the role of central banks

## Under current law

- Credit guidance
- Macroprudential regulation

## Under amended law

- As noted at beginning, central bank independence is overstated.
- However, so is central bank influence over credit.

***Conclusion: Explicit legal powers needed if CB is to influence issue. Neither the existing mandate nor the tools currently at the CB's disposal are sufficient to address climate change***