LAMPIRAN

Lampiran 1 : Penelitian Terdahulu

1	Judul	Analysis of Materiality Assessment in the Banking Industry
	Penulis	Angel Putri, Carmel Meiden, Yosef Dema, Sugi Suhartono, Elis Sondang Dasawaty
	Tahun Terbit	2022
	Jurnal	International Journal of Social Science (IJSS)
	Objek Penelitian	15 Perusahaan Perbankan dari Beberapa Negara
	Hasil Penelitian	Penilaian materialitas oleh industri bank sudah cukup baik, tetapi masih banyak ruang untuk perbaikan. Emiten dengan penilaian yang sudah baik diharapkan dapat mempertahankan penilaiannya dan yang kurang dapat meningkatkannya.
2	Judul	Implementasi Prinsip Isi dan Kualitas pada Laporan Keberlanjutan
	Penulis	Nelson, Carmel Meiden
	Tahun Terbit	2023
	Jurnal	JIUBJ (Jurnal Ilmiah Univesitas Batanghari Jambi)_SINTA 4
	Objek Penelitian	PT AKR Corporindo Tbk, PT Indocement Tunggal Prakarsa Tbk, PT Astra International Tbk, dan PT Unilever Indonesia Tbk.
	Hasil Penelitian	Berdasarkan prinsip isi, secara kuantitatif pengungkapan tertinggi ada pada aspek materialitas dan secara kualitatif aspek tertinggi konteks keberlanjutan. Berdasarkan prinsip kualitas, secara kuantitatif dan kualitatif pengungkapan tertinggi pada aspek kejelasan. Terdapat perkembangan positif pada penyampaian laporan keberlanjutan oleh perusahaan terdaftar di BEI, walaupun hanya 12.67% dari total emiten yang merilis laporan keberlanjutan selama 2018-2020
3	Judul	Kualitas Climate Reporting Disclosure Perusahaan Multinasional di Dua Sektor Periode 2020-2023
	Penulis	Steven Jenius Bun Fie Hiung, Carmel Meiden
	Tahun Terbit	2023
	Jurnal	Portofolio: Jurnal Ekonomi, Bisnis, Manajemen dan Akuntansi
	Objek Penelitian	5 Perusahaan Multinasional Sektor Perbankan dan 5 Perusahaan Multinasional Sektor Minyak dan Gas
	Hasil Penelitian	Hasil analisis menyatakan kualitas climate reporting disclosure perusahaan tidak memiliki konsistensi karena skor yang didapat masih naik turun tidak teratur. Kualitas climate reporting sektor perbankan lebih baik dibanding sektor industri minyak dan gas. Kesimpulan penelitian menyatakan bahwa kualitas climate reporting disclosure masih tidak maksimal sebab standar masih baru dan dalam tahap pengembangan.

4	Judul	Climate Challenges and Financial Institutions: An Overview of the Polish Banking Sector's Practices
	Penulis	Jakub Karnowski, Radosław Miśkiewicz
	Tahun Terbit	2021
	Jurnal	European Research Studies Journal_H indeks 37
	Objek Penelitian	Perusahaan Perbankan di Polandia
	Hasil Penelitian	Rekomendasi Task Force for Climate Disclosure menekankan bahwa pengungkapan harus disusun sesuai dengan tujuh prinsip pengungkapan yang efektif, yang menguraikan standar pengungkapan minimum, Relevansi, Kekhususan dan kelengkapan, Kejelasan dan keseimbangan, Keterbandingan antar periode pelaporan, Keterbandingan dengan pengungkapan entitas lain, Keandalan, objektivitas, dapat diverifikasi, Keberlanjutan (cyclicality)
5	Judul	Climate Change and Global Warming Discourses and Disclosures in the Corporate Annual Reports: A Study on the Malaysian Companies
	Penulis	Nik Nazli Nik Ahmad, Dewan Mahboob Hossain
	Tahun Terbit	2015
	Jurnal	Procedia - Social and Behavioral Sciences_H-indeks 67
	Objek Penelitian	79 Perusahaan Malaysia yang Mengungkapkan Isu Global Warming
	Hasil Penelitian	Penelitian ini menunjukkan bahwa meskipun pengungkapan perubahan iklim tidak wajib (voluntary) bagi perusahaan-perusahaan Malaysia, tetapi mereka telah mengungkapkan beberapa masalah ini. Namun, pengungkapannya masih dalam tahap pengenalan saja.
6	Judul	Climate change skills for the new CFOs. A preliminary analysis on TCFD by Italian Listed Companies
	Penulis	Paola Vola, Lorenzo Gelmini
	Tahun Terbit	2022
	Jurnal	Journal of Management Control_H-indeks 23
	Objek Penelitian	Perusahaan Listed di Italia
	Hasil Penelitian	Penelitian ini menganalisis persyaratan pelaporan yang disediakan oleh TCFD untuk pengungkapan sukarela tentang perubahan iklim yang harus ditangani oleh CFO saat ini. Semakin pentingnya pengungkapan terkait keberlanjutan dan iklim, CFO perlu menerapkan integrasi antara pelaporan keuangan dan keberlanjutan; proses ini menjadi penting untuk menjamin kredibilitas perusahaan terhadap para pemangku kepentingan secara umum, juga mengingat peringkat kredit dipengaruhi oleh faktor keberlanjutan. Terkait dengan kompetensi dan keterampilan CFO, penting untuk memperhatikan kemampuan untuk bekerja sama dengan para ahli ilmiah dalam memadukan informasi

		keuangan dan non-keuangan; yang difokuskan pada apa yang disebut sebagai "soft skills" untuk CFO
7	Judul	Adoption and Determinants of Task Force on Climate-related Financial Disclosures (TCFD) Reporting Frameworks by Australian Stock Exchange (ASX) Listed Companies
	Penulis	Ranajit Kumar Bairagi, Protap Kumar Ghosh
	Tahun Terbit	2023
	Jurnal	Indian Journal of Applied Economics and Business
	Objek Penelitian	34 Perusahaan yang Listed di Australian Stock Exchange (ASX)
	Hasil Penelitian	Temuan penelitian ini menyatakan bahwa niat entitas pelapor - intergrated reporting dengan annual report dan separate reporting sebagai sustainibility reporting, memainkan peran penting dalam mengadopsi dan mengungkapkan kerangka kerja pelaporan TCFD. Secara lebih spesifik, 70% dari perusahaan pendukung mengikuti strategi separate reporting dan mengungkapkan lebih banyak risiko keuangan terkait iklim dibandingkan perusahaan lainnya.
8	Judul	Climate reporting quality following the recommendations of the task force on climate-related financial disclosures: A Focus on the German capital market
	Penulis	Annabelle Braasch, Patrick Velte
	Tahun Terbit	2022
	Jurnal	Willey Journal
	Objek Penelitian	Perusahaan Listed DAX30 di Jerman
	Hasil Penelitian	Hasil penelitian menunjukkan bahwa masih ada ruang yang cukup besar untuk perbaikan di antara perusahaan-perusahaan yang sensitif terhadap karbon maupun yang kurang sensitif terhadap karbon. Secara khusus, perusahaan-perusahaan tersebut menunjukkan tingkat pelaporan yang buruk dalam domain tata kelola perusahaan, yang mengindikasikan bahwa mereka menggunakan pelaporan iklim secara simbolis untuk menampilkan diri mereka dalam sudut pandang yang menguntungkan dan untuk mendapatkan legitimasi di masyarakat. Selain itu, perusahaan yang sensitif terhadap karbon lebih cenderung melaporkan informasi yang relevan secara strategis terkait masalah iklim.

Lampiran 2 : Objek Penelitian

No.	Nama Perusahaan	Sumber
1	Nippon Steel Corp.	https://www.nipponsteel.com/en/csr/report/pdf/report2022en.pdf https://www.nipponsteel.com/common/secure/en/csr/report/nsc/pdf/report2021.pdf https://www.nipponsteel.com/common/secure/en/csr/report/nsc/pdf/report2020.pdf
2	JFE Holdings, Inc	https://www.jfe-holdings.co.jp/en/csr/pdf/csr2022e.pdf https://www.jfe-holdings.co.jp/en/csr/pdf/csr2021e.pdf https://www.jfe-holdings.co.jp/en/csr/pdf/csr2020e.pdf
3	Kobe Steel Ltd	https://www.kobelco.co.jp/english/about_kobelco/outline/integrated-reports/2022/index.html https://www.kobelco.co.jp/english/about_kobelco/outline/integrated-reports/2021/index.html https://www.kobelco.co.jp/english/about_kobelco/outline/integrated-reports/2020/index.html
4	Mitsubishi UFJ Financial Group	https://www.mufg.jp/dam/csr/report/2022/sr2022_en.pdf https://www.mufg.jp/dam/csr/report/2021/en_all.pdf https://www.mufg.jp/dam/csr/report/2020/en_all.pdf
5	Japan Post Bank	https://www.jp-bank.japanpost.jp/en/sustainability/report/pdf/sustainability_report-en-2022-P00.pdf https://www.jp-bank.japanpost.jp/en/sustainability/report/backnumber/pdf/sustainability_report-en-2021.pdf https://www.jp-bank.japanpost.jp/en/sustainability/report/backnumber/pdf/en_csr_report2020.pdf
6	Mizuho Financial Group	https://www.mizuhogroup.com/binaries/content/assets/pdf/mizuhoglobal/sustainability/overview/report/tcfd_report_2022.pdf https://www.mizuhogroup.com/binaries/content/assets/pdf/mizuhoglobal/sustainability/overview/report/tcfd_report_2021.pdf https://www.mizuhogroup.com/binaries/content/assets/pdf/mizuhoglobal/sustainability/overview/report/tcfd_report.pdf
7	Anglo American PLC	https://www.angloamerican.com/~/media/Files/A/Anglo-American-Group-v5/PLC/investors/annual-reporting/2022/aa-annual-report-full-2022.pdf https://www.angloamerican.com/~/media/Files/A/Anglo-American-Group/PLC/investors/annual-reporting/2022/aa-annual-report-full-2021.pdf https://www.angloamerican.com/~/media/Files/A/Anglo-American-Group/PLC/investors/annual-reporting/2021/aa-annual-report-full-2020.pdf
8	Endeavour Mining PLC	https://www.endeavourmining.com/sites/endeavour-mining-v2/files/2023-05/Sustainability%20Report/2022%20Endeavour%20Sustainability%20Report_website.pdf

		https://www.endeavourmining.com/sites/endeavour-mining-v2/files/ESG/2021%20Sustainability%20Report/2021%20Endeavour%20Sustainability%20Report_Interactive_web.pdf https://www.endeavourmining.com/sites/endeavour-mining-v2/files/endeavour-mining/media/reports-and-fact-sheets/endeavour-sustainability-report-2020.pdf
9	Rio Tinto	https://www.riotinto.com/en/invest/reports/climate-change-report
10	Barclays	https://home.barclays/content/dam/home-barclays/documents/citizenship/Sustainability/Barclays-Climate-Strategy-Targets-and-Progress-2022-Final.pdf https://home.barclays/content/dam/home-barclays/documents/investor-relations/reports-and-events/annual-reports/2021/Barclays-TCFD-Report-2021.pdf https://home.barclays/content/dam/home-barclays/documents/investor-relations/reports-and-events/annual-reports/2020/Barclays-TCFD-Report-2020.pdf
11	NatWest Group	https://home.barclays/content/dam/home-barclays/documents/investor-relations/reports-and-events/annual-reports/2022/AR/Barclays-PLC-Annual-Report-2022.pdf https://investors.natwestgroup.com/~/media/Files/R/RBS-IR-V2/results-center/18022022/2021-climate-related-disclosure-report.pdf https://investors.natwestgroup.com/~/media/Files/R/RBS-IR-V2/results-center/19022021/2020-climate-related-disclosure-report.pdf
12	Lloyds Banking Group	https://www.lloydsbankinggroup.com/assets/pdfs/investors/financial-performance/lloyds-banking-group-plc/2022/full-year/2022-lbg-environmental-sustainability-report.pdf https://www.lloydsbankinggroup.com/assets/pdfs/who-we-are/responsible-business/downloads/2021-reporting/lbg-esg-report-2021-interactive-final.pdf https://www.lloydsbankinggroup.com/assets/pdfs/investors/financial-performance/lloyds-banking-group-plc/2021/q4/2021-lbg-climate-report.pdf https://www.lloydsbankinggroup.com/assets/pdfs/who-we-are/responsible-business/downloads/2020-reporting/lbg-esg-interactive-210223.pdf
13	African Rainbow Minerals	https://arm.co.za/wp-content/uploads/2022/10/2022-Climate-Change-and-Water-Report-1.pdf https://arm.co.za/wp-content/uploads/2021/11/ARM-Climate-and-Water-2021-FINAL..pdf https://arm.co.za/wp-content/uploads/2020/11/ARM_Climate-and-Water-Supplementary-Report-2020.pdf
14	Exxaro Resources	https://investor.exxaro.com/integrated-reports2022/pdf/exxaro-ir-2022.pdf https://investor.exxaro.com/integrated-reports2021/pdf/exxaro-ir-2021.pdf https://exxaro-reports.co.za/reports/integrated-reports2020/pdf/exxaro-ir-2020-lores.pdf

15	Gold Fields	https://www.goldfields.com/pdf/investors/integrated-annual-reports/2022/ccr-2022-report.pdf https://www.goldfields.com/pdf/investors/integrated-annual-reports/2021/gold-fields-tcfd-report-2021.pdf https://www.goldfields.com/pdf/investors/integrated-annual-reports/2020/tcfd-report-2020-gold-fields.pdf
16	Standard Bank Group	https://thevault.exchange/?get_group_doc=18/1684403101-SBG2022Climate-relatedFinancialDisclosuresReport.pdf https://www.standardbank.com/static_file/StandardBankGroup/filedownloads/RTS/ClimateRelatedFinancialDisclosures2021.pdf https://thevault.exchange/?get_group_doc=18/1623759414-SBGESGReport2020FN.pdf
17	FirstRand	https://www.firstrand.co.za/media/investors/annual-reporting/firstrand-tcfd-report-2022.pdf https://www.firstrand.co.za/media/investors/annual-reporting/FirstRand-TCFD-report-2021.pdf https://www.firstrand.co.za/media/investors/annual-reporting/firstrand-annual-integrated-report-2020.pdf
18	ABSA Group	https://www.absa.africa/wp-content/uploads/2023/05/2022-Absa-Group-Limited-TCFD-Report-final.pdf https://www.absa.africa/wp-content/uploads/2022/09/2021-Absa-Group-Limited-TCFD.pdf https://www.absa.africa/wp-content/uploads/2022/09/task-force-on-climate-related-financial-disclosures-report.pdf

Lampiran 3 : Standard Laporan Setiap Perusahaan

No	Sektor	Negara	Nama Perusahaan	Tahun	Pedoman	Sumber				
						Sustainibilitty Report	Climate Report	TCFD Report	CSR Report	Integrated Report
1	Metal-Mining	Japan	Nippon Steel Corp.	2022		✓				
				2021	GRI, TFCD	✓				
				2020		✓				
2			JFE Holdings, Inc	2022					✓	
				2021	GRI, TCFD				✓	
				2020					✓	
3			Kobe Steel Ltd	2022						✓
				2021	GRI, TCFD					✓
				2020						✓
4	Banks		MUFG Bank	2022		✓				
				2021	GRI, TCFD	✓				
				2020		✓				
5			Japan Post Bank	2022				✓		
				2021	GRI, TCFD	✓				
				2020					✓	
6			Mizuho Financial Group	2022				✓		
				2021	TCFD			✓		
				2020				✓		
7	Metal-Mining	United Kingdom	Anglo American Plc (AAL)	2022			✓			
				2021	TCFD		✓			
				2020						✓
8			Endeavour Mining PLC	2022		✓				
				2021	GRI, TCFD	✓				
				2020		✓				
9			Rio Tinto	2022			✓			
				2021	TCFD		✓			
				2020			✓			
10	Banks		Barclays	2022				✓		
				2021	TCFD			✓		
				2020				✓		
11			NatWest Group	2022				✓		
				2021	TCFD			✓		
				2020				✓		
12			Lloyds Banking Group	2022		✓				
				2021	GRI, TCFD		✓			
				2020		✓				
13	Metal-Mining	South Africa	African Rainbow Minerals	2022			✓			
				2021	GRI, TCFD		✓			
				2020			✓			
14			Exxaro Resources	2022		✓				
				2021	GRI, TCFD	✓				
				2020			✓			
15			Gold Fields	2022				✓		
				2021	TCFD			✓		
				2020				✓		
16	Banks		Standard Bank Group	2022				✓		
				2021	TCFD			✓		
				2020		✓				
17			FirstRand	2022				✓		
				2021	GRI, TCFD			✓		
				2020				✓		
18			ABSA Group	2022				✓		
				2021	GRI, TCFD			✓		
				2020				✓		

Lampiran 4 : Hasil *Snipping* TCFD *Report* 2021 NatWest Group

<table>
<tr><th colspan="2">1. Governance</th></tr>
<tr><td>
Board monitoring and oversight of climate-related risks and opportunities is supported by establishing clear roles and responsibilities for the Board and Board Committees, as well as robust management reporting on climate strategy, ambition and risk management activities.

Details of Board and Board Committee activities relating to climate are noted below and in the Corporate Governance section of the 2021 NatWest Group plc Annual Report and Accounts. At a subsidiary level, the boards of NatWest Group's principal and material subsidiaries exercised oversight of key climate-related risks and opportunities through risk reporting and management updates.

Board considered climate-related matters at all six scheduled[1] meetings in 2021

The Board received updates from the NatWest Group CEO, Group CFO, Group CRO and other senior executives on climate-related risk and opportunities impacting NatWest Group, our customers and key strategic partnerships.

The Board examined the results of climate stress testing and scenario analysis, for shorter and longer time horizons and reviewed risk appetite updates. The outcome led to the Board approval of the final CBES submission to the PRA.

The Climate strategy spotlight opposite explains how climate featured within the Board's annual strategy session. A Board Business Insights Pack was received in advance of every Board meeting, giving directors a snapshot of NatWest Group's progress against our climate ambition. Committee Chairs also provided the Board with an overview of relevant climate issues which were discussed at Committee meetings.

The Board members also participated in the annual climate training, more details in the Board training spotlight opposite.

Key decisions approved by the board during 2021 include:
– February: 2020 ESG Supplement and Climate-related Disclosures Report approval.
– April: NatWest Group's climate risk appetite qualitative statement.
– September: Final CBES submission.
– October: £100 billion Climate and Sustainable Funding and Financing target.
– October & December: Considered the merits and challenges of submitting a resolution related to the Group's climate ambitions at the 2022 AGM.
– December: Approved climate risk appetite measures (refer to section 4.2 for details) and considered the first carbon plan as part of the overall 2022 Budget.

Board training

The annual Board climate training session in October helped to enhance directors' climate-related knowledge. This was a comprehensive training session where representatives from executive management were joined by NatWest Group's independent climate adviser, Lord Stern of Brentford, the Chair of the Grantham Research Institute on Climate Change and the Environment. Areas of focus included recent key external developments and their impact on NatWest Group, including evolving regulatory and investor expectations, as well as rising external expectations relating to the banking sector as a whole. Directors also discussed expectations for COP26 from a policy, business, and banking perspective.

Climate strategy

Climate matters featured in the Board's annual strategy discussions in June 2021. Directors were invited to consider various purpose 'conundrums': real life dilemmas that could arise as NatWest Group seeks to balance our purpose priorities with commercial reality. For example, one discussion group reflected on how we could best support the UK economy in its recovery while transforming our loan portfolio to meet climate ambitions. These discussions were followed by an opportunity to share feedback with the Executive team and explore potential challenges.
</td><td>
1a. Gambaran Dewan

Kuantitatif: 5
Kualitatif: 1
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Climate governance at management level begins with NatWest Group CEO and NatWest Group CRO, who share joint accountability under the Senior Managers and Certification Regime for identifying and managing the financial risk of climate change.
– NatWest Group CRO is responsible for ensuring that the financial risks from climate change are reflected in risk management frameworks and, in line with our three lines of defence model, the Risk function provides effective independent oversight of the first line of defence.
– NatWest Group CEO's responsibility for strategic delivery is delegated to the following in her Executive team: NatWest Group CFO, NatWest Group CAO, NatWest Group Director (Strategy & Ventures) and the Business CEOs.
– Each has shared responsibility for strategic delivery relating to financial risks and opportunities that arise from climate change ensuring that NatWest Group identifies, measures, monitors, manages and reports on opportunities as well as exposures to risks.

Steering the climate agenda

The Climate Change Executive Steering Group, chaired by the Group CEO and CRO during 2021, is the primary management forum responsible for overseeing direction and progress relating to NatWest Group's climate-related commitments. During 2021, the Steering Group focused on the Group Climate Change Programme, which was tasked with mobilising and monitoring how internal teams are delivering the climate-related mandatory change agenda. This included overseeing progress on meeting the expectations set out in the PRA's Supervisory Statement SS3/19.

Key areas of focus for the group in 2021 included delivery against climate-related regulatory expectations, shaping NatWest Group's climate change strategy including future opportunities as well as risks and overseeing the design of NatWest Group's climate change operating and reporting model.

The Programme came to an end in December 2021. The management governance model will therefore shift from a programme-led approach to a framework embedded within our existing accountability structures. This will support the full integration of climate risk within our businesses and functions, while sharpening the Steering Group's focus.

The Steering Group was refreshed in January 2022 to drive strategic implementation and delivery. To support this shift, the Director of Strategy and Corporate Development has taken the Chair role. The Group CEO and Group CRO remain key members of the Steering Group given their shared accountabilities. Membership has also been extended to include the wider executive team who have climate-related responsibilities delegated from the Group CEO.

The executive-level committees shown in section 2.1 provide support to the executive team. This includes leadership teams and pan-bank groups who provide insight, expertise and additional controls where needed.

Under our integrated governance structure, business areas are expected to ensure that climate considerations are built into day-to-day operational decision-making. The Accountable Executives are empowered to take decisions within their areas of accountability and responsibility, with clear escalation and reporting routes in place to the Climate Change Executive Steering Group, see spotlight opposite. Nominated by their accountable Executives, climate leads within each business area and function are responsible for sponsoring and leading climate-related activity within their areas.

Work is ongoing to integrate climate risk into business-level policies and frameworks, which in turn will enable climate risk to be effectively managed in the same way as other risk types. This work is led by a dedicated climate risk team, which was established in 2021 to discharge second line of defence accountability of risk oversight and act as a consolidated centre of excellence on climate risk.

Several cross-bank climate-related forums support collaboration and continue to play an important role in our climate governance structure. These include a climate lead group of executive delegates and a Climate Opportunities Group, which drives a One Bank approach to strategic progress.

The Own Operations Executive Steering Group are responsible for delivery of the climate purpose commitments and the 2025 – 2050 targets for our operational value chain.

The Climate Centre of Excellence was created in 2021 to support the implementation of our climate ambition. The team has in-depth knowledge of climate change that complements capabilities that sit in the rest of the organisation. The Climate Centre of Excellence adds value by providing climate leadership to support NatWest group and our customers. The Climate Centre of Excellence works with franchises, functions and external stakeholders, promoting collaboration and driving ambition.

</td><td>
1b. Peran Manajemen

Kuantitatif: 5
Kualitatif: 4
Halaman: 13, 17
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<tr><th colspan="2">2. Strategy</th></tr>
</table>

Recognising uncertainty around the timing and the channels through which financial and non-financial risks from climate change are likely to materialise, initial focus has been given to those physical and transition risk factors deemed most material to NatWest Group's risk profile. A combination of regulatory guidance, industry engagement, risk management best practice and expert judgement was used to shortlist those principal risks deemed to be most vulnerable to climate-related impacts. Please refer to section 4.1 for further details.

The table below outlines the events and impacts associated with the transition and physical risks arising from climate change. This includes an initial assessment of expected time horizons, potential impacts and linkage to risk types, where climate is considered to have a relatively significant impact on their respective future risk profile. Please refer to section 4.1 for more detail on relative significance and methodology used to assess climate-related impacts across the short (1-5 years), medium (10 years) and long term (30 years).

	Transition risks				Physical risks	
Risk sources	Policy & Legal	Technology	Market	Reputation	Acute	Chronic
Events	– Increased GHG emissions pricing in order to incentivise movement to renewable energy sources. – Enhanced regulatory environment and mandated requirements: may introduce minimum standards or expectations on green credentials of product outputs or business operations.	– Substitution of technology, including requirements to replace manufacturing technology to cleaner alternatives. – Investment in technology to reduce emissions or improve energy efficiency ratings (e.g. EPC) of operations or household.	– Increased volatility and costs, sourcing restrictions for carbon-heavy raw materials. – Limited supply and increased demand of energy efficient and low flood risk properties. – Change in consumer behaviours including deliberate move to lower-carbon footprint products. – Competitor changes – new entrants focused on green credentials, entering market without incurring transition costs.	– Changing customer, community and other stakeholder views, attitudes, perceptions and values on climate. – Increased scrutiny including from regulators, media, on carbon emissions for a business, its supply chain including who provides financing. – Increased stakeholder, shareholder scrutiny if lack of action on reduction in emissions.	– Increased frequency and severity of climate-driven events. This could include storm damage, flooding. Damage can be caused to property, local transport and haulage infrastructure.	– Alterations in weather patterns and stability of local ecosystems affecting food production and living environment. – Rising temperatures affecting working conditions, living conditions and local infrastructure. – Rising sea levels affecting local ecosystems, as well as increasing subsidence and flood risks.
Expected time horizon	Short – Medium	Short – Medium	Short – Medium	Short – Medium	Short – Medium – Long	Long
Potential impact	Demand destruction driven by regulatory change; direct carbon costs increase costs of living and operations; increased costs of compliance and litigation; diminished value of assets.	Increased cost derived from investment in new technology; diminished value of existing technology and infrastructure.	Demand destruction with reduced demand for products and services; diminished competitive position against market; diminished value of assets; increased costs to adapt to market demands.	Demand destruction with reduced demand for products and services; potential disruption costs; diminished value of assets; reduced funding availability, increased cost of debt.	Business disruption; increased recovery and insurance costs; diminished value of assets.	Business disruption; increased recovery and insurance costs; diminished value of assets; employment market shifts.
Principal risks impacted	Credit risk, Reputational risk, Operational risk, Conduct risk, Regulatory compliance risk				Credit risk, Operational risk, Conduct risk	

Climate-related opportunities identified as having a potentially significant impact on NatWest Group are outlined in the table below. Potential impacts have been included in line with time periods covered in section 3.2, noting the timing reflects the full impact of the opportunity being realised and that there is a dependency on the UK Government and clear, early regulatory policy and technology developments, as well as on our customers and society to respond (see section 5.7). At the same time, as a purpose-led organisation, we aim to engage and support our customers' transition to a net-zero economy. Further detail on how we are exploring potential opportunities to support customers is available throughout section 3.

Our processes to identify and manage climate-related opportunities centre around pan-bank forums and local committees that support collaboration, including a group of executive delegates and a Climate Opportunities Group, which drives a One Bank approach to strategic progress.

Opportunity	Related NatWest Group ambition	Expected time horizon	Potential impacts on NatWest Group
Accelerating the speed of transition to a net-zero economy	We have an ambition to support our UK mortgage customers to increase their residential energy efficiency and incentivise purchasing of the most energy efficient homes, with an ambition that 50% of our mortgage book has an EPC rating of C or above by 2030.	Medium	– Increased balance sheet volumes through demand for new products and services that support customer transition. – Reduced balance sheet volumes related to lower energy efficient homes. – Additional expenditure to develop new products and services. – Decrease in emissions due to customer transition
	We plan to collaborate cross industry and create products and services to enable customers to track their carbon impact.	Short – Medium – Long	
	We plan to reduce the carbon intensity of our funds and discretionary portfolios by 50% by 2030 and to achieve net zero on discretionarily managed assets by 2050.	Medium – Long	
Helping to end the most harmful activity	We plan to phase out of coal for UK and non-UK customers who have UK coal production, coal fired generation and coal related infrastructure by 1 October 2024, with a full global phase out by 1 January 2030.	Short- Medium	– Reduced exposure to coal customers.
Championing climate solutions	We have a target to provide £100 billion Climate and Sustainable Funding and Financing between 1 July 2021 and the end of 2025.	Short	– Increase in volume of Climate and Sustainable Funding and Financing, on and off balance sheet.
Embedding climate into our culture and decision-making	We have an ambition to at least halve the climate impact of our financing activity by 2030 and align with the 2015 Paris Agreement. To do this, we plan to quantify our climate impact and set sector-specific targets by the end of 2022.	Medium	– Reduction in the climate impact of loans and investments
Net-zero emissions for our operational value chain	We have a target to reduce our direct own operations carbon footprint by 50% by 2025, against a 2019 baseline.	Short	– Increased expenditure to support reduction in carbon footprint on our own operations. – Reduced expenditure related to energy, travel and water management.
	We plan to reduce the carbon footprint for our wider operational value chain by 50%, against a 2019 baseline, by 2030 and achieve net zero by 2050.	Medium – Long	
	We plan to use only renewable electricity in our direct own global operations by 2025 (RE100) and improve our energy productivity 40% by 2025, against a 2015 baseline.	Short	
	We plan to install electric vehicle charging infrastructure in 15% of spaces across our UK portfolio by 2030 and upgrade our fleet of around 300 vehicles to electric models by 2025 (EV100).	Short – Medium	

2a. Identifikasi Risiko dan Peluang

Kuantitatif: 4
Kualitatif: 4
Halaman: 20-21

We have an ambition to reduce our climate impact by 50% by 2030, against a 2019 baseline, and intend to do what is necessary to achieve alignment with the 2015 Paris Agreement and achieve net zero by 2050. This includes:

- **Financed emissions:** Greenhouse gas emissions from loans and investments activity, attributable to NatWest Group.
- **Assets under management:** Greenhouse gas emissions associated with our discretionarily managed assets.
- **Our operational value chain:** Greenhouse gas emissions related to the upstream and downstream activities associated with our operations.

We have identified several potential climate-related opportunities over the short, medium and long-term relating to supporting our customers transition to a net-zero economy. The tables that follow summarise the initiatives developed over 2020 and 2021 to support our customers' transition to net zero, and their related impact.

During 2021, we worked to incorporate climate in to the financial planning process by developing our first carbon plan. This work progressed alongside our financial planning process in the second half of the year and included an assessment of the climate impact of:

1. lending and investment changes incorporated in the financial plan over the next five years,
2. current and planned climate-related opportunities including, but not limited to, our commitment to provide £100 billion Climate and Sustainable Funding and Financing and our green mortgage products.

To acknowledge our dependence on policies, technology developments and customer behaviour, and the related risks, we also assessed current and expected policies based on the Climate Change Committee's Sixth Carbon Budget published in 2020 and any potential impacts on our climate ambition. Refer to section 5.7 for details on policy and technology changes with the potential to support transition by sector.

We will continue to develop capabilities to measure the impact of climate-related risks and opportunities arising from NatWest Group actions and also external factors. Our work on assessing emissions from our direct own operations and on our lending and investments is noted in sections 5.6 and 5.7. Section 5.7 also outlines current estimates of 2030 emissions intensities for sectors analysed and consequently the level of emissions reductions that may be required, acknowledging the uncertainties arising from dependence on customer behaviour changes, their transition plans as well as policy and technology developments.

In 2022, we plan to further enhance carbon planning capability to support development of climate transition plans to measure and track our progress towards. Our transition plan will evolve in coming years as, for example, our capabilities and data develop. We plan to publish our climate transition plan in future reports, starting with our initial transition plan in our 2022 climate report.

2b. Dampak Risiko dan Peluang

Kuantitatif: 5
Kualitatif: 8
Halaman: 22, 24-28

During 2021, NatWest Group developed its scenario analysis capabilities and deepened its understanding of climate-related risks and opportunities. We have also taken further steps to translate these insights into tangible actions aligned with our climate ambition, that will enable NatWest Group and its customers to mitigate climate-related risks and take advantage of the opportunities that the transition to net zero will create.

NatWest Group's climate scenario analysis capabilities were strengthened in 2021 through our participation in the CBES exercise. This was a mandatory climate stress testing exercise involving major UK banks and insurers. In 2020, NatWest Group carried out preparatory climate scenario analysis focusing on a sample of corporate and retail customers, and significantly built on this through an additional preparatory exercise in Q1 2021 with increased coverage across the balance sheet. We also directly engaged over 350 of our largest customers to gather additional climate data for incorporation into the analysis, deepening our understanding of customers' climate-related risks and opportunities and their strategic responses to them.

NatWest Group has applied three scenarios published by the Bank of England for its CBES exercise as the foundation for its scenario analysis.[1] These in turn are based on scenarios published by the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) in June 2021[2]. The three scenarios each represent different possible climate futures over a 30 year horizon, encompassing the global energy system and economy and implying differing levels of physical and transition risks for NatWest Group and its counterparties. The three scenarios assessed were:

No Additional Actions: This scenario primarily explores physical risks from climate change and assumes that there are no further climate policies introduced beyond those already implemented. The absence of transition policies and associated emissions reduction leads to an increase in the concentration of greenhouse gases in the atmosphere, resulting in an expected increase in global temperatures of over 3°C by 2050 and increased physical risks. To test more severe physical risks, this scenario accelerates the temperature pathway by 30 years, and is based on the 90th percentile of the projected distribution of warming outcomes implied by climate models. As a result, the frequency and severity of extreme weather events such as flooding and tropical cyclones increases, and there are chronic changes in labour and land productivity.

Early Actions: This scenario assumes the increase in global temperature is limited to under 2.0°C by 2050 as a result of stringent climate policies and innovation that start immediately in 2021. Carbon prices increase steadily over the period from 2021 to 2050, which drives significant decarbonisation. Coal use falls by 98% between 2021 and 2050 in this scenario, and the share of low-carbon energy in the global energy mix increases from 17% to 73% over the same period. As a result, global CO_2 emissions reach net zero around 2050, and some jurisdictions such as the US, EU, UK and Japan reach net zero for all greenhouse gases.

Late Actions: Like the Early Action scenario, this scenario assumes that strong climate policies successfully limit warming: the increase in global temperature is limited to under 2.0°C by 2100. However, in the Late Action scenario, decisive policy action on climate is delayed until 2031. This means that the transition to net zero happens in a shorter time period in this scenario than in Early Action (two decades rather than three), leading to a higher level of transition risk during this period. Rapid and disorderly transition leads to a recession in the early 2030s. Carbon prices increase rapidly from 2031 to 2050, and this is enough to achieve significant reductions in emissions: global greenhouse gas emissions fall by 80% between 2030 and 2050 in this scenario.

The three climate scenarios are assessed against a hypothetical baseline scenario that assumes no increase in physical or transition risk through the scenario period. The table below shows key physical and transition variables for the scenarios selected.

		No Additional Action			Early Action			Late Action		
Year	Unit	2030	2040	2050	2030	2040	2050	2030	2040	2050
Expected temperature rise relative to pre-industrial levels[1]	°C	+2.8	+2.9	+3.3	+1.4	+1.7	+1.8	+1.4	+1.7	+1.8
		Absolute values			Relative to No Additional Action					
Greenhouse gas emissions[2] (Kyoto Gases[3])	Gt CO_2-eq/year	59	60	60	-30	-43	-50	0	-36	-48
Carbon dioxide emissions	Gt CO_2-year	43	43	42	-24	-35	-41	0	-29	-39
Carbon price^[4]	US$2020/t$CO_2$	3	3	4	+220	+440	+800	0	+390	+740
Oil demand^	Mbbl/d	90	100	90	-10	-40	-50	0	-20	-50
Gas demand^	Bn m³/year	3,800	4,000	4,000	-1,200	-2,500	-3,000	0	-2,200	-3,200
Coal demand^	Mtce/year	5,600	5,500	6,000	-4,800	-5,400	-5,900	0	-5,300	-5,900
Electricity demand^	TWh/year	35,800	42,900	48,700	-1,800	+6,000	+10,700	0	+500	+11,300

1. In line with CBES assumptions the Late Action pathway was used for the Early Action scenario, and temperature rise was accelerated by 30 years in the No Additional Action scenario.
2. Emissions generated from the economy including agriculture, forestry, and other land use. Note these values are gross emissions only, hence do not include offsetting impacts which bring net emissions under Early Action/Late Action to zero by 2050.
3. Kyoto gases comprise carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), F-gases (hydrofluorocarbons and perfluorocarbons) and sulphur hexafluoride (SF_6).
4. NGFS scenarios include geographically differentiated carbon prices, value shown is an average.

Source: NGFS, noting figures denoted with ^ have been rounded to the nearest ten or hundred.

NatWest Group's lending portfolios are highly diverse. Climate risk tends to be concentrated in specific sectors and geographies across both Wholesale and Retail portfolios. The high-level insights covered in this section are informed by work completed for the 2021 CBES regulatory exercise, but do not show the outputs of the exercise given NatWest Group's understanding that it is the Bank of England's intention to publish quantitative results later in 2022.

This insight is supplemented by internal sensitivity analysis on the same set of CBES scenarios to better understand the risks identified. Section 3.8.1 references insights for a range of higher-climate transition risk sectors across NatWest Group's wholesale portfolio. The specific sectors referenced in this section were selected to best illustrate the breadth of insights enabled by our scenario analysis work.

This work has further enhanced our understanding of the climate-related risks and opportunities that shape our climate ambition and the strategies we are setting to support our customers' transition to net zero. The outcomes observed for various sectors will help us further develop risk management approaches and tools to mitigate physical and transition risk. The transition to net zero will also provide opportunities for our business, operations and for our customers our use of scenario analysis help us to further understand the impact of transition across different sectors. We will continue to use the insights from this analysis to assess our climate ambition and support customer transition.

In addition, to identify, assess and manage climate-related risks and opportunities and understand the drivers of climate-related transition risks and opportunities in our business, we have worked to estimate emissions for our year end 2019 and 2020 loans and investment book. We have also used externally published scenarios to estimate reductions required by 2030 to support our ambition to halve the climate impact of our financing activity. Refer section 5.7 for further details on this analysis including details on scenarios used.

Recognising the variation in impacts of climate change across different sectors and customers, as part of our Climate ambition, we will continue to work with customers to support their transition to net zero. Delivering against our target to provide £100 billion Climate and Sustainable Funding and Financing will enable customers to invest in activities aligned with our CSFI criteria to support their transition to net zero. Other on-going initiatives are noted in sections 3.4 and 3.5.

2c. Ketahanan Strategi

Kuantitatif: 4
Kualitatif: 7
Halaman: 37-38, 43

3. *Risk Management*

Our risk framework has been updated to include climate risk

NatWest Group's appetite for climate risk is based on an acknowledgement that there will always be some exposure to long-term financial, customer, operational and reputational impacts from climate change. We therefore seek to balance those threats with the benefits of aligning activities and operations to stated climate ambitions and strategic objectives.

NatWest Group has adopted a dual approach to climate risk management. We recognise climate risk as both a principal risk, as well as a causal factor affecting several other closely correlated financial and non-financial risks. Throughout 2021 we continued to embed this dual approach, establishing new climate risk-related requirements within our risk framework, and enhancing existing components to reflect climate risk. Also in 2021, a dedicated climate risk team was established to discharge our second line of defence accountability of risk oversight.

The relative significance assessment

Climate risk can arise through either physical or transition risks. The resultant impacts translate to several risks which are characterised, assessed and managed by NatWest Group (see section 3.2).

Initial scoping for integration of climate-related risks into NatWest Group's EWRMF, which started in 2019, was heavily influenced by the PRA's Supervisory Statement SS3/19. From the outset, it was evident that the impact and materiality of physical and transition risks on NatWest Group's risk profile would be dependent on several internal and external factors and would evolve over time. The impact of transition risk as a causal factor on other principal risks is expected to increase in line with the pace of transition to net zero. Similarly, physical risk is expected to become increasingly evident through more severe and frequent extreme weather events.

Recognising the uncertainty around the timing and the channels through which risks from climate change may materialise, initial focus was given to those physical and transition risk factors deemed most material to NatWest Group's risk profile, viewed through a short-term time horizon of approximately five years. A combination of regulatory guidance, industry engagement, risk management best practice and expert judgement was used to shortlist those principal risks deemed to be most vulnerable to climate-related impacts.

In 2021, we refreshed our largely qualitative assessment of the relative significance of climate risk on our principal risks, reflecting enhancements made in the approach to climate risk management. Expert judgement combined with early views of scenario analysis outputs, improvements in the availability of climate data, as well as evolving regulatory guidance were used to re-assess the current and potential impact of physical and transition climate risk as a causal factor to other risks. This re-assessment identified the following principal risks as being most exposed to climate-related impacts: credit risk, operational risk, reputational risk, conduct risk and regulatory compliance risk.

NatWest Group has a relatively low level of exposure to market risk and the short dated nature of our exposure suggest impact of climate is not significant. In terms of liquidity risk, the physical risk impact on client's liquidity requirements and reputation impact on capital funding are deemed to be manageable with current mitigation and liquidity profile. As part of this review of relative significance it was recognised that over a medium to long-term time horizon (10 to 30 years) climate risk has the potential to materialise more broadly across NatWest Group's risk profile. In response, tools and methodologies used to manage risks across all other principal risks were subject to a high-level review in 2021.

Climate risk impact as a causal factor for all principal risks will continue to be regularly reassessed. This process will be managed through the annual refresh of the EWRMF and its individual components. Specific details of how climate risk has been sized and scoped for each of the relatively significant principal risks, and how frameworks have been improved in response, can be found throughout the Risk Management section of this report. Climate change is also considered as part of NatWest Group's Top and Emerging Risks framework, for further details see NatWest Group's 2021 Annual Report and Accounts.

How we consider existing and emerging regulatory requirements

NatWest Group regularly considers existing and emerging regulatory requirements related to climate change. External horizon scanning and monitoring of emerging regulatory requirements is completed by our Legal, Governance and Regulatory Affairs team. Updates are reviewed regularly by the Executive Steering Group and where necessary will inform any changes to our climate risk policy updates. Additional monitoring is carried out by NatWest Group franchises and other teams to identify potential policy changes which could become climate-related transition risks.

3a. Proses Identifikasi dan Penilaian Risiko

Kuantitatif: 5
Kualitatif: 1
Halaman: 48

Integrating climate risk into risk management

Climate risk was formally incorporated into the NatWest Group risk directory as a principal risk in February 2021 and in April, NatWest Group Board Risk Committee approved a principles-based climate risk policy. This defined the key principles for the identification, assessment and management of climate risk, through the requirement to incorporate climate considerations into key risk management processes:

i. Ensuring management and mitigation of climate risk through the appropriate use of climate risk limits and measures and appropriate customer engagement.
ii. Ongoing monitoring of the multiple facets of climate risk affected by a fast-moving regulatory environment, including government policy changes, as well as developments in scientific understanding and societal expectations.
iii. Regular reporting of climate risk to senior forums including NatWest Group Board Risk Committee and NatWest Group Board, as well as enhancement of capabilities to deliver external reporting requirements.

Our risk management processes have been enhanced in order to adhere to our updated framework

In line with effective risk management principles, and to meet requirements set out by the NatWest Group climate risk policy and risk appetite statement, the management of climate risk is largely delivered through three mechanisms:

i. **Scenario analysis** to identify, assess, measure and mitigate climate risk on NatWest Group's balance sheet. Credit scenarios have been delivered on the basis of the CBES exercise (see section 3.7) and an operational physical climate risk scenario (see section 4.3).
ii. **Long-term balance sheet transformation** driven by NatWest Group's climate ambition – enabled by reducing exposure to harmful activities such as oil and gas, and coal, alongside the broader ambition to halve the climate impact of financing activities by 2030 (compared with a 2019 baseline). In addition, improvements in the energy efficiency of the mortgage portfolio will reduce transition risk on the balance sheet.
iii. **Enhanced climate risk data capabilities** – a dedicated climate data and analytics team has been in place since 2021 to source, manage and enhance data essential to the effective management of climate risk. In addition to emissions data, in 2021 NatWest Group's residential mortgage and commercial real estate portfolios have been mapped to scenario-based geographic information to identify and quantify coastal, fluvial and surface water flooding risk to properties.

Our climate risk appetite

NatWest Group has established a climate risk appetite statement, determining the level of risk which the climate risk policy seeks to operate within. In December 2021, the NatWest Group Board approved the adoption of climate risk appetite measures into the EWRMF, for integration in business-as-usual risk management in 2022. Three first generation risk appetite measures were approved, which support the reporting of:

i. How effectively climate risk has been embedded within NatWest Group's risk management processes using industry benchmarking.
ii. Sector-based progress against climate ambition to halve the climate impact of financing activity.
iii. NatWest Group's residual emissions from own operations.

The new appetite measures reflect guidance issued by cross-industry bodies such as the Climate Financial Risk Forum as well as risk management best practice.

Risk appetite limits and triggers were defined as part of the annual EWRMF risk appetite refresh for implementation in 2022. Climate risk appetite will be supported by franchise and legal entity-specific key risk indicators and operational limits. This suite of metrics provides clear visibility of climate risk appetite to senior risk management forums and links risk management to NatWest Group's climate ambition. Examples of risk metrics identified include exposure to heightened climate risk sectors, EPC rating distribution and concentration of asset-backed lending to high risk geographical areas.

Continuing to improve integration of climate within our risk management processes

Following the inclusion of climate risk as a principal risk in the NatWest Group risk directory in Q1 2021, an approach which uses iterative multi-year enhancements was established to fully integrate climate risk as a factor within NatWest Group's risk management. The timing of this multi-year journey reflects both the complexity of the task and evolving nature of climate data capabilities and supporting tooling.

A new climate maturity rating has been developed to enable visibility of the progress made across NatWest Group to embed climate risk capabilities and support the assessment and management of climate risk in the day-to-day operations of the business. This approach translated NatWest Group's climate risk policy into thematic management outcomes. Implementation of processes, procedures and controls against these outcomes by the first line of defence provides a measurement of the level of maturity of climate risk management.

The maturity assessment is formed on a scale which recognises iterative improvements in climate risk management capability and application. Each risk management outcome is considered from both a depth and breadth perspective against this scale.

- Depth considers technical capability and sophistication of approaches, reflecting progression from use of proxy data, qualitative assessment, and subjective decisions to enhanced data, quantitative assessment with objective limits upon decision-making.
- Breadth considers the application of these approaches across products, sectors and customer segments with priority given to those which are highest emitting and most risk exposed.

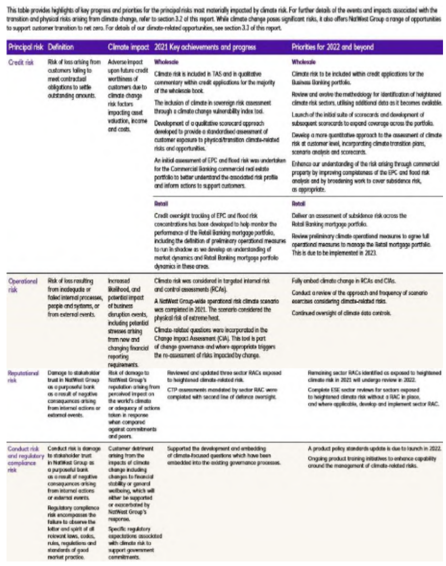
This dual lens approach recognises that the depth and breadth of climate risk management will mature incrementally over time and individual franchises will prioritise according to their unique risk profile.

During 2021 we have achieved the minimum expectation of first-generation implementation for NatWest Group. This means a predominantly qualitative approach to the policy outcomes, with coverage across priority sectors or customers. Where quantitative approaches are applied, they are predominantly conducted on an ad hoc basis. Plans are in place setting out the work required in 2022 and beyond. Oversight of the execution of the plan will be performed by the risk function, in accordance with the NatWest Group three lines of defence model. Once all outcomes have been achieved to the most advanced maturity rating, climate risk as a principal risk will no longer be required as the capabilities to manage climate-related risks effectively would be integral to respective risk management activity.

The image below shows the journey from first generation to fully embedding climate risk management within businesses and processes.

3b. Proses Pengelolaan Risiko

Kuantitatif: 5
Kualitatif: 4
Halaman: 49-50



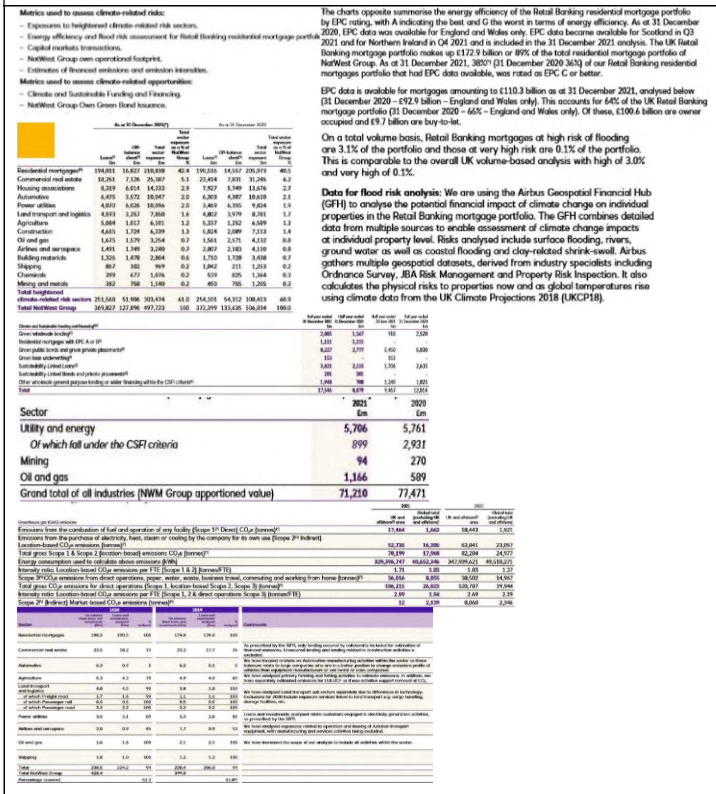
This table provides highlights of key progress and priorities for the principal risks most materially impacted by climate risk. For further details of the events and impacts associated with the transition and physical risks arising from climate change, refer to section 3.2 of this report. While climate change poses significant risks, it also offers NatWest Group a range of opportunities to support customer transition to net zero. For details of our climate-related opportunities, see section 3.3 of this report.

Principal risk	Definition	Climate impact	2021 Key achievements and progress	Priorities for 2022 and beyond
Credit risk	Risk of loss arising from customers failing to meet contractual obligations to settle outstanding amounts.	Adverse impact upon future credit worthiness of customers due to climate change risk factors impacting asset valuation, income and costs.	**Wholesale** Climate risk is included in TAS and in qualitative commentary within credit applications for the majority of the wholesale book. The inclusion of climate in sovereign risk assessment through a climate change vulnerability index tool. Development of a qualitative scorecard approach developed to provide a standardised assessment of customer exposure to physical/transition climate-related risks and opportunities. An initial assessment of EPC and flood risk was undertaken for the Commercial Banking commercial real estate portfolio to better understand the associated risk profile and inform actions to support customers.	**Wholesale** Climate risk to be included within credit applications for the Business Banking portfolio. Review and evolve the methodology for identification of heightened climate risk sectors, utilising additional data as it becomes available. Launch of the initial suite of scorecards and development of subsequent scorecards to expand coverage across the portfolio. Develop a more quantitative approach to the assessment of climate risk at customer level, incorporating climate transition plans, scenario analysis and scorecards. Enhance our understanding of the risk arising through commercial property by improving completeness of the EPC and flood risk analysis and by broadening work to cover subsidence risk, as appropriate.
			Retail Credit oversight tracking of EPC and flood risk concentrations has been developed to help monitor the performance of the Retail Banking mortgage portfolio, including the definition of preliminary operational measures to run in shadow as we develop an understanding of market dynamics and Retail Banking mortgage portfolio dynamics in these areas.	**Retail** Deliver an assessment of subsidence risk across the Retail Banking mortgage portfolio. Review preliminary climate operational measures to agree full operational measures to manage the Retail mortgage portfolio. This is due to be implemented in 2023.
Operational risk	Risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events.	Increased likelihood, and potential impact of business disruption events, including potential stresses arising from new and changing financial reporting requirements.	Climate risk was considered in targeted internal risk and control assessments (RCAs). A NatWest Group-wide operational risk climate scenario was completed in 2021. The scenario considered the physical risk of extreme heat. Climate-related questions were incorporated in the Change Impact Assessment (CIA). This tool is part of change governance and where appropriate triggers the re-assessment of risks impacted by change.	Fully embed climate change in RCAs and CIAs. Conduct a review of the approach and frequency of scenario exercises considering climate-related risks. Continued oversight of climate data controls.
Reputational risk	Damage to stakeholder trust in NatWest Group as a purposeful bank as a result of negative consequences arising from internal actions or external events.	Risk of damage to NatWest Group's reputation arising from perceived impact on the world's climate or adequacy of actions taken in response when compared against commitments and peers.	Reviewed and updated three sector RACs exposed to heightened climate-related risk. CTP assessments mandated by sector RAC were completed with second line of defence oversight.	Remaining sector RACs identified as exposed to heightened climate risk in 2021 will undergo review in 2022. Complete ESE sector reviews for sectors exposed to heightened climate risk without a RAC in place, and where applicable, develop and implement sector RAC.
Conduct risk and regulatory compliance risk	Conduct risk is damage to stakeholder trust in NatWest Group as a purposeful bank as a result of negative consequences arising from internal actions or external events. Regulatory compliance risk encompasses the failure to observe the letter and spirit of all relevant laws, codes, rules, regulations and standards of good market practice.	Customer detriment arising from the impacts of climate change including changes to financial stability or general wellbeing, which will either be supported or exacerbated by NatWest Group's response. Specific regulatory expectations associated with climate risk to support government commitments.	Supported the development and embedding of climate-focused questions which have been embedded into the existing governance processes.	A product policy standards update is due to launch in 2022. Ongoing product training initiatives to enhance capability around the management of climate-related risks.

3c. Integrasi kepada Keseluruhan Risiko

Kuantitatif: 2
Kualitatif: 4
Halaman: 51-52

4. *Metrics and Targets*



Metrics used to assess climate-related risks:
- Exposures to heightened climate-related risk sectors.
- Energy efficiency and flood risk assessment for Retail Banking residential mortgage portfolio
- Capital markets transactions.
- NatWest Group own operational footprint.
- Estimates of financed emissions and emission intensities.

Metrics used to assess climate-related opportunities:
- Climate and Sustainable Funding and Financing.
- NatWest Group Own Green Bond issuance.

	As at 31 December 2021 Loans £m	Off-balance sheet £m	Total sector exposure £m	Total sector exposure as a % of NatWest Group %	As at 31 December 2020 Loans £m	Off-balance sheet £m	Total sector exposure £m	Total sector exposure as a % of NatWest Group %
Residential mortgages	194,011	16,827	210,838	42.4	190,516	14,557	205,073	40.5
Commercial real estate	18,261	7,126	25,387	5.1	23,414	7,831	31,245	6.2
Housing associations	8,319	6,014	14,333	2.9	7,927	5,749	13,676	2.7
Automotive	6,475	3,572	10,047	2.0	6,303	4,307	10,610	2.1
Power utilities	4,070	6,026	10,096	2.0	3,469	6,355	9,824	1.9
Land transport and logistics	4,593	3,257	7,850	1.6	4,802	3,979	8,781	1.7
Agriculture	5,084	1,017	6,101	1.2	5,337	1,252	6,589	1.3
Construction	4,615	1,724	6,339	1.3	5,024	2,089	7,113	1.4
Oil and gas	1,675	1,579	3,254	0.7	1,561	2,571	4,132	0.8
Airlines and aerospace	1,491	1,749	3,240	0.7	2,007	2,103	4,110	0.8
Building materials	1,326	1,478	2,804	0.6	1,710	1,728	3,438	0.7
Shipping	867	102	969	0.2	1,042	211	1,253	0.2
Chemicals	399	677	1,076	0.2	539	825	1,364	0.3
Mining and metals	382	758	1,140	0.2	450	755	1,205	0.2
Total heightened climate-related risk sectors	251,568	51,906	303,474	61.0	254,101	54,312	308,413	60.9
Total NatWest Group	369,827	127,896	497,723	100	372,399	133,635	506,034	100.0

The charts opposite summarise the energy efficiency of the Retail Banking residential mortgage portfolio by EPC rating, with A indicating the best and G the worst in terms of energy efficiency. As at 31 December 2020, EPC data was available for England and Wales only. EPC data became available for Scotland in Q3 2021 and for Northern Ireland in Q4 2021 and is included in the 31 December 2021 analysis. The UK Retail Banking mortgage portfolio makes up £172.9 billion or 89% of the total residential mortgage portfolio of NatWest Group. As at 31 December 2021, 38%(1) (31 December 2020 36%) of our Retail Banking residential mortgages portfolio that had EPC data available, was rated as EPC C or better.

EPC data is available for mortgages amounting to £110.3 billion as at 31 December 2021, analysed below (31 December 2020 – £92.9 billion – England and Wales only). This accounts for 64% of the UK Retail Banking mortgage portfolio (31 December 2020 – 66% – England and Wales only). Of these, £100.6 billion are owner occupied and £9.7 billion are buy-to-let.

On a total volume basis, Retail Banking mortgages at high risk of flooding are 3.1% of the portfolio and those at very high risk are 0.1% of the portfolio. This is comparable to the overall UK volume-based analysis with high of 3.0% and very high of 0.1%.

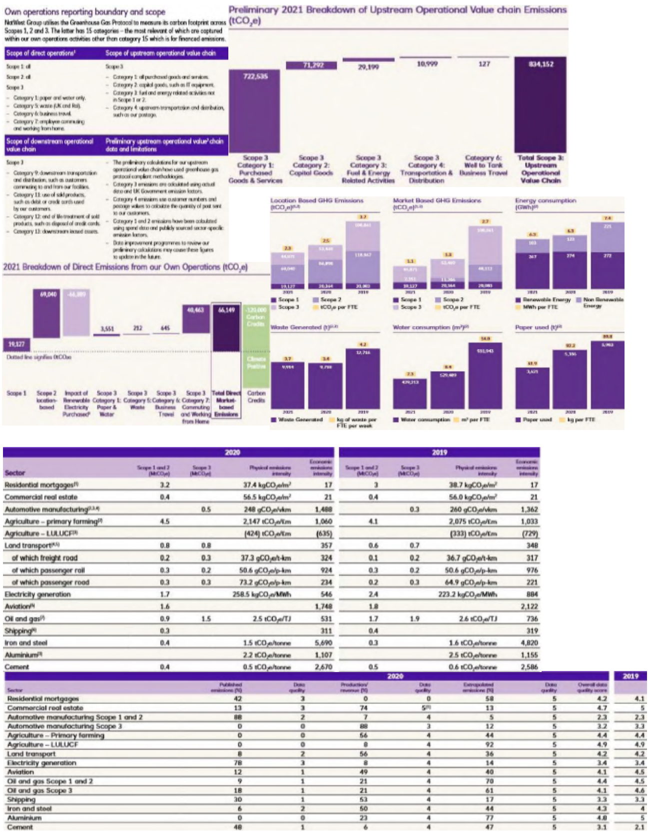
Data for flood risk analysis: We are using the Airbus Geospatial Financial Hub (GFH) to analyse the potential financial impact of climate change on individual properties in the Retail Banking mortgage portfolio. The GFH combines detailed data from multiple sources to enable assessment of climate change impacts at individual property level. Risks analysed include surface flooding, rivers, ground water as well as coastal flooding and clay-related shrink-swell. Airbus gathers multiple geospatial datasets, derived from industry specialists including Ordnance Survey, JBA Risk Management and Property Risk Inspection. It also calculates the physical risks to properties now and as global temperatures rise using climate data from the UK Climate Projections 2018 (UKCP18).

Climate and Sustainable Funding and Financing	Full year ended 31 December 2021 £m	Half year ended 31 December 2021 £m	Half year ended 30 June 2021 £m	Full year ended 31 December 2020 £m
Green wholesale lending	2,085	1,167	910	2,520
Residential mortgages with EPC A or B	1,111	1,111	-	-
Green public bonds and green private placements	8,227	2,777	5,450	5,800
Green loan underwriting	153	-	153	-
Sustainability-Linked Loans	3,821	2,115	1,706	2,633
Sustainability-Linked Bonds and private placements	201	201	-	-
Other wholesale general purpose lending or wider financing within the CSFI criteria	1,948	708	1,240	1,821
Total	17,546	8,079	9,457	12,814

Sector	2021 £m	2020 £m
Utility and energy	5,706	5,761
Of which fall under the CSFI criteria	*899*	*2,931*
Mining	94	270
Oil and gas	1,166	589
Grand total of all industries (NWM Group apportioned value)	71,210	77,471

4a. Penggunaan Metrik

Kuantitatif: 4
Kualitatif: 8
Halaman: 11,58,60-62,65,70,77

	4b. Ruang Lingkup 1, 2, 3 Emisi GRK Kuantitatif: 2 Kualitatif: 7 Halaman: 67,69, 79-80
	4c. Penggunaan Target Kuantitatif: 2 Kualitatif: 7 Halaman 3,35,68

Lampiran 5 : Hasil Penilaian Pengungkapan Pelaporan Iklim dengan Rekomendasi TCFD Kuantitatif

KUANTITATIF		Governance		Strategy			Risk Management			Metrics and Targets			
Tahun	Emiten	Board Oversight	Management's Roles	Risks & Opportunities Identification	Impact of Risks & Opportunities	Resilience of Strategy	Processes for Identifying and Assessing Risks	Processes for Managing Risks	Processes for Climate-Related Risks Integrated to Overall Risk	Metrics Used in Line with Strategy	Scope 1, 2, 3 of GHG Emissions	Targets & Performance Against Targets	Total
2020	Nippon Steel Corp.	1	3	2	2	2	1	1	2	3	2	3	22
	JFE Holdings, Inc	5	3	3	3	2	2	3	3	2	1	4	31
	Kobe Steel Ltd	2	0	3	2	0	2	0	5	1	4	4	23
	MUFG Bank	2	2	4	2	4	3	2	3	5	2	4	33
	Japan Post Bank	2	2	2	3	0	2	1	1	1	1	1	16
	Mizuho Financial Group	3	2	2	3	4	2	3	4	2	3	3	31
	Anglo American Plc	1	1	2	2	5	1	5	5	1	1	2	26
	Endeavour Mining PLC	3	4	4	4	0	2	3	0	2	2	3	27
	Rio Tinto	5	5	2	2	4	4	2	5	1	3	3	36
	Barclays	4	5	5	5	4	3	3	5	3	0	3	40
	NatWest Group	5	4	2	3	4	3	3	5	3	1	5	38
	Lloyds Banking Group	4	5	2	0	5	2	3	0	2	2	3	28
	African Rainbow Minerals	3	2	5	4	4	3	3	3	3	3	4	37
	Exxaro Resources	3	1	3	4	3	0	0	3	1	3	3	24
	Gold Fields	3	2	1	1	1	2	0	2	1	2	4	19
	Standard Bank Group	2	2	3	5	3	4	3	3	3	3	3	34
	FirstRand	3	2	4	0	0	2	0	0	2	2	3	18
	ABSA Group	5	3	5	5	4	2	2	5	4	4	3	42
2021	Nippon Steel Corp.	3	1	2	2	2	0	1	1	1	3	1	17
	JFE Holdings, Inc	3	2	2	1	2	2	2	3	2	2	3	24
	Kobe Steel Ltd	1	2	2	3	1	1	0	0	4	1	3	18
	MUFG Bank	4	0	2	1	3	2	0	1	2	2	2	19
	Japan Post Bank	1	2	1	2	2	1	1	3	0	1	3	17
	Mizuho Financial Group	4	4	2	5	1	1	0	4	2	1	3	27
	Anglo American Plc	5	4	3	1	4	2	4	0	1	5	3	32
	Endeavour Mining PLC	1	2	1	1	0	1	5	0	4	5	0	20
	Rio Tinto	4	1	1	0	2	3	0	2	1	5	5	24
	Barclays	4	5	2	5	5	1	5	3	5	1	1	37
	NatWest Group	5	5	4	5	4	5	5	2	4	2	2	43
	Lloyds Banking Group	5	5	5	4	5	5	5	4	4	4	5	51
	African Rainbow Minerals	3	3	3	3	3	3	5	5	5	2	5	40
	Exxaro Resources	5	4	0	1	1	3	5	0	2	2	1	24
	Gold Fields	3	1	3	1	1	1	1	5	2	1	2	21
	Standard Bank Group	3	3	3	0	1	4	0	3	1	3	2	23
	FirstRand	3	3	3	2	4	3	0	3	2	3	3	29
	ABSA Group	5	4	5	2	3	0	3	5	5	3	3	38
2022	Nippon Steel Corp.	3	2	3	1	5	1	1	2	1	2	2	23
	JFE Holdings, Inc	2	2	3	2	3	3	4	5	1	1	3	29
	Kobe Steel Ltd	1	3	4	2	2	1	0	0	3	2	3	21
	MUFG Bank	3	2	4	1	3	2	2	3	2	1	2	25
	Japan Post Bank	1	2	1	3	4	2	0	2	2	1	3	21
	Mizuho Financial Group	2	2	3	2	5	2	2	3	1	2	3	27
	Anglo American Plc	5	3	2	4	3	5	3	4	1	3	5	38
	Endeavour Mining PLC	1	2	2	2	4	4	4	5	3	5	5	37
	Rio Tinto	5	2	3	2	2	3	1	3	1	2	4	28
	Barclays	3	5	4	5	3	1	5	2	3	3	2	36
	NatWest Group	3	5	3	2	3	4	4	5	2	2	3	36
	Lloyds Banking Group	5	3	3	5	4	5	2	5	2	3	2	39
	African Rainbow Minerals	3	2	2	4	5	4	4	3	3	5	3	38
	Exxaro Resources	3	5	2	2	0	2	2	5	2	2	2	27
	Gold Fields	1	2	1	3	3	4	4	1	5	2	3	29
	Standard Bank Group	5	5	2	1	2	3	0	4	2	1	3	28
	FirstRand	2	2	3	5	3	2	2	4	1	4	3	31
	ABSA Group	5	5	5	2	4	5	5	5	5	4	5	50

Lampiran 6 : Hasil Penilaian Pengungkapan Pelaporan Iklim dengan Rekomendasi TCFD Kualitatif

KUALITATIF		Governance		Strategy			Risk Management			Metrics and Targets			
Tahun	Emiten	Board Oversight	Management's Roles	Risks & Opportunities Identification	Impact of Risks & Opportunities	Resilience of Strategy	Processes for Identifying and Assessing Risks	Processes for Managing Risks	Processes for Climate-Related Risks Integrated to Overall Risk	Metrics Used in Line with Strategy	Scope 1, 2, 3 of GHG Emissions	Targets & Performance Against Targets	Total
2020	Nippon Steel Corp.	1	4	7	7	7	4	1	1	4	7	1	44
	JFE Holdings, Inc	3	1	7	4	4	1	1	1	3	7	3	35
	Kobe Steel Ltd	4	0	4	1	0	4	0	1	1	7	7	29
	MUFG Bank	1	4	3	4	8	1	4	7	8	7	3	50
	Japan Post Bank	1	4	4	3	0	1	4	4	4	7	7	39
	Mizuho Financial Group	1	4	4	4	7	1	4	4	1	7	5	42
	Anglo American Plc	1	1	4	5	7	4	1	1	1	7	7	39
	Endeavour Mining PLC	1	1	1	1	0	4	1	0	4	7	1	21
	Rio Tinto	1	4	4	4	4	4	3	4	4	7	7	46
	Barclays	1	4	4	7	6	4	4	4	8	0	7	49
	NatWest Group	1	4	4	4	7	4	1	1	6	7	3	42
	Lloyds Banking Group	1	4	4	0	4	4	1	0	3	7	3	31
	African Rainbow Minerals	4	4	3	7	4	1	1	4	1	7	3	39
	Exxaro Resources	1	4	8	4	7	0	0	4	4	7	1	40
	Gold Fields	4	4	4	4	4	1	0	1	4	7	7	40
	Standard Bank Group	1	4	5	1	1	1	1	4	8	7	3	36
	FirstRand	1	4	4	0	0	4	0	0	4	7	3	27
	ABSA Group	1	4	1	1	1	4	4	7	7	7	3	40
2021	Nippon Steel Corp.	1	1	7	4	7	0	4	1	4	7	7	43
	JFE Holdings, Inc	1	4	4	4	4	1	4	1	1	7	4	35
	Kobe Steel Ltd	4	4	4	1	1	4	0	0	7	7	7	39
	MUFG Bank	4	0	8	4	8	4	0	4	8	7	7	54
	Japan Post Bank	1	4	4	8	4	1	4	4	0	7	7	44
	Mizuho Financial Group	4	4	4	2	4	1	0	4	1	7	8	39
	Anglo American Plc	1	1	1	1	7	1	1	0	1	7	7	28
	Endeavour Mining PLC	1	1	1	1	0	4	7	0	7	7	0	29
	Rio Tinto	1	1	4	0	1	4	0	4	1	8	7	31
	Barclays	1	4	4	3	4	4	1	4	3	7	7	42
	NatWest Group	1	4	4	8	7	1	4	4	8	7	7	55
	Lloyds Banking Group	4	1	4	6	8	4	4	1	7	8	8	55
	African Rainbow Minerals	4	4	4	1	4	4	4	1	3	7	7	43
	Exxaro Resources	4	4	0	1	1	4	4	0	7	7	7	39
	Gold Fields	4	4	4	4	7	4	4	4	7	7	4	53
	Standard Bank Group	4	4	4	0	4	4	0	1	1	7	7	36
	FirstRand	4	4	4	8	7	4	0	4	1	7	8	51
	ABSA Group	1	1	4	1	1	0	1	4	8	7	3	31
2022	Nippon Steel Corp.	1	4	7	4	8	1	1	1	1	7	7	42
	JFE Holdings, Inc	1	4	4	4	4	4	1	1	1	7	7	38
	Kobe Steel Ltd	1	4	4	1	3	1	0	0	7	7	7	35
	MUFG Bank	4	4	8	4	8	4	4	4	8	7	4	59
	Japan Post Bank	4	4	4	8	8	4	0	4	4	8	7	55
	Mizuho Financial Group	4	4	4	4	8	4	4	4	4	7	8	55
	Anglo American Plc	4	4	4	1	7	1	4	1	1	7	7	41
	Endeavour Mining PLC	4	4	7	7	3	1	1	1	3	7	3	41
	Rio Tinto	1	1	4	7	7	4	1	4	7	7	7	50
	Barclays	1	4	4	1	8	4	1	4	5	7	7	46
	NatWest Group	1	4	4	8	4	4	4	4	1	7	7	48
	Lloyds Banking Group	4	4	4	1	7	1	1	4	8	8	8	50
	African Rainbow Minerals	1	4	4	1	4	7	1	4	7	7	7	47
	Exxaro Resources	4	4	7	4	0	4	1	1	7	7	4	43
	Gold Fields	4	4	4	7	7	4	4	1	7	7	4	53
	Standard Bank Group	1	1	4	1	4	4	0	4	7	1	8	35
	FirstRand	4	4	4	8	7	4	4	7	7	8	7	64
	ABSA Group	4	4	4	1	4	4	4	1	8	7	7	48

Lampiran 7 : Tingkat Kualitas Pengungkapan Pelaporan Iklim Kuantitatif dan Kualitatif

Analisis Kuantitatif

No	Nama Perusahaan	Skor			Presentase		
		2020	2021	2022	2020	2021	2022
1	Nippon Steel Corp.	22	17	23	40%	31%	42%
2	JFE Holdings, Inc	31	24	29	56%	44%	53%
3	Kobe Steel Ltd	23	18	21	42%	33%	38%
4	MUFG Bank	33	19	25	60%	35%	45%
5	Japan Post Bank	16	17	21	29%	31%	38%
6	Mizuho Financial Group	31	27	27	56%	49%	49%
7	Anglo American Plc	26	32	38	47%	58%	69%
8	Endeavour Mining PLC	27	20	37	49%	36%	67%
9	Rio Tinto	36	24	28	65%	44%	51%
10	Barclays	40	37	36	73%	67%	65%
11	NatWest Group	38	43	36	69%	78%	65%
12	Lloyds Banking Group	28	51	39	51%	93%	71%
13	African Rainbow Minerals	37	40	38	67%	73%	69%
14	Exxaro Resources	24	24	27	44%	44%	49%
15	Gold Fields	19	21	29	35%	38%	53%
16	Standard Bank Group	34	23	28	62%	42%	51%
17	FirstRand	18	29	31	33%	53%	56%
18	ABSA Group	42	38	50	76%	69%	91%

Analisis Kualitatif

No	Nama Perusahaan	Skor			Presentase		
		2020	2021	2022	2020	2021	2022
1	Nippon Steel Corp.	44	43	42	50%	49%	48%
2	JFE Holdings, Inc	35	35	38	40%	40%	43%
3	Kobe Steel Ltd	29	39	35	33%	44%	40%
4	MUFG Bank	50	54	59	57%	61%	67%
5	Japan Post Bank	39	44	55	44%	50%	63%
6	Mizuho Financial Group	42	39	55	48%	44%	63%
7	Anglo American Plc	39	28	41	44%	32%	47%
8	Endeavour Mining PLC	21	29	41	24%	33%	47%

9	Rio Tinto	46	31	50	52%	35%	57%
10	Barclays	49	42	46	56%	48%	52%
11	NatWest Group	42	55	48	48%	63%	55%
12	Lloyds Banking Group	31	55	50	35%	63%	57%
13	African Rainbow Minerals	39	43	47	44%	49%	53%
14	Exxaro Resources	40	39	43	45%	44%	49%
15	Gold Fields	40	53	53	45%	60%	60%
16	Standard Bank Group	36	36	35	41%	41%	40%
17	FirstRand	27	51	64	31%	58%	73%
18	ABSA Group	40	31	48	45%	35%	55%

Lampiran 8 : Hasil Perhitungan Tabel Kontigensi

$$Distance = \sqrt{(peringkat\ kuantitatif)^2 + (peringkat\ kualitatif)^2}$$

KUANTITATIF					DISTANCE	KUALITATIF				
Emiten	Avg 3 Thn	%	Tingkat	Peringkat	KECIL YG TERBAIK	Emiten	Avg 3 Thn	%	Tingkat	Peringkat
NS	20.67	38%	Rendah	16	**18.36**	NS	43.00	49%	Sedang	9
JF	28.00	51%	Sedang	10	**17.20**	JF	36.00	41%	Sedang	14
KS	20.67	38%	Rendah	17	**23.69**	KS	34.33	39%	Rendah	17
MU	25.67	47%	Sedang	13	**13.04**	MU	54.33	62%	Tinggi	1
JP	18.00	33%	Rendah	18	**18.68**	JP	46.00	52%	Sedang	5
MF	28.33	52%	Sedang	8	**10.63**	MF	45.33	52%	Sedang	7
AA	32.00	58%	Sedang	6	**15.69**	AA	36.00	41%	Sedang	15
EM	28.00	51%	Sedang	11	**20.84**	EM	30.33	34%	Rendah	18
RT	29.33	53%	Sedang	7	**13.04**	RT	42.33	48%	Sedang	11
BC	37.67	68%	Tinggi	5	**7.81**	BC	45.67	52%	Sedang	6
NW	39.00	71%	Tinggi	3	**4.24**	NW	48.33	55%	Sedang	3
LL	39.33	72%	Tinggi	2	**7.76**	LL	45.33	52%	Sedang	8
AR	38.33	70%	Tinggi	4	**10.31**	AR	43.00	49%	Sedang	10
EX	25.00	45%	Sedang	14	**18.44**	EX	40.67	46%	Sedang	12
GF	23.00	42%	Sedang	15	**15.13**	GF	48.67	55%	Sedang	2
SB	28.33	52%	Sedang	9	**18.12**	SB	35.67	41%	Sedang	16
FR	26.00	47%	Sedang	12	**12.65**	FR	47.33	54%	Sedang	4
AB	43.33	79%	Tinggi	1	**13.04**	AB	39.67	45%	Sedang	13

Emiten	*Distance*	Peringkat	Tingkat	Peringkat	KECIL YG TERBAIK		
NS	18.36	14	Rendah	16	4.24	NW	1
JF	17.20	12	Sedang	10	7.76	LL	2
KS	23.69	18	Rendah	17	7.81	BC	3
MU	13.04	7	Sedang	13	10.31	AR	4
JP	18.68	16	Rendah	18	10.63	MF	5
MF	10.63	5	Sedang	8	12.65	FR	6
AA	15.69	11	Sedang	6	13.04	MU	7
EM	20.84	17	Sedang	11	13.04	RT	8
RT	13.04	8	Sedang	7	**13.04**	AB	9
BC	7.81	3	Tinggi	5	15.13	GF	10
NW	4.24	1	Tinggi	3	15.69	AA	11
LL	7.76	2	Tinggi	2	17.20	JF	12
AR	10.31	4	Tinggi	4	18.12	SB	13
EX	18.44	15	Sedang	14	18.36	NS	14
GF	15.13	10	Sedang	15	18.44	EX	15
SB	18.12	13	Sedang	9	18.68	JP	16
FR	12.65	6	Sedang	12	20.84	EM	17
AB	13.04	9	Tinggi	1	23.69	KS	18