

# **ABP Investments Commentary**

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*Prepared for Fossielvrij NL – Go Fossil Free*

*June 2021*



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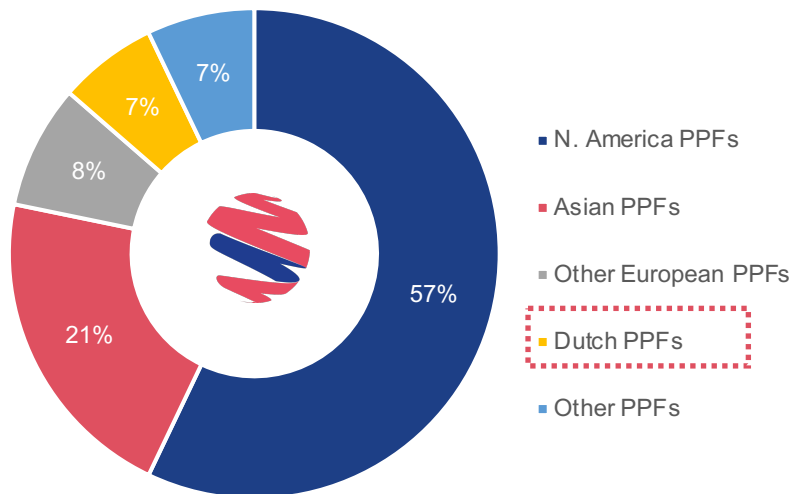
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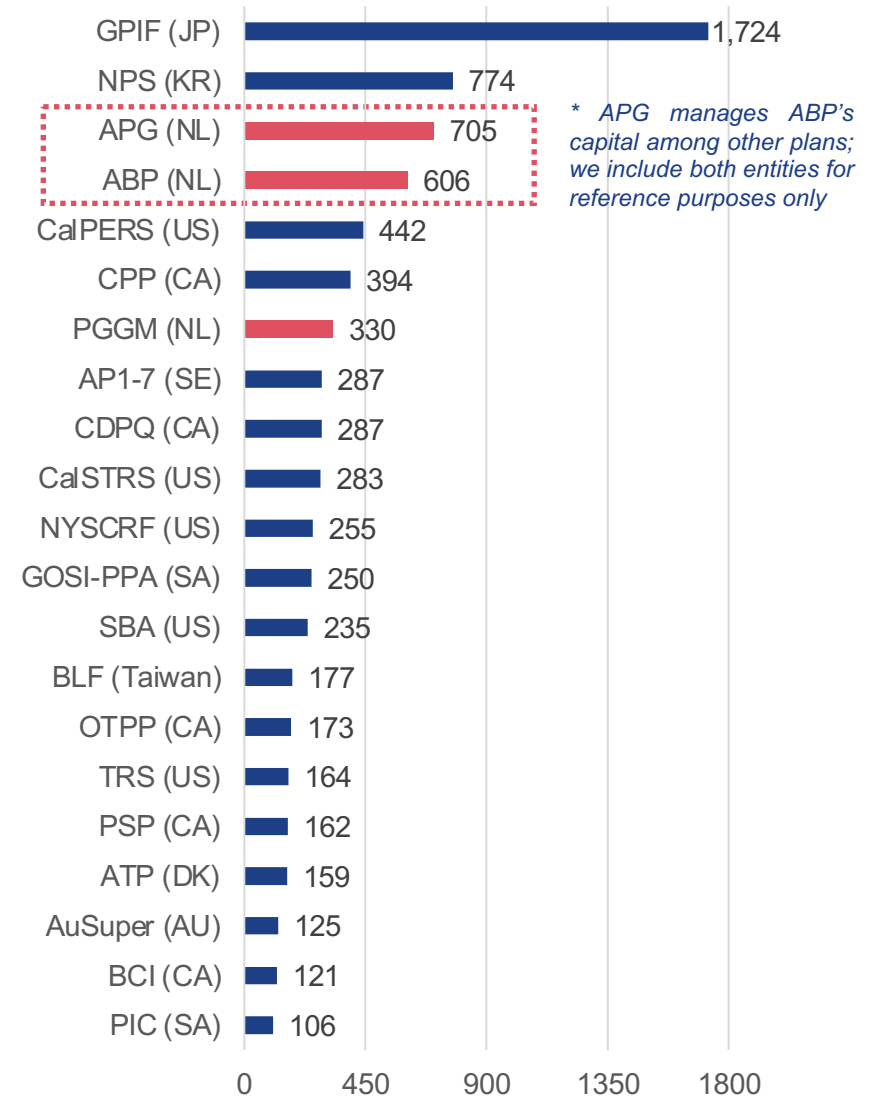
- Dutch funds represent 7% of the global pension industry
- ABP is by far the largest depositor in APG's portfolio
- APG is by far the largest Dutch manager, 2x PGGM's size
- World's largest pool of pension assets after GPIF and NPS
- Asset allocation: 25% bonds, 47% stocks, 29% alternatives
- Funding ratio has decreased from 104% (2018) to 88% (2020)
- Returns in the past 6 years have been 6.6% on average
- Still investing in fossils both in public and private markets

**Global PPF industry: US\$ 19.8tn**



Source: Global SWF Data Platform

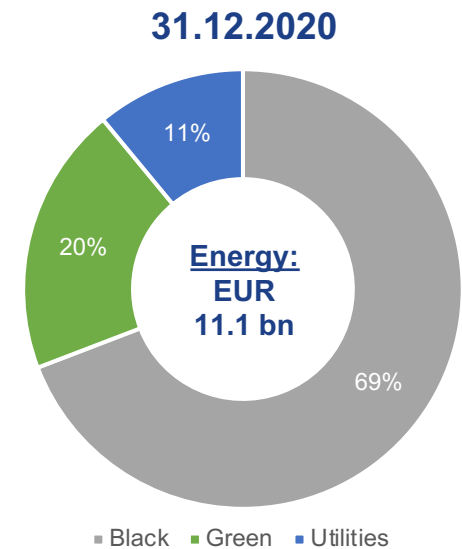
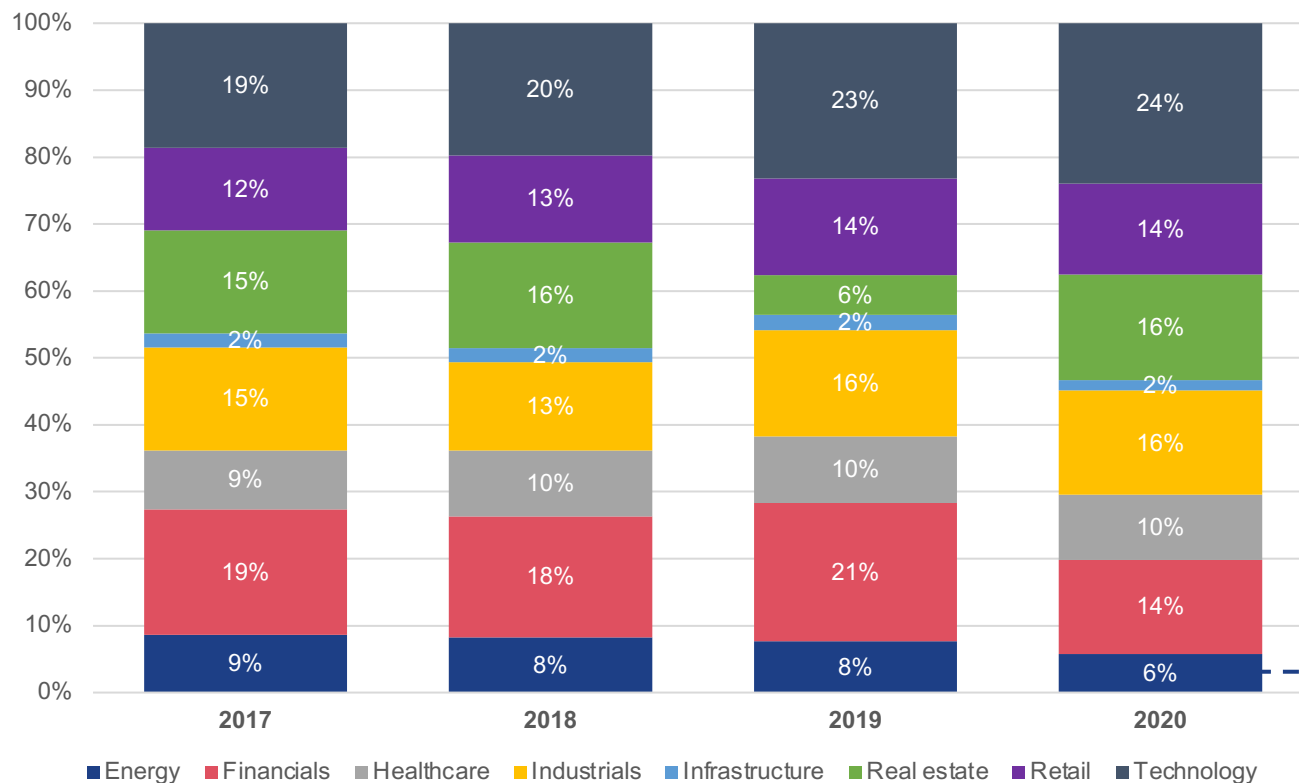
**World's Top 20 PPFs (US\$ bn)**



Source: Global SWF Data Platform

- An analysis of the equity holdings of ABP can shed a light on the changes of sectorial preferences.
  - Technology has been gaining ground since 2016, partly due to the higher valuation of tech stocks.
  - Retail, Industrials, Healthcare and Infra have been constant, while Financials and Energy are out of favor.
  - The energy figures shown in the 2019 reports are significantly different, with a EUR 27.2 bn energy portfolio.
- Both ABP and APG declined the opportunity to explain such large differences in reporting.

## ABP's Industrial Mix (Equities)

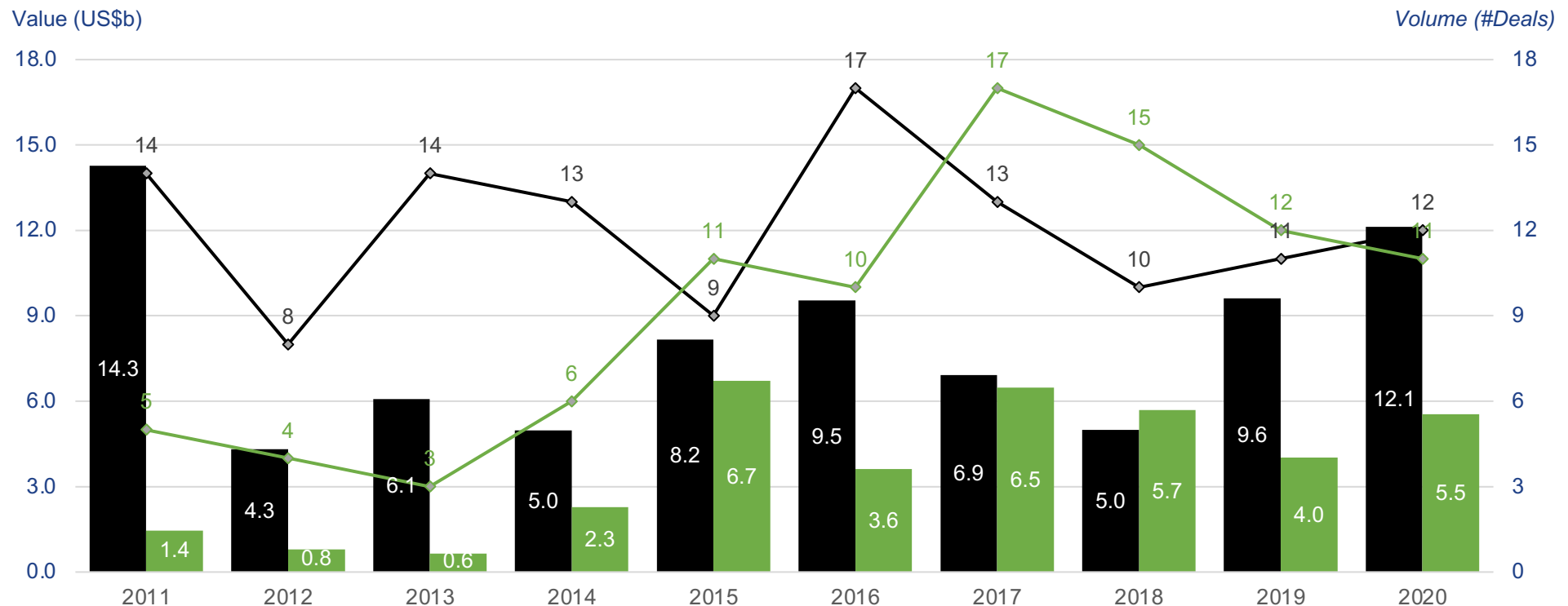


Source: ABP's annual disclosure on stocks, Global SWF analysis



- While SWFs have traditionally focused on public equities, their investments in private markets are having an increasing importance.
- The value of direct investment in **black energy** during 2011-2020 was US\$ 81.0 bn, compared to US\$ 37.2 bn in **green energy**. However, the number of deals in both segments was much closer, reflecting the smaller scale that renewable projects usually have.
- **ABP** (via **APG**) has already made significant investments in private renewable energy, but it also continues to invest in O&G projects. At the beginning of 2020, it bought a 64% stake in a 396MW German wind farm and also two gas-fired electric plants in New York.

Private markets investments in black vs green energy



Source: Global SWF Data Platform

O&G Value
  Renewables Value
  O&G Volume
  Renewables Volume



- Fossielvrij NL, together with Groen Pension and 350.org, has been advocating for ABP to pursue greener investments since 2015.
- In assisting them, we ask ourselves whether the fund has actually been reducing its weight in black energy in the past years (“Q1”), and the potential benefits, had they divested from fossil fuels and invested in renewable energy stocks more aggressively (“Q2”).
- **ABP**, is a fairly transparent fund that provides a list of its portfolio holdings on an annual fashion – we have therefore relied on the information posted on their website and on the list of equity investments as of December 31, 2017, 2018, 2019 and 2020.
- For Q1, we completed a due diligence on the stocks, looking for oil and gas and coal on one side, and for renewable energy on the other. We analyzed an average of **3,500+ stocks** per year invested by ABP during the period 2017-2020 and labelled them as:
  - ✓ **black stocks** if they were primarily engaged in O&G, O&G equipment, gas, coal, mining-fossils and utilities-fossils; and
  - ✓ **green stocks** if they were primarily engaged in hydro, solar, wind, biomass, geothermal and water/waste management.
- The resulting chart tracks the reduction in black stocks and the increase of green stocks in both value and volume during 2017-2020, and is presented on page 7 of this report.
- For Q2, we have filtered the stocks invested as of December 31, 2020, i.e., **222 black stocks** (with a market value of EUR 7.7 bn) and **39 green stocks** (value of EUR 2.2 bn), and analyzed the 1-year, 2-year and 3-year, 4-year and 4.5 year returns of each of them.
- To do so, we have used the “**Adjusted close price**” which is adjusted for both dividends and splits, as provided by Yahoo Finance. We have considered the values in local currency, so that the returns are not influenced by foreign exchange movements.
- For the **black stocks**’ sample, we have assumed a representative sample with **95%** of the total weight in value as of Dec 31, 2020.
- The returns of both portfolios are then used in five simulations to identify the opportunity cost that the fund has had for not having invested less aggressively into **black stocks** and more aggressively into **green stocks** during 2016-2021. Results are in pages 9-10.
- All analyses are based on year-end data, given ABP’s actual dates of investment / divestment are not disclosed publicly. The conclusions are therefore based on our most accurate estimation given the data at hand and despite certain reporting inconsistencies.

# Inconsistencies and gaps in ABP's reporting



- It is customary for Public Pension Funds to be fairly transparent, as they are accountable to stakeholders, depositors and pensioners.
- Historically, **ABP** has provided information about its investments via its annual and sustainable reports, as well as a comprehensive list of bonds ([link](#)), public equities ([link](#)), external managers ([link](#)) and the list of the 100 largest investments ([link](#)).
- However, we have found a number of inconsistencies and gaps – which ABP and APG declined to explain; as follows:

## 1. Figures provided by quarterly reports do not tie with annual details provided for bonds and stocks holdings:

EURm	31.12.2018		31.12.2019		31.12.2020	
	Bonds	Stocks	Bonds	Stocks	Bonds	Stocks
Total AuM according to Q reports	399,000	399,000	466,000	466,000	493,000	493,000
Allocation according to Q reports	14.1%	33.3%	13.4%	32.5%	13.2%	33.2%
Figure According to Q reports	56,259	132,867	62,444	151,450	61,512	163,676
List of stocks / bonds provided	28,219	152,163	32,798	163,100	37,817	195,523
<b>Unexplained difference</b>	<b>-28,040</b>	<b>19,296</b>	<b>-29,646</b>	<b>11,650</b>	<b>-23,695</b>	<b>31,847</b>

## 2. Figures provided by annual reports (until 2019) do not tie with annual details provided for bonds and stocks holdings:

Audited annual Report 2019 (page 130)		
Industry	EURm	Value %
Energy & Utilities	13,298	7%
Financials & P.Aut.	43,710	23%
Healthcare	19,018	10%
Industrials	27,665	14%
Real estate	4,769	2%
Retail	39,815	21%
Technology	44,130	23%
<b>Total Equities</b>	<b>192,405</b>	
List of stocks provided	163,100	
<b>Unexplained diff.</b>	<b>29,305</b>	

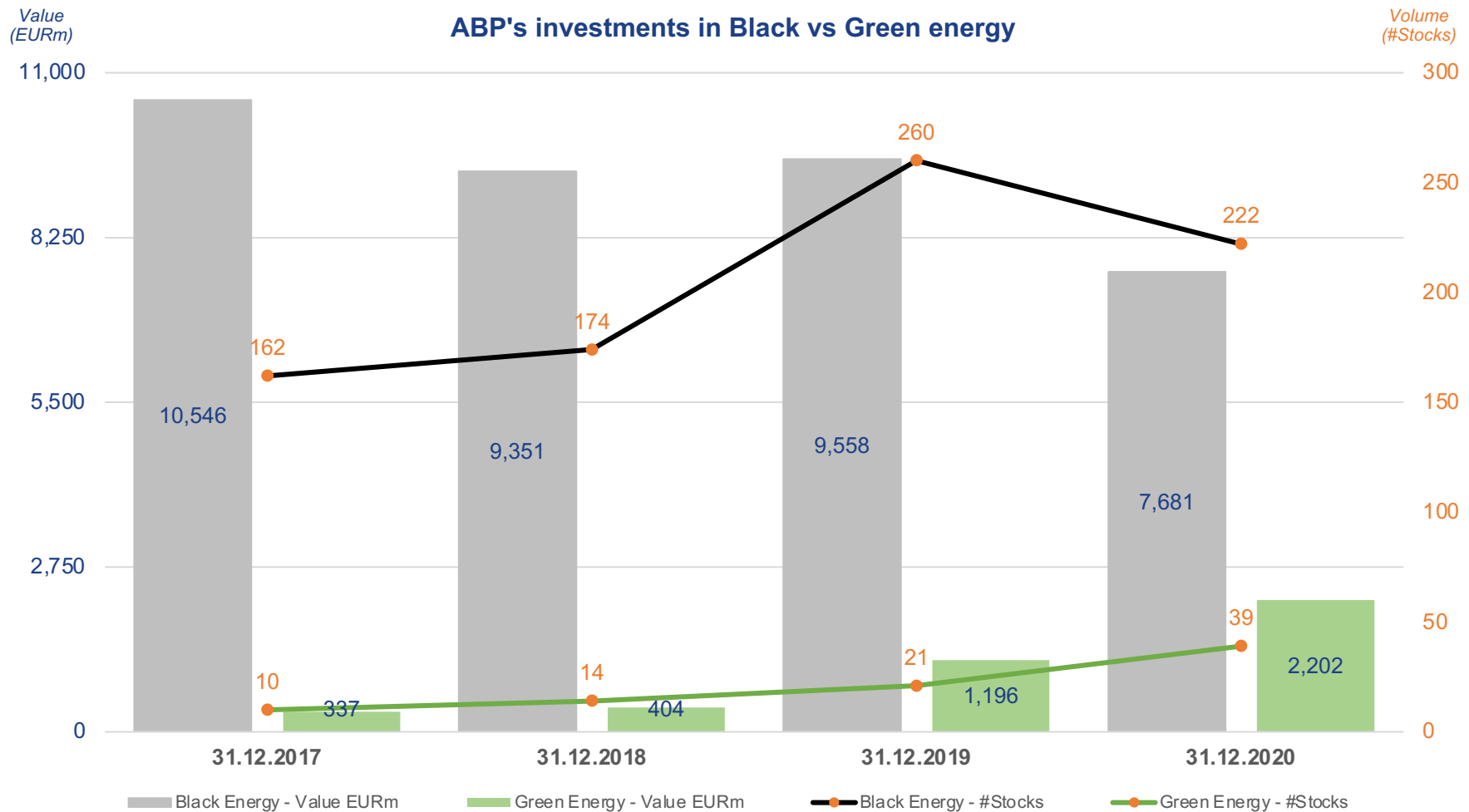
Sustainability Report 2019 (page 26)		
Sub-industry	EURm	Value %
Electricity Grid	1,632	6%
Oil	7,888	29%
Coal	1,360	5%
Gas	8,160	30%
Nuclear energy	1,088	4%
Renewable	3,808	14%
n.a.	2,992	11%
<b>Energy portfolio</b>	<b>27,200</b>	
According to Audit accounts	13,298	
<b>Unexplained difference</b>	<b>13,902</b>	
According to list of stocks	12,535	
<b>Unexplained difference</b>	<b>14,665</b>	

*Note: In this last case it could be that it is not only public equities but also green bonds and private markets but it is not clear from the reading of the report. It is also striking that the text accompanying that table cites yet another set of figures (e.g., EUR 6.5 billion invested in renewable energy, which does not tie with any other detail provided). Also, this level of details was stopped being given after the “Annual Report” and the “Sustainable and Responsible Investing Report” were merged in 2020 ([link](#)), which appears to be counter-intuitive.*

## Q1: Has ABP reduced its exposure to O&G since 2017?



- According to our analysis, the exposure to **black stocks** has indeed decreased from EUR 10.5 bn in 2017 to EUR 7.7 bn in 2020.
- Also, the exposure to **green stocks** has increased from EUR 0.3 bn at the end of 2017 to EUR 2.2 bn at the end of 2020.
- Despite this trend, the weight of **black stocks** is still 3.5x greater than the weight of **green stocks** as of December 31, 2020.



Source: ABP's annual disclosures, Global SWF analysis



## Q2: Potential benefits of a greener portfolio during 2016-2021 (1 of 3)



- We have analyzed the 1-yr, 2-yr, 3-yr, 4-yr and 4.5-yr returns of **black stocks** and **green stocks** invested as of December 31, 2020.
- The results are staggering: the **green portfolio** outperformed the **black portfolio** in 86%, 177%, 241%, 398% and 337% respectively.

Black Stock	Sub-industry	Value	Stock price (XXX) - Yahoo finance						Investment returns					
			12/31/16	12/31/17	12/31/18	12/31/19	12/31/20	6/18/21	1yr	2yr	3yr	4yr	4.5yr	
Royal Dutch Shell PLC	O&G	371	50.02	63.82	58.23	59.97	33.61	37.22	-44%	-42%	-47%	-33%	-26%	
Petroleo Brasileiro SA	O&G	357	212.62	201.16	253.69	304.14	222.62	233.16	-27%	-12%	11%	5%	10%	
Chevron Corp	O&G	346	96.56	106.79	96.38	111.10	82.27	103.03	-26%	-15%	-23%	-15%	7%	
Vale SA	Coal	336	6.26	10.50	11.78	12.10	16.03	21.51	32%	36%	53%	156%	244%	
Enel SpA	Utilities-Fossil	283	3.36	4.28	4.41	6.50	7.93	7.87	22%	80%	85%	136%	134%	
Rio Tinto PLC	Coal	279	27.29	39.53	38.38	52.78	71.89	81.04	36%	87%	82%	163%	197%	
TOTAL SE	O&G	269	39.46	45.14	44.79	49.41	41.22	46.42	-17%	-8%	-9%	4%	18%	
Exxon Mobil Corp	O&G	235	71.51	68.79	58.40	62.63	39.95	60.40	-36%	-32%	-42%	-44%	-16%	
LUKOIL PJSC	O&G	189	44.54	48.89	62.31	91.55	68.36	91.92	-25%	10%	40%	53%	106%	
Duke Energy Corp	Utilities-Fossil	161	64.02	72.31	77.67	85.67	89.75	99.61	5%	16%	24%	40%	56%	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Black Stocks (EURm)		7,681							Return	-8%	+12%	+15%	+41%	+61%
#Black Stocks		222												

Source: ABP disclosure, Yahoo Finance, Global SWF analysis

Green Stock	Sub-industry	12/31/20	Stock price (XXX) - Yahoo finance						Investment returns				
			12/31/16	12/31/17	12/31/18	12/31/19	12/31/20	6/18/21	1yr	2yr	3yr	4yr	4.5yr
Vestas Wind Systems A/S	Renewable	653	85.52	81.27	95.25	131.95	285.96	228.90	117%	200%	252%	234%	168%
NextEra Energy Inc	Renewable	543	26.78	35.99	41.14	58.70	76.34	73.28	30%	86%	112%	185%	174%
Iberdrola SA	Renewable	234	5.13	5.58	6.36	8.70	11.54	10.73	33%	81%	107%	125%	109%
Siemens Energy AG	Renewable	126	22.00	22.00	22.00	22.00	30.00	25.56	36%	36%	36%	36%	16%
Veolia Environnement SA	Water Utilities	82	17.01	18.61	15.89	22.81	19.58	25.19	-14%	23%	5%	15%	48%
American Water Works	Water Utilities	80	66.67	86.01	87.15	120.08	152.35	157.54	27%	75%	77%	129%	136%
LONGi Green Energy Tech	Renewable	65	7.55	20.66	13.92	24.61	92.20	106.53	275%	562%	346%	1121%	1311%
Orsted AS	Renewable	62	243.70	315.81	415.90	671.00	1,229.21	873.00	83%	196%	289%	404%	258%
Hydro One Ltd	Renewable	38	17.41	17.91	14.72	18.99	22.55	24.54	19%	53%	26%	30%	41%
Enphase Energy Inc	Renewable	27	1.01	2.41	4.73	26.13	175.47	165.85	572%	3610%	7181%	17273%	16321%
...	...	...	...	...	...	...	...	...	...	...	...	...	...
Green Stocks (EURm)		2,202						Return	78%	189%	256%	439%	399%
#Green Stocks		39											

Source: ABP disclosure, Yahoo Finance, Global SWF analysis

## Q2: Potential benefits of a greener portfolio during 2016-2021 (2 of 3)



- Based on those portfolio returns; we can simulate five different scenarios to identify the opportunity cost that ABP has had for not having invested less aggressively into **black stocks** and more aggressively into **green stocks** during the period 2016-2021.

- **1<sup>st</sup> Scenario (2019-2020):** If the fund had invested all of the energy basket into **green stocks** on Dec 31, 2019, the 1-year return of such portfolio would have been 78%, as opposed to 11%. The opportunity cost was **EUR 6.6 bn**, 1.3% of ABP's value in Dec' 20.

1st scenario. 2019-2020	Value (EURm)	Return (%)	Return (EURm)
Black Stocks	7,681	-8%	-608
Green Stocks	2,202	78%	1,728
Blended Actual Portfolio	9,883	11%	1,119
All Green Portfolio	9,883	78%	7,754
Opportunity Cost			6,634

- **2<sup>nd</sup> Scenario (2018-2020):** If the fund had invested all of the energy basket into **green stocks** on Dec 31, 2018, the 2-year return of such portfolio would have been 189%, as opposed to 51%. The opportunity cost was **EUR 13.6 bn**, 2.8% of ABP's value in Dec' 20.

2nd scenario. 2018-2020	Value (EURm)	Return (%)	Return (EURm)
Black Stocks	7,681	12%	889
Green Stocks	2,202	189%	4,163
Blended Actual Portfolio	9,883	51%	5,053
All Green Portfolio	9,883	189%	18,687
Opportunity Cost			13,634

- **3<sup>rd</sup> Scenario (2017-2020):** If the fund had invested all of the energy basket into **green stocks** on Dec 31, 2017, the 3-year return of such portfolio would have been 256%, as opposed to 69%. The opportunity cost was **EUR 18.5 bn**, 3.8% of ABP's value in Dec' 20.

3rd scenario. 2017-2020	Value (EURm)	Return (%)	Return (EURm)
Black Stocks	7,681	15%	1,171
Green Stocks	2,202	256%	5,639
Blended Actual Portfolio	9,883	69%	6,810
All Green Portfolio	9,883	256%	25,309
Opportunity Cost			18,499

## Q2: Potential benefits of a greener portfolio during 2016-2021 (3 of 3)



- **4<sup>th</sup> Scenario (2016-2020):** If the fund had invested all of the energy basket into **green stocks** on Dec 31, 2016, the 4-year return of such portfolio would have been 439%, as opposed to 130%. The opportunity cost was **EUR 30.6 bn**, 6.2% of ABP's value in Dec' 20.

<b>4th scenario. 2016-2020</b>	<b>Value (EURm)</b>	<b>Return (%)</b>	<b>Return (EURm)</b>
<b>Black Stocks</b>	7,681	41%	3,144
<b>Green Stocks</b>	2,202	439%	9,664
<b>Blended Actual Portfolio</b>	9,883	130%	12,808
<b>All Green Portfolio</b>	9,883	439%	43,373
<b>Opportunity Cost</b>			<b>30,565</b>

- We have noticed a slight correction in the stock price of energy companies (both black and green) during the first half of 2021.
- We have therefore re-run the analysis of this second question during the period December 31, 2016, to June 18, 2021.
- This fifth scenario seeks to identify the opportunity cost that ABP has had for not having invested less aggressively into **black stocks** and more aggressively into **green stocks** during the period 2016-2021 (i.e., the past 4.5 years). Below are the results:

- **5<sup>th</sup> Scenario (2016-H121):** If the fund had invested all of the energy basket into **green stocks** on Dec 31, 2016, the 4.5-year return of such portfolio would have been 399%, as opposed to 137%. The opportunity cost was **EUR 25.9 bn**, 5.2% of ABP's value in Mar' 21.

<b>5th scenario. 2016-H121</b>	<b>Value (EURm)</b>	<b>Return (%)</b>	<b>Return (EURm)</b>
<b>Black Stocks</b>	7,681	61%	4,712
<b>Green Stocks</b>	2,202	399%	8,781
<b>Blended Actual Portfolio</b>	9,883	137%	13,494
<b>All Green Portfolio</b>	9,883	399%	39,413
<b>Opportunity Cost</b>			<b>25,919</b>

- This scenario proves the robustness of our analysis, and that there have not been any cherry picking in terms of stocks or timelines.



- There is a lack of extensive literature about the financial benefits of investing in renewable power and divesting from fossil fuels. One such study is the one done by IEA and Imperial College in 2020 ([link](#)), which found that renewable power stocks outperformed fossil fuels in US and European markets over the past ten years (11.4% vs 7.0% respectively), and also five years and one year.
- **ABP**, via **APG**, has been divesting significantly from fossil fuels and investing significantly in renewable energy since 2016. In fact, the weight of **black stocks** over **green stocks** in ABP's portfolio has decreased from 31.3x to 3.5x during the past three years.
- However, we wonder if this change has been sufficient and the reason for black stocks to still weight as much, especially given the fund's sustainable and responsible investing objectives, and despite the absence of O&G and coal in its latest exclusion list ([link](#)).
- Financial returns have stopped and must stop being an excuse, as evidenced by the present analysis on returns. ABP's **green portfolio** as at Dec 31, 2020, outperformed significantly the **black portfolio** over 1 year, 2 years, 3 years, 4 years and 4.5 years.
- If the fund had divested all of its **black stocks** and re-invested that capital into **green stocks** instead in December 2016, its balance sheet would have been **5.2% larger** today, i.e., Dutch Pensioners would be 5.2% richer today.
- Now, we are aware of the relativity of such statement and that the fund cannot possibly have a crystal ball – if it had, it would have invested in December 2016 such energy basket into Tesla Inc. shares altogether instead.
- Yet, the key message is that there is no reason for **ABP** not to divest from its (still very significant) portfolio of fossil fuels stocks, and not to use those proceeds to pursue more investments in companies engaged in renewable energy, whether listed or not.

# Appendix 1: List of black energy stocks invested as of Dec 31, 2020



Stock	Sub-industry	12/31/20	Stock	Sub-industry	12/31/20	Stock	Sub-industry	12/31/20	Stock	Sub-industry	12/31/20	Stock	Sub-industry	12/31/20
Royal Dutch Shel	O&G	371	China Resources	Natural Gas	48	Diamondback En	O&G	16	HK Electric Invest	Coal	6	Gaztransport Et T	O&G eq	2
Petroleo Brasileir	O&G	357	Aurizon Holdings	Coal	48	Exxaro Resource	Coal	15	Naturgy Energy C	Natural Gas	6	Enagas SA	O&G	2
Chevron Corp	O&G	346	Equinor ASA	O&G	47	Engie SA	Utilities-Fossil	15	First Quantum Mir	Mining-Fossil	6	Cenovus Energy	O&G	2
Vale SA	Coal	336	ENEOS Holdings	O&G	44	Alliant Energy Co	Utilities-Fossil	14	EQT Corp	Natural Gas	6	Imperial Oil Ltd	O&G	2
Enel SpA	Utilities-Fossil	283	Gazprom PJSC	O&G	43	African Rainbow I	Coal	13	FirstEnergy Corp	Coal	6	Equitrans Midstre	O&G	2
Rio Tinto PLC	Coal	279	Whitehaven Coal	Coal	40	Mitsubishi Corp	Coal	13	Marathon Oil Corp	O&G	6	WPX Energy Inc	O&G	2
TOTAL SE	O&G	269	Cheniere Energy	O&G eq	38	RWE AG	Coal	13	National Oilwell V	O&G eq	6	Sasol Ltd	Coal	1
Exxon Mobil Corp	O&G	235	UGI Corp	Natural Gas	37	Centrica PLC	O&G	13	OGE Energy Corp	Utilities-Fossil	6	China Oilfield Ser	O&G eq	1
LUKOIL PJSC	O&G	189	Santos Ltd	O&G	36	Devon Energy Cc	O&G	13	ONEOK Inc	O&G eq	6	Kunlun Energy C	Natural Gas	1
Duke Energy Corp	Utilities-Fossil	161	Baker Hughes Co	O&G eq	35	Enterprise Produ	O&G eq	13	APA Group	Natural Gas	6	Sinopec Enginee	O&G eq	1
ConocoPhillips	O&G	148	Ameren Corp	Utilities-Fossil	33	Vistra Corp	Coal	13	IRPC PCL	O&G	5	Sinopec Shangha	O&G	1
BHP Group Ltd	Coal	148	Osaka Gas Co Lt	Natural Gas	32	Ultrapar Participa	O&G	13	MOL Hungarian C	O&G	5	JG Summit Holdin	Coal	1
Southern Co/The	Utilities-Fossil	146	Electricite de Frar	Utilities-Fossil	32	Tenaga Nasional	Utilities-Fossil	12	Tullow Oil PLC	O&G	5	GAIL India Ltd	Natural Gas	1
BHP Group PLC	Coal	142	Inpex Corp	O&G	30	PTT Exploration &	O&G	12	AltaGas Ltd	O&G	5	Indian Oil Corp Lt	O&G	1
Novatek PJSC	O&G	103	Nippon Sanso Ho	O&G	30	Tenaris SA	O&G eq	12	Occidental Petrol	O&G	5	JSW Steel Ltd	Coal	1
Anglo American F	Coal	98	PTT Global Cherr	Coal	30	OMV AG	O&G	12	Shell Midstream F	O&G eq	5	Petronet LNG Ltd	O&G	1
TGS NOPEC Gec	O&G eq	96	Tatneft PJSC	O&G	30	TechnipFMC PLC	O&G eq	12	Oil & Natural Gas	O&G	4	Iwatani Corp	O&G	1
Pioneer Natural F	O&G	96	MDU Resources C	Utilities-Fossil	29	China Shenhua E	Coal	11	Sumitomo Chemic	Coal	4	Genting Bhd	Coal	1
Enbridge Inc	O&G eq	94	Oil Search Ltd	O&G	29	Vedanta Ltd	Coal	11	EN+ Group Intern	Mining-Fossil	4	Petronas Chemic	O&G	1
AP Moller - Maers	O&G	93	CenterPoint Ener	Utilities-Fossil	28	Infraestructura Er	Natural Gas	11	AES Corp/The	Coal	4	Petronas Gas Bh	Natural Gas	1
Woodside Petrole	O&G	92	Ayala Corp	Coal	27	Cabot Oil & Gas C	O&G	11	Continental Reso	O&G	4	Mesaieed Petroct	O&G	1
Xcel Energy Inc	Utilities-Fossil	91	PTT PCL	O&G	27	Concho Resource	O&G	11	Western Midstrea	O&G	4	Qatar Fuel QSC	O&G	1
BASF SE	O&G	90	S-Oil Corp	O&G	27	Shaanxi Coal Ind	Coal	10	Origin Energy Ltd	Coal	4	Jardine Cycle & C	Coal	1
Neste Oyj	O&G	88	DTE Energy Co	Utilities-Fossil	27	Indraprastha Gas	Natural Gas	10	AKR Corporindo	O&G	3	Formosa Petrochr	O&G	1
CNOOC Ltd	O&G	85	JGC Holdings Co	Coal	26	NiSource Inc	Utilities-Fossil	10	Japan Petroleum	O&G	3	Thai Oil PCL	O&G	1
John Wood Group	O&G eq	82	Teck Resources L	Mining-Fossil	26	NRG Energy Inc	Utilities-Fossil	10	Mitsui Chemicals I	Coal	3	CGG SA	O&G eq	1
WEC Energy Gro	Utilities-Fossil	80	CLP Holdings Ltd	Utilities-Fossil	25	Z Energy Ltd	O&G	10	Formosa Plastics	Coal	3	ERG SpA	Utilities-Fossil	1
Schlumberger NV	O&G eq	78	Halliburton Co	O&G eq	25	Geopark Ltd	O&G	10	Grand Pacific Pet	O&G	3	Italgas SpA	Natural Gas	1
American Electric	Utilities-Fossil	77	South32 Ltd	Mining-Fossil	25	Mahanagar Gas I	Natural Gas	9	A2A SpA	Utilities-Fossil	3	Subsea 7 SA	O&G eq	1
Endesa SA	Utilities-Fossil	75	China Gas Holdin	Natural Gas	24	Venture Corp Ltd	Mining-Fossil	9	Snam SpA	O&G eq	3	Grupa Lotos SA	O&G	1
Hess Corp	O&G	74	Lundin Energy Af	O&G	23	Repsol SA	O&G	9	Galp Energia SGI	O&G	3	Polski Koncern N	O&G	1
Kinder Morgan In	O&G	68	Surgutneftegas P	O&G	21	Energy Transfer L	O&G eq	9	Turkiye Petrol Rai	O&G	3	Polskie Gornictwo	O&G	1
Williams Cos Inc/7	O&G eq	68	Valero Energy Co	O&G	21	PPL Corp	Utilities-Fossil	9	Enable Midstream	O&G eq	3	CEZ AS	Coal	1
Evergy Inc	Coal	64	Canadian Natural	O&G	20	JFE Holdings Inc	Coal	8	Energy Harbor Cc	O&G	3	Seven Generation	O&G	1
BP PLC	O&G	63	ENN Energy Hold	Natural Gas	19	Toho Gas Co Ltd	Utilities-Fossil	8	HollyFrontier Corp	O&G	3	Genesis Energy L	O&G eq	1
Glencore PLC	Coal	62	EOG Resources I	O&G	19	GS Holdings Corp	O&G	8	Southwest Gas H	Natural Gas	3	Hess Midstream L	O&G eq	1
Hong Kong & Chi	Natural Gas	59	Enel Americas SA	Utilities-Fossil	19	SK Holdings Co L	O&G	8	China Petroleum	O&G	2	Patterson-UTI En	O&G eq	1
Atmos Energy Co	Natural Gas	58	Power Assets Hol	Utilities-Fossil	17	Antero Midstream	O&G	8	Adani Ports & Sp	Coal	2	USA Compressor	O&G eq	1
CMS Energy Corp	Utilities-Fossil	58	Parex Resources	O&G	17	Apache Corp	O&G	8	Bharat Petroleum	O&G	2	AGL Energy Ltd	Utilities-Fossil	1
Marathon Petrole	O&G	58	Pembina Pipeline	O&G eq	17	Beach Energy Ltd	O&G	8	Gujarat Gas Ltd	O&G	2	Petrobras Distribu	O&G	1
POSCO	Mining-Fossil	57	Nippon Steel Corp	Mining-Fossil	16	Beijing Enterprise	Natural Gas	7	Gujarat State Pet	O&G	2	Empresas COPEC	O&G	1
Phillips 66	O&G	56	Dialog Group BHI	O&G eq	16	CITIC Ltd	Coal	7	Idemitsu Kosan C	Coal	2	Ecopetrol SA	O&G	1
Suncor Energy In	O&G	55	Kumho Petrocher	O&G	16	Hokuriku Electric I	Coal	7	Saudi Kayan Peti	O&G	2			
TC Energy Corp	O&G eq	53	Eni SpA	O&G	16	Fortis Inc/Canada	Utilities-Fossil	7	Korea Petrochem	O&G	2			
Tokyo Gas Co Ltd	Natural Gas	51	Rosneft Oil Co PJ	O&G	16	Plains All America	O&G eq	7	SK Innovation Cc	O&G	2			
													<b>Black Stocks Value (EURm)</b>	<b>7,681</b>
													<b>#Black Stocks</b>	<b>222</b>

## Appendix 1: List of green energy stocks invested as of Dec 31, 2020



Stock	Sub-industry	12/31/20
Vestas Wind Systems A/S	Renewable	653
NextEra Energy Inc	Renewable	543
Iberdrola SA	Renewable	234
Siemens Energy AG	Renewable	126
Veolia Environnement SA	Water	82
American Water Works Co Inc	Water	80
LONGi Green Energy Technology Co Ltd	Renewable	65
Orsted AS	Renewable	62
Hydro One Ltd	Renewable	38
Enphase Energy Inc	Renewable	27
China Conch Venture Holdings Ltd	Renewable	24
BASE Inc	Water	23
Suez SA	Water	23
Norsk Hydro ASA	Renewable	23
Brookfield Renewable Partners LP	Renewable	23
SolarEdge Technologies Inc	Renewable	19
Beijing Enterprises Water Group Ltd	Water	18
EDP - Energias do Brasil SA	Renewable	18
RENOVA Inc	Renewable	15
Avantium N.V.	Renewable	15
TTW PCL	Water	14
Avangrid Inc	Renewable	13
Brookfield Renewable Corp	Renewable	11
Cia de Saneamento de Minas Gerais-COPASA	Water	9
EDP - Energias de Portugal SA	Renewable	8
Cia de Saneamento Basico do Estado de Sao Paulo	Water	8
Xinyi Solar Holdings Ltd	Renewable	7
RusHydro PJSC	Renewable	4
Atlantica Sustainable Infrastructure PLC	Renewable	4
EDP Renovaveis SA	Renewable	3
Severn Trent PLC	Water	2
Guangdong Baolihua New Energy Stock Co Ltd	Renewable	1
Guangdong Investment Ltd	Water	1
Sungrow Power Supply Co Ltd	Renewable	1
Adani Green Energy Ltd	Renewable	1
Northland Power Inc	Renewable	1
Cia de Saneamento do Parana	Renewable	1
Cosan SA	Renewable	1
Neoenenergia SA	Renewable	1
<b>Green Stocks Value (EURm)</b>		<b>2,202</b>
<b>#Green Stocks</b>		<b>39</b>



## Appendix 2: Global SWF Credentials



Global SWF LLC is a financial boutique focused on State-Owned Investors, including Sovereign Wealth Funds and Public Pension Funds, founded in July of 2018. In the past three years, we have completed projects for the World Bank, for the United Nations and for a number of governments setting up SWFs around the world. We also run one of the most comprehensive data platforms on SWFs' / PPFs' strategies, portfolios and executives, subscribed to by some of the world's most respected organizations, including four large SWFs, three of the world's Top 5 asset management firms and two of the world's Top 3 management consulting firms.



**Diego López**  
Managing Director  
New York NY  
PwC, KPMG  
LSE

Diego López is the MD of Global SWF, based in NYC. During the past two years, he has worked as an external consultant of the World Bank, of the UN and supported the establishment of various SWFs. He is considered a global expert in SWF matters.

He is a seasoned banker and consultant with over 15 years of experience. Prior to founding Global SWF, he spent five years building up PwC's footprint in the SWF industry as the Director and COO of the global practice. Before PwC, he spent five years in KPMG and two in Accuracy.

Diego has lived and worked in Europe, the Middle East, China, Brazil and the US. He earned his Masters in Finance from the London School of Economics (LSE) after graduating in the Universities of Madrid and Milan. He is FINRA-registered representative with Series 62, 63 and 79.



**Daniel Brett**  
Head of Data  
London UK  
Fitch Solutions  
SOAS

Daniel Brett is the Head of Research & Data of Global SWF, based in London. He started his career in journalism before becoming editor of a business intelligence provider and has worked for 17 years as a consultant to Fitch with a focus on O&G & finance.

Prior to joining Global SWF's team, he was head of data and research at Institutional Investor's Sovereign Wealth Center. He has also worked for OPEC and other organizations providing intelligence on oil, gas, electricity and renewables in Africa, the Middle East and Asia.

Daniel is a fellow of the Royal Asiatic Society and a member of the Royal Africa Society, having graduated in political science at Queen Mary University of London and obtaining a Master of Science in international development at the School of Oriental and African Studies (SOAS).



**Zoe Zongyuan Liu**  
Head of Content  
New York NY  
Columbia-Harvard  
GWU, JHU

Zoe Liu is the Head of Content of Global SWF, based in New York. She is a postdoctoral research scholar at the Columbia-Harvard "China and the World Program", a research associate at NYU Stern and a lecturer at SAIS Johns Hopkins University.

She has over 14 years of experience on macro data and political risk. She has conducted extensive field research in eight countries on SWF-related issues, having worked for the Delma Institute (Abu Dhabi), for MUFG (Tokyo) and for China's MOFCOM (Beijing).

Zoe completed her PhD at John Hopkins University with a dissertation on SWFs and the landscape and different use of foreign reserves in China vs Japan. She also holds a Masters in International Relations from the George Washington University and is a CFA charter holder.



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