



Democracy Investments International Index

By: Richard Rikoski, PhD

Chief Economist, Democracy Investments

Issue Date: May 6, 2021

Democracy Investments Index Provider
1480 Moraga Road Suite C #378
Moraga, CA 94556
Web: www.democracyinvestments.com
Email: info@democracyinvestments.com

The information contained herein is current as of the Issue Date and is subject to change without notice.

Executive Summary

The Democracy Investments International Index is a new international equity index designed to encourage economic growth among democracies and political reform among authoritarian states. It combines the Solactive GBS Global Markets Ex-US index with the Democracy Index published by *The Economist* to create a democracy weighed stock index. Relative to the benchmark, the resulting index has a larger proportion of investment in democracies and a smaller proportion in authoritarian states. This capital allocation strategy, applied at scale, will encourage economic growth in democracies, hinder economic growth in authoritarian states, and create a market-based incentive for political reform. The incentive structure is simple, transparent, proportional, and credible.

Introduction

This whitepaper will introduce the Democracy Investments International Index. It will describe why the new index is necessary, the scope of the index, the democratic factor used in the index, how the index is constructed, the market-based incentive created by the index, and the index properties when compared to the benchmark. The conclusion will show that the Democracy Investments International Index can provide investors with a portfolio that provides the returns and volatility they expect while incentivizing authoritarian states to become the democracies that we need.

Problem Statement

The world is sliding backwards towards authoritarianism. Year after year, both *The Economist's* Democracy Index from the Economist as well as the *Freedom House* Freedom in the World survey from show a global trend away from democracy.

Additionally, global markets are becoming increasingly authoritarian. Allocations to authoritarian states are increasing, allocations to democratic states are decreasing, and the democratic states themselves are becoming more authoritarian.

As capital allocations to authoritarian states increase the cost of capital for authoritarians decreases; this increases the economic growth rate for the authoritarian states. Conversely, as the capital allocation to democracies dwindles, the economies of those states slow. The result is a world in which authoritarian economies appear to outperform democracies.

Altogether, this creates an uncertain future for democracy. When there is the appearance that democracy cannot compete with authoritarianism, there are those who will turn towards authoritarianism. Worse, the capital allocation game can be self-fulfilling; investing in authoritarian states because of the perception of outperformance can provide the capital that leads to outperformance.

The trend towards authoritarianism, and the economic incentives causing this trend, must be stopped. New global structures are needed that can stabilize an unstable world and provide restoring forces to push the world towards democracy. Towards that end, we have created the Democracy Investments International Index.

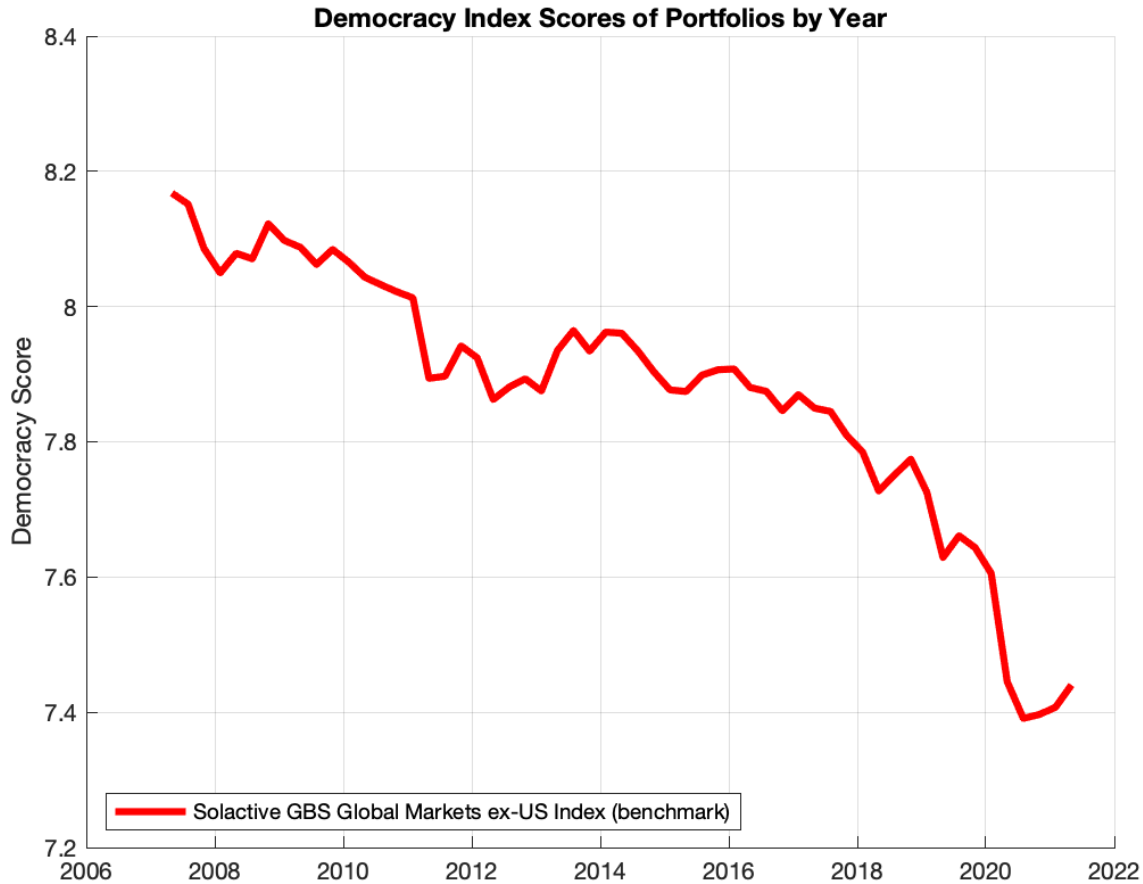


Figure 1. Applying The Economist's Democracy Index to the Solactive GBS Global Markets ex US Large & Mid Cap Index to show the Democracy Index of the average dollar invested outside the US. A value of 8 or above is considered a full democracy, a value of 6-8 is considered a flawed democracy; a value of 4-6 is considered a hybrid regime, and a score of less than 4 is considered authoritarian. In 2007 the market capitalization weighted value showed that international investments were, on average, made in full democracies; today the average dollar is invested in flawed democracies. The downward trend means investments are systematically becoming more authoritarian. This figure does not show returns.

Scope of the Index

The index is intended to guide equity investments made outside the United States and act as a substitute for other all-world ex-US stock indices. It is based on the Solactive GBS Global Markets ex US Large and Mid-Cap Index which contains approximately 2500 stocks representing approximately 30 countries.

Democracy Weighting

The Democracy Index from The Economist Intelligence Unit (EIU), a subsidiary of The Economist, provides a secondary weighting. The Democracy Index is an annual measure of the democratic quality of a country. Possible scores range from 0 (bad) to 10 (perfect democracy); actual 2020 scores ranged from 1.08 to 9.81. A nation's score is based on a weighted sum of 60 indicators regarding the state of its democracy.

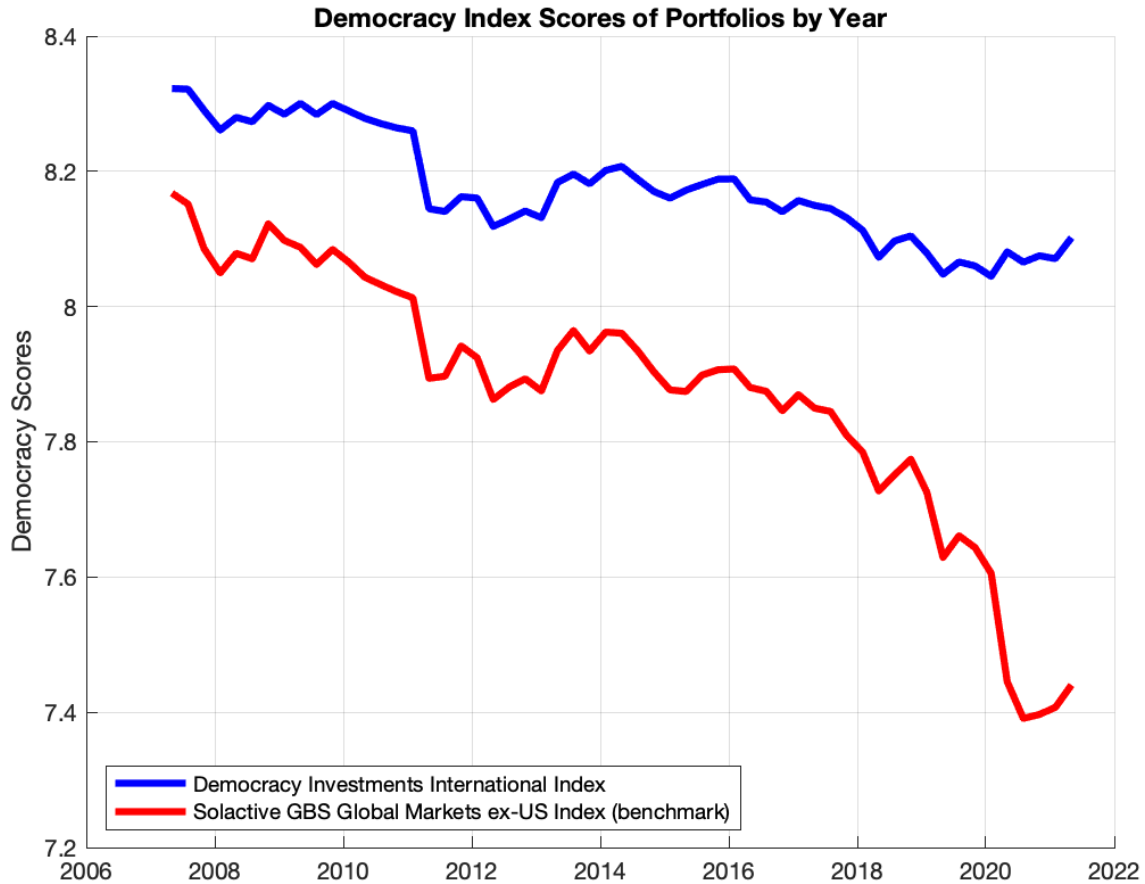


Figure 2. A comparison of the democracy weighted portfolio of the Democracy Investments International Index with the benchmark Solactive Index. The Democracy Investments International Index starts out with a higher market capitalization weighted democracy scores and has a considerably smaller drop with time. This is because the index emphasizes democracies and underweights authoritarians.

Index Construction

The Democracy Investments International Index is composed of the approximately 2500 stocks in the Solactive All-World Ex-US Index. Holdings are proportional to market capitalization multiplied by Democracy Index. The countries used to connect stocks to scores in the Democracy Index are provided by Refinitiv Eikon.

P_i = proportion of i^{th} stock

C_i = market capitalization of i^{th} stock

D_i = Democracy Index of i^{th} stock

N = number of stocks

$$P_i = \frac{C_i D_i}{\sum_{j=1}^N C_j D_j}$$

Market-Based Incentive

The resulting index creates a market-based incentive that encourages democracy and discourages authoritarianism. All other factors held constant, if a country's democracy score increases that country will receive a greater capital allocation. Likewise, should a country's score in the Democracy Index regress, they will receive a smaller capital allocation. More available capital will result in a lower cost of capital and a higher rate of growth for democracies; less available capital will drive up the cost of capital and hinder economic growth in authoritarian states.

The incentive created by the index is simple, transparent, proportional, precise as applied to countries, indiscriminate as applied to industries, and credible.

The incentive is simple because, aside from market capitalization, the index is based on a single factor: *The Economist's* Democracy Index. Countries desiring a greater capital allocation will understand that they need to improve their democracy score.

The incentive is transparent because the Democracy Index, along with its methodology, is freely available and published annually. A nation contemplating action need only review the latest Democracy Index from *The Economist* to characterize the likely capital allocation consequences should they act.

The incentive is proportional because both the positive and negative incentives scale with the magnitude of change in democracy score. Whether improvement is achieved in one large step or many small steps, ultimately equal improvements lead to equal outcomes. Additionally, there are always incentives regardless of score. A country with a score of 0 has the strongest incentive to improve, and a country with a score of 10 has the strongest incentive not to regress. Countries with scores in between are both incentivized to improve and to not deteriorate.

The incentives are precisely applied to individual countries. They are not based on regional or industrial groupings. Nations that improve can be assured that they and they alone will receive more capital.

Likewise, the incentives are indiscriminate with respect to industry within a country. Should a country regress, all industries within that country will suffer equally. Consequently, all industries within a country are motivated to see their country become more democratic.

Lastly, the incentives provided by the index are credible. The Democracy Investments International Index is a rules-based index that, once created, simply follows those rules. Actions taken that cause in changes in the Democracy Index will result in capital being reallocated automatically.

Performance Relative to Benchmark Index

The new index was motivated by a desire to prove to investors that the returns and volatility they expect can be achieved while mitigating the negative externalities associated with investment in authoritarian states. Consequently, it is important to compare the performance statistics of the Democracy Investments International Index with those of the benchmark.

Shown below is three years data comparing the Democracy Investments and Solactive portfolios. The returns and standard deviations are very similar; the most significant deviations occurred in 2020 during the Covid-19 pandemic and were modest. The correlation coefficients are well in excess of 0.99. The R² values are likewise in excess of 0.99. The Sharpe and Treynor ratios are very similar. It is believed that long term buy-and-hold investors would likely not notice a significant difference between the two portfolios.

Total Return	2018	2019	2020
Democracy	-13.32%	22.63%	10.59%
Solactive	-13.32%	22.40%	10.92%

Index returns are for illustrative purposes only and do not represent actual Fund performance. Index returns do not reflect any management fees, transaction costs or expenses. Indexes are unmanaged and one cannot invest directly in an index.

The Democracy International Investments Index is a proprietary index that is intended to represent the performance of securities in democratic countries. The Index begins with a universe of non-U.S. large- and mid-cap securities across 54 countries, applies a Democracy Index score to "countries of risk", then weights the securities according to market capitalization and democracy scores, resulting in higher weights in democratic countries and lesser weights in authoritarian states.

Index performance may be considered hypothetical. Hypothetical performance has inherent limitations. Democracy Investment Management maintains the Index and calculates the Index performance shown or discussed, but it does not represent actual assets. Thus, the performance shown or discussed does not reflect the impact that material economic and market factors had or might have had on decision making if actual investor money had been managed.

Standard Deviation	2018	2019	2020
Democracy	14.06%	9.63%	30.76%
Solactive	14.31%	9.85%	29.51%

Correlation Coefficient	2018	2019	2020
	0.999	0.996	0.999

R-squared	2018	2019	2020
	0.997	0.992	0.998

Sharpe Ratio	2018	2019	2020
Democracy	-1.06	2.01	0.32
Solactive	-1.05	1.95	0.35

Treynor Ratio	2018	2019	2020
Democracy	-0.15	0.20	0.10
Solactive	-0.15	0.19	0.10

Conclusion

Authoritarianism is rising, both geopolitically and in portfolios, yet investors have not had an opportunity to connect their investment decisions to the preservation of democracy. Even among those who are concerned, a common question is “will I have to sacrifice returns?”

This new democracy weighted index is a powerful tool for confronting authoritarianism. It incentivizes democracy, discourages authoritarianism, and provides the returns investors expect. The incentive structures it creates are simple, transparent, and credible. State actors will be able to determine the rewards or punishments they will receive based on the actions they take, and they will believe that those rewards or punishments will be meted out.

To protect democracy and contain authoritarianism this index should be adopted and used on a large scale. Its greatest weakness, that its effects are proportional to the assets which follow it, can also be its greatest strength. Funds tracking this index should be invested in, heavily.

Appendix A: Democracy Index of Portfolio Countries

Norway	9.81	Greece	7.39
Sweden	9.26	Malaysia	7.19
New Zealand	9.25	South Africa	7.05
Canada	9.24	Colombia	7.04
Finland	9.20	Argentina	6.95
Denmark	9.15	Brazil	6.92
Ireland	9.05	Poland	6.85
Australia	8.96	India	6.61
Netherlands	8.96	Philippines	6.56
Taiwan	8.94	Hungary	6.56
Switzerland	8.83	Peru	6.53
Luxembourg	8.68	Indonesia	6.30
Germany	8.67	Papua New Guinea	6.10
United Kingdom	8.54	Mexico	6.07
Chile	8.28	Thailand	6.04
Austria	8.16	Singapore	6.03
Japan	8.13	Hong Kong	5.57
Spain	8.12	Turkey	4.48
South Korea	8.01	Pakistan	4.31
France	7.99	Kuwait	3.80
Portugal	7.90	Russia	3.31
Israel	7.84	Qatar	3.24
Italy	7.74	Egypt	2.93
Czech Republic	7.67	UAE	2.70
Cyprus	7.56	China	2.27
Belgium	7.51	Saudi Arabia	2.08

Append B: Changes in Portfolio Allocation Relative to Benchmark

Norway	32.0%	Greece	-0.7%
Sweden	24.5%	Malaysia	-3.4%
New Zealand	24.3%	South Africa	-5.3%
Canada	24.2%	Colombia	-5.4%
Finland	23.7%	Argentina	-6.6%
Denmark	23.0%	Brazil	-7.0%
Ireland	21.6%	Poland	-8.0%
Australia	20.4%	India	-11.2%
Netherlands	20.4%	Philippines	-11.8%
Taiwan	20.2%	Hungary	-11.8%
Switzerland	18.7%	Peru	-12.2%
Luxembourg	16.7%	Indonesia	-15.3%
Germany	16.5%	Papua New Guinea	-18.0%
United Kingdom	14.8%	Mexico	-18.4%
Chile	11.3%	Thailand	-18.8%
Austria	9.7%	Singapore	-19.0%
Japan	9.3%	Hong Kong	-25.1%
Spain	9.1%	Turkey	-39.8%
South Korea	7.7%	Pakistan	-42.1%
France	7.4%	Kuwait	-48.9%
Portugal	6.2%	Russia	-55.5%
Israel	5.4%	Qatar	-56.5%
Italy	4.0%	Egypt	-60.6%
Czech Republic	3.1%	UAE	-63.7%
Cyprus	1.6%	China	-69.5%
Belgium	0.9%	Saudi Arabia	-72.0%

Appendix C: Adjustments to \$1B Portfolio Relative to Benchmark

Canada	\$16,559,519.02	Greece	-\$4,921.50
Japan	\$14,623,065.16	Argentina	-\$8,505.90
United Kingdom	\$12,913,182.95	Colombia	-\$26,516.40
Switzerland	\$9,831,493.99	Papua New Guinea	-\$39,197.52
Australia	\$8,891,340.31	Peru	-\$50,063.27
Germany	\$8,754,518.73	Hungary	-\$75,829.77
Taiwan	\$8,615,072.02	Pakistan	-\$77,258.46
Netherlands	\$7,271,611.31	Malaysia	-\$105,482.95
Sweden	\$6,058,557.05	Poland	-\$135,712.00
France	\$4,171,488.59	Egypt	-\$157,781.99
Denmark	\$3,209,241.37	Philippines	-\$196,833.66
Korea, South	\$3,092,357.87	South Africa	-\$527,153.78
Finland	\$1,832,270.47	Indonesia	-\$642,973.52
Norway	\$1,795,549.00	Turkey	-\$680,944.70
Spain	\$1,362,379.80	Kuwait	-\$716,328.90
Ireland	\$1,104,617.07	Mexico	-\$1,025,474.33
New Zealand	\$700,789.99	Brazil	-\$1,072,602.45
Italy	\$590,332.59	Thailand	-\$1,099,671.82
Israel	\$292,618.34	Qatar	-\$1,194,774.36
Luxembourg	\$238,586.41	Singapore	-\$1,444,910.67
Austria	\$203,865.09	United Arab Emirates	-\$1,475,942.57
Chile	\$190,686.33	India	-\$3,521,360.22
Portugal	\$61,255.32	Russia	-\$4,630,302.97
Belgium	\$55,112.33	Hong Kong	-\$5,644,497.58
Czechia	\$9,351.49	Saudi Arabia	-\$6,246,456.97
Cyprus	\$3,979.02	China	-\$81,631,343.32

Appendix D: Portfolio Composition by Country

	New Index	Benchmark		New Index	Benchmark
Japan	17.238%	15.776%	Mexico	0.454%	0.557%
United Kingdom	10.028%	8.737%	Russia	0.371%	0.834%
Canada	8.502%	6.846%	New Zealand	0.358%	0.288%
Switzerland	6.247%	5.264%	Indonesia	0.355%	0.420%
Germany	6.173%	5.297%	Malaysia	0.303%	0.314%
France	6.064%	5.647%	Saudi Arabia	0.242%	0.867%
Australia	5.242%	4.353%	Austria	0.231%	0.211%
Taiwan	5.136%	4.274%	Chile	0.188%	0.169%
South Korea	4.348%	4.039%	Luxembourg	0.167%	0.143%
Netherlands	4.287%	3.560%	Poland	0.157%	0.171%
China	3.584%	11.747%	Philippines	0.147%	0.166%
Sweden	3.083%	2.477%	Portugal	0.105%	0.099%
India	2.803%	3.155%	Turkey	0.103%	0.171%
Denmark	1.718%	1.397%	Qatar	0.092%	0.212%
Hong Kong	1.681%	2.245%	United Arab Emirates	0.084%	0.232%
Spain	1.628%	1.491%	Kuwait	0.075%	0.146%
Italy	1.525%	1.466%	Greece	0.072%	0.073%
Brazil	1.426%	1.534%	Hungary	0.057%	0.064%
Finland	0.958%	0.775%	Colombia	0.047%	0.049%
South Africa	0.952%	1.005%	Peru	0.036%	0.041%
Norway	0.743%	0.564%	Czechia	0.031%	0.030%
Ireland	0.621%	0.511%	Cyprus	0.025%	0.025%
Singapore	0.618%	0.762%	Papua New Guinea	0.018%	0.022%
Belgium	0.594%	0.589%	Argentina	0.012%	0.013%
Israel	0.574%	0.545%	Pakistan	0.011%	0.018%
Thailand	0.474%	0.584%	Egypt	0.010%	0.026%

Appendix E: Effect of 10% Country Outperformance on Relative Portfolio Performance

Canada	0.16560%	Greece	-0.00005%
Japan	0.14623%	Argentina	-0.00009%
United Kingdom	0.12913%	Colombia	-0.00027%
Switzerland	0.09831%	Papua New Guinea	-0.00039%
Australia	0.08891%	Peru	-0.00050%
Germany	0.08755%	Hungary	-0.00076%
Taiwan	0.08615%	Pakistan	-0.00077%
Netherlands	0.07272%	Malaysia	-0.00105%
Sweden	0.06059%	Poland	-0.00136%
France	0.04171%	Egypt	-0.00158%
Denmark	0.03209%	Philippines	-0.00197%
Korea, South	0.03092%	South Africa	-0.00527%
Finland	0.01832%	Indonesia	-0.00643%
Norway	0.01796%	Turkey	-0.00681%
Spain	0.01362%	Kuwait	-0.00716%
Ireland	0.01105%	Mexico	-0.01025%
New Zealand	0.00701%	Brazil	-0.01073%
Italy	0.00590%	Thailand	-0.01100%
Israel	0.00293%	Qatar	-0.01195%
Luxembourg	0.00239%	Singapore	-0.01445%
Austria	0.00204%	United Arab Emirates	-0.01476%
Chile	0.00191%	India	-0.03521%
Portugal	0.00061%	Russia	-0.04630%
Belgium	0.00055%	Hong Kong	-0.05644%
Czechia	0.00009%	Saudi Arabia	-0.06246%
Cyprus	0.00004%	China	-0.81631%