# Notes and Sources for Ten Point Plan

**Notes on the Country Risk Index**: 71 countries fully covered by the data in the Country Risk Index are ranked in this paper. The index is constructed by weighting six metrics covering the quality of a country's political institutions, its business conditions and competitiveness, education outcomes, climate change and environmental risks, and the government's financial strength. Effectively, the index is about good politics and good policy (or S.E.E.). The idea is that good politics yields government policies that can deliver broad, sustainable prosperity to the nation. From a country risk perspective, this makes the country favorable for investment.

The Country Risk rankings (1 to 71) are based on index scores (0-100; 100 being the best), compiled from the six sources described below, pulled from the World Bank, World Economic Forum (WEF), the OECD, the Environmental Performance Index (EPI) prepared by Yale University's Center for Environmental Law and Policy (in conjunction with Columbia University and the WEF), the McKinsey Global Institute, and the three global rating agencies. Each source yields a score of 0-100, and these six scores are averaged to derive the Country Risk Index, which drives the country rankings in this paper. This averaging of course reduces the dispersion of scores.

The six index components include:

1) The World Bank's World Governance Indicators (WGI) – reflecting the quality of a country's political institutions. Are the country's institutions effective, clean and representative?

   See: https://info.worldbank.org/governance/wgi/.
   The WGI covers six dimensions of governance for 202 countries surveyed by the World Bank over the period 1996-2018, aggregated from data sources that report the perceptions of governance of a large number of survey respondents and expert assessments worldwide.

The six governance indicators include: Voice and Accountability (i.e., democracy, or popular participation in government); Political Stability and Absence of Violence (the likelihood of political instability or violence); Government Effectiveness (the quality of public services and policy, and independence from political pressures); Regulatory Quality (the government's ability to implement regulations that promote the private sector); Rule of Law (confidence in society's rules, especially related to contract enforcement, private property, the courts and police); and, Control of Corruption (the extent of capture of the state by private interests).

From the WGI web site: "These aggregate indicators combine the views of a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. They are based on over 30 individual data sources produced by a variety of survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms."

The percentage ranks of a country, between 0-100, are pulled from the WGI database of 202 countries for the 71 countries in the Country Risk Index, along the six WGI dimensions, and then averaged into one score for "institutions". This score, a proxy for the quality of a country's political institutions, is given a 1/6 weight in the Country Risk Index.

2) The World Bank's "Ease of Doing Business" rankings – assessing business conditions. How easy is it for businesses to operate in the country?

See: https://www.doingbusiness.org/en/rankings.

The Doing Business rankings cover 190 countries. From the Doing Business web site: "Economies are ranked on their ease of doing business, from 1–190. A high ease of doing business ranking means the regulatory environment is more conducive to the starting and operation of a local firm. The rankings are determined by sorting the aggregate scores on 10

topics, each consisting of several indicators, giving equal weight to each topic." The ten topics include: Starting a business; Dealing with construction permits; Getting electricity; Registering property; Getting credit; Protecting minority investors; Paying taxes; Trading across borders; Enforcing contracts; and, Resolving insolvencies. The World Bank analyzes regulations, quantifying 41 indicators that reflect factors such as time, cost and complexity in order to rank them by best practice.

A percentile rank (0-100) is calculated from the aggregate "ease of doing business" ranking of the 190 countries. This percent ranking, between 0-100, is used as the "business climate" score for the 71 countries, which is given a 1/6 weight in the Country Risk Index.

3) The World Economic Forum's (WEF) Global Competitiveness Index – assessing a country's capacity to deliver prosperity and productivity. How innovative are the country's firms? How skilled is its workforce? How strong is the infrastructure? How open is the economy to international exchange? How deep and free are the country's markets?

See: WEF Global Competitiveness Report 2019. The WEF's World Competitiveness Index seeks to capture in a score the long-run competitiveness of each of the 141 countries in the sample. From the WEF web site: "The index is an annual yardstick for policy-makers to… assess their progress against the full set of factors that determine productivity. These are organized into 12 pillars: Institutions; Infrastructure; ICT adoption; Macroeconomic stability; Health; Skills; Product market; Labour market; Financial system; Market size; Business dynamism; and Innovation capability." Each pillar consists of numerous components, with data pulled from other international agencies (e.g., the IMF, the OECD, the World Bank, the WTO, UN agencies, the International Telecommunication Union, SCIMago, and NGOs), as well as a significant portion of metrics that are based on surveys of corporate executives

(~16,000 of them) done by the WEF on various components, including free markets, workforce skills, business dynamism and innovation. It is probably the most comprehensive country snapshot among the six components of the Country Risk Index.

A percentile rank (0-100) is calculated from the aggregate "competitiveness" ranking of 141 countries. This percent ranking, between 0-100, is used as the "competitiveness" score for the 71 countries, which is given a 1/6 weight in the Country Risk Index.

4) <u>The Organization for Economic Cooperation and Development's (OECD) Program for International Student Assessment (PISA)</u> – testing high school students in math, science and reading. How prepared are students to go on to college and work?

See: PISA 2018. From the PISA web site: "PISA measures 15-year-olds' ability to use their reading, mathematics and science knowledge and skills to meet real-life challenges… [It] examines what students know in reading, mathematics and science, and what they can do with what they know. It provides the most comprehensive and rigorous international assessment of student learning outcomes to date. Results from PISA indicate the quality and equity of learning outcomes attained around the world, and allow educators and policy makers to learn from the policies and practices applied in other countries."

Mean test scores in reading, math and science for each country are averaged and ranked. The percentile rank (0-100) is calculated from the average of the mean scores for 77 countries in the PISA exercise. This provides a forward-looking indicator of future workforce quality. This percent ranking is used as the "education" score for the 71 countries, which is given a 1/6 weight in the Country Risk Index.

5) <u>Climate and Environmental Risks</u> – assessing a country's impact on climate change and overall performance on environmental issues, as well as its exposure to climate and

environmental hazards in the future. How heavy are the country's greenhouse gas (GHG) emissions? How favorable are the country's policies on climate change, biodiversity protection and pollution? What are the current and future health and socioeconomic risks to the country from climate change and environmental degradation?

See: the Environmental Performance Index (EPI), prepared by Yale and Columbia Universities, with the WEF, at https://epi.envirocenter.yale.edu/epi-topline; the World Bank's CO2 emissions data (carbon intensity in terms of GDP and per capita, as well as gross annual emissions) at World Bank CO2 emissions data; and, the McKinsey Global Institute's "Climate Risk and Response" report of January 2020, at MGI Climate Risk and Response report.

The Climate and Environmental Risks score aggregates, with 25% weights, the following four components:  I) Yale Environmental Center's Environmental Performance Index (aggregate EPI score) for 180 countries, which covers "environmental health" (i.e., the exposure of the population of a country to the health effects of air and water pollution) and "ecosystem vitality", which includes the country's climate change impact (CO2 and other GHG emissions), as well as biodiversity, forests and fisheries protections, and air, water and agricultural pollution policies. The percentile ranking of a country's EPI score is calculated, and weighted 25%.  II) Inclusion separately of a key component of the EPI, the Climate Change metric (CCT) which forms part of "ecosystem vitality", because of the importance of global warming to future country risks, both in terms of the planetary impact and the degree of adjustment an individual country will have to make in order to shift its economy to a low carbon basis, impacting future GDP growth. This metric includes CO2 intensity of GDP and power generation, methane and other emissions as subcomponents. The percentile ranking of the EPI's Climate Change score for 180 countries likewise is calculated

and weighted 25%.  III) The World Bank's reporting of CO2 emissions for 204 countries, including (a) total annual CO2 emissions (kilotons) which proxies a country's overall national impact on climate change, driven by a country's size in terms of its economy and population, but also the profile of its economy and emissions policy, and (b) CO2 emissions per capita (metric tons). These two percentile rankings (kilotons of CO2 emitted p.a. and metric tons per capita emitted p.a.) are averaged and weighted 25%. These two World Bank metrics complete the coverage of carbon emissions, given that carbon intensity of GDP, i.e. metric tons of CO2 emitted per USD of GDP, is already included in the EPI, in the Climate Change (CCT) subcomponent. As such, a country's impact on climate change gets a heavy weight in the overall Climate and Environmental Risks component of the Country Risk Index.  And, IV) MGI's (McKinsey's) grouping of 105 countries by an assessment of their vulnerability, over the next 30 years, to climate hazards, including the severity of socioeconomic (e.g. GDP) impacts. MGI grouped 105 countries into six categories based on the impact later this century of substantial global warming trends. The six country categories are: significantly hotter and more humid; hotter and more humid; hotter (but not more humid, so such countries might also be vulnerable to "water stress"); "water stress" countries, i.e., countries with a substantial vulnerability to drought; low risk countries; and diverse climate countries, the latter whose territory covers regions subject to different climate impacts, due to geographic size and dispersion across latitudes. The author of Ten Point Plan (Scher) scored these countries in 4 numeric groups, according to MGI's 6 categories, assessing the relative severity of each category's climate vulnerability based on MGI's descriptions. Thus, the 105 countries were scored in four buckets as follows: 30 (most vulnerable to climate hazards); 50 (vulnerable); 70 (less vulnerable); and 90 (least vulnerable to climate hazards), effectively distributing countries on the 0-100 scale. Scored at 30 were countries in the

'significantly hotter and more humid' and 'water stress' categories; at 50 were countries in

the 'hotter, but not more humid' category; at 70 were countries in the 'hotter and more

humid' and 'diverse climate' categories; and, at 90 were countries in the 'low risk" category.

Unfortunately, only 42 countries of the 71 countries in the country risk sample were covered

by MGI's analysis, because 29 smaller countries that are included in the Country Risk Index

(e.g. Singapore) were not included, because it was too difficult for McKinsey to assess future

climate vulnerability due to their small size. Therefore, these remaining 29 countries in the

Country Risk Index were included in the Climate and Environmental Risk component, but did

not utilize the MGI score on climate hazards in calculation of the index. This creates a

modest "apples and oranges" issue within the Climate and Environmental Risk score

between 42 larger and 29 smaller countries. However, this defect is offset by the fact that

MGI's assessment of future climate impacts across countries is very useful, innovative and

unique. Notably, MGI attempts to assess the socioeconomic impacts, rather than just

emissions and other current environmental outcomes scored in the rest of the Climate and

Environmental Risks components. MGI attempts to assess future climate hazards, according

to their impact on: human life and ability to work, food sources, physical assets and

infrastructure, and natural capital such as habitats and biomes. MGI utilizes six metrics to

assess countries, including: the share of a country's population vulnerable to deadly heat

waves; the annual share of outside workers impacted by heat/humidity; the annual demand

for water in a country vs. its supply; the portion of time over a decade that a country will

experience drought; the annual percent of capital stock at risk of damage from riverine

flooding; and, the share of a country's land surface subject to a changing climate

classification. Some countries in fact may experience some positive socioeconomic effects

from climate change, such as countries in northern climates, including Canada and Russia,

where crop yields and tourism revenues could rise with global warming. These countries therefore find themselves in the 'low risk' category with a score of 90 in the MGI portion of the index. To sum up, the EPI, the EPI's Climate component, the World Bank's emissions measures, and the MGI's climate hazard vulnerability assessment, are all given a 25% weight to drive this paper's "climate and environmental" component of the Country Risk Index, which is given a 1/6 weight.

6) Sovereign Ratings – country rankings based on the credit quality of the national government, obtained from the three global rating agencies – Moody's, Standard & Poor's and Fitch. Will a country's government have trouble paying its creditors back? What is the level of savings in the economy? How flexible and dynamic is the country in terms of being able to handle financial stress?

See the web sites of Moody's, S&P, and Fitch for rating agency sovereign ratings, which follow the AAA-D scale. AAA is the lowest risk sovereign (the best sovereign rating, i.e. a government most likely to pay back its sovereign bond debt on time and in full); D means the government is in default. The rating agency scale in this exercise has 19 notches AAA, AA+, AA, AA-, A, etc., all the way down to CCC- and lower. (Moody's scale has a slightly different notation.) These rating notches were assigned numeric values in 5-point intervals, from 95 (AAA-rated) down to 5 (CCC- or lower). The scores of the three rating agencies' ratings, which sometimes differ, were averaged to obtain the final "government financial strength" score, that has been included in the Country Risk Index and given a 1/6 weight. For example, while Singapore, Germany and Canada all received a score of 95 in this category, because they all have a AAA rating with all three rating agencies, the U.S. received a lower (worse) score of 93.3 because one agency, S&P, gives the U.S. a AA+ rating (score of

90), while both Moody's and Fitch assign the U.S. a AAA rating (95). The average sovereign rating score is given a 1/6 weight in the Country Risk Index.

The Country Risk Index in this paper averages the scores from these six sources. While there is some conceptual overlap, each of the six rankings deals with a different component of country risk. In contrast to other country risk measures used in the field, this exercise gives substantial weight (1/6 each) to the quality of a country's education system and a country's responsibility for and exposure to climate and environmental risks, as leading indicators of future success. Inclusion of these two metrics sharply limits the sample size to around 70 countries, given data limitations. Because the sample sizes of the six categories differ, because the final score is an average of the six scores, and because scoring formulas vary for each component, including in some case using averages of subcomponent rankings (e.g. for Climate and Environmental Risks) and scoring at intervals (e.g. for Sovereign Financial Strength), the dispersion of scores varies for the components. The overall country risk score range is 23-90, within a theoretical 0-100 range. The score ranges for the components are: WGI (20-100); WB Biz (25-100); WEF (35-99); Pisa (0-99); Climate & Environmental (20-80); and Sovereign Financial Strength (7-95).

The Country Risk Index and Rankings in this paper are in good company. Country risk and sovereign credit risk measures and models are aplenty – in rating agencies, banks, and subscription services, such as the Economist Intelligence Unit, Roubini, and IHS Global. This is not an exhaustive list. Eurasia Group also produces indices, but generally specializing in the sub-category of country risk called political risk. Many of these indices and models draw on indices and metrics from the World Bank and other sources, some of them cited in this paper. Again, the Country Risk Index in Ten Point Plan is innovative in including (and heavily weighting) education outcomes and climate risks, in an effort to be forward-looking on a country's risk profile.

The list of 71 countries, fully covered by the data, ranked by the Country Risk Index from highest (i.e., lowest risk) to lowest rank (highest risk) as of Feb. 2020, is as follows: Sweden, Singapore, Finland, Denmark, Norway, United Kingdom, Switzerland, Germany, Canada, Netherlands, New Zealand, United States, Austria, Australia, Korea, France, Japan, Ireland, Iceland, Estonia, Belgium, Luxembourg, Poland, Slovenia, Lithuania, China, Czech Republic, Latvia, Israel, Portugal, Slovak Republic, Malta, United Arab Emirates, Malaysia, Chile, Italy, Hungary, Cyprus, Qatar, Croatia, Russian Federation, Uruguay, Romania, Bulgaria, Thailand, Serbia, Costa Rica, North Macedonia, Georgia, Peru, Saudi Arabia, Greece, Colombia, Mexico, Montenegro, Kazakhstan, Panama, Turkey, Albania, Azerbaijan, Indonesia, Jordan, Morocco, Moldova, Philippines, Ukraine, Dominican Republic, Brazil, Argentina, Bosnia & Herzegovina, Lebanon.

**Notes on Sources**: A version of this paper is available with extensive endnotes. The following is a list of sources:

**International organizations**: World Bank (World Governance Indicators, Ease of Doing Business, World Development Indicators, WITS trade statistics, carbon emissions, Gini index, and other data, as well as reports, including an article by WB Chief Economist Pinelopi K. Goldberg, "The Future of Trade", June 2019); IMF (Article IV Staff Reports 2016-20, WEO, Global Debt Database, Working Papers, including on inequality and labor mobility, article on carbon pricing); IPCC reports (the UN climate change committee); UNHCR on climate disasters; International Labor Organization (ILO) for employment data; Bank for International Settlements (BIS) for currency data; World Economic Forum (WEF) Global Competitiveness Report (2016-19) and WEF Chairman Klaus Schwab's *The Fourth Industrial Revolution*; OECD (statistics, including on inequality, e.g. Gini index and poverty, on productivity, e.g. TFP, on savings, corporate tax rates, education data in Education at a Glance and in PISA student assessments and country education reports through 2018, other reports and press releases, etc.); Trends in

International Mathematics and Science Study's (TIMSS) 2015 report; and, International Energy Agency (IAE) report on the Future of Rail, 2019.

**U.S. organizations**: U.S. Bureau of Economic Analysis (BEA) – (data on GDP, international transactions, trade, net international investment position – NIIP); Bureau of Labor Statistics (BLS) – (data on employment, productivity, inflation, article on productivity - TFP – slowdown); Federal Reserve (Flow of Funds report, interest rate data, research and data from St. Louis Fed, aka FRED, etc.); Congressional Budget Office (CBO) – (reports on budget options and projections, impact of corporate tax changes); Congressional Research Service (CRS) – (report titled "The North American Free Trade Agreement (NAFTA)", M. Angeles Villarreal, Ian F. Fergusson, April 16, 2015); U.S. House of Representatives (press release on Trade); White House (Select Committee on AI, President Trump's executive order on carbon pricing); President Obama's Dec. 2015 Paris presser on climate change; International Trade Commission (ITC) – (press release on trade and report June 2016); Environmental Protection Agency (EPA) – (Mercury and Air Toxics Standards); National Science Foundation (S&E indicators and reports 2016-20); NASA (COTS); Dept of Ed. budget; National Assessment of Educational Progress (NAEP) – (the "Nation's Report Card"); CIA Factbook; National Climate Assessment; National Academies of Sciences, Engineering, Medicine reports (e.g. on ARPAs); Social Security Administration (SSA), Common Core; National Governors Association (https://www.nga.org/about/) on Common Core – ("Benchmarking for Success: Ensuring U.S. Students Receive a World-class Education," 2008, of the NGA, CCSSO and Achieve, Inc., a bipartisan, non-profit organization to raise educational standards); National Conference of State Legislatures on Earned Income Tax Credit (EITC); NAACP on Brown v. Board of Education; Freedom House – Freedom in the World annual reports; Center on Budget and Policy Priorities (CBPP) – (reports on Social security trust funds & Health care); National Bureau of Economic Research (NBER) reports – (China trade papers by Autor, Dorn, Hanson, including "The China Shock: Learning from Labor Market Adjustments to Large Changes in Trade," NBER WP 21906, January 2016, and Xie and Freeman, July 2018

WP, "Bigger Than You Thought: China's Contribution to Scientific Journals", and June 2018 paper on the ARPA model, and papers on income inequality and wealth inequality); Brookings Institution (including the Tax Policy Center) – (2018 paper on Trump tax reform – TCJA, Wm. Haseltine's paper on Singapore's health care system; article on overstating China's GDP, education study, Harry Holzer on U.S. labor market 2050, social cost of carbon, "big government", Brookings blogs); Council on Foreign Relations (CFR) – ("The WTO", Backgrounder by James McBride et al., September 12, 2016 and update December 10, 2019, CFR blog "Why Does Everyone Hate Made in China 2025", March 2018, and article on China's slowdown); Institute of International Finance (IIF) on the Red / Blue State divide, Nov. 2017; American Political Science Association (APSA) – (2013 study on political negotiation); Aspen Institute on LLTAs; Union of Concerned Scientists on global warming; Pew Research Center on inequality; CSIS; PIIE trade reports; and, the Sovereign Wealth Fund Institute (https://www.swfinstitute.org/fund-rankings/).

**Foreign country organizations**: Europa sources (Eurostat for European data, e.g. on "lifelong learning", NIIP); European Central Bank and national central banks; the European Commission; the European Parliament; the ESM; German government (Industry 4.0 strategic plan, Hi-tech plan, and National Industrial Strategy 2030), Bundestag, Hanover Messe trade fair ; Singapore government (Future Economy Council, SkillsFuture); Canadian government (Elections Canada, ICT Council Canada); and, Chinese government (data).

**Notable books and articles**: Dr. Martin Luther King, Jr. "Letter from a Birmingham Jail" and *Why We Can't Wait* 1963-64; Reinhart & Rogoff *This Time is Different*; Ian Morris, *Why the West Rules—For Now*; Charles Kindleberger, "An Explanation of the 1929 Depression", in *The World in Depression*; Robert Gilpin, *Global Political Economy*; Thomas Oatley, *International Political Economy*; Lairson & Skidmore, *International Political Economy*; Michael Mandelbaum, *The Road to Prosperity*; N. Gregory Mankiw, *Macroeconomics*; Dani Rodrik, *The Globalization Paradox: Democracy and the Future of the World*

*Economy*; Jagdish Bhagwati, *In Defense of Globalization*. Paul Kennedy, *The Rise and Fall of the Great Powers*; Barbara W. Tuchman, *The Guns of August*; Stephen Van Evera, *Causes of War*; E.H. Carr, *The Twenty Years' Crisis*; Immanuel Kant, Democratic peace theory in "Perpetual Peace", 1795; Michael W. Doyle, "Kant, Liberal Legacies and Foreign Affairs".

**Companies and academic institutions**: McKinsey (McKinsey Global Institute, reports on "Climate Risk and Response", January 2020, "Globalization in Transition: the Future of Trade and Value Chains", January 2019, the Sustainability Blog, McKinsey Classics, such as Richard Rumelt's discussion of Steve Jobs' smart phone insights as a paradigm for effective strategic planning, in February 2019's "What is Strategy?", etc.); rating agencies, including the Fitch Sovereign Data Comparator; polling organizations; Eurasia (including "The Trans-Pacific Partnership", 2015); Olivier Blanchard, Journal of Economic Perspectives (2018); Yale and Columbia (climate and environmental data); MIT (on climate refugees); Harvard (on Singapore's digitalization initiative called Smart Nation); Maddison Project Database, University of Groningen, the Netherlands; Nicholas Lardy article on China's economy; European Educational Research Journal on Germany's "PISA shock" (2009); Ben Bernanke quotes and blogs; Lawrence Summers et al., Business Economics, 2014; Alexander Janus, Social Science Quarterly, 2010, article on immigration attitudes; article on Germany's Hartz labor reforms; article on Carbon capture and storage; Tel Aviv University research on sustainable plastics tech; and, Morgan Stanley, ABN Amro, Credit Suisse, IHS Markit periodic economic and market reports.

**Press sources**: Economist, Atlantic, Politico, BBC, New York Times (including article with Xi Jinping quote), WAPO, Guardian, NPR, Vox, CNBC, Bloomberg, Yahoo Finance, Inc. (Tim Cook quote), Smithsonian Magazine (article on Detroit as arsenal of democracy), US News and World Report's state rankings, EdWeek on Common Core, Slate, Chicago Tribune, Roll Call, The Hill, PBS (e.g. documentary on the Roosevelts), Forbes, Maclean's, CBC, Globe and Mail, Foreign Affairs (e.g. Mickey, Levitsky and Way,

"Is America Still Safe for Democracy", Bloomberg, Handelsblatt, DW, Euractiv, The Diplomat, Channel

News Asia (CNA) on Singapore and the Coronavirus.