Appendix   Explanatory Notes and Data Sources

Area 1   Size of Government

A   Government consumption

This component is measured as general government consumption spending as a percentage of total consumption. The rating for this component, as with many of the following components, is designed to mirror the actual distribution of the raw data but on a zero-to-10 scale. The rating is equal to: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. The V_i is the country's actual government consumption as a proportion of total consumption, while the V_{max} and V_{min} were set at 40 and 6, respectively. The 1990 data were used to derive the maximum and minimum values for this component. Countries with a larger proportion of government expenditures received lower ratings. In contrast, as the ratio approaches the maximum value, the rating moves toward zero.

Sources   World Bank, *World Development Indicators*; International Monetary Fund, *International Financial Statistics*; United Nations National Accounts.

B   Transfers and subsidies

This component is measured as general government transfers and subsidies as a share of GDP. The rating for this component is equal to: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. The V_i is the country's ratio of transfers and subsidies to GDP, while the V_{max} and V_{min} values are set at 37.2 and 0.5, respectively. The 1990 data were used to derive the maximum and minimum values for this component. The formula will generate lower ratings for countries with larger transfer sectors. When the size of a country's transfer sector approaches that of the country with the largest transfer sector during the 1990 benchmark year, the rating of the country will approach zero.

Sources   International Monetary Fund, *Government Finance Statistics Yearbook*; World Bank, *World Development Indicators*; International Monetary Fund, *International Financial Statistics*; United Nations National Accounts.

C   Government investment

Data on government investment as a share of total investment were used to construct the zero-to-10 ratings. Countries with more government enterprises and government investment received lower ratings. The rating for this component is equal to: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. The V_i is the country's ratio of transfers and subsidies to GDP, while the V_{max} and V_{min} values are set at 50.0 and 15.0, respectively. Minimum and maximum values were chosen to match the methodology of earlier years, which had categorized regimes instead of mapping data to a linear scale.

Sources International Monetary Fund, *Investment and Capital Stock Dataset*; World Bank, *World Development Indicators*; Organisation for Economic Co-operation and Development, *OECD Data.*

D Top marginal tax rate

i *Top marginal income tax rate*

Countries with higher marginal tax rates that take effect at lower income thresholds received lower ratings based on the matrix below. The income threshold data were converted from local currency to 1982/1984 US dollars (using beginning-of-year exchange rates and the US Consumer Price Index). These figures include sub-national rates if applicable.

ii *Top marginal income and payroll tax rates*

Countries with higher marginal income and payroll (wage) tax rates that take effect at lower income thresholds received lower ratings based on the matrix below. The income threshold data were converted from local currency to 1983 US dollars (using beginning-of-year exchange rates and the US Consumer Price Index). These figures include sub-national rates if applicable.

Sources PricewaterhouseCoopers, *Worldwide Tax Summaries Online*; Pricewaterhouse-Coopers, *Individual Taxes: A Worldwide Summary* (various issues); Ernst & Young, *Worldwide Personal Tax and Immigration Guide* (various issues); Deloitte International Tax Source, *Guide to Fiscal Information: Key Economies in Africa* (various issues).

	Income Threshold at Which the Top Marginal Rate Applies (1983 US$)			
Top Marginal Tax Rate	<$25,000	$25,000 – <$50,000	$50,000 – <$150,000	$150,000+
< 21%	10	10	10	10
21% – <26%	9	9	10	10
26% – < 31%	8	8	9	9
31% – <36%	7	7	8	9
36% – <41%	5	6	7	8
41% – <46%	4	5	6	7
46% – < 51%	3	4	5	5
51% – <56%	2	3	4	4
56% – <61%	1	2	3	3
61% – <66%	0	1	2	2
66% – <70%	0	0	1	1
70%+	0	0	0	0

E State ownership of assets

This component is based on ratings from the *Varieties of Democracy* (V-Dem) data on State Ownership of the Economy, which "gauges the degree to which the state owns and controls capital (including land) in the industrial, agricultural, and service sectors. It does not measure the extent of government revenue and

expenditure as a share of total output; indeed, it is quite common for states with expansive fiscal policies to exercise little direct control (and virtually no owner-ship) over the economy". We used the "original scale (*osp)" data from V-Dem for this variable and for all V-Dem-based variables to follow. The *osp version of the V-Dem data translates V-Dem's measurement model to the variable's original interval in a linear form. To score this variable here, we set the rating equal to: $(V_i - V_{min}) / (V_{max} - V_{min})$ multiplied by 10. The V_i is the country's state owner-ship score, while the V_{max} and V_{min} were set at 4.0 and 0, respectively. Countries with greater government ownership of assets get lower scores.

Source V-Dem Institute, *Varieties of Democracy*, <www.v-dem.net>.

Area 2 Legal System and Property Rights

Note The ratings for Area 2 are adjusted to reflect inequalities in the legal treatment of women. See chapter 1 (pp. 5–6) of *Economic Freedom of the World: 2021 Annual Report* <https://www.fraserinstitute.org/studies/economic-freedom-of-the-world-2021-annual-report>; and Rosemarie Fike, Chapter 3: Adjusting for Gender Disparity in Economic Freedom and Why It Matters (*Economic Freedom of the World: 2017 Annual Report*: 189–211, <https://www.fraserinstitute.org/studies/economic-freedom-of-the-world-2017-annual-report>) for methodological details.

A Judicial independence

The first source of this component is from the *Global Competitiveness Report* question: "Is the judiciary in your country independent from political influ-ences of members of government, citizens, or firms? No—heavily influenced (= 1) or Yes—entirely independent (= 7)". The question's wording has varied slightly over the years. All variables from the *Global Competitiveness Report* were converted from the original 1-to-7 scale to a zero-to–10 scale using this formula: $EFW_i = ((GCR_i - 1) \div 6) \times 10$. The second source is a collection of questions from the V-Dem dataset, namely: Judicial Purges, Government Attacks on the Judiciary, Court Packing, High Court Independence, and Low Court Independence. Each of the V-Dem variables is individually rated using the formula $(V_i - V_{min}) / (V_{max} - V_{min})$ multiplied by 10. The V_i is the country's V-Dem score according to V-Dem. For Judicial Purges, Government Attacks on the Judiciary, High Court Independence, and Low Court Independence, V_{max} and V_{min} were set at 4.0 and 0, respectively. For Court Packing, V_{max} and V_{min} were set at 3.0 and 0, respectively. All five scores are then averaged. The third data source is based on *Update, A Global Measure of Judicial Independence, 1900-2015* (Staton, Linzer, Reenock, and Holsinger, 2019). This data source scores on a zero-to-1 scale, so it was multiplied by 10 to place it on the scale of the other variables. The final number is the average of whichever of these three sources are available.

Source World Economic Forum, *Global Competitiveness Report*; V-Dem Institute, *Vari-eties of Democracy*, <www.v-dem.net>; Jeffrey Staton, Drew Linzer, Christopher Reenock, and Jordan Holsinger (2019), *Update, A Global Measure of Judicial Independence, 1900-2015* (Harvard Dataverse, V1), <https://doi.org/10.7910/DVN/NFXWUO>.

B Impartial courts

The first source of this component is the *Global Competitiveness Report* question: "The legal framework in your country for private businesses to settle disputes and challenge the legality of government actions and/or regulations is inefficient and subject to manipulation (= 1) or is efficient and follows a clear, neutral process (= 7)". The question's wording has varied slightly over the years. The second source of this component is Judicial Corrupt Decision from the V-Dem dataset. The rating is equal to: $(V_i - V_{min}) / (V_{max} - V_{min})$ multiplied by 10. The V_i is the country's Judicial Corrupt Decisions Score, while the V_{max} and V_{min} were set at 4.0 and 0, respectively. The third is the Rule of Law indicator found in the *Worldwide Governance Indicators*. The formula used to calculate the zero-to-10 ratings was: $(V_i - V_{min}) / (V_{max} - V_{min})$ multiplied by 10. V_i represents the component value. The values for V_{max} and V_{min} were set at 2.5 and −2.5, respectively. Countries with values outside the V_{max} and V_{min} range received ratings of either zero or 10, accordingly. The final number is the average of whichever of these three sources are available.

Source   World Economic Forum, *Global Competitiveness Report*; World Bank, *Worldwide Governance Indicators*; V-Dem Institute, *Varieties of Democracy*, <www.v-dem.net>.

C Protection of property rights

The first source of this component is the *Global Competitiveness Report* question: "Property rights, including over financial assets, are poorly defined and not protected by law (= 1) or are clearly defined and well protected by law (= 7)". The second source is Property Rights and Rule-Based Governance from *Country Policy and Institutional Assessment* data from the World Bank. This has been scaled to the Legal System and Property Rights data via regression. The final number is the average of whichever of these two sources are available.

Source   World Economic Forum, *Global Competitiveness Report*; World Bank, *Country Policy and Institutional Assessment.*

D Military interference in rule of law and politics

This component is based on the *International Country Risk Guide* Political Risk Component G, Military in Politics: "A measure of the military's involvement in politics. Since the military is not elected, involvement, even at a peripheral level, diminishes democratic accountability. Military involvement might stem from an external or internal threat, be symptomatic of underlying difficulties, or be a full-scale military takeover. Over the long term, a system of military government will almost certainly diminish effective governmental functioning, become corrupt, and create an uneasy environment for foreign businesses".

Sources   PRS Group, *International Country Risk Guide.*

E Integrity of the legal system

The first source of this component is the *International Country Risk Guide* Political Risk Component I for Law and Order: "Two measures comprising one risk component. Each sub-component equals half of the total. The 'law' sub-component assesses the strength and impartiality of the legal system, and the 'order' sub-component assesses popular observance of the law". The second source is Judicial Accountability, Compliance with the High Court, Judicial Review, Transparent

Laws with Predictable Enforcement, and Access to Justice for Men from the V-Dem dataset. (An adjustment for the area as a whole is made later to account uniformly for gender disparities.) Each of the V-Dem variables is individually rated using the formula $(V_i − V_{min}) / (V_{max} − V_{min})$ multiplied by 10. V_i is the country's V-Dem score according to V-Dem, and V_{max} and V_{min} were set at 4.0 and 0, respectively. The five measures from V-Dem are then averaged. The final number is the average of whichever of the two sources are available.

Source PRS Group, *International Country Risk Guide*; V-Dem Institute, *Varieties of Democracy*, <www.v-dem.net>.

F Legal enforcement of contracts

This first source of this component is the World Bank's *Doing Business* estimates for the time and money required to collect a debt. The debt is assumed to equal 200% of the country's per-capita income where the plaintiff has complied with the contract and judicial judgment is rendered in his favor. Zero-to-10 ratings were constructed for (1) the time cost (measured in number of calendar days required from the moment the lawsuit is filed until payment); and (2) the monetary cost of the case (measured as a percentage of the debt). These two ratings were then averaged to arrive at the final rating for this component. The formula used to calculate the zero-to-10 ratings was: $(V_{max} − V_i) / (V_{max} − V_{min})$ multiplied by 10. V_i represents the time or money cost value. The values for V_{max} and V_{min} were set at 725 days and 82.3% (1.5 standard deviations above average in 2005) and 62 days (1.5 standard deviations below average in 2005) and 0%, respectively. Countries with values outside the range from V_{max} to V_{min} received ratings of either zero or 10, accordingly. The second source of this component is Enforcement of Contracts from the *Historical Ratings Research Package* by Business Environment Risk Intelligence. The formula used to calculate the zero-to-10 ratings was: $(V_i − V_{min}) / (V_{max} − V_{min})$ multiplied by 10. V_i represents the component value. The values for V_{max} and V_{min} were set at 4 and zero, which corresponds to the range of the variable. The final number is the average of whichever of these two sources are available.

Source World Bank, *Doing Business*; Business Environment Risk Intelligence, *Historical Ratings Research Package.*

G Regulatory costs of the sale of real property

This component is based on the World Bank's *Doing Business* data on the time measured in days and monetary costs required to transfer ownership of property that includes land and a warehouse. Zero-to-10 ratings were constructed for (1) the time cost (measured in the number of calendar days required to transfer ownership); and (2) the monetary cost of transferring ownership (measured as a percentage of the property value). These two ratings were then averaged to arrive at the final rating for this component. The formula used to calculate the zero-to-10 ratings was: $(V_{max} − V_i) / (V_{max} − V_{min})$ multiplied by 10. V_i represents the time or money cost value. The values for V_{max} and V_{min} were set at 265 days and 15% (1.5 standard deviations above average in 2005) and 0 days and 0%, respectively. Countries with values outside the range from V_{max} to V_{min} received ratings of either zero or 10, accordingly.

Source World Bank, *Doing Business*.

H Reliability of police

The source of this component is the *Global Competitiveness Report* question: "To what extent can police services be relied upon to enforce law and order in your country? (1 = Cannot be relied upon at all; 7 = Can be completely relied upon)".

Source World Economic Forum, *Global Competitiveness Report*.

Area 3 Sound Money

A Money growth

This component measures the average annual growth of the money supply in the last five years minus average annual growth of real GDP in the last ten years. Countries where growth of the money supply greatly exceeds growth of real output receive lower ratings. The broad money supply (basically what used to be called M2) was used to measure the money supply. The rating is equal to: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. V_i represents the average annual growth rate of the money supply during the last five years adjusted for the growth of real GDP during the previous ten years. The values for V_{min} and V_{max} were set at zero and 50%, respectively. Therefore, if the adjusted growth rate of the money supply during the last five years was zero, indicating that money growth was equal to the long-term growth of real output, the formula generates a rating of 10. Ratings decline as the adjusted growth of the money supply increases toward 50%. When adjusted annual money growth is equal to (or greater than) 50%, a rating of zero results.

Sources World Bank, *World Development Indicators*; International Monetary Fund, *International Financial Statistics*; United Nations National Accounts.

B Standard deviation of inflation

This component measures the standard deviation of the inflation rate over the last five years. Generally, the GDP deflator was used as the measure of inflation for this component. When these data were unavailable, the Consumer Price Index was used. The following formula was used to determine the zero-to-10 scale rating for each country: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. V_i represents the country's standard deviation of the annual rate of inflation during the last five years. The values for V_{min} and V_{max} were set at zero and 25%, respectively. This procedure will allocate the highest ratings to the countries with the least variation in the annual rate of inflation. A perfect 10 results when there is no variation in the rate of inflation over the five-year period. Ratings will decline toward zero as the standard deviation of the inflation rate approaches 25% annually.

Sources World Bank, *World Development Indicators*; International Monetary Fund, *International Financial Statistics*.

C Inflation: most recent year

Generally, the Consumer Price Index was used as the measure of inflation for this component as it is often available before the GDP deflator is available. When these data were unavailable, the GDP deflator inflation rate was used. The zero-to-10 country ratings were derived by the following formula: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. V_i represents the rate of inflation during the most recent year.

The values for V_{min} and V_{max} were set at zero and 50%, respectively: the lower the rate of inflation, the higher the rating. Countries that achieve perfect price stability earn a rating of 10. As the annual inflation rate moves towards 50%, the rating for this component moves toward zero. A zero rating is assigned to all countries with an inflation rate of 50% or more.

Sources   World Bank, *World Development Indicators*; International Monetary Fund, *International Financial Statistics*.

D Freedom to own foreign currency bank accounts

When foreign-currency bank accounts were permissible without any restrictions both domestically and abroad, the rating was 10; when these accounts were restricted, the rating was zero. If foreign currency bank accounts were permissible domestically but not abroad (or vice versa), the rating was 5.

Sources   International Monetary Fund, *Annual Report on Exchange Arrangements and Exchange Restrictions*.

Area 4 Freedom to Trade Internationally

A Tariffs

i *Revenues from trade taxes (% of trade sector)*

This sub-component measures the amount of tax on international trade as a share of exports and imports. The formula used to calculate the ratings for this sub-component was: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. V_i represents the revenue derived from taxes on international trade as a share of the trade sector. The values for V_{min} and V_{max} were set at zero and 15%, respectively. This formula leads to lower ratings as the average tax rate on international trade increases. Countries with no specific taxes on international trade earn a perfect 10. As the revenues from these taxes rise toward 15% of international trade, ratings decline toward zero.

Sources   International Monetary Fund, *Government Finance Statistics Yearbook*; International Monetary Fund, *International Financial Statistics*.

ii *Mean tariff rate*

This sub-component is based on the unweighted mean of tariff rates. The formula used to calculate the zero-to-10 rating for each country was: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. V_i represents the country's mean tariff rate. The values for V_{min} and V_{max} were set at 0% and 50%, respectively. This formula will allocate a rating of 10 to countries that do not impose tariffs. As the mean tariff rate increases, countries are assigned lower ratings. The rating will decline toward zero as the mean tariff rate approaches 50%. (Note that, except for two or three extreme observations, all countries have mean tariff rates within this range from 0% to 50%.)

Source   World Trade Organization, *World Tariff Profiles*.

iii *Standard deviation of tariff rates*

Compared to a uniform tariff, wide variations in tariff rates indicate greater efforts towards central planning of the economy's production and consumption patterns.

Thus, countries with a greater variation in their tariff rates are given lower ratings. The formula used to calculate the zero-to-10 ratings for this component was: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. V_i represents the standard deviation of the country's tariff rates. The values for V_{min} and V_{max} were set at 0% and 25%, respectively. This formula will allocate a rating of 10 to countries that impose a uniform tariff. As the standard deviation of tariff rates increases towards 25%, ratings decline toward zero. (Note that, except for a few very extreme observations, the standard deviations of the tariff rates for the countries in our study fall within this 0% to 25% range.)

Source   World Trade Organization, *World Tariff Profiles*.

B   Regulatory trade barriers

i   *Non-tariff trade barriers*

This sub-component is based on the *Global Competitiveness Report* survey question: "In your country, tariff and non-tariff barriers significantly reduce the ability of imported goods to compete in the domestic market. 1–7 (best)". The question's wording has varied slightly over the years. Note, notwithstanding the sub-component's title, this indicator captures both tariff and non-tariff barriers.

Source   World Economic Forum, *Global Competitiveness Report.*

ii   *Compliance costs of importing and exporting*

This sub-component is based on the World Bank's *Doing Business* data on the time (*i.e.*, non-money) cost of procedures required to import a full 20-foot container of dry goods that contains no hazardous or military items. Countries where it takes longer to import or export are given lower ratings. Zero-to-10 ratings were constructed for (1) the time cost (in hours) associated with border compliance and documentary compliance when exporting; and (2) the time cost (in hours) associated with border compliance and documentary compliance when importing. These two ratings were then averaged to arrive at the final rating for this sub-component. The formula used to calculate the zero-to-10 ratings was: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. V_i represents the time-cost value. The values for V_{max} and V_{min} were set, respectively, at 228.38 (1.5 standard deviations above average in 2014) and 0 hours for exporting; and 338.00 hours (1.5 standard deviations below average in 2014) and 0 hours for importing. Countries with values outside the V_{max} and V_{min} range received ratings of either zero or 10, accordingly.

Source   World Bank, *Doing Business*.

C   Black-market exchange rates

This component is based on the percentage difference between the official and the parallel (black-market) exchange rate. The formula used to calculate the zero-to-10 ratings for this component was the following: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. V_i is the country's black-market exchange-rate premium. The values for V_{min} and V_{max} were set at 0% and 50%, respectively. This formula will allocate a rating of 10 to countries without a black-market exchange rate; that is, those with a domestic currency that is fully convertible without restrictions. When exchange-rate controls are present and a black market exists, the ratings will decline toward zero as the black-market premium increases toward 50%. A zero rating is given when the black market premium is equal to, or greater than, 50%.

Source   *MRI Bankers' Guide to Foreign Currency*.

D Controls of the movement of capital and people
i *Financial openness*

This sub-component is based on the Chinn-Ito Index of *de jure* financial openness. This index is composed of a series of dummy variables that "codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions*". This data source scores on a scale from 0-to-1, so it was multiplied by 10 to place it on the zero-to-10 scale.

Source Menzie Chinn and Hiro Ito (2006), What Matters for Financial Development? Capital Controls, Institutions, and Interactions, *Journal of Development Economics* 81, 1: 163–191; Menzi Chinn and Hiro Ito (2008), A New Measure of Financial Openness, *Journal of Comparative Policy Analysis* 10, 3: 309–322. See also <http://web.pdx.edu/~ito/Chinn-Ito_website.htm>.

ii *Capital controls*

The International Monetary Fund reports on up to 13 types of international capital controls. The zero-to-10 rating is the percentage of capital controls not levied as a share of the total number of capital controls listed, multiplied by 10.

Source International Monetary Fund, *Annual Report on Exchange Arrangements and Exchange Restrictions*.

iii *Freedom of foreigners to visit*

This component measures the percentage of countries for which a country requires a visa from foreign visitors. It reflects the freedom of foreigners to travel to this country for tourist and short-term business purposes. The formula used to calculate the zero-to-10 ratings was: $(V_i - V_{min}) / (V_{max} - V_{min})$ multiplied by 10. V_i represents the component value. The values for V_{max} and V_{min} were set at 47.2 (1 standard deviation above average) and 0. Countries with values outside the range between V_{max} and V_{min} received ratings of either zero or 10, accordingly.

Sources Robert Lawson and Jayme Lemke (2012), Travel Visas, *Public Choice* 154, 1-2: 17–36; authors' calculations.

Area 5 Regulation

Note The rating for Area 5 is calculated as the average of Components 5A, 5B, and 5C. When there were not enough data to generate ratings in at least two of those components, which is common especially in earlier years, the rating for Area 5 was computed to be $2.5 + 0.50 (X_t)$, where X_t is the average of all the sub-components in Area 5. This formula was created based on a regression analysis comparing countries with and without complete data.

A Credit market regulations
i *Ownership of banks*

Data on the percentage of bank deposits held in privately owned banks were used to construct rating intervals. Countries with larger shares of privately held deposits received higher ratings. When privately held deposits totaled between 95% and 100%, countries were given a rating of 10. When private deposits constituted between 75% and 95% of the total, a rating of 8 was assigned. When private

deposits were between 40% and 75% of the total, the rating was 5. When private deposits totaled between 10% and 40%, countries received a rating of 2. A zero rating was assigned when private deposits were 10% or less of the total.

Sources   Anginer, D., A. Can Bertay, R. Cull, A. Demirgüç-Kunt, and D.S. Mare (2019), *Bank Regulation and Supervision Ten Years after the Global Financial Crisis*, Policy Research Working Paper, World Bank; World Bank, *Bank Regulation and Supervision Survey*; James R. Barth, Gerard Caprio, and Ross Levine (2006), *Rethinking Bank Regulation: Till Angels Govern*, Cambridge University Press.

ii   Private sector credit

This sub-component measures the extent of government borrowing relative to private-sector borrowing. Greater government borrowing indicates more central planning and results in lower ratings. If the data are available, this sub-component is calculated as the government fiscal deficit as a share of gross saving. The formula used to derive the country ratings for this sub-component was $(V_{max} - V_i)$ / $(V_{max} - V_{min})$ multiplied by 10. V_i is the [absolute value of the] the ratio of deficit to gross savings, and the values for V_{max} and V_{min} are set at 100% and 0%, respectively. The formula allocates higher ratings as the deficit gets smaller (that is, closer to zero) relative to gross saving.

If the deficit data are not available, the component is instead based on the share of private credit relative to total credit extended in the banking sector. Higher values are indicative of greater economic freedom. Thus, the formula used to derive the country ratings for this sub-component was $(V_i - V_{min})$ / $(V_{max} - V_{min})$ multiplied by 10. V_i is the share of the country's total domestic credit allocated to the private sector and the values for V_{max} and V_{min} are set at 99.9% and 10.0%, respectively. The 1990 data were used to derive the maximum and minimum values for this component. The formula allocates higher ratings as the share of credit extended to the private sector increases.

Sources   World Bank, *World Development Indicators*; World Economic Forum, *Global Competitiveness Report*; International Monetary Fund, *International Financial Statistics*.

iii   Interest rate controls / negative real interest rates

Data on credit-market controls and regulations were used to construct rating intervals. Countries with interest rates determined by the market, stable monetary policy, and reasonable real-deposit and lending-rate spreads received higher ratings. When interest rates were determined primarily by market forces as evidenced by reasonable deposit and lending-rate spreads, and when real interest rates were positive, countries were given a rating of 10. When interest rates were primarily market-determined but the real rates were sometimes slightly negative (less than 5%) or the differential between the deposit and lending rates was large (8% or more), countries received a rating of 8. When the real deposit or lending rate was persistently negative by a single-digit amount or the differential between them was regulated by the government, countries were rated at 6. When the deposit and lending rates were fixed by the government and the real rates were often negative by single-digit amounts, countries were assigned a rating of 4. When the real deposit or lending rate was persistently negative by a double-digit amount, countries received a rating of 2. A zero rating was assigned

when the deposit and lending rates were fixed by the government and real rates were persistently negative by double-digit amounts or hyperinflation had virtually eliminated the credit market.

Sources World Bank, *World Development Indicators*; International Monetary Fund, *International Financial Statistics*; CIA, *The World Factbook*.

B Labor market regulations

i Hiring regulations and minimum wage

This sub-component is based on the "Employing Workers" section of the World Bank's *Doing Business* and uses the following components: (1) whether fixed-term contracts are prohibited for permanent tasks; (2) the maximum cumulative duration of fixed-term contracts; and (3) the ratio of the minimum wage for a trainee or first-time employee to the average value added per worker. An economy is assigned a score of 1 if fixed-term contracts are prohibited for permanent tasks and a score of 0 if they can be used for any task. A score of 1 is assigned if the maximum cumulative duration of fixed-term contracts is less than 3 years; 0.5 if it is 3 years or more but less than 5 years; and 0 if fixed-term contracts can last 5 years or more. Finally, a score of 1 is assigned if the ratio of the minimum wage to the average value added per worker is 0.75 or more; 0.67 for a ratio of 0.50 or more but less than 0.75; 0.33 for a ratio of 0.25 or more but less than 0.50; and 0 for a ratio of less than 0.25.

Source World Bank, *Doing Business*.

ii Hiring and firing regulations

This sub-component is based on the *Global Competitiveness Report* question: "The hiring and firing of workers is impeded by regulations (= 1) or flexibly determined by employers (= 7)". The question's wording has varied over the years.

Source World Economic Forum, *Global Competitiveness Report*.

iii Centralized collective bargaining

This sub-component is based on the *Global Competitiveness Report* question: "Wages in your country are set by a centralized bargaining process (= 1) or up to each individual company (= 7)". The wording of the question has varied over the years. In earlier years, the actual union density was used to determine ratings for select countries.

Source World Economic Forum, *Global Competitiveness Report*.

iv Hours regulations

This sub-component is based on the Employing Labor section in the World Bank's *Doing Business*; it uses the following five components: (1) whether there are restrictions on night work; (2) whether there are restrictions on holiday work; (3) whether the length of the work week can be 5.5 days or longer; (4) whether there are restrictions on overtime work; and (5) whether the average paid annual leave is 21 working days or more. For each question, when the regulations apply, a score of 1 is given. If there are no restrictions, the economy receives a score of 0. The zero-to-10 rating is based on how many of these regulations are in place: 0 regulations results in a rating of 10; 1 regulation results in a rating of 8; and so on.

Source World Bank, *Doing Business*.

   v Mandated cost of worker dismissal

This sub-component is based on the World Bank's *Doing Business* data on the cost of the advance notice requirements, severance payments, and penalties due when dismissing a redundant worker with 10-years tenure. The formula used to calculate the zero-to-10 ratings was: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. V_i represents the dismissal cost (measured in weeks of wages). The values for V_{max} and V_{min} were set at 58 weeks (1.5 standard deviations above the average in 2005) and 0 weeks, respectively. Countries with values outside the V_{max} and V_{min} range received ratings of either zero or 10, accordingly.

Source World Bank, *Doing Business*.

   vi Conscription

Data on the use and duration of military conscription were used to construct rating intervals. Countries with longer conscription periods received lower ratings. A rating of 10 was assigned to countries without military conscription. When length of conscription was six months or less, countries were given a rating of 5. When length of conscription was more than six months but not more than 12 months, countries were rated at 3. When length of conscription was more than 12 months but not more than 18 months, countries were assigned a rating of 1. When conscription periods exceeded 18 months, countries were rated zero. If conscription was present but apparently not strictly enforced or the length of service could not be determined, the country was given a rating of 3. In cases where it is clear conscription is never used, even though it may be possible, a rating of 10 is given. If a country's mandated national service includes clear non-military options, the country was given a rating of 5.

Sources International Institute for Strategic Studies, *The Military Balance*; War Resisters International, *World Survey of Conscription and Conscientious Objection to Military Service*; additional online sources used as necessary.

C Business regulations

  i Administrative requirements

This sub-component is based on the *Global Competitiveness Report* question: "Complying with administrative requirements (permits, regulations, reporting) issued by the government in your country is (1 = burdensome, 7 = not burdensome)". The question's wording has varied slightly over the years.

Source World Economic Forum, *Global Competitiveness Report*.

  ii Bureaucracy costs

This sub-component is based on the "Regulatory Burden Risk Ratings" from IHS Markit, which measures "[t]he risk that normal business operations become more costly due to the regulatory environment. This includes regulatory compliance and bureaucratic inefficiency and/or opacity. Regulatory burdens vary across sectors so scoring should give greater weight to sectors contributing the most to the economy". The raw scores range, roughly, from 0 to 7, with higher values indicating greater risk. The formula used to calculate the zero-to-10 ratings was: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. V_i is the country's Regulatory Burden rating, while the V_{max} and V_{min} were set at 5 and 0.5, respectively. These ratings were first published for 2014, and the 2014 ratings were used for 2012–2013.

This source replaces that used previously, the World Economic Forum's *Global Competitiveness Report* question: "Standards on product/service quality, energy and other regulations (outside environmental regulations) in your country are: (1 = Lax or non-existent, 7 = among the world's most stringent)".

Source IHS Markit.

iii *Starting a business*

This sub-component is based on the World Bank's *Doing Business* data on the amount of time and money it takes to start a new limited-liability business. Countries where it takes longer or is more costly to start a new business are given lower ratings. Zero-to-10 ratings were constructed for three variables: (1) time (measured in days) necessary to comply with regulations when starting a limited liability company; (2) money costs of the fees paid to regulatory authorities (measured as a share of per-capita income); and (3) minimum capital requirements, that is, funds that must be deposited into a company bank account (measured as a share of per-capita income). These three ratings were then averaged to arrive at the final rating for this sub-component. The formula used to calculate the zero-to-10 ratings was: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. V_i represents the variable value. The values for V_{max} and V_{min} were set at 104 days, 317%, and 1,017% (1.5 standard deviations above average in 2005) and 0 days, 0%, and 0%, respectively. Countries with values outside the V_{max} and V_{min} range received ratings of either zero or 10, accordingly.

Source World Bank, *Doing Business*.

iv *Impartial public administration*

This sub-component is based on the "Rigorous and Impartial Public Administration" data from the V-Dem dataset. If nepotism, cronyism, and discrimination are widespread in the application of public administration, countries receive a lower score. The rating for this component is designed to mirror the actual distribution of the raw data but on a zero-to-10 scale. The rating is equal to: $(V_i - V_{min}) / (V_{max} - V_{min})$ multiplied by 10. The V_i is the country's impartial administration score, while the V_{max} and V_{min} were set at 4.0 and 0, respectively.

Source V-Dem Institute, *Varieties of Democracy*, <www.v-dem.net>.

v *Licensing restrictions*

This sub-component is based on the World Bank's *Doing Business* data on the time in days and monetary costs required to obtain a license to construct a standard warehouse. Zero-to-10 ratings were constructed for (1) the time cost (measured in number of calendar days required to obtain a license) and (2) the monetary cost of obtaining the license (measured as a share of per-capita income). These two ratings were then averaged to arrive at the final rating for this sub-component. The formula used to calculate the zero-to-10 ratings was: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. V_i represents the time or money cost value. The values for V_{max} and V_{min} were set at 363 days and 2,763% (1.5 standard deviations above the average in 2005) and 56 days (1.5 standard deviations below the average in 2005) and 0%, respectively. Countries with values outside the V_{max} and V_{min} range received ratings of either zero or 10, accordingly.

Source World Bank, *Doing Business*.

vi *Cost of tax compliance*

This sub-component is based on the World Bank's *Doing Business* data on the time required per year for a business to prepare, file, and pay taxes on corporate income, value added or sales taxes, and taxes on labor. The formula used to calculate the zero-to-10 ratings was: $(V_{max} - V_i) / (V_{max} - V_{min})$ multiplied by 10. V_i represents the time cost (measured in hours) of tax compliance. The values for V_{max} and V_{min} were set at 892 hours (1.5 standard deviations above the average in 2005) and 0 hours, respectively. Countries with values outside the V_{max} and V_{min} range received ratings of either zero or 10, accordingly.

Source   World Bank, *Doing Business*.