Wealth Opportunity Index – Methodology

This document contains the key findings for the 2019 *Wealth Opportunity Index* and summarizes The Economist Intelligence Unit (EIU) methodology to develop the Index.

Definition of wealth opportunity

For the purposes of this study, we defined wealth opportunity as the ability of individuals and households to generate investable assets with a medium-term outlook (i.e., over the next two to five years). This view was used to guide the selection and calibration of the indicators in the index.

Country selection

The index looks at the drivers of wealth creation in fifteen countries across the world, with regional representation from North and Central America, Europe, Middle East and Asia-Pacific. The fifteen markets in this 2019 study are: Australia, mainland China, Canada, France, Germany, India, Hong Kong, Japan, Mexico, Russia, Singapore, Switzerland, United Arab Emirates, United Kingdom and United States.

The list of countries was determined in consultation with RBC Wealth Management, based on the EIU's analysis of global economies and estimates of high-net-worth individuals (HNWIs) in those economies. Our considerations included the following factors:

- Regional representation

- Economy size

- Population

- Education levels

- Number of HNWIs and HNW households

- Growth rate and concentration (% of population) of HNWIs

Index framework

The index framework was developed by the EIU during a due diligence phase in which academic and other sources were analyzed to identify key drivers of wealth creation. Based on this assessment, the index is guided by four main pillars which represent categories of enablers for wealth creation:

1. **Economic Fundamentals** – Examines macroeconomic and demographic drivers linked to future growth in wealth.

2. **Market Dynamics** – Evaluates key measures of market openness, attractiveness and activity that are contributors to wealth generation.

3. **Innovation** – Measures countries' demonstrated propensities for generating new businesses, products and services.

4. **Risk** – Assesses macroeconomic, financial and political risks that influence sustainable wealth generation.

The table, on the next page, consists of a list of the 19 indicators in the Wealth Opportunity Index, organized by pillar.

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#	Indicator name	Indicator measure
	Overall index	
1	**Economic Fundamentals**	
1.1	Economic outlook	Real GDP growth, forecast (annual average 2019-2023)
1.2	Population growth	Population growth, forecast (annual average 2019-2023)
1.3	Income growth	Real personal disposable income per head growth, forecast (annual average 2019-2023)
1.4	Savings	Gross national savings as a share of GDP (annual average 2014-2018)
1.5	Household debt	Aggregate household debt to GDP ratio (2018)
1.6	Age of population	Median population age (2019)
2	**Market Dynamics**	
2.1	Market capitalization level	Total market capitalization of all listed domestic companies (2018)
2.2	Market capitalization growth	Growth of market capitalization of listed domestic companies (annual average 2015-2018)
2.3	Access to finance	Access to finance (2019)
2.4	Returns to liquid assets	Money market interest rate, forecast (annual average 2019-2021)
2.5	Real estate	Growth of real house prices (annual average 2015-2018)
3	**Innovation**	
3.1	Business dynamism	Business dynamism (2018)
3.2	R&D spending	Gross R&D expenditure as a share of GDP (most recent year available, 2014-2017)
3.3	Innovation effectiveness	Total number of patent applications per 1000 people (2017)
3.4	Productivity growth	Total factor productivity (TFP) growth (annual average 2014-2018)
4	**Risk**	
4.1	Banking sector risk	Risk of banking sector crisis (2018-2019)
4.2	Currency risk	Risk of currency crisis (2018-2019)
4.3	Political risk	Risk of political crisis (2018-2019)
4.4	Rule of law	Legal and regulatory risk (2018-2019)

Data sources and definitions

All of the quantitative and qualitative data in the Wealth Opportunity Index were collected and analyzed by the EIU project team. Data were gathered from reputable international, national and industry sources, including the EIU's proprietary databases. The data collection process lasted from April to May 2019. Any changes to data sources after May 2019 are not accounted for in this version of the Index.

Key data sources include:

- EIU macroeconomic, demographic, financial and industry databases
- Bloomberg

- Organisation for Economic Co-operation and Development (OECD)
- World Intellectual Property Organization (WIPO)
- United Nations (UN)
- International Monetary Fund (IMF)
- Institute of International Finance (IIF)
- World Economic Forum (WEF)
- National statistics offices

Note that the time period measured in each indicator (e.g., historical growth, or current state in level terms, or average growth over a specified forecast period) varies based on the underlying goals and theory for how the indicator relates to wealth creation. In the table above, we note the time period that each indicator measures.

Index calculation and data modelling

Raw data is transformed into scores to enable aggregation by pillar and overall index. The process involves normalizing the raw data to a common scale. All indicators in this model are transformed onto a zero to 100 scale, where 100 refers to the strongest environment for future wealth creation across the included set of countries, and zero indicates the weakest environment.

Most indicators are transformed on the basis of a min/max normalization, where the minimum and maximum raw data values across the index countries are used to bookend the indicator scores.[1] The indicators for which a higher value indicates a more favorable environment for future wealth creation, such as population growth, have been transformed on the basis of:

$$x = (x - Min(x)) / (Max(x) - Min(x))$$

where Min(x) and Max(x) are, respectively, the lowest and highest values in the group of countries for any given indicator. The value is then changed from a zero to one value to a zero to 100 score to make it directly comparable with other indicators. This in effect means that the country with the highest raw data value will score 100, while the lowest will score zero for all indicators in the Index.

Aggregation and weights

Each index pillar receives a score, calculated from a weighted average of the underlying indicator scores. The overall country score (adjusted) is a weighted average of the pillar scores.

Weighting approaches can be broadly separated into three types: i) equal weightings; ii) expert-determined weightings; and iii) data-driven, statistical methods.

For the purposes of this index, we have calibrated the weights in the Wealth Opportunity Index on the basis of economic theory and data analysis (see Weights assigned in Excel datasheet for indicator-by-indicator weighting).

Statistical testing: calibration and validation

During the course of index development and analysis, we ran a variety of statistical tests to confirm index indicators, explore relationships and directionality, inform weighting calibration, and validate the framework. These tests compared a backscored index against historical wealth data (2000-2018, as data availability allowed).

Statistical testing included country-by-country regressions of index score against wealth data (both total wealth and net wealth) in local currency terms (LCU), correcting for non-stationarity and autocorrelation. We ran the regressions both with equally weighted index scores and with a variety of adjusted weightings schemes to calibrate weightings and to explore the resilience of model significance across different forms. We also ran the models with a two-year and five-year time lag between index score and wealth data.

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[1] Note: Select indicators were normalized using the same min-max as the original source data. Therefore the lowest and highest scoring countries may not necessarily receive scores of zero and 100.

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