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COUNTRY RISK ANALYSIS IN G7 & BRICS NATIONS: A MULTI-DIMENSIONAL APPROACH

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ABSTRACT

In times of uncertainty, the risks related with participating in international operations have increased considerably. Additionally, such risks have moved towards becoming progressively hard to analyse and foresee for decision makers in the universal financial network. Country risk fundamentally showcases the risk state of an economy. In global business, the risks emerging from the national variations in monetary structures, arrangements, natural ecologies and social societies may change the outlook for success of a given venture or business. Analysing the country risk of foreign nations becomes crucial to investors for strategically planning their investments. Taking this complexity of country risk analysis, the current paper proposes an index for country risk, consisting of 12 nations under the Group of seven (G7) and BRICS nations. The CRI is compiled on the basis of seven risk dimensions namely: political, economic, social, technical, environmental, legal & financial and within these seven dimensions, 10 indicators are analysed to calculate the CRI for these 12 nations for even years from 2012 to 2018. All data used in this study is secondary and all sources have been acknowledged. Analysis is done in Microsoft Excel 2016. Ultimately, rankings are allotted to these economies, for both groups together and separately, to present a comprehensive analysis of country risk in these nations.

Keywords: Country Risk Index, G7 & BRICS, Political, Economic, Social, Technical, Environmental, Legal & Financial Risks

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INTRODUCTION

Country Risk mirrors the capacity and ability of an economy to support its foreign financial obligations. Such risk are expressed by nation-specific financial, political, economic and other composite factors. With every financial, political & economic crisis threatening to go beyond their initial borders, country risk has emerged as a critical concern in the world of business. As per *Valeria Toma, Chirita, and Sarpe (2011)*, what becomes decisive factors in studying the relative and dominant positions of a country in the international business community are its economic & financial wealth, coupled with its political power.

Today, all around the globe, capital circulates without any limits and most financial markets have become completely deregulated. Unfortunately, this is also consistent with a vast surge in the frequency of economic crisis. Financial and economic crashes frequently shook the nineteenth century. While this unpredictability was increasing, driven by globalisation, an increasing number of businesses were trading, competing and investing outside of their domestic markets. This meant that businesses became increasingly exposed, internationally and this led to more and more interlinking of national economies, as noted by *Bouchet and Groslambert (2003)*.

We start this study by providing the fundamental background for country risk, by introducing and defining its concept. Then we go on to defining and explaining the various dimensions and laying the theoretical foundations of country risk that we are studying in this paper: political, economic, social, technical, environmental, legal & financial. We study political risk in this paper via two indicators: Global Peace Index & Corruptions Perceptions Index, economic risk by the GDP Growth Rate & GNI Per Capita measure. Social risk is studied by the means of Human Development Index while we use the Global Innovation index & the Research and Development expenditures of a nation as the measures to analyse technical risk. Environmental risk and legal risk are analysed by the means of environmental performance index and the Profit tax in a nation. Lastly, we study financial risk by the means of Global equity indices.

All the data on the above 10 indicators are extracted from reliable sources for the even years starting from 2012 and ending at 2018. The nations under the purview of our analysis are the countries that are a part of the Group of seven or G7, namely, Canada, France, Germany, Italy, Japan, the United Kingdoms and the United States & BRICS nations, namely Brazil, Russia, India, China & South Africa. These two groups of economies are chosen as the former group is considered to be the group of seven most developed nations in the world while the latter group consists of the five most rapidly growing economies in the world.

A country risk index is formulated by first normalising these indicators' data on a scale of zero to one and then compiling them, using the Euclidean distance formula to arrive at the final country risk index. This CRI provides the basis of rankings for these 12 nations combined. After going through the analysis, we observe that when all 12 nations are analysed together, countries under G7 fare better than those under BRICS. Their country risk index values are better for all four years and aggregate. Separate analysis for both G7 & BRICS nations has also been discussed in the conclusion section.

REVIEW OF LITERATURE

Concept of Country Risk

Risk is associated with all types of investments, be it equity stock, exchange traded funds, bonds or mutual funds. For any investor, higher risks are usually associated with higher probabilities of return. People very often invest with the view of broadening diversification in their portfolios and reducing the risk associated with the same. One way of reducing or diversifying this risk is through international investment. *Chen (2019)* further described that not only does international investment broaden diversification, it expands investing options beyond just domestic investments to an investor.

Country risk, as understood and defined by many, encompasses all additional risks

induced by doing business abroad. As per *Bouchet and Groslambert (2003),* the literature on country risk uses several terminologies and has generated several courses depending on the definition that is taken, the sources of risk, the nature of the investment, the historical context and the chosen methodology.

Country risk varies from one country to another, and is fundamentally explained or defined by all that factors in one specific country that may impact the returns of any international investor. These factors are majorly encapsulated in different dimensions of any country's existence, i.e. its political scenario, economic standing, social & financial factors, among others.

Dimensions/ Risk Categories under the current study

In the current study, we aim to analyse country risk through a multi-dimensional approach. This includes the study of political, economic, social, technical, environmental, legal & financial factors. This analysis is aimed towards giving a comprehensive and holistic approach in analysing country specific risks, through these dimensions, that are considered as the most significant factors while investing in countries around the world.

These dimensions are structured in Figure 1 and elaborated further.

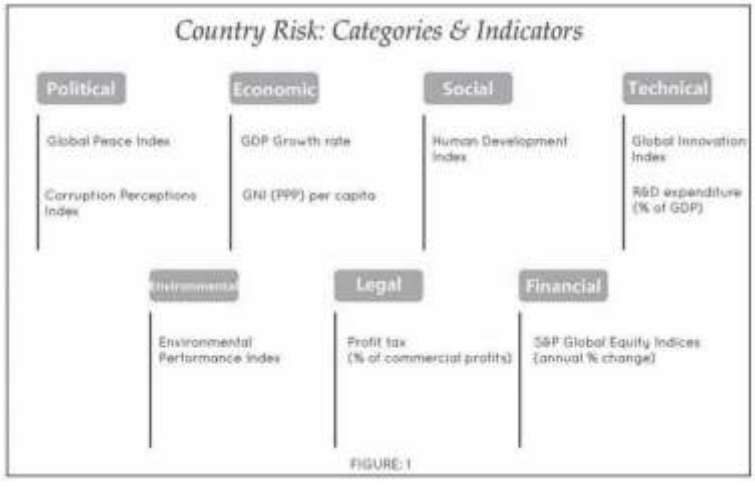

FIGURE: 1

Political Risk

When the risk of a foreign nation altering its policies or other regulations arise that might affect an individual's foreign investment is when political risk surfaces. Government leaders take political decisions about trade tariffs, barriers, wage rates, labour laws, taxes and environmental regulations etc. that have an impact on how businesses work and on their profitability. We try to analyse political risk by the means of the following indicators:

1. Global Peace Index

The Global peace index is a relative measure of peace in various nations. As per the *Global Peace Index report (2018), "The economic impact of violence on the global economy in 2017 was $14.76 trillion in purchasing power parity (PPP) terms. This figure is equivalent to 12.4 per cent of the world's economic activity (gross world product) or $1,988 for every person."*

According to this report, there is a significant impact of peacefulness on macroeconomic performance. In countries that are considerably more peaceful, there has been three times more per capita growth, reduced inflation and interest rates and twice the FDI in the past 70 years, as compared to those nations with lower levels of peace.

2. Corruptions Perception Index

The Corruption Perceptions Index, issued by Transparency International, measures the apparent dimensions of corruption in the public sector in 180 nations and regions. According to the *Corruption Perceptions Index Report (2018),* the CPI marks and positions nations/regions dependent on how corrupt a nation's public sector is recognised to be by specialists and business officials. Nations that have a high level of corruption have their average income equal to about a third of those countries that have comparatively lower levels of corruption, as per World Bank data.

Economic Risk

The probability that macro-economic factors such as GDP, exchange rates, unemployment rates, inflation, interest rates etc., will affect an investment made usually in a foreign country is termed as economic risk. In this paper we mainly discuss the following two indicators of economic stability:

1. GDP Growth Rate

Gross Domestic Product or GDP measures a country's net economic activity. As per *Amadeo (2018),* positive GDP growth rate implies a progressing economy. When the GDP is growing, it will ultimately lead to growth of businesses, investment and expansion of jobs and disposable income in the economy.

2. GNI (PPP) per capita

Gross national income or GNI measures the sum total of income in an economy. By only comparing GDP of various countries, we do not get a clear picture into the countries' economies because, in many developing economies, residents migrate to other nations which can provide them with better livelihood and income that they remit back to their home countries.

As noted by *Amadeo (2016)*, the GNI data that the World Bank provides for all countries omits the effects of currency exchange rates, by converting the whole thing to the US Dollar using purchasing power parity.

Social Risk

Social risk is primarily associated with cultural distinctions between any organisation and its local environment, including its customers, employees etc. It constitutes a society's philosophies, ethnicities, practices & overall culture and the actions that affect its communities which includes public health issues that impact absenteeism, labour, human rights violations, corruption etc. Social risk also impacts

a company in the way of its supply chain.

We use the United Nations development programme's human development index as an indicator of social risk in this study.

Human Development Index

The Human development index or HDI is defined by the UNDP as *"a composite index focusing on three basic dimensions of human development: the ability to lead a long and healthy life, measured by life expectancy at birth; the ability to acquire knowledge, measured by mean years of schooling and expected years of schooling; and the ability to achieve a decent standard of living, measured by gross national income per capita."*

Some of the indicators used for calculating the HDI by UNDP, according to the latest *Human development index report (2018)* include population trends, educational achievements, health outcomes, national income, work and employment, human security etc.

Technical Risk

Technological risk can be defined as exposure to loss resulting from various events including manufacturing, engineering and design, test practices and technological procedures. Technical risk or innovation risk are a result of usage of relatively new or untested technologies or tools of equipment or methods of production or manufacturing. In our study, technical risk is elaborated by the means of the following 2 dimensions:

1. Global Innovation Index

The Global Innovation Index (GII) is a cross-nation performance measurement, aggregated on a yearly premise, which on a continuous basis tries to revise and progress the method in which innovation is estimated. Some of the indicators used

for calculating the GII, according to the latest *Global Innovation index report (2018)*, are market sophistication, business sophistication, knowledge and technology outputs, creative outputs etc.

2. Research & Development Expenditure

R&D expenditure expressed as a percentage of GDP constitutes of current and capital expenditures by all government laboratories, universities, research institutes and domestic companies in the following sectors: Government, higher education, private non-profit, and business enterprises and constitutes applied & basic research along with experimental development. Expenditure on Research & Development is an essential and vital indicator of efforts put in by the private sector and government for obtaining competitive benefit and advantage in the field of science and technology.

Environmental Risk

Environmental risk for business may include frequent extreme weathers, decreased demand for less environmental friendly products, hindrance in supply of materials due to climate change issues in supplier's country/region, legal hassles induced due to not adhering to environmental regulations and increased cost for water, energy and other resources. As per *Folk (2018),* Such risk can lead to increase insurance cost, greater destruction of property and assets and even loss of business to competitors with energy efficient goods to target the market segment.

We study environmental risk with the help of the environmental performance index.

Environmental Performance Index

The environmental performance index gives ranking to countries around the world on how well they perform in environmental issues in two major policy segments: Protection of ecosystems & protection of human health from environmental harm, as per *The Environmental Performance Index (2018).*

Legal Risk

Reputation of any business depends on legal risks: regulatory, operational or compliance risk, as they may lead to immense losses to the organisation, if not paid proper attention to. As per *Pandey (2018),* Legal risk includes compliance risk which includes risk arising out of non-compliance with policies, whether external or internal, statutes or the best practices that any business is expected to perform, ultimately resulting to legal penalties and financial losses.

It also includes contractual risk arising due to failure in contractual liabilities fulfilment and dispute risk, when disputes arises due to disorder or disruption instigated by stakeholders, partners or customers.

We study legal risk by incorporating profit tax or corporate tax (% of commercial profit) as a dimension to this study.

Profit Tax

Profit tax or corporate tax is the tax that a business corporation pays on its income. When organisations are faced with higher tax rate, it ultimately leads to reduction in investment, employment or even relocating the business to lower tax locations. In the end, the burden of this tax is transferred to third parties such as the workers or the consumers.

Sometimes, countries with higher corporate taxes are not very sound economically. Countries such as Venezuela and Brazil have high tax rates of up to 34% with both the nations facing an economic crisis, as noted by *Moskowitz (2018).*

Financial Risk

Factors that might impact financial risk for companies includes debt financing, interest rate changes, exchange rates, credit policies etc.

S & P Global Equity Indices compute the percentage change in stock market indices of economies around the world in U.S. dollar prices. In any country, the overall growth is very closely connected to the growth on the financial markets because financial systems that are better performing provide decent and effortlessly accessible information which ultimately leads to lowering of cost of transactions, improving allocation of resources and enhances economic growth.

Countries under study: G7 & BRICS Nations

Group of seven (G7)

The Group of seven (G7) consists of seven countries, namely, France, Italy, Japan, Canada, the United Kingdom, the United States and Germany. According to *IMF's World Economic Outlook (2017)* these nations are not only the seven largest economies in the world but also account for 58% of the global net wealth, more than 32% of the world GDP (PPP) and approximately 46% of world GDP (nominal values).

BRICS Nations

BRICS, which stands for Brazil, Russia, India, China and South Africa is an association of these five countries which are considered to be the five foremost emerging nations in terms of economic development.

Economists believe that the economic potential of these nations, coupled with their high growth rates was going to help BRICS further attain a leading position in the world and that by 2050, these economies might become the most dominant.

RESEARCH GAP

After critically reviewing the literature present in the area of country risk, we find that a comprehensive index that critically analyses country risk following a multidimensional approach is currently missing. There is a lot of content on the

subcategories or types of country risks but not a lot of researches focus on combining these risk sub types to formulate an overall index for country risk. Even though this study is restricted to 12 countries and 10 indicators, in future, one might build up on this index to inculcate more nations or more variables to present an even widely acceptable country risk index that ranks nations all across the world on the basis of their country risks and ultimately help international investors in strategic decision making related to foreign investment.

RESEARCH DESIGN

Objectives

The objectives of this study are as follows:

1. To analyse & assess elements of country risk under the seven dimensions, namely, political, economic, social, technological, environmental, legal & financial.
2. To further elaborate upon these dimensions by studying specific indicators under these dimension for nations under the Group of seven (G7), and BRICS.
3. To build a compiled index for ranking these 12 countries in accordance to their performance in the 10 indicators under the seven dimensions as mentioned in objective number one and
4. To provide a systematic analysis of country risk in these 12 nations, seven of which are the world's largest economies (G7) and the rest five are the latest upcoming economies in terms of growth and development (BRICS), through the country risk index.

Data Sources

In this study, our aim is to compute a country risk index, and availability of data is a big challenge in the same. The data used in analysis in the present study is secondary data, collected from various trustable sources.

The data sources for all the data used in the analysis of country risk in this study are summarised in table 1.

Table 1: Data Sources

S.No.	Dimension	Indicator	Data Source
1.	Political	Global Peace Index	Institute for Economics and Peace (IEP)
		Corruptions Perception Index	Transparency international
2.	Economic	GDP Growth rate	World Bank national accounts data, and OECD National Accounts data files.
		GNI (PPP) per capita	World Bank, International Comparison Program database.
3.	Social	Human Development Index	United Nations Development Program (UNDP)
4.	Technical	Global Innovation Index	Cornell University, INSEAD, and the World Intellectual Property Organization
		Research and development expenditure (% of GDP)	UNESCO Institute for Statistics (extracted from World Bank)
5.	Environmental	Environmental Performance Index	Yale Centre for Environmental Law & Policy
6.	Legal	Profit tax (% of commercial profits)	World Bank, Doing Business project
7.	Financial	S&P Global Equity Indices (annual % change)	Standard & Poor's, Global Stock Markets Factbook and supplemental S&P data. (extracted from World Bank)

Period of Study

The present study analyses the aforementioned dimensions for four years' data, i.e. 2012, 2014, 2016, 2018. The data for all 12 nations for every single indicator studied in this paper are available for these given years. A one year gap in the subsequent year of study gives a wider perspective of growth with respect to each indicator for these nations.

Tools of Analysis

All the required analysis in the construction of the country risk index are done in MS-excel 2016. The tables and graphs, as shown in subsequent sections, are constructed using MS Excel only.

RESEARCH METHODOLOGY

Our ultimate objective in this study is computing the country risk index (CRI) that gives a ranking to the 12 countries in our study for a comprehensive analysis. Any one single indicator fails to capture the extent of country risk in any nation. Therefore, the index proposed in this paper constitutes of 10 indicators across seven dimensions to provide a real insight into country risk analysis. This index can be used to adequately measure risk across various countries over a given period to time.

The index of country risk (ICI) takes values between 0 and 1, zero indicating highest country risk and one indicating lowest. We follow a multidimensional approach in calculating the country risk index. This approach is similar to UNDP's development indexes such as the GDI and the HDI. However, a few changes are made in order to obtain the final country risk index and ranking of the countries, following the approach used in *Sarna (2008).*

We start by calculating a dimension index for each dimensions of country risk. These dimension indices are then used to calculate the overall index of country risk.

For the i^{th} dimension, the dimension index is calculated using the formula given below: (14)

$$\text{Dimension value} = \frac{\text{actual value - minimum value}}{\text{maximum value - minimum value}} \qquad (1)$$

It is insured by the above formula that all dimension indexes lie between the value of 0 to 1, as every country's values for different indexes are normalised to a score between 0 and 1 using maximum and minimum values in any dimensions. Higher value of the dimension index shows higher achievement of a country in the respective dimension. Contrary to the HDI computation by UNDP, and more similar methodology of computation of the financial inclusion index according to *Sarna (2008),* we do not use the geometric method to calculate the final country risk index.

Accordingly, if there are n dimensions to be considered, then a country "i" is shown by a point $D_i = (d_1, d_2, d_3 \ldots d_n)$ on the n-dimension Cartesian space.

In the same n-dimensional space, the point O = (0,0,0,…0) shows the point of worst scenario whereas the point I=(1,1,1,…1) shows the best scenario point in all individual dimensions.

The index of country risk, ICI_i for any ith country is estimated by the normalised Euclidean distance of the point Di from the ideal point I= (1, 1, 1,..1)

The formula for calculating this CRI is:

$$CRI = 1 - \frac{\sqrt{(1-d_1)^2 + (1-d_2)^2 + (1-d_3)^2 + ... + (1-d_n)^2}}{\sqrt{n}} \qquad (2)$$

In the above formula, the numerator of the RHS is the Euclidean distance of D_i from the ideal point I. We normalise in order to make the data comparable, by making the values go between 0 and 1 and subtract from 1 to obtain inverse normalised Euclidean distance, so that a higher value of CRI corresponds to lower risk levels. In

this case, higher the country risk index corresponds to higher country risk in the economy.

Since our study considers 7 dimensions as discussed above, we can showcase a country "i" by a point (a_1, a_2, a_3, a_4…a_7) in the Cartesian space, such that $0 \leq a_1, a_2, a_3, a_4 \ldots a_7 \leq 1$, where a_1, a_2, a_3, a_4…a_7 denote the 7 dimension indexes for any country "i" calculated using formula (1).

The CRI for each country is calculated by inverse normalised Euclidean distance of the point (a_1, a_2, a_3, a_4…a_7) from the ideal point (1, 1, 1, 1, 1, 1, 1), shown by the following formula:

$$CRI = 1 - \frac{\sqrt{(1-a_1)^2 + (1-a_2)^2 + (1-a_3)^2 + (1-a_4)^2 + (1-a_5)^2 + (1-a_6)^2 + (1-a_7)^2}}{\sqrt{7}}$$

This method of calculating CRI as per *Sarna (2008)* works on a multidimensional approach of construction of an index similar to UNDP, but there are certain differences between the two methods.

While combining the dimension indexes to arrive at the final index, the UNDP uses a method of averages, simple and geometric averages, but this method is based on a distance from the ideal. The approach fulfils a lot of properties of any development index, such as normalisation, uniformity, symmetry, monotonicity, proximity and signalling. The UNDP method fulfils only 3 of these properties, however the distance based method fulfils all of these.

Furthermore, for the maximum and minimum values in each dimension, the UNDP uses pre-determined values to calculate each dimension index, but this method uses maximum and minimum values from the set of all countries under the current study. This incorporates an element of relativity in the CRI, which shows the extent of risk in any one nation with respect to prevailing situations in all other nations under the analysis, making comparative study easier.

DATA ANALYSIS

The data analysis for Country risk index is constructed on formulation of a composite and comprehensive index. These country risk index values provide the basis of ranking of the nations from the two different groups, namely Group of seven (G7) and BRICS.

Normalisation of dimension indices

The first step in our analysis was to normalise all the data from seven dimensions, using formula (1) in the methodology section, in order to make all the data comparable, and bringing it to the same scale of 0 to 1.

For dimensions with more than 1 indicator, formula (1) was transformed to take the average of normalised scores of both the indicators. Thus the formula for political, economic & technical dimension indices changed to:

$$Dimension\ Value = \frac{\left(\frac{\text{actual value - minimum value}}{\text{maximum value - minimum value}} + \frac{\text{actual value - minimum value}}{\text{maximum value - minimum value}}\right)}{2}$$

Calculation of Country risk index & Rankings

Using data for all seven dimensions CRI values have been calculated. The normalised scores for each dimension is used to obtain the overall country risk index and rankings in this section, using the Euclidean distance formula , formula (2), as explained before.

The CRI values that are calculated for different countries are presented in table 2. According to the value of CRI, the 12 nations are given rankings on country risk and are categorised in three categories:

1. $0 \leq CRI \leq 0.3$: High country risk
2. $0.3 \leq CRI \leq 0.6$: Medium country risk
3. $0.6 \leq CRI \leq 1$: Low country risk

Table 2: Index of Country Risk (2012, 14, 16 & 18)

Years	2012		2014		2016		2018		Overall	
Countries	**CRI**	**Rank**	**CRI**	**Rank**	**CRI**	**Rank**	**CRI**	**Rank**	**CRI**	**Rank**
G7 NATIONS										
Canada	0.613	5	0.712	3	0.685	1	0.661	4	0.673	4
France	0.666	3	0.650	6	0.613	5	0.648	5	0.650	6
Germany	0.791	1	0.740	1	0.665	2	0.705	2	0.742	1
Italy	0.505	7	0.526	7	0.473	7	0.582	7	0.534	7
Japan	0.748	2	0.689	5	0.607	6	0.682	3	0.693	3
United Kingdom	0.604	6	0.697	4	0.660	3	0.641	6	0.654	5
United States	0.660	4	0.721	2	0.645	4	0.718	1	0.694	2
BRICS NATIONS										
Brazil	0.266	9	0.283	9	0.311	9	0.265	10	0.297	9
Russia	0.226	11	0.177	12	0.333	8	0.232	11	0.254	11
India	0.238	10	0.250	10	0.191	12	0.334	8	0.267	10
China	0.338	8	0.346	8	0.301	10	0.311	9	0.332	8
South Africa	0.174	12	0.244	11	0.211	11	0.118	12	0.195	12

The countries are grouped into the 3 risk categories as per their CRI values in table 3.

Table 3: Classification of Countries based on CRI values

Countries	2012		2014		2016		2018	
	CRI	Risk Group	CRI	Risk Group	CRI	Risk Group	CRI	Risk Group
G7								
Canada	0.613	LOW	0.712	LOW	0.685	LOW	0.661	LOW
France	0.666	LOW	0.650	LOW	0.613	LOW	0.648	LOW
Germany	0.791	LOW	0.740	LOW	0.665	LOW	0.705	LOW
Italy	0.505	MEDIUM	0.526	MEDIUM	0.473	MEDIUM	0.582	MEDIUM
Japan	0.748	LOW	0.689	LOW	0.607	LOW	0.682	LOW
UK	0.604	LOW	0.697	LOW	0.660	LOW	0.641	LOW
US	0.660	LOW	0.721	LOW	0.645	LOW	0.718	LOW
BRICS								
Brazil	0.266	HIGH	0.283	HIGH	0.311	MEDIUM	0.265	HIGH
Russia	0.226	HIGH	0.177	HIGH	0.333	MEDIUM	0.232	HIGH
India	0.238	HIGH	0.250	HIGH	0.191	HIGH	0.334	MEDIUM
China	0.338	MEDIUM	0.346	MEDIUM	0.301	MEDIUM	0.311	MEDIUM
South Africa	0.174	HIGH	0.244	HIGH	0.211	HIGH	0.118	HIGH

For 2012, Countries falling under the high risk category are Russia (11th Rank), India (10th Rank), Brazil (9th Rank) and South Africa (12th Rank). Countries under medium risk categories are Italy (7th Rank), & China (8th Rank) whereas countries on the safer side of the scale, i.e. with low level of risks are Canada (5th Rank), France(3rd rank), Germany(1st rank), Japan(2nd rank), UK(6th rank) and US (4th rank).

For 2014, Countries falling under the high risk category are Russia (12th Rank), Brazil (9th Rank), India (10th rank) and South Africa (11th Rank). Countries under medium risk categories are Italy (7th Rank), & China (8th Rank) whereas countries on the safer side of the scale, i.e. with low level of risks are Canada (3rd Rank), France(6th rank), Germany(1st rank), Japan(5th rank), UK(4th rank) and US (2nd rank).

For 2016, Countries falling under the high risk category are India (12th Rank) and South Africa (11th Rank). Countries under medium risk categories are Italy (7th Rank), Brazil (9th Rank), Russia(12th rank) & China (10th Rank) whereas countries with low level of risks are Canada (1st Rank), France(5th rank), Germany(2nd rank), Japan(6th rank), UK(3rd rank) and US (4th rank).

Finally, for 2018, Countries falling under the high risk category are Russia (12th Rank), Brazil (10th Rank), and South Africa (11th Rank). Countries under medium risk categories are Italy (7th Rank), India(8th rank) & China (9th Rank) whereas countries on the safer side of the scale, i.e. with low level of risks are Canada (4rd Rank), France(5th rank), Germany(2nd rank), Japan(3rd rank), UK(6th rank) and US (1st rank).

When we look at the aggregate index values of CRI, to compare the risk status of these countries for the entire period from 2012-2018, we get the following results of risk categories as summarised in table 4:

Table 4: Country risk categories for the aggregate value

COUNTRIES	CRI VALUE - AGGREGATE	COUNTRY RISK RANKS	RISK CATEGORIES
Germany	0.742	1	LOW
US	0.694	2	LOW
Japan	0.693	3	LOW
Canada	0.673	4	LOW
UK	0.654	5	LOW
France	0.650	6	LOW
Italy	0.534	7	MEDIUM
China	0.332	8	MEDIUM
Brazil	0.297	9	HIGH
India	0.267	10	HIGH
Russia	0.254	11	HIGH
South Africa	0.195	12	HIGH

Tables 5 & 6 present rankings of countries under G7 & BRICS separately for all years and overall.

Table 5: Country Risk Rankings of nations within G7

Countries	**2012**		**2014**		**2016**		**2018**		**Overall CRI**	**Rank**
	CRI	Rank	CRI	Rank	CRI	Rank	CRI	Rank		
Germany	0.791	1	0.740	1	0.665	2	0.705	2	0.742	1
US	0.660	4	0.721	2	0.645	4	0.718	1	0.694	2
Japan	0.748	2	0.689	5	0.607	6	0.682	3	0.693	3
Canada	0.613	5	0.712	3	0.685	1	0.661	4	0.673	4
UK	0.604	6	0.697	4	0.660	3	0.641	6	0.654	5
France	0.666	3	0.650	6	0.613	5	0.648	5	0.650	6
Italy	0.505	7	0.526	7	0.473	7	0.582	7	0.534	7

Table 6: Country Risk Rankings of nations within BRICS

Countries	**2012**		**2014**		**2016**		**2018**		**Overall CRI**	**Rank**
	CRI	Rank	CRI	Rank	CRI	Rank	CRI	Rank		
China	0.338	1	0.346	1	0.301	3	0.311	2	0.332	1
Brazil	0.266	2	0.283	2	0.311	2	0.265	3	0.297	2
India	0.238	3	0.250	3	0.191	5	0.334	1	0.267	3
Russia	0.226	4	0.177	5	0.333	1	0.232	4	0.254	4
South Africa	0.174	5	0.244	4	0.211	4	0.118	5	0.195	5

CONCLUSION

From the two groups of countries, G7 & BRICS, consisting of 12 nations in total, we analysed 10 indicators under seven dimensions to create a seven-dimensional Country Risk Index. Our ultimate aim was to assign rankings to these most developed and developing nations on the basis of their country risks indexes to comprehensively analyse which nations fall under the categories of low, medium and high risk nations.

If we go year-wise, for the year 2012, Germany leads with the highest value of CRI followed by Japan, France, US & Canada, respectively. South Africa performs worse in the year 2012, and is narrowly preceded by Russia and India. For the year 2014 as well Germany leads the 12 group of nations followed by the US, Canada, UK and Japan. The lowest ranking country for risk is Russia in 2014, just below South Africa. Two years later, in 2016, Germany falls down to the second rank, while Canada tops the list, UK goes third in place while India secures last position. In the latest available data, for the year 2018, United States leads with the highest CRI value with Germany, Japan, Canada & France following its lead respectively. South Africa, Russia & Brazil again fall back in the CRI values.

On the aggregative basis, as per table 4, countries under high risk categories are Brazil, India, Russia & South Africa, medium risk countries are Italy & China and low risk countries are Germany, US, Japan, Canada, UK, and France.

It's very clear that when we compare these two groups of nations via a single index, countries under G7 fare well in all dimensions. So it is apt to study both groups separately as well. Within G7 nations, we get varied results for different years, but when we look at overall aggregated ranking, we see that Germany tops the G7 nations whereas Italy ranks last, as per table 5 and within BRICS nations, based on aggregated rankings, China stands on top followed by Brazil, India, Russia and South Africa at last, as per table 6.

As it is quite evident from the data analysis and conclusions that developing countries are still far away from the most developed nations in terms of overall economic development, we might note as to where and in what arenas are these nations lagging behind.

The major reasons as to why these differences exist in indexes like human development index, global peace and innovation index, environmental performance index etc. is that the G7 nations, which are arguably the most developed nations in the world, are extremely advanced and possess immense technological infrastructure when compared to other nations. These advantages lead to better social and political scenario in the countries.

In this manner, all indicators of risk are somehow interlinked. If GDP improves, so will GNI, R&D expenditure, stock market and ultimately and indirectly social and political situations in any country.

The present index of country risk suffers from certain limitations. These are discussed as follows:

1. Lack of adequate data:

The most significant limitation of this study is the lack of adequate and appropriate data. Within the seven dimensions that we are studying, we could only inculcate a limited number of indicators due to lack of data available. For example, in studying economic risk, we could only analyse GDP growth rate and GNI per capita, but there are a number of other factors that affect economic risk such as interest rates, foreign exchange rates, public debt etc., but comprehensive data for the years under study are not available for these indicators.

2. Assignment of equal weights to all dimensions:

While computing the final country risk index, we have assigned equal weightage to all the seven dimension indices for the sake of ease in calculation and

understandability. However, it is quite evident that not all the dimension hold same amount of importance to an international investor considering the risks in any country. Generally, economic & financial risks are given utmost importance, followed by political and social risks.

3. Limited countries under analysis:

Furthermore, this study could've been undertaken for a wider number of countries, as opposed to 12 currently. But data for even these 10 variables were tough to be accumulated for more number of nations.

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