Resilience Index

ANNUAL REPORT 2016

FM Global

OXFORD METRICA

FOREWORD

We are delighted to present you with the 2016 FM Global Resilience Index, our third annual ranking of countries' business resilience to supply chain disruption. We hope this unique analysis will help you create seamless supply chains that bring innovative products to your customers without interruption.

Resilience is the ability to withstand disruption and rebound quickly when necessary. It is especially vital for global companies doing business in a fluid, borderless manner, facing unknown risks in developing markets. As we've often seen, unanticipated supply chain disruptions can irrevocably harm revenue streams, market shares, brands, reputations and shareholder value.

The 2016 FM Global Resilience Index is designed to help you make better business decisions around the world. It employs fresh, newly updated data from authoritative sources to rank 130 countries and territories according to nine drivers that can make a business in those regions vulnerable. This information can help you better:

- Select suppliers.
- Site facilities.
- Evaluate your established supply chains.
- Uncover customers who are vulnerable.

You can dive deeper into our new data at www.fmglobal.com/resilienceindex. This online, interactive version of the FM Global Resilience Index is the first data-driven tool and repository of its kind. To ensure the independence of the analysis, we have commissioned Oxford Metrica, a strategic advisory firm focused on risk and financial performance, to produce the FM Global Resilience Index.

We hope this information helps you learn more about potential vulnerabilities in the countries where you do business today, or might do business in the future. We also hope it triggers any preventive measures you require to ensure your company's prosperity over the long term.

For 180 years, we have been convinced that most loss is preventable, not inevitable. May your supply chain, and your entire enterprise, be resilient. When you're resilient, you're in business.

Jonathan W. Hall
Chief Operating Officer
FM Global

EXECUTIVE SUMMARY

The year 2015 brought political, economic and environmental turmoil across the world. Conflict in Syria continued, with approximately nine million Syrians now having fled the country since the outbreak of civil war in 2011. The dramatic fall in oil prices persists with no immediate end in sight, as Western sanctions on Iran are lifted. Natural disasters relating to earthquake, wind or flood, left death and destruction in their wake. For business executives, such events can disrupt their companies' global supply chains, making a focus on resilience vital.

The 2016 FM Global Resilience Index presents an annual ranking of 130 countries and territories according to their business resilience to supply chain disruption. The scores that generate the ranking are calculated as an equally weighted composite of nine core variables that affect resilience significantly and directly. The key results are summarised below.

KEY RESULTS

1. Switzerland is the new occupant of the top position in the index, reflecting the country's high scores for an extensive and efficient infrastructure, prime quality local suppliers, strong economic productivity and resilience to oil shock.
2. Venezuela retains its place at the bottom of the index, hampered by exposure to the twin natural hazards of wind and earthquake, little control of corruption, poor infrastructure and ill-perceived local supplier quality.
3. Armenia (ranked 52) and Malawi (ranked 84) are two of the biggest risers in the index this year, driven by an increased resilience to oil shock as their consumption of oil fell relative to economic productivity.
4. In contrast, among the biggest fallers in the index this year are Cameroon (ranked 103), Morocco (ranked 89), Colombia (ranked 119) and Kuwait (ranked 59), all of which now have a lower resilience to oil shock. For Cameroon and Morocco, the primary cause is an increase in oil consumption. For Colombia and Kuwait, however, oil consumption remained stable while lower oil prices fed through to a fall in gross domestic product (GDP). This fall in economic productivity, whilst maintaining the same level of oil consumption, results in greater vulnerability to an oil shock.
5. For the second consecutive year, Ukraine (ranked 125) appears in the list of top fallers, reflecting the continued deterioration of political stability in the country.
6. Both France (ranked 19) and the United Kingdom (ranked 20) retain their positions from last year, while Germany (ranked 4) improves very slightly by rising two places.

The results of the 2016 FM Global Resilience Index highlight areas of strength and vulnerability in the global supply chain, providing a useful resource for business executives seeking to manage resilience. Too often, the pursuit of lean supply chains as a cost reduction measure reduces decisions on the selection of suppliers and investment in facilities to an operational issue. This index seeks to inform decision-making by deepening the dialogue on the drivers of resilience and by underlining the strategic nature of supply chain risk management.

INTRODUCTION

Whether it be a heightened risk of terrorism, the prolonged decline in oil prices, an impending natural disaster or an abrupt corporate crisis, external risks to business operations are not trivial. Resilience against disruption in the global supply chain is a valuable asset, enhanced by an understanding of the drivers of resilience.

Potential and actual disruptions were plentiful in 2015. In December, government motions by first the United Kingdom (UK) to conduct air strikes, and then Germany to lend military support, were passed to join coalitions led by France, Russia and the United States (US) in military action against the so-called Islamic State in Iraq and the Levant (ISIL) in Syria. The votes took place in the aftermath of the tragic and coordinated terror attacks in Paris on 13 November 2015 that left 130 people dead and hundreds injured. The world in 2016 does not feel safer.

The plunge in oil prices has dominated economic headlines. In June 2014, the price of Brent crude was US$115 per barrel. In January 2015, the price had fallen by more than half, to US$49 per barrel and, in January 2016, Brent crude was trading at lower than US$30 per barrel. The notable fall in oil prices is driven primarily by the twin effects of increased domestic production in the US by extracting oil from shale formations using fracking procedures, and the decision by the Organisation of the Petroleum Exporting Countries (OPEC) not to adjust output accordingly to maintain prices. The sudden and sustained drop in prices reminds business executives of the potential for dramatic pricing shocks across commodities.

The deadliest earthquake to strike Nepal killed 8,778 people in April 2015. Other natural disasters around the world included heavy rains and devastating floods in Chile, Colombia, Peru, Angola and Malawi; drought in Pakistan and avalanches caused by heavy winter snow in Afghanistan. The US suffered disasters at both ends of the flood-drought spectrum and South Australia suffered its worst wildfire since 1983.

Corporate scandals affecting the global supply chain in 2015 spanned the world and included the US$2 billion overstatement of profits by Japanese conglomerate Toshiba; corruption at Brazil's state-run oil company Petrobras; the emissions deceit by German auto company Volkswagen, and the contamination crisis at US-based Chipotle restaurants. In the port city of Tianjin in northern China, over 170 people died in a series of massive explosions from a chemical warehouse storing hazardous materials. The disaster brings into painful focus the risks of inadequate safety practices. Beyond the tragedy, approximately 8,000 newly-assembled cars awaiting shipment were destroyed in the explosion, affecting the delivery schedules of Hyundai, Kia, Renault, Toyota and Volkswagen.

The 2016 FM Global Resilience Index defines resilience as a combination of the vulnerability of a country to supply chain disruption and the country's ability to recover from such disruption. The index identifies nine key drivers of resilience including, for example, political risk, the quality of infrastructure, exposure to natural hazard and commitment to risk management. These drivers are aggregated into three broad factors – economic, risk quality and supply chain – which, in turn, combine to form the index. The index provides ranked scores for 130 countries and territories around the world.

This year sees four countries replaced in the index due to the absence of data. Barbados, Brunei Darussalam, Burkina Faso and Timor-Leste drop out of the index, and are replaced by four countries for which data are now available: Iran, Lebanon, Myanmar and Tunisia.

LEADERS AND LAGGARDS

Presented in Tables 1 and 2 are the countries and territories that ranked highest and lowest with respect to their business resilience to supply chain disruption; the top and bottom ten in the index.

Switzerland and Norway retain the top two places in the index from last year but, this year, it is Switzerland that ranks first. Both countries offer a world-class resilient environment for business executives seeking to source product or locate facilities. Switzerland ranks top for the supply chain factor, including ranking first for an extensive and efficient infrastructure, and second for the perceived quality of its local suppliers. Switzerland ranks second in the world for the economic factor, including ranking second for both its economic productivity - captured by gross domestic product (GDP) per capita - and its oil intensity. Oil intensity captures a country's vulnerability to an oil shock, such as a sudden shortage, disruption or price hike, and is defined as oil consumption divided by GDP. Norway, ranked 2 in the index, achieves particularly high scores for its control of corruption, where the country ranks third, and for its economic productivity, where the country ranks fourth.

TABLE 1. The Top 10 in 2016

	COMPOSITE		FACTORS					
			ECONOMIC		RISK QUALITY		SUPPLY CHAIN	
COUNTRY/REGION	RANK	SCORE	RANK	SCORE	RANK	SCORE	RANK	SCORE
SWITZERLAND	1	100.0	2	94.9	73	57.2	1	100.0
NORWAY	2	99.6	3	89.6	10	80.3	12	82.4
IRELAND	3	98.4	7	77.2	1	100.0	25	73.8
GERMANY	4	94.6	16	72.1	13	78.4	4	91.2
LUXEMBOURG	5	94.5	1	100.0	79	54.5	11	84.4
NETHERLANDS	6	94.3	20	68.9	9	80.5	3	92.0
UNITED STATES 3	7	94.2	13	72.2	3	88.4	17	80.5
CANADA	8	92.7	19	69.0	2	88.7	21	80.2
AUSTRALIA	9	90.9	10	76.5	8	81.0	23	75.6
DENMARK	10	90.8	5	77.8	70	64.0	6	90.3

Last year's new entrants to the top 10, Qatar and Finland (ranked 7 and 9, respectively) drop down this year to ranks 14 and 13, respectively. Replacing them in this year's top 10 are Australia (ranked 9) and Denmark (ranked 10). Australia returns to the top 10 after a year's absence, and scores in the top 10 countries in the world with respect to both the economic and risk quality factors. In a similar profile to Norway, Australia scores well as regards to both its economic productivity (ranked 9) and in its control of corruption (ranked 10). Denmark's particular strengths lie in its control of corruption, where the country ranks second in the world, in its resistance to oil shock (ranked 6), the quality of its local suppliers (ranked 7) and its economic productivity (ranked 10).

Both the US and China are subdivided into three distinct regions. This is to reflect the geographic spread of each country as each is exposed to a wide range of natural hazards. US Region 3 (ranked 7) is the central region of the US that is subject to a variety of natural hazards, but with less exposure than states in the east or west of the country. US Region 1 (ranked 11) is the eastern region of the US whose dominant natural hazard is wind exposure, while US Region 2 (ranked 21) is the western region exposed primarily to earthquake risk. Consideration of these relative exposures is directly relevant to business executives as they manage the risk of disruption across their supply chains.

TABLE 2. The Bottom 10 in 2016

	COMPOSITE		FACTORS					
			ECONOMIC		RISK QUALITY		SUPPLY CHAIN	
COUNTRY/REGION	RANK	SCORE	RANK	SCORE	RANK	SCORE	RANK	SCORE
HONDURAS	121	32.5	112	27.9	117	37.9	78	34.3
JAMAICA	122	31.1	119	23.8	117	37.9	74	35.3
ALGERIA	123	30.9	118	24.1	75	56.2	116	16.8
EGYPT	124	29.0	125	16.4	75	56.2	107	20.6
UKRAINE	125	28.5	127	10.9	79	54.5	95	27.1
MAURITANIA	126	27.9	116	24.5	36	66.1	130	0.0
NICARAGUA	127	26.1	104	32.5	117	37.9	120	14.5
KYRGYZ REPUBLIC	128	22.2	128	7.5	97	52.5	110	18.1
DOMINICAN REPUBLIC	129	20.4	62	42.4	130	0.0	94	27.6
VENEZUELA	130	0.0	130	0.0	127	24.1	128	2.3

A major hurdle facing many countries in the bottom 10 is simply geophysical location. Countries in the Caribbean and Central America are exposed heavily to the twin natural hazards of wind and earthquake. More specifically, the following countries in the index rank poorly with respect to their exposure to natural hazards: Dominican Republic (ranked 126), Honduras, Jamaica and Nicaragua (ranked 117 equal), and Venezuela (ranked 116). Potentially exacerbating the impact of natural hazards is the suboptimal quality of natural hazard risk management. With respect to this driver of resilience, the Dominican Republic ranks 130, Venezuela ranks 124, and Honduras, Jamaica and Nicaragua rank 114 equal. It is in these risk management controls and techniques where significant scope for improvement lies and where investment would generate most benefit. Such investment would be attractive to businesses looking for resilient locations suitable for new facilities.

Venezuela, retaining its bottom ranking from last year, additionally suffers from extensive corruption, perceived low quality in local suppliers and poor infrastructure. Mauritania (ranked 126) and the Kyrgyz Republic (ranked 128) are among the poorer nations in the index, with Mauritania hindered also by low-quality local suppliers and infrastructure, while the Kyrgyz Republic is hampered by corruption.

The appearance of Ukraine (ranked 125), Egypt (ranked 124) and Algeria (ranked 123) in the bottom 10 this year is driven primarily by heightened political risk in these countries. Egypt and Algeria have dropped slightly since last year: two and seven places, respectively. Ukraine, however, already one of the biggest fallers last year, is again one of the biggest fallers this year, dropping a further 18 places. On the political risk dimension alone, Ukraine dropped from 106 last year to 128 this year, as the integrity of the country continues to be threatened by a high degree of tension from both within the country and with Russia. The other big movers in this year's index are highlighted in the next section.

THE BIGGEST MOVERS 2016

The top risers in the 2016 index are presented in Table 3. These countries have jumped more than ten places since last year.

TABLE 3. Top Risers 2016

	COMPOSITE		FACTORS					
			ECONOMIC		RISK QUALITY		SUPPLY CHAIN	
COUNTRY/REGION	RANK	CHANGE	RANK	CHANGE	RANK	CHANGE	RANK	CHANGE
ARMENIA	52	31	57	67	24	-9	77	-3
KAZAKHSTAN	71	31	50	9	97	14	85	7
BANGLADESH	85	30	75	30	60	16	112	7
MONGOLIA	87	30	52	20	97	14	104	5
CAMBODIA	92	28	76	38	60	16	122	1
MALAWI	84	27	54	65	36	1	123	-9
NEPAL	94	20	85	15	60	16	119	3
TAJIKISTAN	101	20	102	11	97	14	91	8
SRI LANKA	41	19	72	19	60	16	40	5
CÔTE D'IVOIRE	58	13	91	-6	36	1	61	27
VIETNAM	83	13	99	-7	60	16	100	3

The rise up the index for both Armenia (ranked 52) and Malawi (ranked 84) has been driven by an increased resilience to oil shock. Given that GDP has been largely stable for the two countries, the shift has been due to a fall in the consumption of oil, making the countries less exposed to the dynamics of the oil market.

The following group of countries has benefited from an improved commitment to fire risk management: Bangladesh (ranked 85), Cambodia (ranked 92), Nepal (ranked 94), Sri Lanka (ranked 41) and Vietnam (ranked 83). In contrast, the improvement in the rankings for Kazakhstan (ranked 71), Mongolia (ranked 87) and Tajikistan (ranked 101) has been driven by an improved commitment to natural hazard risk management and, to a lesser extent, an improvement also in the relative exposure to natural hazards.

The biggest fallers for 2016 are presented in Table 4.

TABLE 4. Top Fallers 2016

	COMPOSITE		FACTORS					
			ECONOMIC		RISK QUALITY		SUPPLY CHAIN	
COUNTRY/REGION	RANK	CHANGE	RANK	CHANGE	RANK	CHANGE	RANK	CHANGE
GUYANA	113	-32	115	-19	101	-34	87	-11
PERU	99	-26	77	-8	101	-34	93	-13
UKRAINE	125	-18	127	-11	79	5	95	-2
CAMEROON	103	-14	106	-33	36	1	115	3
EL SALVADOR	105	-13	82	0	117	-1	71	-11
MOROCCO	89	-13	114	-12	75	-2	66	-4
BOLIVIA	115	-12	105	-4	101	-34	106	-2
TAIWAN	49	-12	37	4	126	-23	26	0
MALI	95	-11	107	-4	36	1	105	-9
COLOMBIA	119	-9	100	-11	125	0	79	-6
KUWAIT	59	-9	93	-38	24	-9	75	4

Guyana (ranked 113), Peru (ranked 99), Bolivia (ranked 115) and Taiwan (ranked 49) all dropped back this year, following their significant improvement in commitment to natural hazard risk management shown last year. The following countries all suffered particularly on the economic dimension this year: Cameroon (ranked 103), Morocco (ranked 89), Colombia (ranked 119) and Kuwait (ranked 59). The fall in each case was due primarily to a deterioration in the country's ability to withstand an oil shock. For Cameroon and Morocco, especially the latter, it was an increase in oil consumption that drove the shift, rather than a fall in GDP. For oil-producing nations, Colombia and Kuwait, however, oil consumption remained stable while lower oil prices fed through to a fall in GDP. This fall in economic productivity whilst maintaining the same level of oil consumption, results in greater vulnerability to an oil shock. Finally, El Salvador (ranked 105) and Mali (ranked 95) owe their fall in the rankings this year to a weakening in the supply chain factor: in particular, poorer quality infrastructure and, especially in the case of Mali, a worsening perception in the quality of its local suppliers. For business executives managing the risk of delays in their wider supply chains across customers and suppliers, these results may warrant pause for thought.

When interpreting moves in the index, care should be taken to remember that the positions of countries are relative to each other. Therefore, a change in position does not necessarily imply a difference in absolute level of resilience but, rather, a shift relative to the position of other competing countries.

CONCLUSION

To manage successfully a global supply chain can be an immense logistical challenge. And that's when nothing goes wrong. In reality, the risks of sudden and unexpected stoppage, turmoil and delay are many. Business executives facing such challenges need to maximise the resilience in their supply chains. That means both strengthening their business resilience to disruption occurring and accelerating the road to recovery from disruption when it does occur.

The FM Global Resilience Index is an additional resource offered to business executives to support them in their quest for supply chain resilience. The index provides strategic insight in four key areas of supply chain risk management:

1. Selection of suppliers based on the supply chain risk/resilience of the countries in which they are located,
2. Decisions on where to locate facilities,
3. Evaluation of the resilience of the countries hosting existing facilities, and
4. Assessment of the resilience of the countries where customers' facilities are based.

In summary, the index provides a robust, composite view of business resilience to supply chain disruption around the world. Independently constructed and annually updated, the index facilitates deeper analysis of the key drivers of resilience, helping to inform decision-making and bring a fresh perspective to supply chain strategy.

THE 2016 FM GLOBAL RESILIENCE INDEX

Presented next is the 2016 FM Global Resilience Index. Complete rankings are provided for the overall composite index and for each of its component factors: economic, risk quality and supply chain. Adjacent to each rank is presented a score, bounded on a scale of 0 to 100. A score of 100 does not imply a perfect score but, rather, that the territory ranks highest in that particular dimension. The scores, therefore, are a relative measure of resilience across countries, rather than an absolute measure.

The index is produced for 130 countries and territories: 126 countries and three regions each for China and the US. China and the US are sub-divided into regions because their geographical spread encompasses such disparate exposures to natural hazards: wind, flood and earthquake. Regions in the US are based on states, and regions in China are based on provinces, municipalities and autonomous regions. The composition of each region is provided in Appendix 5.

THE FM GLOBAL RESILIENCE INDEX 2016

	COMPOSITE		FACTORS					
			ECONOMIC		RISK QUALITY		SUPPLY CHAIN	
COUNTRY/REGION	RANK	SCORE	RANK	SCORE	RANK	SCORE	RANK	SCORE
SWITZERLAND	1	100.0	2	94.9	73	57.2	1	100.0
NORWAY	2	99.6	3	89.6	10	80.3	12	82.4
IRELAND	3	98.4	7	77.2	1	100.0	25	73.8
GERMANY	4	94.6	16	72.1	13	78.4	4	91.2
LUXEMBOURG	5	94.5	1	100.0	79	54.5	11	84.4
NETHERLANDS	6	94.3	20	68.9	9	80.5	3	92.0
UNITED STATES 3	7	94.2	13	72.2	3	88.4	17	80.5
CANADA	8	92.7	19	69.0	2	88.7	21	80.2
AUSTRALIA	9	90.9	10	76.5	8	81.0	23	75.6
DENMARK	10	90.8	5	77.8	70	64.0	6	90.3
UNITED STATES 1	11	90.6	13	72.2	11	80.0	17	80.5
HONG KONG SAR	12	90.4	17	70.7	22	72.1	8	89.3
FINLAND	13	90.3	11	74.8	58	65.6	5	90.8
QATAR	14	90.1	4	84.4	24	71.6	24	74.6
NEW ZEALAND	15	89.9	12	74.1	17	75.1	15	81.6
SWEDEN	16	88.8	6	77.5	71	64.0	10	86.2
BELGIUM	17	88.7	23	64.5	5	81.8	13	82.4
AUSTRIA	18	87.2	9	76.7	72	57.9	7	89.3
FRANCE	19	86.2	22	65.0	14	77.4	20	80.4
UNITED KINGDOM	20	85.6	18	69.9	23	72.1	22	79.0
UNITED STATES 2	21	84.6	13	72.2	59	65.6	17	80.5
ICELAND	22	82.5	8	77.0	79	54.5	16	81.1
SINGAPORE	23	81.1	40	51.9	21	72.2	9	87.7
PORTUGAL	24	79.4	31	57.3	7	81.3	28	69.1
SPAIN	25	77.2	30	57.6	15	77.3	30	67.5
MALAYSIA	26	73.2	64	41.7	4	83.4	27	69.6
CZECH REPUBLIC	27	73.2	26	59.4	20	72.3	33	61.3
POLAND	28	72.0	32	56.8	6	81.3	41	52.5
ISRAEL	29	69.7	44	50.3	12	78.5	38	56.9
ESTONIA	30	66.9	33	55.0	79	54.5	29	68.7
UNITED ARAB EMIRATES	31	66.7	29	57.8	124	37.0	14	82.3
SLOVENIA	32	65.0	27	58.7	79	54.5	35	60.3
JAPAN	33	63.5	21	66.7	129	6.5	2	95.0

COUNTRY/REGION	COMPOSITE		FACTORS					
			ECONOMIC		RISK QUALITY		SUPPLY CHAIN	
	RANK	SCORE	RANK	SCORE	RANK	SCORE	RANK	SCORE
LITHUANIA	34	63.3	34	54.7	79	54.5	34	60.7
BAHRAIN	35	61.7	74	39.3	24	71.6	37	57.0
LATVIA	36	60.3	39	52.9	79	54.5	39	55.7
MAURITIUS	37	59.7	53	46.0	36	66.1	44	50.5
COSTA RICA	38	59.7	35	54.4	68	65.0	56	42.6
CHILE	39	58.5	42	51.2	109	45.7	32	62.0
OMAN	40	58.4	66	41.7	24	71.6	51	46.9
SRI LANKA	41	57.7	72	39.8	60	65.6	40	53.0
SOUTH AFRICA	42	57.6	81	37.8	19	73.1	50	47.6
CYPRUS	43	57.6	55	45.3	79	54.5	36	57.4
NAMIBIA	44	57.6	51	46.3	36	66.1	55	45.1
SLOVAK REPUBLIC	45	57.5	25	61.4	111	43.6	43	50.8
URUGUAY	46	56.9	28	58.7	101	49.6	52	46.4
ITALY	47	56.9	24	63.4	115	39.2	42	51.4
BOTSWANA	48	56.6	38	53.1	36	66.1	73	35.7
TAIWAN	49	56.2	37	53.6	126	27.8	26	71.5
CROATIA	50	55.9	45	50.0	79	54.5	47	48.7
HUNGARY	51	55.6	36	53.9	107	49.4	48	48.7
ARMENIA	52	54.3	57	44.5	24	71.6	77	34.4
GEORGIA	53	54.1	79	38.6	24	71.6	64	40.0
AZERBAIJAN	54	51.6	86	37.1	24	71.6	72	36.0
SAUDI ARABIA	55	50.7	123	20.1	18	73.7	46	50.0
LESOTHO	56	50.5	61	43.0	36	66.1	83	32.3
CHINA 3	57	50.5	58	43.1	74	57.1	58	41.0
CÔTE D'IVOIRE	58	50.5	91	35.5	36	66.1	61	40.3
KUWAIT	59	50.3	93	35.0	24	71.6	75	35.3
ZAMBIA	60	49.9	46	48.4	36	66.1	99	25.2
MALTA	61	49.5	95	34.9	79	54.5	45	50.1
BRAZIL	62	49.4	63	41.7	34	71.0	96	26.5
CHINA 1	63	49.3	58	43.1	95	54.3	58	41.0
MACEDONIA, FYR	64	49.1	67	41.0	79	54.5	57	42.5
MEXICO	65	48.7	97	34.6	69	64.3	65	38.9

	COMPOSITE		FACTORS					
			ECONOMIC		RISK QUALITY		SUPPLY CHAIN	
COUNTRY/REGION	RANK	SCORE	RANK	SCORE	RANK	SCORE	RANK	SCORE
CHINA 2	66	48.6	58	43.1	96	52.6	58	41.0
GREECE	67	48.4	47	47.4	108	48.4	63	40.1
JORDAN	68	47.9	121	20.4	24	71.6	54	45.3
ARGENTINA	69	46.5	49	47.2	67	65.4	109	19.5
SENEGAL	70	46.3	110	29.0	36	66.1	67	37.6
KAZAKHSTAN	71	46.0	50	46.5	97	52.5	85	31.5
BULGARIA	72	45.9	71	40.0	79	54.5	70	36.2
MONTENEGRO	73	45.7	56	44.5	79	54.5	86	31.1
KOREA, REP.	74	45.7	41	51.3	128	10.9	31	66.0
RUSSIAN FEDERATION	75	45.1	117	24.2	16	75.6	89	30.7
KENYA	76	44.6	109	29.1	36	66.1	81	33.6
TRINIDAD AND TOBAGO	77	44.1	43	50.4	117	37.9	68	37.0
THAILAND	78	43.8	124	19.8	35	71.0	69	36.9
TURKEY	79	43.7	87	37.1	113	39.8	49	48.5
TANZANIA	80	43.2	69	40.6	36	66.1	111	18.0
GHANA	81	43.1	94	35.0	36	66.1	102	23.9
ALBANIA	82	43.0	68	40.7	79	54.5	92	28.6
VIETNAM	83	42.6	99	33.5	60	65.6	100	24.8
MALAWI	84	42.5	54	45.4	36	66.1	123	11.4
BANGLADESH	85	42.2	75	39.2	60	65.6	112	17.7
ROMANIA	86	41.7	48	47.4	116	39.2	82	33.4
MONGOLIA	87	41.6	52	46.3	97	52.5	104	21.4
SERBIA	88	41.0	73	39.7	79	54.5	98	25.3
MOROCCO	89	41.0	114	26.2	75	56.2	66	37.9
UGANDA	90	40.6	90	35.7	36	66.1	113	17.4
PANAMA	91	40.6	96	34.8	117	37.9	53	45.4
CAMBODIA	92	40.4	76	39.0	60	65.6	122	13.9
ETHIOPIA	93	40.4	103	33.2	36	66.1	108	19.5
NEPAL	94	40.2	85	37.5	60	65.6	119	15.0
MALI	95	40.1	107	31.4	36	66.1	105	20.8
ECUADOR	96	39.9	101	33.5	101	49.6	80	34.0
GUATEMALA	97	39.8	80	38.2	117	37.9	62	40.2
MOZAMBIQUE	98	39.7	70	40.4	36	66.1	124	10.2
PERU	99	39.7	77	38.7	101	49.6	93	27.9

	COMPOSITE		FACTORS					
			ECONOMIC		RISK QUALITY		SUPPLY CHAIN	
COUNTRY/REGION	RANK	SCORE	RANK	SCORE	RANK	SCORE	RANK	SCORE
MADAGASCAR	100	39.4	88	36.3	36	66.1	121	14.0
TAJIKISTAN	101	39.3	102	33.4	97	52.5	91	30.0
TUNISIA	102	39.0	111	28.5	75	56.2	88	30.9
CAMEROON	103	38.9	106	32.2	36	66.1	115	17.2
BOSNIA AND HERZEGOVINA	104	38.6	92	35.2	79	54.5	101	24.4
EL SALVADOR	105	37.8	82	37.7	117	37.9	71	36.0
ZIMBABWE	106	37.8	83	37.6	36	66.1	126	8.7
INDIA	107	36.8	108	29.4	110	45.6	76	34.9
MYANMAR	108	35.9	78	38.6	60	65.6	127	3.9
PHILIPPINES	109	35.9	84	37.5	114	39.5	90	30.2
PARAGUAY	110	35.6	65	41.7	101	49.6	117	15.4
INDONESIA	111	35.4	98	33.6	112	40.6	84	32.3
LEBANON	112	35.3	120	21.2	24	71.6	118	15.3
GUYANA	113	34.6	115	24.7	101	49.6	87	31.0
CHAD	114	33.8	89	35.8	36	66.1	129	1.5
BOLIVIA	115	33.6	105	32.3	101	49.6	106	20.8
NIGERIA	116	33.6	113	27.5	36	66.1	125	9.9
PAKISTAN	117	33.5	126	15.4	60	65.6	103	23.0
BENIN	118	33.4	122	20.2	36	66.1	114	17.2
COLOMBIA	119	33.3	100	33.5	125	33.8	79	34.1
IRAN, ISLAMIC REPUBLIC	120	33.1	129	6.8	24	71.6	97	25.6
HONDURAS	121	32.5	112	27.9	117	37.9	78	34.3
JAMAICA	122	31.1	119	23.8	117	37.9	74	35.3
ALGERIA	123	30.9	118	24.1	75	56.2	116	16.8
EGYPT	124	29.0	125	16.4	75	56.2	107	20.6
UKRAINE	125	28.5	127	10.9	79	54.5	95	27.1
MAURITANIA	126	27.9	116	24.5	36	66.1	130	0.0
NICARAGUA	127	26.1	104	32.5	117	37.9	120	14.5
KYRGYZ REPUBLIC	128	22.2	128	7.5	97	52.5	110	18.1
DOMINICAN REPUBLIC	129	20.4	62	42.4	130	0.0	94	27.6
VENEZUELA	130	0.0	130	0.0	127	24.1	128	2.3

APPENDIX 1

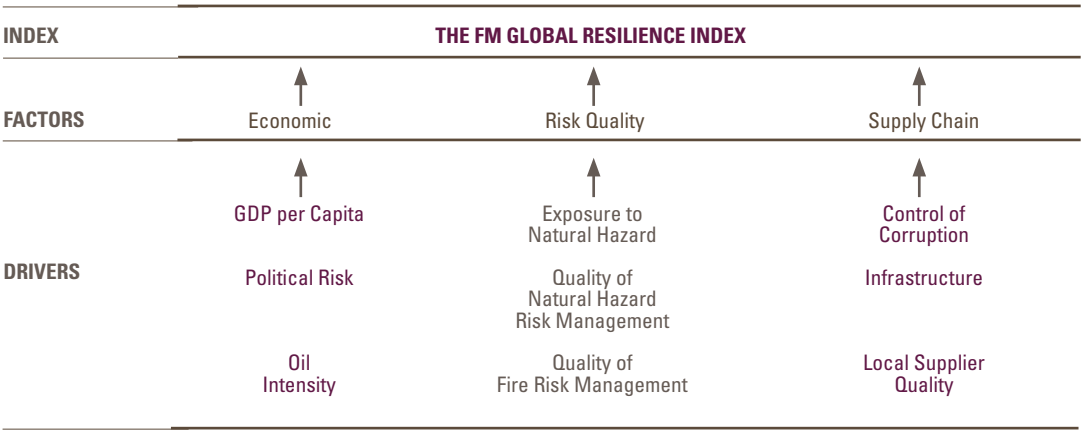
THE INDEX FRAMEWORK

Provided in this Appendix is an overview of the framework and construction of the FM Global Resilience Index. A more detailed description of the construction methodology is available in Appendix 3. Figure 1 provides the framework for the index. There are three levels to the index:

1. Level I of the index provides a country ranking of business resilience to supply chain disruption. Level I is an equally-weighted composite measure of the three factors in Level II.
2. Level II comprises three factors, the core elements of resilience: economic, risk quality and supply chain. Each factor in Level II is an equally-weighted composite of its respective drivers in Level III.
3. Level III includes a set of nine drivers that determine the business resilience to supply chain disruption for a country. Each driver measures a different aspect of resilience.

Many simulations were carried out to determine the most appropriate weighting scheme. There emerged very little difference in ultimate rankings from the adoption of very different weighting structures so, rather than impose a subjective system of aggregation without very good reason to do so, it is right to remain with equal weights across the nine core drivers of resilience.

Figure 1. The index framework



The overall composite index is, by design, a simplified, summary measure of resilience. The FM Global Resilience Index provides an indication of relative business resilience to supply chain disruption across countries. In combination with additional information, this provides executives with a source of guidance on supply chain risk when making decisions over the destination of physical investments.

The structure of the index enables business executives to identify the sources of strength and vulnerability in a country's supply chain risk, both broadly across factors (economic, risk quality or supply chain), and more precisely across the nine drivers. Such analysis offers opportunities to managers seeking to improve their company's supply chain risk profile.

Defined in Appendix 2 are the nine core drivers of resilience that underpin the index and the rationale for their selection.

APPENDIX 2

THE DRIVERS OF RESILIENCE

Supply chain risk is a complex exposure, subject to many different influences. The process of identifying for an index a set of core drivers with significant impact on resilience to supply chain disruption is partly heuristic, partly statistical and partly practical.

Research into the causes of supply chain disruption highlights common triggers of disruption to global supply chains[1]. Conflict and political unrest, terrorism, corruption, vulnerability to oil shortages and price shocks, natural disasters, extreme weather, maturity in risk management capabilities, investment in risk management, infrastructure, and the quality of local suppliers all appear regularly.

To meet statistical criteria, the drivers of the index must: demonstrably have an impact on resilience; represent faithfully the intended property; have sufficient sensitivity to detect changes in resilience, but not so much volatility as to disrupt the index; exhibit minimal correlation across drivers; and be consistently calculated (over a period of time to allow back-testing).

Practical considerations require that the data are available, quantitative (or quantifiable), global, annual and from credible sources.

From an initial test-bed of 38 variables, nine core drivers of resilience have been selected for inclusion in the FM Global Resilience Index. These drivers are categorised as pertaining to economic, risk quality or supply chain factors, and are detailed below.

1. ECONOMIC – This factor represents political and macroeconomic influences on resilience. Combining to form the factor, economic, are three drivers: productivity (GDP per capita), political risk and oil intensity. Terrorism was found to be highly correlated with political instability, so these variables are combined into a single driver: political risk. Oil intensity captures the vulnerability a country has to an oil shock – oil shortage, disruption or sudden price hike – measured as oil consumption divided by GDP.
2. RISK QUALITY – A unique attribute of the index is its ability to draw upon the wealth of data gathered over many years by FM Global's team of property risk engineers who visit and assess over 100,000 locations annually across the world. The data, which resides in FM Global's proprietary Risk*Mark*® database, has the advantage of being applied consistently across all industry sectors and regions. The factor, risk quality, comprises three drivers drawn from the Risk*Mark* database: exposure to natural hazard, quality of natural hazard risk management and quality of fire risk management.
3. SUPPLY CHAIN – This factor relates to the supply chain itself and comprises three drivers: control of corruption, infrastructure and the quality of local suppliers.

Comprehensive technical definitions and data sources are provided in Appendix 4.

Data for the nine drivers of resilience have been collected for 130 countries and territories. The nine drivers are assigned equal weights and combine to form the composite index.

[1] For example:
Building Resilience in Supply Chains, World Economic Forum, 2013

Supply Chain and Risk Management, MIT Forum for Supply Chain Innovation, 2013

New Models for Addressing Supply Chain and Transport Risk, World Economic Forum, 2012

Measures of Oil Import Dependence by James M. Kendell, Energy Information Administration, 1998.

APPENDIX 3

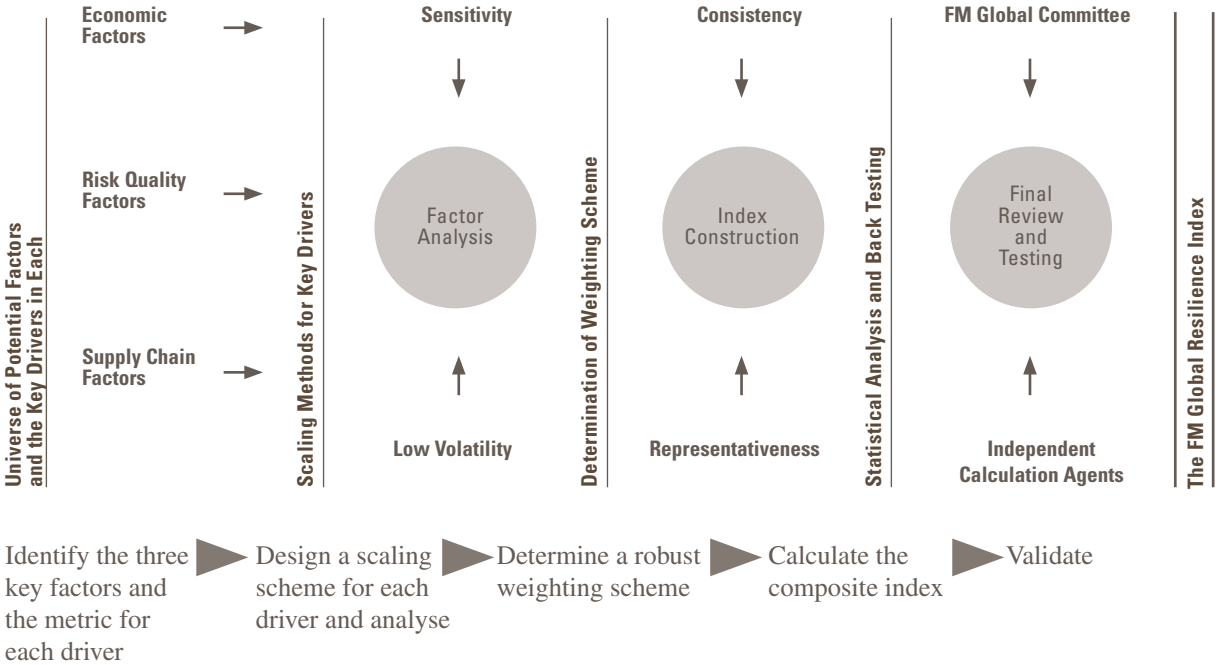
INDEX CONSTRUCTION METHODOLOGY

There are five steps in the process of index construction:

1. Define the property of interest (resilience to supply chain disruption).
2. Identify the factors (economic, risk quality and supply chain) and drivers.
3. Measure and analyse the drivers within each factor.
4. Develop the scheme of aggregation in the construction of the index.
5. Validate the index by back-testing over several years.

This process of index construction is presented diagrammatically in Figure 2.

Figure 2. The index construction process



Described below are the key procedures applied to the data defined in the previous section, prior to their combination into the FM Global Resilience Index.

1. Annual data, for the most recent five years, were collected for the maximum number of territories for each of the nine drivers.
2. A common set of territories with complete data availability across the nine drivers was identified and aligned into a consistent data set.
3. Correlation coefficients were calculated across all drivers to assess for significance in correlation: parametric (Pearson) and non-parametric (Spearman).
4. Each data series was standardised through the calculation of z-scores to enable comparison and combination of drivers with different units. Where necessary, z-scores were inverted for consistency across variables.

5. The z-scores were converted into scores on a scale of 0-100 for presentation purposes.
6. The scores of the nine drivers then were combined with equal weightings to form the index.
7. The index comprises the rankings for the top 130 countries and territories for which data were available. Three regions are provided for each of China and the US because their geographical spread includes such disparate exposures to natural hazards: wind, flood and earthquake.

Based on data availability, new entrants to the index, and exits from the index, may emerge. In order to maintain consistency in the interpretation of results, the index is restricted to the top 130 countries and territories in any given year.

APPENDIX 4

DATA DEFINITIONS AND SOURCES

TABLE 5. Data definitions

ECONOMIC	DEFINITION
GDP PER CAPITA	Gross domestic product in national currency converted to US dollars using market exchange rates (yearly average), divided by total population
POLITICAL RISK	Reflects perceptions of the likelihood that the government will be destabilised or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism
OIL INTENSITY	Vulnerability to an oil shock (shortage, disruption, price hike); oil consumption divided by GDP
RISK QUALITY	
EXPOSURE TO NATURAL HAZARD	The percentage of locations in the country that are exposed to at least one natural hazard: earthquake, wind or flood
QUALITY OF NATURAL HAZARD RISK MANAGEMENT	The level of natural hazard risk improvement achieved given the inherent natural hazard risks in a country
QUALITY OF FIRE RISK MANAGEMENT	The level of fire risk improvement achieved given the inherent fire risks in a country
SUPPLY CHAIN	
CONTROL OF CORRUPTION	Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as capture of the state by elites and private interests
INFRASTRUCTURE	Reflects perceptions of general infrastructure: transport, telephony and energy
LOCAL SUPPLIER QUALITY	Reflects perceptions of the quality of local suppliers

The data for the three drivers of risk quality are provided by FM Global, one of the world's largest commercial and industrial property insurers. Further detail on their compilation is provided below.

1. EXPOSURE TO NATURAL HAZARD - FM Global property risk engineers determine whether any natural hazard exposures are present at the locations they visit. The determination is based on wind, flood and earthquake maps that are available as well as other information acquired by the engineer. The percentage of locations that are exposed to wind, flood or earthquake are summarised for each country (or group of countries). The United States of America and China are each divided into three regions to accommodate for a significantly different dominant natural hazard exposure within these countries. Regions in the US are based on states, and regions in China are based on provinces, municipalities and autonomous regions. The composition of each region is provided in Appendix 5.

2. QUALITY OF NATURAL HAZARD RISK MANAGEMENT - Risk*Mark* is a benchmarking algorithm that calculates the risk quality of FM Global's insured locations. It uses a 100-point scale (100 representing the best managed, highest quality risk), and the scale consists of the following four components:
    a. Fire Hazards & Equipment Hazards: 36 points
    b. Natural Hazards: 30 points
    c. Human Element & Other Factors: 19 points
    d. Inherent Occupancy Hazards: 15 points

    The Risk*Mark* score of a location includes a measure of both inherent risks and risks where there are recommendations for improvement. The potential Risk*Mark* score represents the highest possible score achievable by that location, given those inherent risks. The percentage potential Risk*Mark* score provides a way to measure risk improvement opportunities given the inherent risks. It is calculated by dividing the Risk*Mark* score by the potential Risk*Mark* score. For the driver, quality of natural hazard risk management, the weighted average (by total insured value) percentage potential Risk*Mark* score for the natural hazard component is provided for each country or region (or group of countries). For each year, Risk*Mark* scores as of July of that year are used.

3. QUALITY OF FIRE RISK MANAGEMENT - The weighted average (by total insured value) percentage potential Risk*Mark* score for the fire subcomponent of the fire and equipment hazards component is provided for each country or region (or group of countries). For each year, Risk*Mark* scores as of July of that year are used.

Data on political risk (or, more fully, political stability and absence of violence or terrorism) and control of corruption are obtained from the Worldwide Governance Indicators (WGI) data set from the World Bank. The WGI comprise information from 31 existing data sources that report the views and experiences of citizens, entrepreneurs, and experts in the public, private and non-governmental organisation (NGO) sectors from around the world, on the quality of various aspects of governance.

Data on infrastructure and local supplier quality are obtained from the Global Competitiveness Report produced annually by the World Economic Forum (WEF). The data is based on the WEF's annual Executive Opinion Survey which garnered over 14,000 responses in its latest edition (2015 - 2016).

Table 6 captures the sources of the nine drivers which underpin the index, the units in which they are provided and the respective months in which the data become available.

TABLE 6. Data sources

ECONOMIC	UNIT	SOURCE	DATE
GDP PER CAPITA	USD	IMF	OCTOBER
POLITICAL RISK	SCALE	WORLD BANK	SEPTEMBER
OIL INTENSITY	BPD	US EIA	APRIL
RISK QUALITY			
EXPOSURE TO NATURAL HAZARD	%	FM GLOBAL	SEPTEMBER
QUALITY OF NATURAL HAZARD RISK MANAGEMENT	%	FM GLOBAL	SEPTEMBER
QUALITY OF FIRE RISK MANAGEMENT	%	FM GLOBAL	SEPTEMBER
SUPPLY CHAIN			
CONTROL OF CORRUPTION	SCALE	WORLD BANK	SEPTEMBER
INFRASTRUCTURE	SCALE	WEF	OCTOBER
LOCAL SUPPLIER QUALITY	SCALE	WEF	OCTOBER

APPENDIX 5 COUNTRY REGIONS BY DOMINANT NATURAL HAZARD

CHINA REGION 1 Wind	**CHINA REGION 2 Earthquake**	**CHINA REGION 3 Miscellaneous***	**US REGION 1 Wind**	**US REGION 2 Earthquake**	**US REGION 3 Miscellaneous***
FUJIAN	HEBEI	ANHUI	ALABAMA	ALASKA	ARIZONA
GUANGDONG	JIANGSU	BEIJING	CONNECTICUT	CALIFORNIA	ARKANSAS
HAINAN	NEIMENGGU	CHONGQING	DELAWARE	HAWAII	COLORADO
JILIN	NINGXIA	GANSU	FLORIDA	NEVADA	DISTRICT OF COLUMBIA
LIAONING	SICHUAN	GUANGXI	GEORGIA	OREGON	IDAHO
SHANDONG	TIANJIN	GUIZHOU	LOUISIANA	PUERTO RICO	ILLINOIS
SHANGHAI	YUNNAN	HEILONGJIANG	MAINE	UTAH	INDIANA
ZHEJIANG		HENAN	MARYLAND	WASHINGTON	IOWA
		HUBEI	MASSACHUSETTS		KANSAS
		HUNAN	MISSISSIPPI		KENTUCKY
		JIANGXI	NEW HAMPSHIRE		MICHIGAN
		QINGHAI	NEW JERSEY		MINNESOTA
		SHAANXI (SHANXI)	NEW YORK		MISSOURI
		XINJIANG	NORTH CAROLINA		MONTANA
			RHODE ISLAND		NEBRASKA
			SOUTH CAROLINA		NEW MEXICO
			TEXAS		NORTH DAKOTA
			VIRGIN ISLANDS		OHIO
			VIRGINIA		OKLAHOMA
					PENNSYLVANIA
					SOUTH DAKOTA
					TENNESSEE
					VERMONT
					WEST VIRGINIA
					WISCONSIN
					WYOMING

* Exposed to wind, flood or earthquake, but no hazard is dominant.

APPENDIX 6 ALPHABETIC RANKINGS 2016 AND 2015

	COMPOSITE		FACTORS					
			ECONOMIC		RISK QUALITY		SUPPLY CHAIN	
COUNTRY/REGION	2016	2015	2016	2015	2016	2015	2016	2015
ALBANIA	82	94	68	87	79	84	92	100
ALGERIA	123	116	118	111	75	73	116	112
ARGENTINA	69	77	49	57	67	60	109	108
ARMENIA	52	83	57	124	24	15	77	74
AUSTRALIA	9	14	10	8	8	10	23	23
AUSTRIA	18	17	9	7	72	64	7	6
AZERBAIJAN	54	55	86	67	24	15	72	78
BAHRAIN	35	36	74	84	24	15	37	37
BANGLADESH	85	115	75	105	60	76	112	119
BELGIUM	17	11	23	21	5	7	13	11
BENIN	118	113	122	120	36	37	114	117
BOLIVIA	115	103	105	101	101	67	106	104
BOSNIA AND HERZEGOVINA	104	99	92	98	79	84	101	102
BOTSWANA	48	49	38	34	36	37	73	75
BRAZIL	62	59	63	62	34	31	96	83
BULGARIA	72	75	71	61	79	84	70	82
CAMBODIA	92	120	76	114	60	76	122	123
CAMEROON	103	89	106	73	36	37	115	118
CANADA	8	8	19	15	2	2	21	16
CHAD	114	118	89	66	36	37	129	130
CHILE	39	45	42	45	109	104	32	34
CHINA 1	63	64	58	63	95	66	58	63
CHINA 2	66	69	58	63	96	102	58	63
CHINA 3	57	63	58	63	74	65	58	63
COLOMBIA	119	110	100	89	125	125	79	73
COSTA RICA	38	38	35	40	68	34	56	59
CÔTE D'IVOIRE	58	71	91	85	36	37	61	88
CROATIA	50	51	45	44	79	84	47	49
CYPRUS	43	42	55	60	79	84	36	31

	COMPOSITE		FACTORS					
			ECONOMIC		RISK QUALITY		SUPPLY CHAIN	
COUNTRY/REGION	2016	2015	2016	2015	2016	2015	2016	2015
CZECH REPUBLIC	27	26	26	28	20	29	33	36
DENMARK	10	12	5	5	70	63	6	7
DOMINICAN REPUBLIC	129	126	62	74	130	130	94	90
ECUADOR	96	97	101	106	101	67	80	91
EGYPT	124	122	125	125	75	73	107	110
EL SALVADOR	105	92	82	82	117	116	71	60
ESTONIA	30	31	33	33	79	84	29	30
ETHIOPIA	93	101	103	109	36	37	108	107
FINLAND	13	9	11	9	58	35	5	4
FRANCE	19	19	22	22	14	13	20	18
GEORGIA	53	54	79	70	24	15	64	69
GERMANY	4	6	16	12	13	12	4	5
GHANA	81	78	94	88	36	37	102	95
GREECE	67	65	47	52	108	105	63	61
GUATEMALA	97	93	80	95	117	116	62	57
GUYANA	113	81	115	96	101	67	87	76
HONDURAS	121	125	112	121	117	116	78	97
HONG KONG SAR	12	18	17	25	22	23	8	9
HUNGARY	51	48	36	36	107	101	48	50
ICELAND	22	23	8	13	79	84	16	14
INDIA	107	119	108	115	110	109	76	8
INDONESIA	111	106	98	104	112	107	84	77
IRAN, ISLAMIC REPUBLIC	120	NA	129	NA	24	NA	97	NA
IRELAND	3	4	7	11	1	1	25	25
ISRAEL	29	32	44	49	12	24	38	41
ITALY	47	47	24	24	115	115	42	43
JAMAICA	122	124	119	126	117	116	74	71
JAPAN	33	34	21	23	129	129	2	2
JORDAN	68	61	121	122	24	15	54	55
KAZAKHSTAN	71	102	50	59	97	111	85	92
KENYA	76	74	109	107	36	37	81	72
KOREA, REP.	74	70	41	43	128	128	31	33
KUWAIT	59	50	93	55	24	15	75	79
KYRGYZ REPUBLIC	128	129	128	130	97	111	110	111

COUNTRY/REGION	COMPOSITE		FACTORS					
			ECONOMIC		RISK QUALITY		SUPPLY CHAIN	
	2016	2015	2016	2015	2016	2015	2016	2015
LATVIA	36	40	39	37	79	84	39	40
LEBANON	112	NA	120	NA	24	NA	118	NA
LESOTHO	56	62	61	47	36	37	83	98
LITHUANIA	34	39	34	39	79	84	34	39
LUXEMBOURG	5	5	1	1	79	84	11	10
MACEDONIA, FYR	64	72	67	81	79	84	57	68
MADAGASCAR	100	100	88	108	36	37	121	106
MALAWI	84	111	54	119	36	37	123	114
MALAYSIA	26	28	64	68	4	11	27	32
MALI	95	84	107	103	36	37	105	96
MALTA	61	56	95	80	79	84	45	38
MAURITANIA	126	128	116	129	36	37	130	129
MAURITIUS	37	43	53	54	36	37	44	48
MEXICO	65	66	97	94	69	61	65	66
MONGOLIA	87	117	52	72	97	111	104	109
MONTENEGRO	73	67	56	42	79	84	86	87
MOROCCO	89	76	114	102	75	73	66	62
MOZAMBIQUE	98	98	70	83	36	37	124	124
MYANMAR	108	NA	78	NA	60	NA	127	NA
NAMIBIA	44	52	51	58	36	37	55	54
NEPAL	94	114	85	100	60	76	119	122
NETHERLANDS	6	3	20	14	9	5	3	3
NEW ZEALAND	15	13	12	10	17	25	15	15
NICARAGUA	127	127	104	117	117	116	120	116
NIGERIA	116	112	113	110	36	37	125	125
NORWAY	2	1	3	2	10	9	12	13
OMAN	40	35	66	51	24	15	51	46
PAKISTAN	117	123	126	128	60	76	103	105
PANAMA	91	91	96	93	117	116	53	58
PARAGUAY	110	105	65	71	101	67	117	121
PERU	99	73	77	69	101	67	93	80
PHILIPPINES	109	104	84	97	114	106	90	84
POLAND	28	27	32	30	6	6	41	51
PORTUGAL	24	22	31	32	7	4	28	27
QATAR	14	7	4	4	24	15	24	24

COUNTRY/REGION	COMPOSITE		FACTORS					
			ECONOMIC		RISK QUALITY		SUPPLY CHAIN	
	2016	2015	2016	2015	2016	2015	2016	2015
ROMANIA	86	86	48	50	116	110	82	85
RUSSIAN FEDERATION	75	68	117	90	16	26	89	94
SAUDI ARABIA	55	57	123	118	18	27	46	47
SENEGAL	70	80	110	112	36	37	67	81
SERBIA	88	90	73	79	79	84	98	101
SINGAPORE	23	24	40	48	21	32	9	12
SLOVAK REPUBLIC	45	53	25	26	111	108	43	56
SLOVENIA	32	33	27	29	79	84	35	35
SOUTH AFRICA	42	46	81	76	19	28	50	52
SPAIN	25	25	30	35	15	14	30	29
SRI LANKA	41	60	72	91	60	76	40	45
SWEDEN	16	15	6	6	71	62	10	8
SWITZERLAND	1	2	2	3	73	100	1	1
TAIWAN	49	37	37	41	126	103	26	26
TAJIKISTAN	101	121	102	113	97	111	91	99
TANZANIA	80	87	69	77	36	37	111	113
THAILAND	78	82	124	123	35	33	69	70
TRINIDAD AND TOBAGO	77	79	43	53	117	116	68	67
TUNISIA	102	NA	111	NA	75	NA	88	NA
TURKEY	79	85	87	86	113	126	49	44
UGANDA	90	95	90	78	36	37	113	120
UKRAINE	125	107	127	116	79	84	95	93
UNITED ARAB EMIRATES	31	29	29	27	124	124	14	17
UNITED KINGDOM	20	20	18	20	23	30	22	22
UNITED STATES 1	11	16	13	17	11	8	17	19
UNITED STATES 2	21	21	13	17	59	36	17	19
UNITED STATES 3	7	10	13	17	3	3	17	19
URUGUAY	46	41	28	31	101	67	52	53
VENEZUELA	130	130	130	127	127	127	128	128
VIETNAM	83	96	99	92	60	76	100	103
ZAMBIA	60	58	46	46	36	37	99	86
ZIMBABWE	106	109	83	99	36	37	126	126

About FM Global
Established nearly two centuries ago, FM Global is a mutual insurance company whose capital, scientific research capability and engineering expertise are solely dedicated to property risk management and the resilience of its client-owners. These owners, who share the belief that the majority of property loss is preventable, represent many of the world's largest organizations, including one of every three Fortune 1000 companies. They work with FM Global to better understand the hazards that can impact their business continuity in order to make cost-effective risk management decisions, combining property loss prevention with insurance protection.

fmglobal.com

About Oxford Metrica
Oxford Metrica is a strategic advisory firm, offering informed counsel to boards. Our advisory services are anchored on evidence-based research in risk and financial performance. Our work includes statistical analysis and index construction for banks and insurers, risk and performance analytics for asset managers, due diligence support in mergers and highly customised services for corporate boards.

oxfordmetrica.com