

COUNTRY RISK: A THEORETICAL AND EMPIRICAL ANALYSIS WITH SPECIAL REFERENCE TO NORTHERN AFRICAN ECONOMIES

1. INTRODUCTION

Let me begin with the astute words of John Maynard Keynes (1883-1946), an enormously influential British economist,

“When the facts change, I change my mind. What do you do, Sir?”¹

This statement reinforces the idea that human mind or views ought to be changed in the light of altering facts in real life. Intriguingly, science is not all about discovering new facts but also to unearth new ways of thinking about them. Unpredictable environment consisting of multitude of interrelated factors produces persistent changes in the behaviour of a phenomenon in this uncertain world. Change is inevitable. Heraclitus, a pre-Socratic Greek Philosopher, rightly said,

“Everything changes and nothing remains still, you cannot step in the same river twice”,

because it is always flowing. The same is true for the phenomenon of country risk as it is in a constant flux. The stock and flow of facts concerning country risk in a region or country persistently change, subsequently, we must get them in right perspective and discover new ideas or ways of thinking and dealing with them to deal with the new realities and manage them accordingly. Advancements in information and communication technology as well as innovations, on one hand, are reshaping societies and influencing local communities and cultures, and on the other hand, globalisation of products, services and financial markets is allowing companies, investors and businesses to invest or trade in a globalised business environment no

¹ Considering the comprehensiveness of the phenomenon of country risk, the conceptual, operational, structural and measurement models of country risk in the *Kanji-Chopra Country Risk Measurement System* (Chopra and Kanji, 2010) takes into account forty eight manifest variables grouped into six latent variables.

matter where they are situated. Moreover, worldwide migration and circular migration of people, goods and capital are contributing to a greater extent towards an increasing complexity, competitiveness and contestability in modern world. More and more people from different cultures and backgrounds are living together on the same street or town. For example, in the UK or USA, people are acknowledging the contributions of different cultures and communities into the overall functioning of the society. As a result there is greater openness of the needs and requirements of different cultures and religions in the same region or city. Consumers' preferences, needs and satisfaction levels are also changing rapidly. Many gigantic corporations, like Coca-Cola, Pepsi, Kellogg's, KFC, McDonalds, Nestlé and the like, are lured by the desire to expand their businesses in maximum number of countries and are definitely taking advantage of the 21st century globalization wave by way of manufacturing their products in several countries, sharing resources and operations across national borders and, most significantly, serving customers worldwide. Moreover, on-line retail giants like Amazon.com and others have strengthened their competitive positions against those of their locally focused rivals.

In times gone by, cross border business risks have been worrying all those who have to receive assets or payments from customers resident in different countries with a possibility of a non-performance. During the seventies, the global economy was experiencing ample of liquidity mainly derived from recycling the money earned by the members of OPEC countries with strong deposits in global banking system. Consequently, these financial institutions, looking for more business, quickly enhanced their exposure to foreign markets without following much credit procedure. Since the eighties, the payback of those loans involved some problems and affected countries like Brazil, Poland, Mexico, Russia and so on whose defaults caused heavy losses for the global banks and, consequently, for their investors and shareholders. Thus, country risk produced many negative and costly consequences (investigation time, transaction cost, delays, wrong decisions, and so on). As a result, financial institutions had to adopt maximum exposure risk policies and strong credit procedures. The advent of many global financial tools, international trade evolution, sophisticated financial markets, globalisation and country contestability made the phenomenon of country risk even more relevant than before. Since 2008, the world has witnessed many surprises and shocks such as economic recession, financial crisis, climate change, banking crisis, global food crisis, latest Irish debt, Arab Spring, insecurity and terrorism, debt restructuring in many

European countries, nearly 40% fall in Russian Rouble against US Dollar during 2014 and the like.

The methodologies and theories used for country risk assessment depend on the individuals, organisations and agencies doing the analysis. For example, economists are highly skewed towards the theory of macroeconomic vulnerability whereas political scientists use political theory and qualitative methods or data to draw conclusions about the likely behaviour of the governments, political parties, militaries, leaders and other political actors. The rating agencies such as Standard & Poor, Moody, Institutional Investors, Business Environmental Risk Intelligence, Euromoney and other such agencies judge the risk by the credit rating assigned to the bond by investment agencies according to the probability of default. The financial institutions such as banks focus heavily on financial analysis and factors (gross foreign debt, balance of payment crisis, exchange rate stability, rate of interest, capital movements, net liquidity and so on) by plugging numbers into spreadsheets. However, the phenomenon of country risk is holistic, comprehensive and complicated. It subsumes many dimensions and its analysis engrosses not simply economic environment or politics, but also business operational dynamics and financial environment at the same time. Therefore, the present study absorbs and synthesises under its analytic umbrella all possible factors affecting country risk.

2. ON DEFINING COUNTRY RISK

The situation of risk is often mixed with that of uncertainty (Aschheim and Hsieh, 1969). Uncertainty is a situation where there is no guarantee or certainty of an anticipated outcome. Certainty is based on perfect knowledge, information and confidence about the functioning of the market. In the case of certainty, there is only one outcome or return, and it is already known to the investor. However, in a highly competitive and contest environment/market, the outcome is affected by many types of unknown variables and random factors under which prediction is not possible. However, risk arises when the probability distribution of the outcome in a particular case is known but the specific result of a particular action is not known, or cannot be accurately predicted. Machina and Rotschild (1987) suggest that the notion of risk is related to the probability distribution of the underlying random variable, where economic agents have well defined preferences over the realizations of the random variable of

interest. In the case of uncertainty, the probability distribution is not at all known and it is regarded as an extreme situation (Meldrum, 2000).

The various previous studies have judged and defined *country risk* either by credit rating assigned to the bond by investment agencies or in terms of macroeconomic vulnerability (Ghosh and Li, 2009) or political risk (Balkan, 1992) of a country. However, that is a partial definition. Being a complex multidimensional phenomenon, *country risk* can be defined as the combination of various internal and external interconnected and interwoven risks of doing business, or investing in a country, dependent upon the changes in the environment that may adversely affect the profits or assets values. It is an aggregate of all risks obtained by weighted scores of a number of critical risk factors such as systemic risks, economic risks, financial risks, political risks and operational risks that may affect the value and returns of an investment, loans, assets, a project or cash receipts. It is an overall level of economic, financial, political, systemic and operating exposure in a country affecting the loans, investments or assets. Thus, the conceptual framework of country risk consists of an assessment of systemic, economic, political, financial and operating risks together in a borrowing country or foreign direct investment in host country. In turn, each critical country risk factor is comprised of multiple sub-factors that are often a combination of both subjective evaluations and objective macroeconomic or financial statistics. The extent to which a country exhibits a risk to overseas investment depends upon the system of positive and negative linkages. Country risk needs to be treated as a separate risk – different from the credit risk of individual borrowers or sovereign risk – because the borrowers don't have any control over these factors.

In brief, country risk comprises likelihood and frequency of occurrence, severity and strength of impact, vulnerability of change and degree of interdependency among all dimensions, factors or situations associated with any overseas investment that are likely to reduce the expected return of such investment. It varies from one country to another and some countries have high enough risk to discourage much needed foreign investment. There are mainly two types of country risk assessments. First, micro assessment of country risk in which the risk assessment of a country is made with respect to a multinational corporation type business. Here country risk is viewed as corporate risk and country risk studies are analogous to business risk analysis in the sense that both are related to the future capacity of enhancing wealth from the available resources, in terms

of capital, technology, natural resources and labour forces (Ribeiro, 2002). Second is the macro-assessment of country risk where the overall risk assessment of a country is made and a government might impose restrictions upon payments abroad (transfer risk) or the government is willing to honour its external obligations but may not be able to do so if the overall economy cannot generate enough foreign currency (sovereign risk). Thus, country risk is important and relevant to creditors, equity stakeholders, multinational corporations, portfolio investors and foreign direct investors.

3. COUNTRY RISK AND COUNTRY CONTESTABILITY: A THEORETICAL LINK

Generally country risk is associated with returns on investment with different possibilities of risk-return associations, such as low-risk-low-return or high-risk-high-return portfolios and so on. The recent wave of financial and non-financial globalisation has brought with it both positive and negative consequences for the companies, investors and countries involved. On one hand, it has made the phenomenon of country risk much more complex, subsuming under its umbrella the possibilities of non-performance, low return on investment, risks in assets and international trade, the restrictions of payments imposed by a country, defaults on payments by country (sovereign risk) and freezing of assets of foreign businessmen by host country². On the other hand, globalisation has led the countries towards economic and political disclosures and hence keeping them competitive. This is the genesis of the phenomenon of *country contestability*. The contestable country approach is closely related with contestable market approach which was introduced by Baumol *et al.* (1982) (see Chopra, 2014). Thus, *country contestability* is a growing phenomenon in recent years (Delgado *et al.*, 2012). Both country risk and country contestability are inversely related to each other. A higher contestability means lower risk to investment or trade in a country. A higher level of country contestability will attract more overseas businesses and investments (The Economist, 1998). *Country contestability refers to global investment attractiveness. It is the ability of a country to enhance and utilise its human, capital, technological and natural resources in order to achieve higher levels of performance, wellbeing, satisfaction, and*

² Trindle *et al.*, "U.S. freezes assets of Russian businessmen and bank close on Putin", *The Cable*, March 20, 2014, www.thecable.foreignpolicy.com.

provide goods and services in relation to such abilities of other countries. In a globalised world, country contestability subsumes competitive instinct with the actual development and utilisation of human and non-human resources of a country to attract overseas investment and businesses. It is the competitive advantage of a country on an international scale to provide better socio-economic, political and operating environment than its overseas rivals. The determinants of country contestability includes productivity (output per person), efficiency of production, human resources, state of technology, cost of production, availability of skilled manpower, favourable tax rates, interest rates, exchange rate, quality and reliability, relative inflation, investment in capital equipment, economic infrastructure, safe working, social and political environment, less bureaucratic hurdles, reduced protectionist barriers to stimulate foreign investments, institutions, culture, a trusted and efficient legal system, a stable set of democratic institutions and so on. All these factors jointly contribute significantly to a healthy and contestable economy. In fact, it is believed that lower wages, cheap raw materials, subsidies or devaluation of currency make a country more contestable to attract overseas businesses and investments. However, this is a negative short-term, narrow and intuitive view of country contestability. The positive country contestability involves ability of a country in terms of higher level of productivity, efficiency, quality and performance along with favourable business environment. The foreign firms are more adversely affected by political crisis, legal, socio-economic environment and ease of operating in a country. Therefore, it is important to consider all possible factors affecting country contestability and country risk. Thus, considering various determinants, it is possible to arrange countries from less risky (highly contestable) to more risky ones (low contestable), then a choice is made possible in terms of foreign investment.

Country risk evaluation for investment and business abroad entails three broad modes of entry, namely investment mode (foreign direct investment and foreign portfolio investment), trade mode (export-import, counter trade, and barter trade) and contractual mode (licensing, leasing, franchising, turnkey projects, international strategic alliances and joint ventures) (Root, 1982). All modes are not equally attractive to a local firm. The actual choice will depend on the cost involved, entry barriers, legal restrictions of the host country, and government rules. For instance, government policy may directly or indirectly influence the investment mode. The expertise of the firm is also crucial consideration. Technology, infrastructure, property rights, financial and political risks are also decisive. Many

local firms may also like to participate in joint venture rather than full ownership. All said, it is instructive to note that there is nothing like once-for-all choice of modes of entry to foreign country. As Keynes used to say, when facts change, change your mind.

4. SOURCES OF COUNTRY RISK

The sources of country risk lie within an international system and arise out of the departures from the perfect political-economic-financial and operational paradigm, which can lead to moral hazard and adverse country selection. To the extent such conditions persist, country risk is ubiquitous in the global economy and can cause a vicious link between various dimensions of risks, promoting systemic risk. The phenomenon of country risk stems from various sources of uncertainty and is composed of all those uncertainties in a country producing negative consequences. These sources hover around economic, financial, political, operational, socio-cultural, legal, religious, technological and linguistic factors of the prospective country (Ghosh, 2014). The economic and financial are by far the most important factors, even though the political and socio-cultural milieu cannot at all be neglected. However, the section below demonstrates these factors into six distinct environmental groups:

4.1 Systemic Environment

Systemic environment is a source of systemic risk associated with major systems of a country that involves interlinked and interconnected external and internal factors. Systemic risk is the risk of collapse or breakdown of entire system rather than parts and one loss triggers a chain of further and larger losses (Kaufman and Scott, 2003). It is the risk caused by interdependencies and interconnections in a system or market where a failure in one entity or a group of parts can cause a cascading failure, which could potentially bring the entire system or market to halt or breakdown leading to its potential ruin. It is an integrated perspective that incorporates institutional risks, market risks, banking and non-banking systems risks and functioning risks including human development risks in a country. Multinational corporations also suffer from systemic risk (Reeb *et al.*, 1998) that is the likelihood of negative consequences associated with the risk of failure of economic system, entire financial or banking system,

market system, non-banking system such as insurance, capital and money market systems, public sector, nature and type of economic system and agricultural and livestock sectors of a country. In an economy, the interlinked systems and sub-systems work together and a failure in one system produces negative consequences for the rest of the economy. Thus, the overall performance of an economy depends to a large extent on the smooth working of its interconnected systems and sub-systems. The main factors subsumed in systemic risk are as follows: economic shocks, disturbances and events triggered through panic or otherwise that can cause a chain of bad economic consequences such as unemployment, inflation, economic recession and so on (economic crisis); risk of the collapse of financial system in a country as a whole (financial crisis); risks or failures in the entire banking systems (banking crisis) (Aghion *et al.*, 2000); various manifestations of market failures and associated externalities (market crisis); risk of failure of non-banking financial system in a country such as insurance, hedge funds resulting in increases in the cost of capital or decreases in its availability, often evidenced by substantial financial-market price volatility; underdeveloped equity, capital, money or debt markets; public sector services and spending mismanagement, i.e., government machinery (public sector) system failure (government failure); existence of informal economy; and systemic risks in agriculture/livestock sectors and operating risks such as failure of system of protection from natural and man-made threats (Miranda and Glauber, 1997).

4.2 Economic Environment

Perhaps the most critical consideration for the prospective business investment is the economic milieu of the country. Economic environment is the condition of an economy that deals with the totality of behaviour of the macroeconomic variables and factors such as employment, inflation, tax, income, growth, balance of payment, inflation, cost, productivity and the like that influence the behaviour of economic agents such as consumers, producers, investors, businesses and institutions. It includes the nature of the economy, the structure of the economy, general economic conditions, stage of economic development, economic stability and stage of the business cycle, technology and infrastructure. Economic policies are no less important for country selection. Progressive and pro-business policies are the most important considerations. Sometimes the macro

policies are pro-market but not pro-business. A discriminatory economic policy to foreign investors is a source of country risk. The monetary and credit policies need to be resilient and dynamic. Very often weak macro fundamentals may lead to various problems like recession, inflation or financial crisis like the East Asian financial crisis. The critical economic risk factors include obstacles in achieving desired and sustainable *per capita* GDP growth rate (lower real growth rate); level of government budget deficits and fiscal instability (fiscal responsibility and accountability risk); escalated annual inflation rate and cost of production (reasonably low capital-output ratio is required and 4.5:1 is acceptable); gross tax burden (rise in tax and tariffs rates or fall in tax and tariffs incentives for overseas investors, i.e., unfavourable taxation); rise in annual unemployment rate and underemployment (unemployment crisis, more than 3 per cent is unacceptable); deficit in current account balance (balance of payment instability or crisis) (Krugman, 1979); levels of poverty and inequality in a country (poverty and economic inequality crisis), and low trade performances in a country in terms of lack of global economic integration via exports produce high risk for foreign investment.

4.3 Financial Environment

The financial environment of a country is another important source of country risk. A healthy financial environment is an indicator of a country's credit worthiness and essential to operate different functions of an economy. Financial environment is related with the conditions, functions and performance of financial factors in both public and private sectors that affects the financial outcomes of an economy. The treasury and central bank are generally responsible for controlling and managing the financial dealings such as public finances, external and internal debts, exchange rate, capital movements, cost of borrowings, exchange control, investments and so on of an economy. Thus the financial environment gives birth to the financial risk dimension of country risk. It subsumes sovereign risk, when a foreign government is unwilling or unable to fulfil its overseas debt obligations. Financial risk is indicated by many factors such as the degree of gross external indebtedness, the probability of government's default in repayment of its debt and so on. Thus, it is the ability of a national economy to generate enough foreign exchange to meet payments of interest and principal on its foreign debt. A

high level of financial risk or low sovereign credit rating of a country means that its credit worthiness is not very good and vice-versa. The main sources of country risk from financial environment of an economy include: an increase in gross foreign external indebtedness indicated by external debt to reserves ratio (ideally the ratio should not exceed one); inability to fulfil overseas debt obligations (repayment of interest and principal on foreign debt); ceiling or restrictions on repatriation of profits, inability in trading an asset (liquidity risk) (Matz and Neu, 2006; Tirole, 2008), exchange rate instability (currency crisis), exchange control, e.g., restrictions on currency convertibility, restrictions on capital movements or transfer risk and exorbitant interest rate or cost of borrowing in the host country.

4.4 Political Environment

Political environment is an exceedingly important source of country risk. It refers to a set of political factors and government activities in both domestic and foreign countries that can either facilitate or hinder the abilities of businesses or investors to conduct investment/business activities in the foreign markets (Thunell, 1977; Brewer and Rivoli, 1977). It subsumes risks arising out of political events, government actions, conditions and regulations of a country. Thus, political environment gives birth to risks referred to as political risk: governance, government systems, political stability, security, law and order, human rights, corruption, bureaucratic quality and international relations and formal and informal trade agreements. Political events such as internal and external armed conflicts, governance and political instability, militarisation, terrorist attacks and the like can seriously affect the multinational businesses, trades, direct foreign investment and stock markets. A highly politically stable country will have the features such as low level of tensions, absence of anti-state opposition, rare instances of political violence, efficient state institutions, high degree of government efficiency, high degree of political legitimacy and sound political satisfaction. Political risk is also intertwined with sovereign risk. It includes governmental or societal actions and policies, originating either within or outside the host country, and negatively affecting either selected groups or the majority of foreign business operations and investments. Political environment in a country subsumes many factors that include the risks such as: frequent changes in government (governance or regime instability);

lack of democratic accountability and decision-making process in the government (military in politics); corruption and rent-seeking practices in public offices and organised crimes; universal human rights violations and discrimination; level of bureaucratic hurdles in various policy implementations (bureaucracy quality); legal and regulatory controls in conducting business activities (law and order); and estranged international political relations and trade agreements.

4.5 Business Operating Environment

An economy's general business and entrepreneurial environment provides the foundation, sustainability and growth for businesses and investments. Therefore, an operating environment must be congenial and a poor operating environment represents a higher risk for business investment in a country. The competition should not be cut-throat. Infrastructure and technology are reasonably better than in the home country. Market should be expanding, raw materials are available and trade unions are not vindictive and violent. The market size should be reasonably good and people's purchasing power sufficient. The availability of ordinary and skilled labour constitutes a crucial part of business environment. The business operating environment is the genesis of operating risk and includes all those factors that hinder the smooth functioning of businesses in a country. Thus, it is connected with the operation of a business in a country and is associated with degree of freedom to private companies to operate in a country. It includes the risks associated with the security, suitability and availability of various resources in the country. The business operating environment includes different risk factors which are: failures in infrastructure development and structural changes; lower level of human resource development due to inadequate investment (lack of educated and trained staff); difficulties in access to credit and financial products (credit risk); high levels of industrial disputes and labour market problems (such as use of child labour, no minimum wages, wages much lower than labour productivity, lack of ethical standards and so on); intellectual property rights infringement risks; public tensions and resistance against multinational companies or foreign goods; environmental health and workplace safety problems (discrimination, workers compensation, employee health and safety); and lack of total quality management in manufacturing and servicing industries (corporate reputational risk due to process management failures).

4.6 Country Contestability Failure

Country contestability failure is the overall risk of a country. It is associated with the events, conditions and overall performance of the country. In general, it refers to the risks associated with those factors which determine the performance, quality and productivity of an economy. The location of a country is a very significant factor in this context. This source of country risk includes: extent of distances from economically or politically important countries (locational risk); trade openness failure; religious instability; linguistic and cultural alienation; lack of global competitiveness; economic freedom failures; risks in information technology disruptions and internet securities (utility disruptions, software failures, hardware failures); risks of international sections and restrictions; low social indicators such as lack of corporate social responsibility and so on.

5. KANJI-CHOPRA COUNTRY RISK MEASUREMENT SYSTEM: THE THEORETICAL SCAFFOLDING

The theoretical scaffolding of the KCCRM system purports at (a) developing a reliable measurement instrument that measures the phenomenon of country risk and its dimensions; (b) validating the causal connections in the structural model; (c) examining the causal connections or path coefficients among latent and manifest variables; (d) using the model to provide measures of country risk; and (e) developing a mechanism for achieving target performance of an optimal mix of overseas investments. The theoretical scaffolding of KCCRM system involves the following seven steps: identifying the critical country risk factors, using suitable methods to collect both qualitative and quantitative information from identified key sources, introducing the collected data in the KCCRMS, running the correspondent program files to obtain the system's parameters and scores, analysing the score for each criterion (relationships among the latent variables and overall country risk indices), designing and implementing investment strategies and monitoring their results and repeating the process from the top.

5.1 Critical Country Risk Factors

As adumbrated above, the KCCRMS espouses conceptual notion of country risk as a holistic, multidimensional and multidisciplinary

phenomenon. It follows a systematic procedure to assess country risk incorporating a unique research methodology, sources of data, analysis, interpretation of results, and managing country risk. It is a means for identification, classification, analysis and then a response to country risk. The KCCRMS involves *five* steps, first is to identify the whole range of *critical country risk factors* that are likely to impinge on profits and profitability of overseas investment, values of assets or doing business in a country. These are the latent variables of the KCCRMS. There are six latent variables namely, systematic risk, political risk, economic risk, financial risk, operating risk and country risk (Chopra and Kanji, 2010). Second is to discover the causal mechanisms (web of relations) or pathways among different critical country risk factors where all causes are interconnected. Third is to decompose the country risk index into systemic risk index, political risk index, financial risk index, economic risk index, and operating risk index. Fourth is to construct a composite index of country risk. And fifth is to interpret the results and suggest ways to mitigate the country risk propensity of the risk takers.

5.2 Methodological Foundations

The methodological foundations of the KCCRMS are based on structural equation modelling, causal pathways approach and systems thinking (Chopra, 2012). The central focus of the KCCRMS is that the phenomenon of country risk lies within the boundaries of an international system pertaining to a country and it is the *behaviour* and dynamic environment of this system that acts as the fundamental influencing force. However, its behaviour is determined by the structure (pattern of component connections) generating changes and layers of complexity. Systems thinking or approach serves as the prime foundation in order to drill through the layers of complexity of international system in order to discover the *critical country risk factors* pertaining to economic, political, financial and operational components. Thereafter, the KCCRMS adopts structural equation modelling and causal pathways approach to establish the degree and nature of interconnectivity among different dimensions of country risk. Structural equation modelling, a second-generation multivariate data analysis method, is a multivariate technique combining aspects of multiple regression and factor analysis to estimate simultaneously a series of interrelated dependence relationships. Such models include one or more linear regression equations that describe how the

endogenous constructs depend upon the exogenous constructs; their coefficients are called path coefficients. It is a powerful statistical technique in that it combines the measurement model and the structural equation model into a simultaneous statistical analysis. It provides parameters estimates of the direct and indirect association between observed variables and tests how well a model explains covariance in the data.

5.3 Basic Postulates of the KCCRMS

The KCCRMS essentially uses the Partial Least Square (PLS) method in the simultaneous estimation of the weights of the constructs of the country risk system. It calculates these weights in a way that maximises the goodness of fit of the models and thus the ability to explain country risk as the ultimate endogenous variable. The KCCRMS is based on some basic postulates: (a) independence of variables, (b) random sampling of respondents, (c) linearity of all relationships, (d) multivariate normality of distribution, (e) no kurtosis, (f) no skewness, and (g) appropriate data measurement on interval or ratio scale with sample size varying between 100 to 400.

5.4 Chain of Models

The theoretical scaffolding of the KCCRMS involves a chain of four inter-connected models. Firstly, a *conceptual model* of country risk is developed by identifying the relevant factors and determining the inter-linkages and independence of these variables in order to isolate the causal significance of each variable. Secondly, this conceptual model is transformed into *operational model* of country risk by unfolding the complexity via looking deeper into different manifest variables causing risk in each dimension of country risk. Undoubtedly, there is a whole range of critical factors contributing to country risk. This is achieved by identifying various dimensions within a system, establishing interconnections among dimensions and developing manifest variables with the help of a specially designed questionnaire to collect information for latent variables. There may be more than one manifest variables corresponding to each latent variable. The KCCRMS identifies and takes into consideration 48 manifest variables that are key areas of risk for an overseas investment. Thirdly, the operational model is converted

into a *structural model of latent variables* of country risk in terms of path diagrams to establish causal pathways using structural equation modelling. In causal pathways, one cause leads to the other and all causes are interconnected. Path coefficients (regression weights) are used to represent the strength of causal connections specified in the model. There are two categories of path coefficients: *outer coefficients* are those associated with relationships linking manifest variables to latent variables and *inner coefficients* are those associated with latent variable relationships. Fourthly, the latent variable structural model is converted into a *measurement model* of country risk that involves survey methodology, specifying the measurement model, estimation of the model, model identification, measurement of elements, model configuration, assessment of model fit including validating the reliability of the measurement model and estimation of correlation matrices, standard deviation, t-coefficients, coefficient of determination (r^2) and country risk indices by using a specially designed measurement software (Chopra and Kanji, 2010).

5.5 Data Collection (*Quantitative and Qualitative Variables*)

The measurement model of KCCRMS incorporates both quantitative (inflation rate, balance of payment, foreign reserves, sovereign debt, interest rate, unemployment rate and so on) and qualitative variables (government instability, corruption, market failure, conflicts, disputes, bureaucratic hurdles and so on) and hence collection of both quantitative and qualitative data. Collection of data using the questionnaire is the basic tool to measure country risk of a country against the model. Since each country risk dimension (economic, financial, political and operational) corresponds to a concept that cannot be directly measured due to complex nature of the various indicators of a particular risk, it must be translated into a set of indicators that are then converted into items of the questionnaire. The major sources of data include various national government institutions reports and specialised international institutions such as World Bank, World Economic Outlook, IMF, IIF, IDB, etc., rating agencies, and individual experts and researchers. Therefore, the questionnaire ought to be administrated throughout the experts in different dimensions of country risk. The purpose of getting feedback from experts (economists, political scientists, financial experts, business executives, bureaucrats, risk analysts, rating agencies experts, and so on) is to get the information on the

variables of country risk. To complete the questionnaire it is enough only to indicate the extent to which the country has experienced or is experiencing in each dimension in a 1 to 10 scale. The number of responses between 100 and 400 can feed in the country risk measurement software to analyse data and obtain the results.

5.6 Statistical Reliability of Measurement Scales

Reliability means the consistency and stability of a score from a measurement scale. There are of course several methods of determining reliability of a measurement scale. However, the KCCRMS uses coefficient α to assess the homogeneity of items that belong to the same dimension in the measurement instrument. Coefficient α value provides an indicator of internal consistency of latent variables that are being empirically reflected by manifest variables. It is calculated using variance of individual questions and covariance between items. The formula is:

$$\alpha = \frac{k}{k-1} \left\{ 1 - \frac{\sum \sigma_i^2}{\sum \sigma_i^2 + 2 \sum \sigma_{ij}^2} \right\}$$

Where, k = the number of items in the scale, σ_i^2 = the variance of item i , and σ_{ij} = the covariance of the items i and j . A coefficient α value of more than 0.7 indicates that the measurement scale is reliable (Cronbach, 1951; Chopra and Kanji, 2010).

5.7 Country Risk Indices

KCCRMS uses a ten-step scale in order to provide reliable data. All these variables are scored based on the average score on their respective questions. This average is useful when analysing how risky a certain area or dimension is in a country or region. Is not country risk the total average of all variables and is the Country Risk Index (CRI) based on what is the extent of risk of all other areas? CRI is dependent on how the latent variables correlate and thereby produce country risk.

Knowing the relationship between critical country risk factors (CCRFs) and CRI is useful in examining the strength of CCRFs to determine which area needs to be improved and by how much as well as in which ways country risk can be improved. CRI is also influenced by the structural weights and the scores of manifest

variables that are linked to it as specified by the CRI mathematical formula as follows:

$$CRI = \left[\frac{\sum_{i=1}^n w_i x_i - \sum_{i=1}^n w_i}{(N-1) \sum_{i=1}^n w_i} \right] \times 100$$

Where N = number of points on the scale; x_i = manifest variables for each latent variable; and w_i = outer coefficients. The index value has a range of 0 to 100. The value 0 indicates no country risk and the values scores closer to zero indicate low-country risk pole of the scale, values between 25 to 50 are medium risky countries, the score between 51 to 75 are highly risky and score above 76 and closer to 100 indicate extremely-country risk pole of the scale. The latent variable scores were calculated by using a mathematical expression derived by Fornell (1992) using the weight (w) and the arithmetic mean (x) for each question. Since the weights indicate the strength of relationship between variables, they could be used to determine the amount of improvement needed in critical country risk factors in order to improve country risk.

6. COUNTRY RISK IN NORTHERN AFRICAN ECONOMIES: AN EMPIRICAL ANALYSIS

According to United Nations definitions, North Africa³ consists of seven countries or territories. The present study takes into consideration the KCCRMS for the purpose of an empirical analysis of country risk in five main Northern African economies namely Algeria, Egypt, Libya, Morocco, and Tunisia. The Sahara Desert creates a valuable barrier to create historical and ecological distinction between North Africa and much of Sub-Saharan Africa. Due to the Islamic influence, North Africa is a major part of Arab World despite its closer cultural and historical ties with South Western Asia and Europe than Sub-Saharan Africa (Squalli and Wilson, 2007; Subrahmanyam and Castel, 2014). Direct foreign investment, economic growth, access to finance and financial and

³ The term "North Africa" is thought to be a racist term because it divides Africa from its original people. Since there is currently an influx of Arabs in North Africa, many people think that the original people of North Africa are Arab, but in fact are African or Black. Front claims the territory in militating for the establishment of an independent republic, and exercises limited control over rump border territories.

capital markets development in these countries has been quite slow (Omran and Bolbol, 2003; Hengel *et al.*, 2008; Fofana *et al.* 2012; African Development Bank, 2013a; Gray *et al.*, 2013). North Africa is a region of contrast between political instability and economic opportunity (Odone, 2014; Sanguini, 2014). Algeria, the largest country in Africa, is an upper middle income country with State control, restricted privatization of state-owned industries and imposed restrictions on imports and foreign involvement in its economy. The discovery of oil and natural gas reserves in the deserts transformed the economies of Algeria and Libya.

Libyan oil is especially prized because of its low sulphur content, which means it produces much less pollution than other fuel oils (Bälz, 2013). Egypt is very reputed for its high-quality cotton textiles and varied industrial base. Morocco has had strong ties to the West in order to gain economic and political benefits. Morocco is known for its exports of agricultural produce and phosphates. For Tunisia, the tourist industry is essential to the economy (Sleiman, 2012). A quick glance at Table 1 reveals a comparative overview of over twenty five latest macroeconomic variables, public finances, exports-imports and global indices such as easy of doing business index, global competitiveness index, human development index, global political risk index and corruption perception index.

The global financial crisis and economic recession of 2008 and other subsequent events did not have much negative influence on the region of North Africa due to its loose international connections in finance and non-oil goods trade in comparison to hard hit well-integrated Gulf Cooperation Council (GCC) economies such as Saudi Arabia, Kuwait, Bahrain, Qatar, United Arab Emirates, and Oman (World Bank, 2010).

Traditionally, North African economies outperformed their sister nations of South Sahara in terms of economic growth (over 3 per cent per annum during 2005-2011), *per capita* income (from \$2780 in Egypt to about \$10,000 in Libya, compared to an average of \$1445 for Sub-Sahara Africa), tourism, and human development in terms of education and health. It has been described as the 'North African Miracle' (Rodriguez and Samman, 2010).

However, the successful economic model of North Africa had inherent structural and institutional deficiencies coupled with

TABLE 1 - A Comparative Analysis of Northern African Economies

Criteria	Algeria	Egypt	Libya	Morocco	Tunisia
Population (millions, 2011)	36.5	82.5	6.2	32.1	10.8
GDP (billions)	\$272.9	\$540.0	\$37.6	\$250	\$105.3
GDP Growth (%) 2012	2.5	2.2	-5.1	2.7	3.6
Per Capita Income	\$7,477	\$6,545	\$11,300	\$7,350	\$9,775
Population below poverty line (%)	23	26.5	7.6	15	15.5
Income Gini coefficient	35.3	30.8	36.0	40.9	36.1
Labour Force (millions)	11.31	27.69	1.644	11.63	3.315
Unemployment (%)	9.7	12.3	19.5	8.8	18.9
Inflation (CPI) %	8.9	9	3.2	2.4	6.04
Ease of doing business index (2014)	147 th	113 th	188 th	68 th	56 th
Exports (billion) (2013)	\$76.84	\$24.81	\$38.45	\$22.23	\$17.06
Imports (billion) (2013)	\$48.27	\$59.22	\$27.15	\$45.83	\$24.31
FDI stock (billion) (2010)	\$17.34	\$73.8	\$17.92	\$42.19	\$31.86
FDI inflow (billion)	\$1.5	\$2.8	\$	\$2.8	\$1.9
Gross External Debt (billion) (2013)	\$5.413	\$48.76	\$6.319	\$22.69	\$20.13
Public Debt (% of GDP)	8.5	85	11.35	62.5	44.32
Economic Aid (million) (2013)	\$190.5	\$1500	\$87	\$1200	\$190
Foreign Exchange Reserves (billion) (2013)	\$192.5	\$16,408	\$120.9	\$19.16	\$8,113
Economic Freedom Index (2014)	50.8 (146 th)	52.9 (135 th)	N.A.	58.3 (103 th)	57.3 (109 th)
Life expectancy at birth, total (years) (2010)	70.88	70.91	75.18	70.64	75.10
Human Development Index (2014)	93 th	110 th	55 th	129 th	90 th
Global Competitiveness Index (2013-2014)	79 th (3.8 score)	118 th	108 th	77 th	125 th
Global Political Risk Index (2014)	49 th	15 th	8 th	53 rd	56 th
Corruption Perception Index	94 th	114 th	172 th	91 th	77 th

Sources: CIA World Fact Book; www.worldbank.org; www.livemint.com; www.heritage.org; www.hdr.undp.org; www.weforum.org; www.transparency.org; www.doingbusiness.org.

widespread corruption and embezzlement, dictatorship, capital flight⁴, unemployment and unequal distribution of wealth and power (World Bank, 2011). On 18th of December 2010, Arab Spring (Pollack *et al.*, 2011; Brownlee *et al.*, 2013; IFPRI, 2014) began in Tunisia with widespread dissatisfaction particularly with high levels of youth unemployment that led to protests, known as the 'Jasmine Revolution' and spread throughout the Arab League countries and surroundings due to widening income inequalities, dictatorships, insufficient transparency, political corruption, increasing food prices (Chopra, 2012a), extreme poverty and high youth unemployment (Abdih, 2011), human rights abuses, economic decline, gender inequality (World Bank, 2013), dissatisfaction with local governments, external debt problems (World Bank, 2012), capital flight (Ndikumana, and Boyce, 2011), insufficient bank lending (Rocha *et al.*, 2010), existence of widespread informal sector (African Development Bank, 2013b) and so on⁵.

The ongoing socio-political conflicts in Middle East and North Africa involving major protests, strikes, demonstrations, marches, rallies and social media, is a continuation of the Arab Spring, which led rulers out of power in Tunisia, Egypt (twice), Libya, Algeria, Yemen and other countries. On 25th of October 2014, Egypt declared a three-month state of emergency in parts of the Sinai Peninsula after at least 31 soldiers were killed in two suspected jihadist attacks (BBC, 2014).

⁴ Capital flight is defined as the net unrecorded capital flows between a country and the rest of the world.

⁵ Although Algeria's ruling elite appears to have a firm grip on power, strikes, protests and riots in early 2011 prompted President Abdelaziz Bouteflika, who has been in power for 14 years, to offer a series of concessions. Egypt has witnessed the overthrow of two presidents since the start of Arab spring. Former President Hosni Mubarak resigned in February 2011, after three decades in power, after eighteen days of mass protests. Libya's uprising began in February 2011 after security forces in the eastern city of Benghazi opened fire on a protest. After six months of fighting and killing of several thousands, rebel forces took Tripoli, Colonel Muammar Gaddafi went on the run and was captured and killed outside Sirte in August 2011. In Morocco, protests erupted in February 2011, with people taking to the streets of Rabat and Casablanca to demand King Mohammed VI give up some of his wide-ranging powers. Widespread discontent at economic hardship, decades of autocratic rule and corruption erupted into mass demonstration in December 2010 in Tunisia, which forced former President Zine al-Abidine Ben Ali to resign in January 2011, after 23 years in power, and go into exile in Saudi Arabia.

The northern Sinai, a crossroad for local Bedouin smuggling and criminal gangs, has become one of the most dangerous places in Egypt since the end of President Mubarak's military rule in 2011 (Gardner, 2013). The Economist Group came up with the Shoe-Thrower's index, an index of unrest in the Arab World, by ascribing weight to factors such as share of population under 25, number of years government is in power, corruption, lack of democracy, GDP per person, censorship and so on (The Economist, 2011). Yemen comes at top, followed by Libya, Egypt and Syria. Surprisingly, Jordan comes out low on the chart. However, this index does not capture the whole picture of the Arab world and there is a problem with weighting system in the index.

In brief, the region of North Africa suffered economic hardships, political dictatorship and autocratic rule, long rule of 15 to 40 years by one dictator or President, demand for political and socio-economic freedom, human rights violations and rampant corruption (Campbell, 2012).

It can be argued that despite the Arab Spring, the economic position has not much changed in North Africa since most of the elements and people in-charge of governing system that were in place prior to the change remain in place today (Amato and Moisello, 2013).

There is a bumpy road of economic progress in the region of North Africa (Hakimian, 2011). What has happened so far in the region of North Africa, it is safe to say that many unpredicted events will continue to affect the region (Wilson, 2012).

More recently, there is an increase in violence along the Algeria border, the chaotic situation in Libya and the advance of radical Islamism in the Middle East – all made even the more acute by an alarmist anti-terrorist discourse (International Crisis Group, 2014). Growth in the North Africa region is expected to recover gradually to 1.9 percent in 2015 and to 3.5 percent in 2016, helped by a rebound in oil production among oil exporters and a modest recovery among oil importing economies, but remain weak during the forecast period (Subrahmanyam, 2013; World Bank, 2014).

However, security, terrorism and political uncertainty challenges in the region are a key source of instability. Economic, social, and fiscal pressures are high for these countries and could be exacerbated further should the civil war in Syria intensify. In Egypt, Libya, and Tunisia, setbacks in political transitions and/or further escalation of violence would further undermine confidence and delay the structural reforms or reduce oil output (World Bank, 2014a).

As mentioned earlier, the present study takes into consideration five countries from the region of North Africa with some similarities and divergences in current political, economic, financial and operational environment (see Table 1). Quantitative and qualitative data collected during the current year from various sources such as World Bank, IMF, The Economist, The Heritage Foundation at Wall Street Journal, African Development Bank, UNDP, CIA World Fact Book, International Food Policy Research Institute, various other research institutes, economists, risk analysts and experts with leading banks and money management firms, research journals such as *Economia Internazionale/International Economics* and the like have been analysed in Kanji-Chopra software package, which essentially uses the Partial Least Squares (PLS) method in the simultaneous estimation of the weights of the constructs of the model, calculates these weights, associated indices and other statistics in such a way that maximises the goodness of fit of the model and thus has the ability to explain country risk as the ultimate endogenous variable.

6.1 Research Questions and Critical Country Risk Factors

It is logical to start with the research questions associated with country risk in North Africa that are depicted with the appropriate latent variables in Tables 2 and 3. Table 2 unveils how the twelve research questions have been related to the specific critical country risk factors (latent variables) of the Kanji Chopra Country Risk Model (KCCRM) for the North Africa in the empirical study.

TABLE 2 - *Research Questions Associated with Critical Country Risk Factors*

Research Questions	Label	Critical Country Risk Factors (Latent Variables)
To what extent do the underlying driving forces of systemic risks interact within the system and explain the phenomenon of country risk?	R1	SR: Performance of Systems
How effective are the critical country risk factors under study in explaining the phenomenon of country risk?	R2	Causal connection between SR and CCRFs

Research Questions	Label	Critical Country Risk Factors (Latent Variables)
What is the numerical strength of the relationship between systemic risks and construct of political risk?	R3	Causal connection between SR and PR
To what extent is the systemic risk related to economic risk?	R4	Causal connection between SR and ER
What is the extent of relationship between systemic risks and financial risk?	R5	Causal connection between SR and FR
To what extent is the systematic risk related to operating risk?	R6	Causal connection between SR and OR
To what extent the political risk contribute to the country risk?	R7	PR: Economic Risk driven Country Risk
To what extent the economic risk contribute to the country risk?	R8	ER: Economic Risk driven Country Risk
To what extent the construct of financial risk contribute country risk?	R9	FR: Financial Risk Driven Country Risk
To what extent the dimension of operating risk contribute to the country risk?	R10	OR: Operating Risk Driven Country Risk
What are the significant constituents of the conceptualisation of country risk?	R11	Country Risk: Conceptual Foundations
What is the extent of overall severity of country risk?	R12	Country Risk Index: Extent to which investors face risks

Note: SR = Systemic risks; CCRFs = Critical country risk factors; PR = Political risk; ER = Economic risk; FR = Financial risk; OR = Operating risk.

Table 3 shows the total survey questions for each research question and the link to the latent and manifest variables of the model. Different research questions have different latent and manifest variables attached with them.

For example, the research question R1 regarding systemic risk has one latent variable, eight manifest variables and is addressed by eight total questions. R3 involves two latent variables, systemic risk and political risk, and 16 questions and manifest variables. Similarly, R10 involves five latent variables, η_1 , η_2 , η_3 , η_4 and η_5 and 40 manifest variables.

TABLE 3 - *Research Questions Related to the Number of Latent and Manifest Variables of Kanji-Chopra Country Risk Model*

Label	Research Questions	Latent Variables	Total Questions	Manifest Variables Label
R1	To what extent do the underlying driving forces of systemic risks interact within the system and explain the phenomenon of country risk?	ξ_1	8	x_1 to x_8
R2	How effective are the critical country risk factors under study in explaining the phenomenon of country risk?	$\xi_1, \eta_1, \eta_2, \eta_3, \eta_4$ and η_5	48	x_1 to x_8, y_1 to y_8, y_9 to y_{16}, y_{17} to y_{24}, y_{25} to $y_{32},$ and y_{33} to y_{40}
R3	What is the numerical strength of the relationship between systemic risks and construct of political risk?	ξ_1 and η_1	16	x_1 to x_8 and y_1 to y_8
R4	To what extent is the systemic risk related to economic risk dimension?	ξ_1 and η_2	16	x_1 to x_8 and y_9 to y_{16}
R5	What is the extent of the relationship between systemic risk and financial risk?	ξ_1 and η_3	16	x_1 to x_8 and y_{17} to y_{24}
R6	To what extent is the systemic risk related with operating risk?	η_1 and η_4	16	y_1 to y_8 and y_{25} to y_{32}
R7	To what extent does the political risk contribute to the country risk?	ξ_1, η_2 and η_5	16	x_1 to x_8, y_1 to y_8 and y_{32} to y_{40}
R8	To what extent does the economic risk contribute to the country risk?	ξ_1, η_3 and η_5	16	x_1 to x_8, y_9 to y_{16} and y_{33} to y_{40}
R9	To what extent does the construct of financial risk contribute to the country risk?	ξ_1, η_4 and η_5	16	x_1 to x_8, y_{17} to y_{24} and y_{33} to y_{40}

Label	Research Questions	Latent Variables	Total Questions	Manifest Variables Label
R10	To what extent the dimension of operating risk contribute to the country risk?	ξ_1, η_4 and η_5	16	x_1 to x_8 , y_{25} to y_{32} , and y_{33} to y_{40}
R11	What are the significant constituents of the conceptualisation of country risk?	η_5	8	y_{33} to y_{40}
R12	What is the extent of overall severity of country risk?	$\xi_1, \eta_1, \eta_2, \eta_3, \eta_4$ and η_5	48	x_1 to x_8 , y_1 to y_8 , y_9 to y_{16} , y_{17} to y_{24} , y_{25} to y_{32} , and y_{33} to y_{40}

6.2 Multivariate Model Validation, Reliability and Accuracy: Results and Findings

The process of multivariate model validation, testing and estimation involves a two step approach, advocated by the majority of researchers (Garver and Mentzer, 1999).

Firstly, the measurement model has been validated through the examination of various issues associated with construct validity and secondly, the reliability of the model examined in order to ensure that legitimate conclusions are drawn about the nature of construct relationships.

As recommended by Hulland (1999), the quality of the measurement model has been examined by looking essentially at (a) individual item reliability, (b) convergent validity of the measures associated with individual constructs, and (c) discriminant validity. The structural coefficients and the latent variables scores were then analysed.

6.3 Validity of Empirical Measurements

Validity refers to the extent to which a scale measures the concept it purports to measure (Cook and Campbell, 1979; Nunnally

and Bernstein, 1994; Peter, 1979). For a scale to achieve validity, the present study considers the following three criteria that must be met:

(a) *Content Validity*

Content validity, one of the most critical steps in instrument development, is the extent to which measurement items are relevant to and representative of the targeted construct (Kerlinger and Lee, 2000; Pedhazur and Schmelkin, 1991). A valid measurement scale is one that does what it is supposed to do and measures what it is supposed to measure (Nunnally, 1978). Failure to determine content validity can lead to erroneous conclusions. The assessment of content validity is not a simple matter for complex concepts like *country risk* because it is difficult, if not impossible, to enumerate all dimensions that compare the essence of concepts being studied. Therefore, a combination of *a priori* and *a posterior* procedures is adopted to tap the critical dimensions of country risk that includes: (a) carrying out an exhaustive literature review for all possible variables to be included in the scale; (b) soliciting expert opinions on the inclusion of variables and dimensions; (c) a pre-test on pilot run was held to ascertain that all weaknesses in the instrument were identified and dealt with; (d) based on the feedback obtained from the pilot run, questions difficult to understand and questions that did not sufficiently cover the theme of the dimension of country risk were replaced in the final draft of the measurement instrument. Although the procedure may not give complete guarantee of content validity, it does, however, give a reasonable degree of confidence as to its existence. Thus, it is argued that the scales used have content validity.

(b) *Construct Validity*

The assessment of construct validity involves two aspects. The first aspect is basically theoretical and the second aspect is statistical in nature. Theoretically, the constructs such as systemic risk, political risk, economic risk, financial risk and operating risk, used in Kanji-Chopra Country Risk model have been used and analysed fruitfully in various other previous studies (Carrera *et al.*, 2001; Erb *et al.*, 1996; Reeb *et al.*, 1998). Different studies have used different constructs but no study has taken into consideration all these constructs simultaneously. This provides support to the theoretical foundation of the variables under study. Statistically, there are two types of construct validity: convergent validity and discriminant validity (Campbell and Fiske, 1959). Convergent validity is commonly defined as the degree of association between two maximally different

measurements that purport to measure essentially the same concepts. If the measurement scales developed for the model's principles and core concepts are correlated, then the two 'constructs' are said to exhibit convergent validity and, thus, some degree of construct validity. Both independent and dependent latent variables are strongly correlated (Table 4), that provides support to the statistical foundation of the variables under study.

Discriminant validity is largely the opposite of convergent validity in that it can be defined as the degree to which the measurement scale may be differentiated from other scales purporting to measure maximally different concepts. As discriminant validity provides the same information like convergent validity, it is not performed in the present study.

(c) *Criterion-related Validity*

Sometimes called predictive validity or external validity, it is concerned with the extent to which a measurement instrument is related to an independent measure of the relevant criterion. The five measures of country risk (critical country risk factors) have criterion-related validity if these measures collectively are highly correlated with country risk. For the purpose of validating the KCCRM as a whole, score from different manifest variables of the same construct are pooled together to give a single manifest variable of mean scores of the construct, thus reducing the complexity of the test. The Pearson product-moment correlations between independent latent variable and dependent latent variables for Algeria, Egypt, Libya, Morocco, Tunisia and North Africa are given in Table 4. As expected, independent and dependent latent variables are strongly correlated (CL = 95%). Because of the causal connections among latent variables in the Kanji-Chopra Country Risk Model, variables are not only connected but correlated as well. A further examination of the correlation analysis provides answers to research questions 3, 4, 5 and 6. The answer to research question 3, "What is the numerical strength of the relationship between systemic risks and the construct of political risk?" has the highest correlation coefficient between ξ_1 and η_1 than all other correlation coefficients related to research questions 4, 5 and 6. This means that the degree of integration of systemic risks and political risk is highest for Libya (0.915) and lowest for Morocco (0.784). It can be concluded from a glance of Table 4 that the high correlations indicate that the critical country risk factor measures have a high degree of criterion-related validity for each country under study.

TABLE 4 - *Correlation between Conceptually Related Independent and Dependent Variables in the KCCRM (CL= 95%)*

Independent Latent variable	Dependent Latent variable	Correlation (r)					
		Algeria	Egypt	Libya	Morocco	Tunisia	North Africa
Systemic risks (ξ_1)	Political risk (η_1)	0.878	0.903	0.915	0.894	0.837	0.864
Systemic risks (ξ_1)	Economic risk (η_2)	0.887	0.912	0.799	0.818	0.843	0.873
Systemic risks (ξ_1)	Financial risk (η_3)	0.857	0.834	0.855	0.883	0.882	0.877
Systemic risks (ξ_1)	Operating risk (η_4)	0.849	0.885	0.867	0.782	0.858	0.847
Systemic risks (ξ_1)	Country risk (η_5)	0.866	0.903	0.857	0.797	0.785	0.883

6.4 Statistical Reliability Analysis

Statistical reliability comprises two main issues. One refers to the stability of the measurement over time (test-retest reliability), i.e., administering the measurement instrument to the same group of subjects on two occasions and the other is concerned with the internal consistency of the measures used (Kline, 2000). The present research is concerned only with internal consistency of the model that was assessed by using the reliability coefficient alpha for both latent variables and manifest variables of the model, as suggested in most structural equation applications. The reliability score α for the empirical analysis is presented in Table 5 which reveals that the Cronbach-alpha values for all six scales are above 0.7, as recommended by Nunnally (1978). However, Flynn and Saladin (2001) recommend the minimum acceptable level of 0.6. It is considered that any alpha values less than 0.6 would put at risk the meaning of the construct containing manifest variables. The alpha scores for the latent variables of systematic risks (0.8221), political risk (0.7902), economic risk (0.8567), financial risk (0.8929), and operating risk (0.8328) for North Africa indicate that the manifest variables were consistent. Country risk alpha was 0.7732 for North Africa indicating that each latent variable did fit the model as a

positive indicator. Similarly, the values for these latent variables ξ_1 , η_1 , η_2 , η_3 , η_4 , and η_5 have been found to be above 0.7 and hence consistent. Almost all the values of the manifest variables from x_1 to x_8 , y_1 to y_8 , y_9 to y_{16} , y_{17} to y_{24} , y_{25} to y_{32} , and y_{33} to y_{40} , have been found to be consistent for all Northern African countries and North Africa except 0.6138 for non-banking failures (x_4) for Algeria, 0.5347 for business and financial risks premiums (y_{27}) for Libya and 0.5933 for locational risk (y_{37}) for Tunisia.

6.5 Model Accuracy

The strength of the relationship is a proportion of the regression sum of squares corresponding to latent variables. The coefficient of determination, which is the square of correlation coefficient, can be used to evaluate the accuracy of a structural model. It indicates the amount of variance of a dependent variable that is explained by an independent variable.

Table 6 indicates the values for the coefficient of determination for the paths leading up to country risk. The values of coefficient of determination can also be thought of as a numerical percentage for each variable. For example, the systemic risk has an $R^2 = 0.897$ or 90%, as related to country risk. The higher the value of r^2 , the better the model fits the data. The values of r^2 varied between 0.832 and 0.913.

The minimum value of at least 0.65 was considered a reasonably high indication of model accuracy. In this case, all of the r^2 values were higher than the cut-off value of 0.65, meaning that the variations in the model explained more than 65% of the variance of dependent variables in the model. Thus, given the positive and higher scores of the model, several good correlations could be deducted from the data results.

TABLE 5 - Statistical Reliability Analysis of Manifest and Latent Variables of the Model

Critical Country Risk Factors and Manifest Variables	Reliability Coefficients – Alpha				
	Algeria	Egypt	Libya	Morocco	North Africa
Systemic Risks (ξ_1)	0.8125	0.8712	0.7832	0.7683	0.7982
Economic shocks and unpredictable events (x_1)	0.7147	0.8877	0.8154	0.6786	0.7609
Failures in the banking system (x_2)	0.7328	0.9203	0.7758	0.8769	0.7342
Various manifestations of market system failures (x_3)	0.7389	0.7775	0.8987	0.7854	0.7123
Non-banking financial institutions failures, e.g., insurance (x_4)	0.6138	0.9245	0.8945	0.7860	0.7333
Underdeveloped equity, capital, money or debt markets (x_5)	0.8367	0.7601	0.8317	0.7308	0.7447
Public sector services and spending mismanagement (x_6)	0.7943	0.7862	0.6784	0.7667	0.7545
Nature and type of economic system, e.g., informal economy (x_7)	0.7724	0.8231	0.7623	0.8275	0.8310
Systemic risks in agriculture and livestock sectors (x_8)	0.8429	0.7892	0.7229	0.8365	0.8834
Political Risk (η_1)	0.8734	0.8712	0.7382	0.7956	0.8810
Government or regime instability (y_1)	0.9256	0.8167	0.7845	0.7900	0.7728
Political/social unrest, terrorism, conflicts and insecurity (y_2)	0.8673	0.8478	0.7112	0.7339	0.8875
Democratic accountability and decision-making failures (y_3)	0.7674	0.8875	0.7447	0.9388	0.7936
Corruption and rent-seeking practices (y_4)	0.7943	0.8936	0.8350	0.9302	0.8936
Universal human rights discrimination (y_5)	0.7467	0.8645	0.7134	0.8769	0.9080
Bureaucratic hurdles and red tape (y_6)	0.8996	0.8701	0.7690	0.7890	0.8833
Legal system (rule of law) and regulatory controls (y_7)	0.7983	0.8877	0.7890	0.7903	0.8554
Estranged international political relations and trade agreements (y_8)	0.7236	0.8427	0.8539	0.8120	0.7930
Economic Risk (η_2)	0.7865	0.7821	0.8223	0.7470	0.7999
Real national income or output growth rate problems (y_9)	0.7232	0.8444	0.8845	0.6989	0.9230
Fiscal responsibility and accountability risk (y_{10})	0.7183	0.7959	0.8856	0.7748	0.7983
Inflation rate and high cost of production (y_{11})	0.7298	0.7894	0.8892	0.8128	0.8833
Tax burden (tax-to-GDP ratio) (y_{12})	0.7389	0.8211	0.7774	0.7902	0.7884
Unemployment and underemployment (y_{13})	0.7839	0.7658	0.7890	0.8123	0.8353
Balance of payment instability or crisis (y_{14})	0.8128	0.7290	0.7755	0.7666	0.7883
Levels of poverty and inequality (y_{15})	0.8623	0.8766	0.9233	0.7862	0.7645
Trade performance (global economic integration via exports) (x_{16})	0.7825	0.8629	0.9128	0.7784	0.8293

Critical Country Risk Factors and Manifest Variables	Reliability Coefficients – Alpha				
	Algeria	Egypt	Libya	Morocco	Tunisia North Africa
Financial Risk (η_3)	0.7218	0.8818	0.7846	0.7989	0.8820
External debt to reserves ratio (y_{17})	0.7247	0.6782	0.7760	0.7638	0.7120
Defaults in foreign debt repayments (y_{18})	0.7498	0.8734	0.7111	0.7231	0.7647
Ceiling or restrictions on repatriation of profits (y_{19})	0.7389	0.7839	0.8789	0.8802	0.8930
Liquidity risk (y_{20})	0.8635	0.8231	0.7342	0.7170	0.7324
Exchange rate instability (y_{21})	0.7582	0.8563	0.7234	0.7540	0.7231
Exchange control, e.g., restrictions on currency convertibility (y_{22})	0.8763	0.9134	0.8638	0.7236	0.7456
Restrictions on capital movements (y_{23})	0.8389	0.8636	0.7342	0.8328	0.7783
Exorbitant interest rate or cost of borrowing (y_{24})	0.7390	0.8731	0.8467	0.8327	0.7957
Operating Risk (η_4)	0.8994	0.8745	0.7498	0.7892	0.8830
Failures in infrastructure development and structural changes (y_{25})	0.7463	0.7345	0.7893	0.7730	0.8219
Inadequate investment in human development (y_{26})	0.7283	0.7834	0.7943	0.7937	0.7329
Difficulties in access to credit and financial products (y_{27})	0.8378	0.8374	0.5347	0.7290	0.8278
Industrial disputes and labour market troubles (y_{28})	0.8787	0.8582	0.7127	0.7329	0.8830
Intellectual property rights infringement risks (y_{29})	0.7129	0.7652	0.8380	0.8374	0.7367
Public tensions & resistance against foreign goods or MNCs (y_{30})	0.7834	0.8822	0.9306	0.7189	0.7833
Environmental health and workplace safety problems (y_{31})	0.7628	0.8623	0.7492	0.7666	0.7845
Quality control and safeguard failures (y_{32})	0.7937	0.7789	0.7920	0.7922	0.7304
Country Risk (η_5)	0.8023	0.8309	0.7329	0.9167	0.7892
Locational risk (y_{33})	0.9347	0.8833	0.7634	0.8833	0.5933
Trade openness failures (y_{34})	0.7223	0.8735	0.8967	0.7744	0.8833
Religious instability, linguistic and cultural alienation (y_{35})	0.7458	0.8891	0.7665	0.7634	0.8812
Global competitiveness failures (y_{36})	0.7083	0.8844	0.7932	0.8734	0.7781
Economic freedom failures (y_{37})	0.7745	0.7823	0.7712	0.7798	0.7833
Information technology asymmetries (y_{38})	0.7329	0.9123	0.8792	0.8745	0.8731
International sanctions and restrictions (y_{39})	0.8127	0.8289	0.7341	0.7832	0.8135
Low social indicators, e.g., corporate social responsibility (y_{40})	0.7230	0.7726	0.8294	0.8739	0.7923

Note: Cronbach alphas used in this study were a measure of latent variable reliability and were not intended to represent a significance level used in other statistical texts.

TABLE 6 - Inner R-Squares of Each Causal Connection

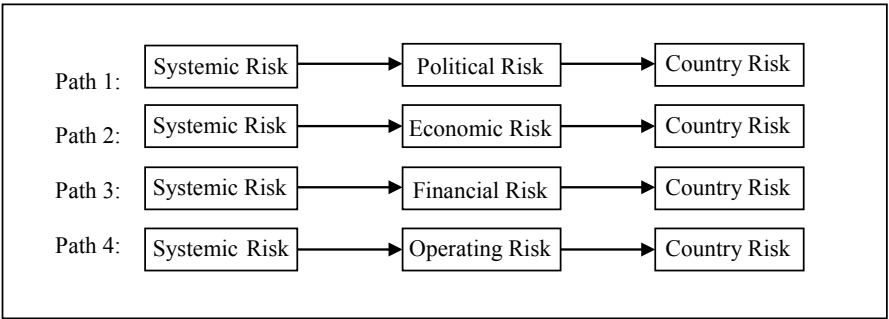
Path Latent Variables	Coefficient of Determination (r^2)					
	Algeria	Egypt	Libya	Morocco	Tunisia	North Africa
Systemic risks (ξ_1) Political risk (η_1)	0.771	0.815	0.837	0.799	0.701	0.746
Systemic risks (ξ_1) Economic risk (η_2)	0.787	0.832	0.638	0.669	0.711	0.762
Systemic risks (ξ_1) Financial risk (η_3)	0.734	0.696	0.731	0.779	0.778	0.769
Systemic risks (ξ_1) Operating risk (η_4)	0.721	0.783	0.752	0.615	0.736	0.717
Systemic risks (ξ_1) Country risk (η_5)	0.749	0.815	0.734	0.635	0.616	0.779

6.6 Path Analysis: Pathways to Country Risk

The KCCR model has four paths going through it, each starting from systemic risk and ending with country risk (Figure 1).

Path analysis is performed by calculating the values of path coefficients that represent the amount of increase in dependent variables as a result of one unit increase in independent variables. Path analysis calculates the strength of the relationships (path coefficients) in the structural equation model using the covariance or the correlation matrix as input. It is possible to determine the contribution of each variable towards country risk from the value of path coefficients.

FIGURE 1- The Four Paths through the Country Risk Model



There are two categories of path coefficients: outer coefficients and inner coefficients. Research obtains outer path coefficients prior to calculating inner path coefficients. Before the values of path coefficients can be obtained, the structural equation model must be specified in such a way that the model is 'identified'. Identifying a model involves fixing the values of some coefficients (fixed parameters) and using data to estimate values of other coefficients (free parameters) that would result in a unique hypothetical population covariance matrix of manifest variables (James *et al.*, 1982). The least squares estimation method is used to minimise the sum of squares differences between the elements of sample covariance matrix (S) and the hypothetical population covariance (Σ_0') matrix for manifest variables.

(a) *Outer Path Coefficients of KCCR Model*

These outer coefficients show how each question loads into the respective factors in the country risk model. Outer coefficients are those associated with relationships linking manifest variables to latent variables. Analysis of path coefficients begins with the outer path coefficients. For every relationship, all measurement items with values of path coefficients that are less than 0.1 is removed from the model. This is to ensure that only manifest variables that adequately reflect the empirical content of latent variables are retained for further analysis. Usually PLS has to be run several times to remove all manifest variables that are poorly linked to latent variables. The outer coefficients of remaining manifest variables are then used to compute critical country risk crisis factors and country risk indices. The outer path coefficients have been presented in Tables 6 to 10 which indicate how each variable contributes to the respective factors of the KCCR model.

(b) *Inner Path Coefficients of KCCR Model*

The inner coefficients show the strength of causality links. They represent the marginal impact of each critical country risk factor on country risk in North African countries. Inner coefficients are associated with latent to latent variable relationships. It is expected that the relationship between the various country risk measurements and the path coefficients will be positive, emphasising the nature and the principles of the model. Following the analysis of outer coefficients, the study is then concerned with inner coefficients, which represent the amount of change in a dependent variable, expressed as multiples of standard deviation, when the value of its independent variable is changed by one unit.

Standardised inner coefficients cannot be compared across groups of sample, nor can those that are produced by the same population over time. However, standardisation of data simplifies the computation of path coefficients because correlation matrix of manifest variables is used instead of the covariance matrix. In the PLS method, the values of inner coefficients for causal connections that do not involve a single dependent variable can be easily determined by reading their values directly from the correlation matrix. The values of inner coefficients for causal connections that involve a single dependent variable, however, have to be solved from the following equation (Namboodiri *et al.*, 1975):

$$r_{ij} = \sum_k p_{ik} r_{kj}$$

where, I = endogenous variable (I > k,j); j = causal variable; and k begins with I-1 and ranges down to 1 (i.e. η_1). All path coefficients in a structural model can be determined using the same equation. The values of Table 7 and Figure 2 show that all coefficients are positive and systemic risk values are strongly associated with the other factors of the model.

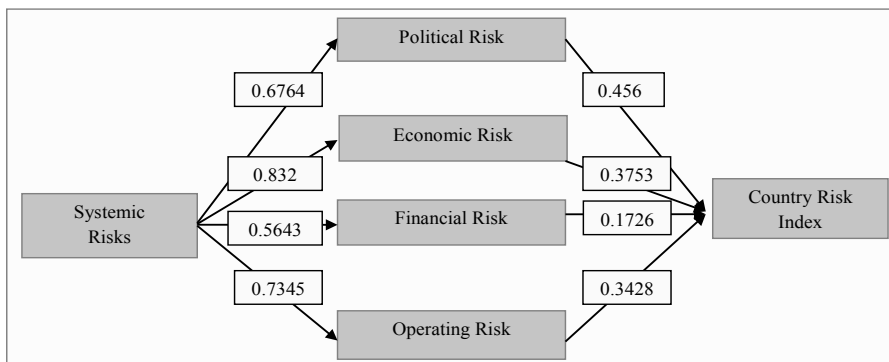
TABLE 7 - Inner Path Coefficients of KCCR Model

Countries/Region Relationships	Algeria	Egypt	Libya	Morocco	Tunisia	North Africa
Systemic risks – Political risk	0.7903	0.8356	0.8643	0.7568	0.7513	0.8764
Political risk – Country risk	0.3177	0.4672	0.4253	0.2291	0.2832	0.4565
Systemic risks –Economic risk	0.7597	0.6904	0.7754	0.6754	0.6744	0.8832
Economic risk – Country risk	0.2162	0.3587	0.2865	0.1687	0.2665	0.3753
Systemic risks – Financial risk	0.6346	0.8351	0.7467	0.7567	0.7678	0.8643
Financial risk – Country risk	0.2463	0.3215	0.2761	0.2352	0.2148	0.1726
Systemic risks – Operating risk	0.5643	0.7423	0.8378	0.6325	0.6467	0.7345
Operating risk – Country risk	0.2134	0.2723	0.3783	0.2634	0.1531	0.3428

Research Question 2 asked, “How effective are the critical country risk factors under study in explaining the phenomenon of country risk?”

The research question 2 has been addressed by the inner structure of the model. Figure 2 shows the inner coefficient weights of the relationships and are illustrated by the forward-pointing arrows and the cause and effect links for each latent variable and ultimate dependent variable, country risk. Using Figure 2 to view the links of critical country risk factors to country risk, one can see that the inner path coefficients for political risk, economic risk, financial risk and operating risk ranged from 0.1726 and 0.4565 and are significantly greater than zero. It can be concluded from the non-negative values of inner path coefficients that all latent variables contribute to and explain country risk in varying degrees. The cause and effect strengths between these latent variables and the model are quite strong. However, it is the strongest (0.4565) between political risk and country risk and the weakest for financial risk and country risk (0.1726). Thus, political risk is the strongest contributor followed by economic risk, operating risk and financial risk for North Africa. Based on the information in Table 7 and Figure 2, two observations can be drawn from the inner coefficients: (a) all of the inner coefficients are nonzero, and (b) the values of the inner coefficients are much larger from the systemic risks to four latent variables of political risk, economic risk, financial risk and operating risk, when compared to the significantly smaller coefficients, ranging from political risk, economic risk, operating risk and financial risk to country risk. Moreover the positive correlations among the latent constructs indicate that the factors that form KCCRMS complement each other. If the numbers are different than zero, there is an indication that the strength of the causal relationships among the latent variables is strong. Only a negative number indicates there may be a need for further attention and intervention.

FIGURE 2 - *Inner Path Coefficients through the Latent Variables for Causal Link for North Africa*



7. SENSITIVITY ANALYSIS ON RESEARCH QUESTIONS: DETAILED ITEM ANALYSIS AND INTERPRETATIONS

Albeit the inner and outer path coefficients, coefficients of determination and the Cronbach's alpha are all statistically important tools used by the academia for the reliability, validity and accuracy of the model. But they do not mean anything to the investors and businessmen. Moreover, these measures are not comparable across time or within the same industry. For this reason, mean scores, correlations, weights and indices have been developed to measure the phenomenon of country risk in North Africa. The responses to the research questions have been addressed, and mean scores and outer coefficients (weights) are analysed to facilitate the interpretation of the results.

The survey questions provide insights drilled through the complexity of the phenomenon of country risk by analysis and interpretation of their results. Thus, the detailed item analysis assists us to uncover the layers of complexity and complications arising from the dynamics of international system within which the phenomenon of country risk lies. The criterion for making judgement is based on the grading system.

The lower index value means low country risk and vice versa. For example, below 25% will provide a good indication of low country risk, while 25% to 50% will give medium risk and 50% to 75% will indicate a higher risk. The value of index above 75% will indicate extremely high country risk.

7.1 Systemic Risk in Northern African Economies

Research Question 1 asked, "To what extent do the underlying driving forces of systemic risk interact within the system and explain the phenomenon of country risk?". The question has been addressed by the manifest variables of the systemic risk, which is an indication of how well the system is working and how it affects the political risk and subsequently the country risk. Table 13 shows that systemic risk index is highest for Libya (88.56), followed by Egypt (82.94), Tunisia (78.86) and Northern African economies indicating that there are factors involved in the system that need careful monitoring and controlling, as they are contributing to the country risk the Northern African economies are facing.

This index is lowest for Algeria (57.81) and Morocco (49.97).

The results of a further in-depth investigation into the systemic risk manifest variables have been presented in Table 8. The manifest variable x_1 indicating economic shocks and unpredictable events has been found fairly strong for Libya (mean score 8.11 and outer coefficient 0.7812), Egypt (mean score 7.29, outer coefficient 0.6315) and North Africa (mean score 5.73, outer coefficient 0.5739).

It reveals that the systemic risk is influenced by the uncertain shocks and events and forces. The failures in the banking system (x_2) has been found to be a significant contributor to systemic risk in the case of Tunisia followed by Egypt and Morocco with relatively medium banking failing risk for Algeria and Libya.

The essential non-banking financial institutions such as insurance companies, mutual and pension funds, leasing and factoring, (x_4) are under developed with few exceptions in North Africa. The shadow banking system (x_4) failure has been found to be the highest in Libya and the lowest in Morocco.

The equity, capital, money or debt markets (x_5) have been found to be underdeveloped and small as many components of their success are absent in North Africa, as indicated by high mean score (7.43) and outer coefficient (0.6819). This discourages the inflow of portfolio investment in the region.

Political and social revolutions in North Africa not surprisingly had an adverse effect on stock prices as uncertainty resulted in investor panic. However, Morocco and Egypt markets have been found to be more developed than the Tunisia, Libya and Algeria. Public sector services and spending mismanagement (x_6) contributing to systemic risks in the Northern African economies has been found to be high as indicated by high mean scores (7.01) and outer coefficient (0.5488).

This means the efficiency of public spending in various public sector activities is very low in Northern African economies.

The informal economy (x_7), the diversified set of economic activities, enterprises, and workers that are not regulated or protected by the state or law, is quite high in Northern African economies and thus contributes significantly to the systemic risks. Informality often overlaps with poverty and weak employment conditions in these economies. For instance, in countries where informality is decreasing, the number of working poor is also decreasing and vice versa.

There are numerous and diverse systemic risks in agriculture and livestock sectors (x_8) of Northern African economies.

TABLE 8 - *Systemic Risk in Northern African Economies*

Criteria	Algeria		Egypt		Libya		Morocco		Tunisia		North Africa	
	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients
x_1	5.54	0.4312	7.29	0.6315	8.11	0.7812	3.29	0.4784	4.56	0.3324	5.73	0.5739
x_2	2.18	0.0942	6.82	0.7324	3.76	0.3443	5.23	0.5846	7.08	0.7942	4.35	0.4627
x_3	4.35	0.4571	5.16	0.5142	6.16	0.6721	2.26	0.1457	3.13	0.4657	4.35	0.4376
x_4	5.08	0.4845	4.12	0.4841	7.26	0.6838	3.02	0.2632	5.17	0.4519	5.14	0.4595
x_5	5.41	0.3809	3.53	0.2801	7.48	0.8827	2.22	0.1478	5.88	0.6382	7.43	0.6819
x_6	5.87	0.6523	6.27	0.4672	6.34	0.5623	2.01	0.0213	5.32	0.5488	7.01	0.5488
x_7	6.23	0.5578	6.23	0.4967	7.78	0.6937	4.04	0.3729	6.23	0.5634	5.62	0.5763
x_8	5.72	0.5121	5.76	0.4637	6.57	0.5749	3.92	0.3264	6.11	0.5482	4.98	0.5124

7.2 Political Risk in Northern African Economies

Research question 7 asked, “To what extent to the political risk factors contribute to the country risk?”. The critical country risk factors attributed to this question explained the factors affecting systemic risk (ξ_1), and political risk (η_1) and country risk (η_2). The portions of survey specially related to this question are x_1 to x_8 , y_1 to y_8 and y_{33} to y_{40} .

The results of political risk have been presented in Table 9. The overall political risk index is 89.54 (Table 14) which indicates that there is an extremely high level of political risk. The manifest variables related to this score were y_1 to y_8 . These variables are addressing research question 7 as a part of political risk construct. A further closer analysis is required to uncover its complexity, therefore, it is important to analyse and interpret the results of political risk as shown in Table 9. The manifest variable y_2 has been found to have the strongest outer coefficient or weight with the highest mean score for North Africa as a whole. It means that the political risk has been greatly influenced by depicting political unrest, terrorism, conflicts and insecurity in the region. The second manifest variable y_1 has been found to have a very strong outer coefficient (weight) at

0.8312 with mean score of 8.76. This indicates that the political risk has been strongly influenced by a government or regime instability in Northern African economies over the years. A cross country comparison of political risk determinants reveal that Libya has the highest government instability (0.8678), civil unrest and terrorism threats and insecurity (0.9128), weak rule of law (0.8723), corruption and rent-seeking practices (0.8841), lack of effective governance, estranged international political relations (0.8723) and bureaucratic hurdles (0.8488). On the other hand, Morocco is experiencing the lowest political risk on all the determinants. Egypt is second highest in all the manifest variables of political risk. To conclude, the results for research question 7 were strong for political risk and contributing significantly to country risk in Northern African economies. Hence, all manifest variables of political risk are the main areas of concern for global investors or MNCs.

TABLE 9 - *Political Risk in Northern African Economies*

Criteria	Algeria		Egypt		Libya		Morocco		Tunisia		North Africa	
	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients
y_1	7.32	0.6312	8.79	0.8312	9.23	0.8678	3.21	0.3312	7.45	0.7394	8.76	0.8312
y_2	6.23	0.5932	9.18	0.9142	9.48	0.9128	4.08	0.3453	7.72	0.8326	9.08	0.8941
y_3	6.34	0.5782	8.46	0.7894	8.86	0.8772	2.26	0.0234	6.26	0.3546	7.57	0.7869
y_4	7.08	0.4841	7.08	0.8943	8.89	0.8841	4.35	0.3642	6.24	0.6728	7.48	0.8254
y_5	8.11	0.8809	8.11	0.5632	6.61	0.8809	3.41	0.4783	7.25	0.7824	7.75	0.7733
y_6	7.01	0.4488	7.01	0.7387	7.01	0.8488	2.01	0.3734	6.22	0.6555	6.89	0.7334
y_7	4.45	0.4231	8.67	0.8745	8.97	0.8230	3.42	0.328	7.56	0.7382	7.78	0.5683
y_8	3.67	0.3452	4.65	-0.0345	8.34	0.8723	4.76	0.4328	6.78	0.6732	7.45	0.5473

7.3 Economic Risk in Northern African Economies

Research question 8 asked, "To what extent do the economic risk factors contribute to the country risk?". The critical country risk factors attributed to this question explained the factors affecting

systemic risk (ξ_1), and the construct of economic risk (η_2) and country risk (η_3). The portions of survey specially related to this question are x_1 to x_8 , y_9 to y_{16} and y_{33} to y_{40} .

The results of systemic risks have been presented in Table 8. Table 14 reveals the overall index of economic risk dimension as 77.81, which is above 75% indicating that there is a high level of economic risk, and requires an intervention by watching certain factors. Table 10 provides the results for economic risk in Northern African economies. A profound analysis shows that the manifest variable y_9 reflects the real national income or output growth rate problems which are the highest in Libya (outer coefficient value 0.8312) affecting economic risk and the lowest in Morocco (outer coefficient value 0.0312). It can be concluded that Northern African economies have performed well in terms of real national income growth rate except Libya. The manifest variable (y_{10}) reveals that fiscal irresponsibility and accountability risk are fairly high in Northern African economies with the highest in Libya (0.8723) and the lowest in Morocco (0.3492). The variable y_{11} uncovers that inflation and high prices are contributing highest in economic risk for investors in the case of Egypt (0.7457) and lowest for Morocco (0.1327). The ratio of taxes to gross domestic product (tax-to-GDP ratio) (is commonly used to analyze tax burden. Among our focus countries, Algeria has the highest tax burden (y_{12}), while Egypt has the lowest (0.1841). The tax burdens in Tunisia, Libya and Morocco stand between these two values. Unemployment and underemployment (y_{13}) have been found to be the highest in Libya (0.9346), followed by Tunisia (0.9132) and the lowest in Morocco (0.1193). This persistent high unemployment has been reinforced by years of high growth rates of population and labour force. The manifest variable (y_{14}) reveals that the balance of payment crisis is the biggest contributor to economic risk in the case of Libya and the lowest in the case of Morocco. Other economies under study stand between these two values. Therefore, the domestic policy of monetary and fiscal expansion must be done with care and caution to avoid persistent balance of payment crisis. The levels of poverty and inequality have been found to be the highest contributor in economic risk for Libya followed by Tunisia and the lowest for Morocco and Algeria. Trade performance (x_{16}), a common measure of globalisation and global economic integration with the world economy, is another serious contributor to economic risk in Northern African economies. Trade performance in terms of exports has been found to be the lowest in Algeria (0.8742) and the highest in Morocco (0.3285) and quite high in the region as a whole (0.6987). The level of tariff

protection vis-à-vis the rest of the world remains high by international standards, particularly in North Africa. Nontariff measures have become the most important barriers to trade in goods in the Arab world. Trade in non-oil goods and services is extremely limited.

TABLE 10 - *Economic Risk in Northern African Economies*

Criteria	Algeria		Egypt		Libya		Morocco		Tunisia		North Africa	
	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients
y_9	2.03	0.2746	3.25	0.3234	6.32	0.7628	2.36	0.0312	3.27	0.0628	3.75	0.4527
y_{10}	6.38	0.6728	6.88	0.5738	8.32	0.8723	4.67	0.3492	5.24	0.4387	5.35	0.5242
y_{11}	4.12	0.3267	7.72	0.7457	3.43	-0.0437	2.16	0.1327	8.26	-0.0457	8.26	-0.0457
y_{12}	6.25	0.7853	3.22	0.1841	4.08	0.4841	3.36	0.2724	4.34	0.4782	4.62	0.5281
y_{13}	6.67	0.5673	7.32	0.7697	8.78	0.9346	3.22	0.1193	8.64	0.9132	5.41	0.6351
y_{14}	4.01	0.1488	8.35	0.8810	8.87	0.7839	2.92	0.1432	5.13	0.437	5.22	0.539
y_{15}	6.23	0.2517	7.43	0.6239	8.23	0.6723	2.83	0.2893	6.89	0.7632	6.34	0.6823
y_{16}	7.34	0.8742	7.11	0.7731	6.83	0.6857	3.87	0.3285	7.42	0.6723	7.45	0.6987

7.4 Financial Risk in Northern African Economies

Research question 9 asked, "To what extent does the construct of financial risk contribute to the country risk?". The critical country risk factors attributed to this question explained the factors affecting systemic risk (ξ_1), and the construct of financial risk (η_3) and country risk (η_5). The portions of survey specially related to this question are x_1 to x_8 , y_{17} to y_{24} and y_{33} to y_{40} .

Table 8 presented the results for systemic risk. The overall financial risk index is 63.69% (Table 14), which is above 50% and requires careful further investigation. Table 11 shows the results for financial risks in Northern African economies. A further careful analysis shows that the manifest variable y_{17} reveals the highest external debt to reserves ratio is the highest for Egypt (0.8874) and the lowest for Algeria (0.0137). The probability of defaults in foreign debt repayments y_{18} (inability of independent countries to meet its liabilities as they

become due) has been found to be the highest in the case of Egypt (0.6437) followed by Morocco (0.6243) and the lowest for Algeria.

Restrictions on repatriation of profits in North Africa (y_{19}) has been found to be moderate (0.4127) and the highest in Libya (0.7238) followed by Algeria (0.4673). Liquidity risk (y_{20}) (funding liquidity risk, i.e., cash-flow crisis and market liquidity risk, i.e., inability to convert asset into cash/liquidity) has been found to be the highest in Libya (0.5436) and the lowest in Morocco (0.1254). The manifest variable y_{21} reveals that there is a risk of currency or exchange rate instability in Northern African economies and it is contributing significantly into the overall financial risk of the region. An investor should look into this very carefully prior to investing, as this can be fatal in terms of losing all profits through rising value of currency of the country where investment is made.

The outer coefficients of y_{22} , restrictions on currency convertibility, indicate that this factor is not contributing significantly to the overall financial risk and hence to country risk in Northern African economies. Similarly, the values of outer coefficients for all the countries under study show that the manifest variable y_{24} , cost of borrowing, is not contributing significantly to the financial risk index.

TABLE 11 - *Financial Risk in Northern African Economies*

Criteria	Algeria		Egypt		Libya		Morocco		Tunisia		North Africa	
	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients
y_{17}	2.11	0.0137	8.72	0.8874	3.52	0.2183	6.84	0.6212	7.63	0.7629	5.67	0.4728
y_{18}	3.34	0.1982	6.38	0.6437	5.18	0.4335	4.28	0.6243	5.18	0.5744	4.13	0.4638
y_{19}	5.16	0.4673	4.37	0.3482	6.48	0.7238	3.27	0.3271	4.24	0.4172	4.18	0.4127
y_{20}	2.08	0.1841	3.42	0.4237	5.23	0.5436	3.18	0.1254	3.23	0.4562	4.22	0.5267
y_{21}	4.76	0.5673	4.65	0.4576	5.34	0.5643	4.98	0.4563	5.45	0.5623	6.11	0.6312
y_{22}	3.23	0.2189	3.45	0.1834	3.31	0.0789	2.14	0.1318	2.34	0.1273	3.01	0.0488
y_{23}	2.69	0.3937	3.19	0.2912	4.12	0.3262	3.32	0.4232	3.23	0.2341	2.34	0.2348
y_{24}	2.42	0.0213	3.46	0.2134	3.84	0.1867	3.76	0.0238	3.23	0.1783	2.34	0.0231

7.5 Operating Risk in Northern African Economies

Research question 10 asked, "To what extent does the dimension of operating risk contributes to the country risk?". The critical country risk factors attributed to this question explained the factors affecting systemic risk (ξ_1), and the construct of operating risk (η_4) and country risk (η_5). The portions of survey specially related to this question are x_1 to x_8 , y_{25} to y_{32} and y_{33} to y_{40} .

The overall operating risk index is 66.36 as shown in Table 14. Table 12 presents further deeper results on the manifest variables of operating risk in Northern African economies. The manifest variable y_{25} reveals that the failures in infrastructural development is contributing to operating risk highest in the case of Libya (0.6783) and lowest in Morocco (0.1384) and significant for North Africa as well. The higher values of outer coefficients (y_{26}) for all the economies under study reveal that there is a lack of adequate investment in human resource development such as health, education, skilled formation and so on.

As a result, there is low level of people's well-being and quality of life. The results of outer coefficients for manifest variable (y_{27}) reveal that there are the highest difficulties in access to credit and financial products in Tunisia (0.8234), followed by Algeria (0.7981), and Libya (0.6753), Egypt (0.6329) and the lowest in Morocco (0.3251). The higher values of outer coefficients for industrial disputes and labour market troubles (y_{28}) for all the Northern African economies unfold that this is a matter of concern for overseas investors as too many labour problems, such as mismatch between wages and labour productivity, working conditions, strikes, protests, stoppage of work and industrial work and so on.

The intellectual property rights infringement risk (y_{29}) also poses a risk in the Northern African economies and should be watched carefully by the investors or businesses. Resistance against foreign goods or MNCs (y_{30}) has been found to be highest in Libya (0.5692), followed by Tunisia (0.5487) and Algeria (0.5120). The outer coefficient of environmental health and workplace safety (y_{31}) for North Africa as a whole is -0.0137 that indicates that there is no agreement among respondents on the manifest variable contributing to overall operating risk index.

On the contrary, this manifest variable has been found to be the highest in Tunisia (0.5783) and the lowest in Egypt (0.0485) followed by Morocco (0.2372). The results for quality control and safeguard failures (y_{32}), the absence of quality of checks and oversight

mechanisms that encourage conflicts of interest, have been found to be the highest in Libya (0.7840), followed by Tunisia (0.6983) and Algeria (0.6143) and the lowest in Morocco (0.1037).

TABLE 12 - *Operating Risk in Northern African Economies*

Criteria	Algeria		Egypt		Libya		Morocco		Tunisia		North Africa	
	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients
y ₂₅	5.34	0.6354	6.34	0.6872	7.46	0.6783	4.46	0.1384	5.37	0.5259	5.67	0.5452
y ₂₆	5.83	0.6942	6.34	0.7192	5.82	0.7542	5.83	0.5939	6.21	0.7672	5.28	0.6930
y ₂₇	6.89	0.7981	5.38	0.6329	6.67	0.6753	4.26	0.3251	6.15	0.8234	6.78	0.6723
y ₂₈	5.87	0.6739	4.34	0.4633	6.49	0.7742	4.45	0.5478	6.46	0.6734	5.46	0.5621
y ₂₉	5.23	0.4453	4.34	0.5902	5.12	0.5632	3.21	0.6548	6.56	0.6732	4.41	0.4563
y ₃₀	5.74	0.5120	4.27	0.0218	6.31	0.5692	3.31	0.0184	4.47	0.5487	4.25	0.4162
y ₃₁	2.69	0.1345	3.49	0.0485	4.42	0.4029	4.87	0.2372	4.19	0.5783	4.83	-0.0137
y ₃₂	5.46	0.6143	5.42	0.5487	5.14	0.7840	6.63	0.1037	5.81	0.6983	6.74	0.4743

Research question 11 asked, “What are the significant constituents of the conceptualisation of country risk?”. The critical country risk factors attributed to this question explained the factors constituting country risk (η_5).

The portions of survey specially related to this question are y₃₃ to y₄₀. Table 14 shows that the manifest variable of locational risk (y₃₃) is quite low for all the Northern African economies as evident from the lowest values of outer coefficients for all economies due to the fact that it has a locational advantage of closer cultural and historical ties with South Western Asia and Europe than Sub-Saharan Africa.

The values of outer coefficients for manifest variable y₃₄ reveal that the more an economy is open to world trade, the more the income growth and economic freedom benefit from that flow.

Egypt is a highly closed economy (0.6261) in the sense that its trade share of total economic activity is very low by world standards

and it is therefore closed to trade benefits. Algeria is the next most closed economy (0.4983).

Tunisia (0.0142) is the most open economy enjoying the benefits of trade. Morocco and Libya are in the middle.

Religious instability, linguistic and cultural alienation (y_{35}) are quite high in the region of North Africa.

Global competitiveness failure (y_{36}) is another major factor contributing to the country risk in Northern African economies, Tunisia (0.8893) being the least competitive in the region followed by Egypt (0.7738) and Libya (0.6836). Morocco is the most competitive economy in North Africa. In terms of economic freedom (y_{37}), Libya (0.8951) is the most economically restricted (least freedom) economy in the North Africa followed by Algeria (0.7832), Egypt (0.6837), and Tunisia (0.5826).

Morocco has the most open economic freedom in the region. Moreover, the region's information and technology (y_{38}) links are among the weakest in the world. Although the number of Internet users is growing in the region, it has remained low by international standards. However, the manifest variables of international sanctions and restrictions do not seem to matter much or to contribute significantly and presently in the country risk.

TABLE 13 - *Country Risk in Northern African Economies*

Criteria	Algeria		Egypt		Libya		Morocco		Tunisia		North Africa	
	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients	Mean Score	Outer Coefficients
y_{33}	2.76	0.0312	3.45	0.2309	2.21	0.1137	3.82	0.0237	4.73	0.12198	3.83	0.2823
y_{34}	4.25	0.4983	5.73	0.6261	4.83	0.4323	4.67	0.1249	5.38	0.0142	4.42	0.4142
y_{35}	5.43	0.6843	4.74	0.5728	6.46	0.6873	3.47	0.3682	6.72	0.7382	5.18	0.5263
y_{36}	4.27	0.3214	8.11	0.7738	6.23	0.6836	2.12	0.2734	8.11	0.8893	6.24	0.6728
y_{37}	6.34	0.7832	7.01	0.6837	6.67	0.8951	3.34	0.1488	3.42	0.5826	5.43	0.4886
y_{38}	4.98	0.3472	5.18	0.5483	6.27	0.6723	2.18	0.1343	5.13	0.5627	5.12	0.5621
y_{39}	2.32	0.1894	3.87	0.4281	4.62	0.2382	3.24	0.3633	4.24	0.2778	2.11	0.1482
Y_{40}	5.11	0.5482	6.46	0.4867	7.32	0.7433	3.14	0.2184	4.34	0.5672	4.26	0.4281

7.6 Country Risk Index and its Decomposition

The country risk index reflects the simultaneous effect of all the relationships estimated in the model. It is a means of measuring a country failure to minimise the risks of investing or doing business.

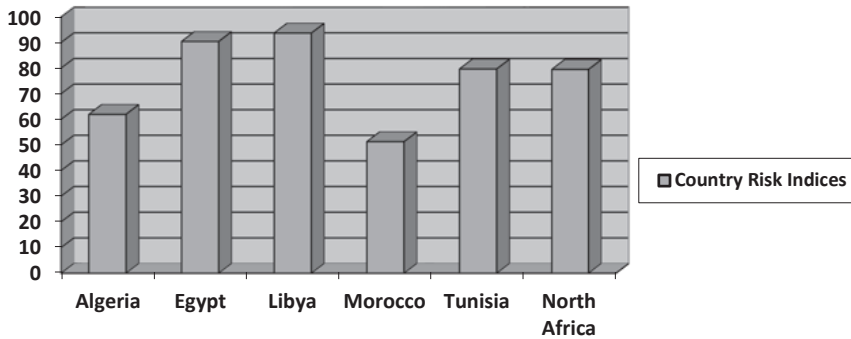
Here, the index can be used in a similar manner to measure how well different dimensions (such as political risk, economic risk, financial risk and operational risk) of the country risk are performing. It has been constructed in such a way so as to allow a direct comparison across each area while at the same time being able to compare the country risk in different geographical areas.

The index also allows the country risk to be measured over time.

The index monitors a number of different areas which are all combined into the final calculations to present a single number between one and 100. It is this single number that represents a country risk score which makes our comparison of country risk across countries and overtime, so easy. In the measurement of country risk process a number of different dimensions are measured and each is analysed to produce the index total. In our empirical study, the overall country risk index has been found to be 79.47% (Table 14) which indicates a very high degree of country risk. Table 14 shows that Libya is the most risky country (93.67) followed by Egypt (90.38). Morocco has been found to be the least risky country (51.25) and Algeria and Tunisia lie in the middle.

TABLE 14 - *Country Risk Matrix of Indices for Northern African Economies*

Label	Critical Country Risk Factors and Country Risk	Indices					
		Algeria	Egypt	Libya	Morocco	Tunisia	North Africa
ξ_1	Systemic Risks	57.81	82.94	88.56	49.97	78.86	75.84
η_1	Political Risk	69.76	91.72	95.64	64.39	86.57	89.54
η_2	Economic Risk	77.46	89.31	91.74	56.29	79.55	77.81
η_3	Financial Risk	65.97	85.39	89.41	45.18	67.34	73.69
η_4	Operating Risk	73.59	83.92	92.78	56.72	76.56	66.36
η_5	Country Risk	61.92	90.38	93.67	51.25	79.66	79.47

FIGURE 3 - *Indices of Country Risk in North Africa*

8. CONTRIBUTION OF CRITICAL COUNTRY RISK FACTORS TOWARDS COUNTRY RISK

All the variables of KCCR model are dependent except systemic risk, which is an independent variable.

The KCCR model has four paths going through it, each starting from systemic risk and ending with country risk (Figure 1).

It is possible to determine the contribution of each critical factor towards country risk from the values of path coefficients.

For latent variables: political risk, economic risk, financial risk and operating risk, their unit contributions for North Africa are equal to the values of path coefficients of their relationships with country risk, i.e., 0.4565, 0.3753, 0.1726 and 0.3428 respectively.

The unit contributions of other variables are obtained by multiplying path coefficients on the variables' paths that join the variables to country risk.

For example, it can be seen from Table 7 that for Algeria for every unit change in systemic risk, the variable political risk increases by 0.7903 units.

Furthermore, the contribution of political risk to the country risk would be 0.3177 and consequently, the country risk would have increased by $0.7903 \times 0.3177 = 0.2511$ unit (Path 1), which represents the unit contribution of systemic risk through the path of political risk towards country risk for Algeria.

The unit contribution of systemic risk can also be calculated from the other three paths of the model for Algeria and other economies under study. Table 15 shows the ranking of unit contributions of critical country risk factors for Algeria, Egypt, Libya, Morocco, Tunisia and North Africa collectively.

TABLE 15 - *Unit Contribution of Critical Country Risk Factors to Country Risk*

Critical Country Risk Factor	Algeria		Egypt		Libya		Morocco		Tunisia		North Africa	
	Unit Contribution	Rank	Unit Contribution	Rank	Unit Contribution	Rank	Unit Contribution	Rank	Unit Contribution	Rank	Unit Contribution	Rank
Political Risk	0.3177	1	0.4672	1	0.4253	1	0.2291	3	0.2832	1	0.4565	1
Path 1	0.2511	2	0.3904	2	0.3676	3	0.1734	5	0.2128	4	0.4001	2
Economic Risk	0.2162	3	0.3587	3	0.2865	5	0.1687	6	0.2665	2	0.3753	3
Path 2	0.1642	6	0.2476	7	0.2221	7	0.1139	8	0.1797	5	0.3314	5
Financial Risk	0.2463	4	0.3215	4	0.2761	6	0.2352	2	0.2148	3	0.1726	7
Path 3	0.1563	7	0.2684	6	0.2062	8	0.1779	4	0.1649	6	0.1492	8
Operating Risk	0.2134	5	0.2723	5	0.3783	2	0.2634	1	0.1531	7	0.3428	4
Path 4	0.1542	8	0.2021	8	0.3169	4	0.1666	7	0.0991	8	0.2518	6

Several conclusions can be drawn from the results:

1. The strengths of causal connections between critical country risks factors are different.
2. The construct of political risk has been found as a prime factor contributing highest to the country risk directly and through Path 1 in the case of Algeria, Egypt, Libya and North Africa.
3. Systemic Risk is contributing in different magnitudes through different pathways. It is the highest for path 1 through political risk in comparison with other three pathways through economic risk, financial risk and operating risk for North Africa and other economies except Morocco.
4. The pathways from systemic risk to the factors located earlier on the paths tend to have higher unit contributions compared to the four variables to country risk because their influences are tempered when path coefficients are multiplied together.
5. The unit contribution can be used by planners and investment decision makers for avoiding or protecting themselves against

country risk by allowing investments and businesses to be concentrated on factors with lowest contributions.

6. The knowledge about unit contributions is useful for the continuous monitoring of country risk in all the key areas of this phenomenon.
7. The results have revealed the economic risk as the second prime factor significantly contributing to the country risk. The magnitude of their impact is determined by the uncertainty and instability in macroeconomic variables. These factors are influencing the economic risk which in turn contributes to country risk.

9. CONCLUDING OBSERVATIONS

The phenomenon of country risk is very complex, ever-changing and multidimensional in nature. The KCCRMS uses systems thinking, pathway analysis and multivariate modelling approach by taking into consideration simultaneously 48 manifest variables and six latent variables to assess country risk in Northern African economies. It is a global country risk measurement instrument that has general applicability due to its comprehensiveness (includes a large number of factors and flexible in terms of including or removing manifest variables when and if required), simple (in terms of concepts and conceptual framework), reliable, statistically valid, measurement (able to measure all critical country risk factors and their contribution towards country risk), robust and easy to use. The KCCRMS includes conceptual, operational, structural, and measurement models of country risk and country-specific variables such as systemic, political, economic, financial, operational and country contestability that jointly and simultaneously contribute to the overall investment risk environment and constructs a composite country risk index along with its decomposition. In nut-shell, KCCRMS provides a significant indicator that can guide investors and businesses in their decisions about relative attractiveness of various global locations by making them better aware of how changes in different risk environments can affect their operating profits or assets value.

The results of the empirical analysis of country risk in Northern African economies have demonstrated that North Africa is an economically diverse region in terms of economic, social and political bases, natural resource endowments (net oil exporting countries or net oil importing countries such as Egypt and Tunisia), level of

diversification and sophistication of their economy (from poorly diversified to more diversified economies; and from unsophisticated to sophisticating economies) and post-Arab Spring transition (either driven by top-down or bottom-up and relatively difficult to smooth processes). The present study concludes that the economies under study provide various *economic opportunities midst challenges*. The region of North Africa presents both domestic and external risks. The country risk is relatively high and may be rising. In our study, Libya is ranked 1st (highest risky country) among the economies under study in country risk and critical country risk factors. Political risk represents the highest risk followed by operating risk, economic risk, financial risk and systemic risk. Libya is experiencing political turmoil, civil unrest, systemic corruption, weak rule of law, very high economic uncertainty, degraded infrastructure and so on. Morocco is ranked 5th (least risky country) with lowest country risk and other critical country risk factors. It is a liberal economy with rapid privatisation, highly competitive economy, highest growth in tourism, highly open economy in the region towards outside world, and financial sector is fairly well developed in comparison to other economies in the region with relatively high credit costs. Egypt is ranked 2nd in domestic country risk and political instability, decline in tourism, non-independent judiciary system, insecurity, poverty, stagnation and pervasive corruption. Tunisia is ranked 3rd in terms of country risk with high systemic risk, political instability, high corruption, high tax burden, weak economy, and entrepreneurial operating environment remains largely constraint. Algeria is ranked 4th in terms of overall country risk. It is experiencing rigid financial market, restrictions on imports, difficult access to credit, low economic freedom, housing shortage, weak and slow judiciary system and so on.

To sum up, high country risk is a real challenge for the region of North Africa. Post Arab Spring emphasises the necessity of certain reforms needed to reverse the downward spiral situation by restructuring the economies, job creation, inclusive growth, avoiding further social and political discontent, improving infrastructure deficiencies, removing labour market rigidities, providing efficient subsidies and adequate social safety nets, removing complicated and opaque regulations and the barriers to operating business environment, reducing social and economic disparities, establishing macroeconomic stability, curbing public sector corruption and promoting pro-poor growth. There is a need to break the *vicious circle* of political instability, insecurity and slow growth in order to attract

more foreign investment and MNCs. North Africa needs to tackle terrorism, organised crime and insecurity in a calm and depoliticised manner. In addition to security measures, the governments should take new economic and social initiatives that would ensure broader communities trust and support for the state. Democracy needs to be part of political tradition in North Africa along with creating more jobs and better jobs, better macro-economic management for favourable business operating conditions and political stability and security. There may be a daunting road ahead but continuous reforms are needed to attract much-needed foreign investments and businesses.

PARVESH K. CHOPRA

*International Centre for Development and Performance Management,
Leeds, West Yorkshire, England, UK*

REFERENCES

- Abdih, Y. (2011), "Closing the Jobs Gap", *Finance & Development*, 48(2), 36-39.
- African Development Bank (2013a), "Capital Market Development in North Africa: Current Status and Future Potential", *Economic Brief*, March 26, <<http://www.afdb.org/en/documents/document/economic-brief-capital-market-development-in-north-africa-current-status-and-future-potential-31220/>>.
- African Development Bank (2013b), "Recognizing Africa's Informal Sector", March 27, <<http://www.afdb.org/en/blogs/afdb-championing-inclusive-growth-across-africa/post/recognizing-africas-informal-sector-11645/>>.
- Aghion, P., P. Bolton and M. Dewatripont (2000), "Contagion Bank Failures in a Free Banking System", *European Economic Review*, 44(4-6), 713-718.
- Amato, A. and A. Moisesello (2013), "North Africa Today: The Economic Situation after the Arab Spring", *Economia Internazionale/International Economics*, 66(2), 127-135.
- Aschheim, J. and C. Hsieh (1969), *Macroeconomics: Income and Monetary Theory*, Merrill Publishing Co.: Columbus, Ohio.
- Balkan, E.M. (1992), "Political Instability, Country Risk and Probability of Default", *Applied Economics*, 24(9), 999-1008.
- Bälz, K. (2013), *Doing Business in Libya – Opportunities and Challenges of the Transition*, Amereller Associates: Tripoli.
- Baumol, W.J., J. Panzer and R.D. Willig (1982), *Contestable Markets and the Theory of Industry Structure*, Harcourt Brace Jovanovich.
- BBC (2014), "President Sisi Says Jihadists Threaten Egypt's Existence", 25 October, <<http://www.bbc.com/news/world-middle-east-29771099>>.

- Brewer, T.L. and P. Rivoli (1990), "Political Instability and Country Risk", *Global Finance Journal*, 8(2), 309-321.
- Brownlee, J., T. Masoud and A. Reynolds (2013), *The Arab Spring: The Politics of Transformation in North Africa and the Middle East*, Oxford University Press.
- Campbell, H.G. (2012), *NATO's Failure in Libya: Lessons for Africa*, Africa Institute of South Africa.
- Campbell, D.T. and D.W. Fiske (1959), "Convergent and Discriminant Validation by the Multitrait-Multimethod Matrix", *Psychological Bulletin*, 56 (2), 81-105.
- Carrera, J.E., A.P. Cusolito, M. Féliz and D. Panigo (2001), "An Econometric Approach to Macroeconomic Risk: A Cross Country Study", MPRA Paper No. 7846, <<http://mpra.ub.uni-muenchen.de/7846>>.
- Chopra, P.K. (2012a), *On Measuring Global Food Crisis: A Multivariate Modelling Approach*, Wisdom House Publications: England.
- Chopra, P.K. (2012b), "Country Matters: Country Risk Measurement by Causal Pathways", *Economia Internazionale/International Economics*, 65(2), 251-289.
- Chopra, P.K. (2014), "The Place of Human Contestability in Positive Management", *Journal of Positive Management*, 5(4), 3-27.
- Chopra, P.K. and G.K. Kanji (2010), "On Measuring Country Risk: A New System Modelling Approach", *Economia Internazionale/International Economics*, 63(4), 479-515.
- Cook, T.D. and D.T. Campbell (1979), *Quasi-Experimentation: Design & Analysis Issues for Field Settings*, Houghton Mifflin: Boston, MA.
- Cronbach, L.J. (1951), "Coefficient Alpha and Internal Structure of Tests", *Psychometrika*, 16(3), 297-334.
- Delgado, M., C. Ketels, M.E. Porter and S. Stern (2012), "The Determinants of National Competitiveness", NBER Working Paper No. 18249.
- Erb, C.B., C.R. Harvey and T.E. Viskanta (1996), "Political Risk, Economic Risk and Financial Risk", *Financial Analysts Journal*, 52(6), 29-46.
- Flynn, B. and B. Saladin (2001), "Further Evidence on the Validity of the Theoretical Models Underlying the Baldrige Criteria", *Journal of Operations Management*, 19(6), 617-652.
- Fofana, I., E. Corong, R. Chatti, S. Bibi and O. Bouazouni (2012), "Taxation Policy and gender Employment in the Middle east and North Africa Region: A Comparative Analysis of Algeria, Egypt, Morocco, and Tunisia", IFPRI Discussion Paper 01227, <<http://www.ifpri.org/sites/default/files/publications/ifpridp01227.pdf>>.
- Fornell, C. (1992), "A National Customer Satisfaction Barometer: The Swedish Experience", *Journal of Marketing*, 56(1), 6-21.
- Gardner, F. (2013), "Egyptian Police Killed in Sinai Ambush at Rafah", 19 August, <<http://www.bbc.com/news/world-middle-east-23751954>>.

- Garver, M.S. and J.T. Mentzer (1999), "Logistics Research Methods: Employing Structural Equation Modelling to Test for Construct Validity", *Journal of Business Logistics*, 20(1), 33-58.
- Ghosh, B.N. (2014), *Business Environment*, Oxford University Press: New Delhi.
- Ghosh, B.N. and E.A.L. Li (2009), "Macroeconomic Vulnerability and Investment Risks in the Middle East and North Africa Region", *Economia Internazionale/International Economics*, 62(1), 1-40.
- Gray, S., P. Karam, V. Meeyam and M. Stubbe (2013), "Monetary Issues in the Middle East and North Africa Region: A Policy Implementation Handbook for Central Bankers", Institute for Capacity Development and Monetary and Capital Markets Department, International Monetary Fund: Washington, DC.
- Hakimian, H. (2011), "The Economic Prospects of the 'Arab Spring': A Bumpy Road Ahead", *CDPR Development Viewpoint*, 63, 1-2, Centre for Development Policy and Research, School of Oriental and African Studies.
- Hengel, E., S. Kechida, A. Koldertsova and S. Sultan (2008), "Access to Finance in the MENA Region – Recent Developments and Challenges", OECD Working Group on SME Policy, Entrepreneurship and Human Capital Development Presentation, Manama, 18 November.
- Hulland, J.S. (1999), "Use of Partial Least Squares (PLS) in Strategic Management Research: A Review of Four Recent Studies", *Strategic Management Journal*, 20(2), 195-204.
- IFPRI (2014), "Middle East and North Africa", *International Food Policy Research Institute*, <<http://www.ifpri.org/book-6959/ourwork/researcharea/middle-east-and-north-africa>>.
- International Crisis Group (2014), *Tunisia's Borders (II): Terrorism and Regional Polarisation*, Middle East and North Africa Briefing No. 41, 20 October.
- James, C.R., S.A. Mulaik and J.M. Brett (1982), *Causal Analysis: Assumptions, Model and Data*, Sage Publications: Beverly Hills.
- Kaufman, G.G. and K.E. Scott (2003), "What is Systemic Risk, and Do Bank Regulators Retard or Contribute to It?", *Independent Review*, 7(3), 371-391.
- Kerlinger, F.N. and H.B. Lee (2000), *Foundations of Behavioural Research*, (4th Edition), Harcourt College Publishers: Orlando, FL.
- Kline, P. (2000), *A Psychometrics Primer*, Free Association Books: London.
- Krugman, P. (1979), "A Model of Balance of Payment Crisis", *Journal of Money, Credit and Banking*, 11(3), 311-325.
- Machina, M.J. and M. Rotschild (1987), *Risk*, in: J. Eatwell, M. Millgate, P. Newman (Eds), "The New Palgrave Dictionary of Economics", MacMillan: London.

- Matz, L. and P. Neu (2006), *Liquidity Risk Management*, Wiley and Sons: Singapore.
- Meldrum, D.H. (2000), "Country Risk and Foreign Direct Investment", *Business Economics*, 35(1), 33-40.
- Miranda, M. and J. Glauber (1997), "Systemic Risks, Reinsurance, and the Failure of Crop Insurance Markets", *American Journal of Agricultural Economics*, 79(1), 206-215.
- Namboodiri, N.K., F.R. Carter and H.M. Blalock (1975), *Applied Multivariate Analysis and Experimental Designs*, McGraw-Hill: New York.
- Ndikumana, L. and J.K. Boyce (2011), *Africa's Odious Debts: How Foreign Loans and Capital Flight Bled a Continent*, Zed Books: London.
- Nunnally, J.C. (1978), *Psychometric Theory* (2nd Ed.), McGraw-Hill: New York.
- Nunnally, J.C. and I.H. Bernstein (1994), *Psychometric Theory* (3rd Edition), McGraw-Hill: New York.
- Odone, P. (2014), "North Africa: A Region of Contrast between Political Instability and Economic Opportunity", *Economia Internazionale/International Economics*, 67(1), 1-4.
- Omran, M. and A. Bolbol (2003), "Foreign Direct Investment, Financial Development, and Economic Growth: Evidence from the Arab Countries", *Review of Middle East Economics and Finance*, 1(3), 231-249.
- Pedhazur, E.J. and L.P. Schmelkin (1991), *Measurement, Design and Analysis: An Integrated Approach*, Lawrence Erlbaum Associated: Hillsdale, NJ.
- Peter, J.P. (1979), "Reliability: A Review of Psychometric Basics and Recent Marketing Practices", *Journal of Marketing Research*, 16(1), 6-7.
- Pollack, K.M. *et al.* (2011) (Ed.), *The Arab Awakening*, Brookings Institutions Press: Washington, DC.
- Reeb, D.M., C.C.Y. Kwok and H.Y. Baek (1998), "Systemic Risk of the Multinational Corporation", *Journal of International Business Studies*, 29(2), 263-279.
- Ribeiro, R.D. (2002), *Country Risk Analysis*, George Washington University, Institute of Brazilian Issues – Minerva Program, <<http://www.gwu.edu/~ibi/minerva/spring2001/renato.ribeiro.pdf>>.
- Rocha, R.S. Farazi, R. Khouri and D. Pearce (2010), "The Status of Bank Lending to SMEs in the Middle East and North Africa Region: Results of a Joint Survey of the Union of Arab Bank and the World Bank", <<http://elibrary.worldbank.org/doi/book/10.1596/1813-9450-5607>>.
- Rodríguez, F.R. and E. Samman (2010), "The North African Miracle", <<http://zunia.org/post/the-north-african-miracle>>.
- Root, F.R. (1982), *Foreign Market Entry Strategies*, Amacom: New York.

- Sanguini, A. (2014), "North Africa: A Region of Contrasts", *Economia Internazionale/International Economics*, 67(1), 33-38.
- Sleiman, M. (2012), "Tunisia Planning to Issue Islamic Bond: Banker", *Reuters*, Bahrain, 29th February.
- Squalli, J. and K. Wilson (2007), "How Open are Arab Economies?", Working Paper No. 07-01, EPRU, Zayed University, Dubai, <<http://www.zu.ac.ae/epru/documents/07-01-web.pdf>>.
- Subrahmanyam, G. (2013), "Promoting Crisis-resilient Growth in North Africa", *Economic Brief*, African Development Bank: Tunis, <<http://www.afdb.org/en/documents/document/economic-brief-promoting-crisis-resilient-growth-in-north-africa-50408/>>.
- Subrahmanyam, G. and V. Castel (2014), "Labour Market Reforms in Post-Transition North Africa", *African Development Bank Group*, Chief Economist Complex, <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Economic_Brief_-_Labour_market_reforms_in_post-transition_North_Africa.pdf>.
- The Economist (1998), "Commerce and Contestability: The Marriage of Trade and Trustbusting", October 1st, <<http://www.economist.com/node/605178>>.
- The Economist (2011), "The Sheo-Thrower's Index – An Index of Unrest in the Arab World", February 9th, <http://www.economist.com/blogs/dailychart/2011/02/daily_chart_arab_unrest_index>.
- Thunell, L.H. (1977), *Political Risks in International Business*, Praeger Publishers: New York.
- Tirole, J. (2008), "Liquidity Shortages: Theoretical Underpinnings", *Financial Stability Review*, 2008(11), 53-63.
- Trindle, J., E. Groll and J. Hudson (2014), "U.S. Freezes Assets of Russian Businessmen and Bank Close on Putin", *The Cable*, March 20, <<http://foreignpolicy.com/2014/03/20/u-s-freezes-assets-of-russian-businessmen-and-bank-close-to-putin/>>.
- Wilson, R. (2012), *Economic Development in the Middle East*, Routledge: London.
- World Bank (2010), *MENA Recovers from the Crisis, but Slowly*, <<http://www.worldbank.org/en/news/press-release/2010/10/09/mena-recovers-crisis-slowly>>.
- World Bank (2011), *Sustaining the Recovery and Looking Beyond: A Regional Economic Developments and Prospects Report. Middle East and North Africa Region*, The World Bank: Washington, DC.
- World Bank (2012), *Global Development Finance: External Debt of Developing Countries*, The World Bank: The Washington, DC.
- World Bank (2013), *Opening Doors: Gender Equality and Development in*

the Middle East and North Africa, The World Bank: Washington, DC.

World Bank (2014a), Slow Growth in the Middle East and North Africa Region Calls for Bold Approach to Economic Reform, The World Bank: Washington, DC.

World Bank (2014b), Global Economic Prospects – Middle East and North Africa, The World Bank: Washington, DC.

ABSTRACT

Investing or trading in a country, whether domestic or foreign, involves some elements of risks and uncertainties depending upon its systemic, economic, financial, political, and business operating environments. Understanding the phenomenon of *country risk* is enormously vital for global investors in appraising risks versus opportunities of their global investment decisions. It is, therefore, necessary to evaluate countries and select the best and the most suitable one for the purpose of investment or business. Country risk analysis is both an art as well as science. Considering this, the present paper delineates numerous sources of country risk associated with business activities in a prospective country that may inauspiciously affect an initial investment, assets values, cash-flows or profits. It investigates theoretical linkages between country risk and *country contestability*. Based on systems thinking, structural equation modelling, and multivariate data analysis, this paper succinctly illustrates the theoretical scaffolding of *Kanji-Chopra Country Risk Measurement System (KCCRMS)*. The conceptual notion of the phenomenon of country risk in the *KCCRMS* is holistic, multidimensional and multidisciplinary. The paper further divulges how *critical country risk factors* simultaneously intensify country risk in a multiplicative way or may interact producing reciprocal compensatory and attenuating effects. The *KCCRMS*'s structure, constructs, and relationships have been rigorously tested by means of data derived from various sources for an empirical analysis with special reference to Northern African economies namely Morocco, Algeria, Tunisia, Libya and Egypt. A *country risk matrix* has been constructed to illustrate the systemic risk, economic risk, political risk, financial risk and operating risk for each selected Northern African economy. *Pathway analysis* and *sensitivity analysis* on research questions have been performed for a detailed data analysis and interpretation. The paper constructs a *composite country risk index* for each country for the ratings of Northern African economies in terms of country risk and using the rating for investment decision making. Results from empirical analysis may be used to pinpoint the ways to minimise various risks of investing in these economies.

Keywords: Country Risk; Kanji-Chopra Country Risk Measurement System; Country Contestability; Critical Country Risk Factors; Systemic Risk; Economic Risk; Political Risk; Financial Risk; Operating Risk; Multivariate Modelling; Systems Thinking; Path Analysis

JEL Classification: C32, E22

RIASSUNTO

Il rischio paese: un'analisi teorica e empirica con particolare riferimento ai paesi del Nord Africa

Investire o commerciare con un paese straniero, o nel proprio, coinvolge elementi di rischio e incertezze che dipendono dall'operatività sistemica, economica, finanziaria, politica e commerciale del paese stesso. La comprensione del fenomeno del rischio paese è vitale per gli investitori globali che devono valutare il rischio rispetto alle opportunità degli investimenti. Pertanto è necessario valutare i paesi e selezionare il migliore e più adatto allo scopo dell'investimento o del commercio. La valutazione del rischio paese è un'arte e insieme una scienza. Con questo presupposto questo studio delinea diverse fonti di rischio associate alle attività commerciali in un paese, che potrebbero negativamente influenzare un investimento iniziale, il valore dei beni, i flussi finanziari o i profitti. Lo studio analizza le relazioni teoriche tra il rischio paese e la contendibilità del paese stesso. Basato su un approccio olistico, su un modello a equazioni strutturali e su analisi dei dati multivariati, in questo studio viene descritta sinteticamente la struttura del sistema di misurazione del rischio paese di Kanji e Chopra (KCCRMS), nel quale la nozione concettuale del fenomeno del rischio paese è olistica, multidimensionale e multidisciplinare. Inoltre questo lavoro prevede il modo in cui i fattori critici incrementano il rischio in maniera moltiplicativa o come possono interagire, provocando effetti compensatori e di attenuazione reciproci. La struttura del sistema KCCRMS, i suoi effetti e le sue relazioni sono state rigorosamente testate tramite dati derivati da diverse fonti elaborando un'analisi empirica di Marocco, Algeria, Tunisia, Libia e Egitto. È stata costruita una matrice rischio paese per illustrare il rischio sistemico, economico, politico, finanziario e operativo di ogni economia tra quelle selezionate. Sono state realizzate un'analisi del ciclo e della sensibilità al fine sia di compiere un'analisi dettagliata dei dati sia di procedere alla loro interpretazione. Questo studio costruisce un indice composito per la classificazione delle economie del Nord Africa in base al rischio paese utilizzando il rating relativo all'investimento. I risultati dell'analisi empirica possono essere impiegati per individuare modalità che consentano di ridurre i vari rischi di investimento in questi paesi.