ECONOMIC AREAS UNDER FINANCIAL STABILITY

COMPLETE VOLUMES ON THEORY AND PRACTICE OF FINANCIAL STABILITY

Praise for *The Theory and Practice of Financial Stability*

Indranarain Ramlall's proposal is a great attempt at giving a comprehensive view of financial stability from a theoretical, practical and policy perspective. It aims at providing future students with the tools to understand the framework in which financial stability is assessed and understood today by international organisations and central banks across the world. To my knowledge, this is the only book that covers such a wide range of topics related to financial stability. It, therefore, has the potential to become a good reference book on the topic. I believe that Indranarain Ramlall has made a great proposal to provide a 'big picture view' on financial stability. I look forward to reading the textbook!

Celine Tcheng, Central Bank of France

Financial stability has become a major concern for central banks, after the 2008 global financial crisis. More and more research is tackling topics regarding the role of the financial system in macroeconomic models and the implementation of macroprudential policy. Therefore, a comprehensive overlook of financial stability issues, such as the one offered by *The Theory and Practice of Financial Stability* can prove particularly useful for experts working in the financial system, central bankers included. The textbook covers a diverse set of topics from policy matters to risk assessment analysis.

Elena Banu, Central Bank of Romania

This book is a comprehensive work on one of the most actual topics in the aftermath of the Great Recession. It covers a wide range of topics on financial stability complementing theoretical frameworks with practical examples.

Starting with a conceptual description on financial stability, the book overviews a history of the major financial crises and Basel regulation rules. Particularly useful is an inquiry of the financial stability perspectives across different asset classes and economy sectors. Another beneficial feature of this book is a complete oversight of stress testing methodologies.

The book is a thorough compilation of topics on financial stability and definitely deserves a place on the bookshelves of central bankers, government and private institutions' officials.

Vaidotas Sumskis, Bank of Lithuania

Dr. Indranarain's book is an actual textbook for interpreting interrelations between all aspects and sectors of the international economy and will surely be a highly useful tool for credit institutions, investors, practitioners as well as academics. From a Central Bank's point of view this book provides an integrated approach to macroeconomic environment and the interactions between the various factors and an actual tool for assessing and measuring leading circumstances and indicators that affect financial stability and may cause vulnerabilities.

Vasiliki Vlachostergiou, Central Bank of Greece

This is a monumental work! I didn't find anything missing. I think it will be useful for students, economic and finance professionals and policymakers.

Christophe Andre, OECD

Financial stability was always a priority for financial sector regulators and it has surpassed other objectives since the global financial crisis. Given various complexities associated with the financial stability and rapid developments over time, existing literature tends to deal with specific aspects of financial stability. It is very difficult to get a comprehensive book dealing with the wide range of concepts, different segments of financial sector, ever increasing variety of financial instruments and regulations associated with financial stability. The current book is a very good attempt to fill this gap through its comprehensive coverage of almost the entire gamut of financial stability related topics. This book should be useful for financial sector regulators, related ministries in the governments, researchers, multilateral institutions, other financial sector stakeholders and general public who are interested to know the complexities of the financial sector and financial stability.

Ajay Prakash-an expert in Financial Stability

THE THEORY AND PRACTICE OF FINANCIAL STABILITY
VOLUME 4

ECONOMIC AREAS UNDER FINANCIAL STABILITY

BY
INDRANARAIN RAMLALL
University of Mauritius, Mauritius

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INVESTOR IN PEOPLE

Dedicated to God for making me an instrument of his own

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List of Acronyms

BIS	Bank for International Settlement
CA	Current Account
CHAPS	Clearing House Automated Payments System
CLS	Continuous Linked Settlement
COFER	Currency Composition of Official Foreign Exchange Reserves
CPSS	Committee on Payment and Settlement Systems
ECB	European Central Bank
GARCH	Generalised Autoregressive Conditional Heteroscedasticity
GDP	Gross Domestic Product
IMF	International Monetary Fund
IOSCO	International Organisation of Securities Commissions
LDGs	Least Developed Countries
NIIP	Net International Investment Position
OLS	Ordinary Least Squares
PMI	Purchasing Managers' Index
PSS	Payment and Settlement Systems
PvP	Payment versus Payment
RAM	Risk Assessment Matrix
RTGS	Real-time Gross Settlement
SDRs	Special Drawing Rights
SMEs	Small and Medium Enterprises
TARGET	Trans-European Automated Real-time Gross settlement Express Transfer system

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Preface

Finance is no more finance in the true sense of the words today (see Ramlall (2013)). As a matter of fact, the world is presently buffeted by many challenges, some of which manifest in new forms such as FinTech and cryptocurrencies while some challenges prevail out of the legacy trailed behind by the 2007 global financial crisis. In spite of the existence of high-esteemed Journal of Financial Stability, yet, there exists no textbook or a series of books which weave through all aspects of the core areas of focus under financial stability. This volume (under a four-volume series of books on financial stability) attempts to fill in such a vacuum.

Financial stability represents a highly complex and multidimensional concept. This implies that sound and holistic financial stability assessment requires that the authorities focus not only on local but also on international developments. As a matter of fact, the author finds that most financial stability reports published by central banks begin with focus being laid to developments at the global level. Usual references are made with respect to the Global Financial Stability Report of IMF along with its Global Economic Outlook reports. As far as local developments are concerned, emphasis is being laid on sectoral assessments of the country. In addition, recourse is made to financial system stress index in order to identify feasible risks to financial stability. At the end of the day, both structural and cyclical forces represent latent risks to financial stability from the perspective of local developments.

One of the most important developments in terms of financial innovation in the African over the last five to 10 years pertains to payments/money transfers via mobile phones. This signifies that mobile service providers are helping in enhancing financial inclusion in Africa. Payment systems can be an important source for the transmission of disturbances in the financial system. No economy can function without having a robust and smooth functioning payment and settlement systems. These systems can be within the local economy such as banks paying banks and also across borders such as an institution settling a transaction with a foreign institution using SWIFT. Payment and settlement systems are affected by operational risk which constitutes a major hurdle due to lack of data and only when the risks crystallise that effective metrics can be built. Attempt is made to explain the importance of the payment and settlement systems with respect to financial stability with emphasis being laid on the significance to abide by proper principles which would ensure that the system is perpetually robust and sound. Coverage is also provided pertaining to systemic risks which characterise the systems with discussion being made with respect to challenges of the systems.

Reserves represent the buffers that countries often wield during crisis conditions. The two major types of reserves are discussed, namely capital reserves and liquidity reserves for financial institutions at large (banks, insurance companies) before drifting to country reserves such as the import coverage ratio. As a matter of fact, the ability of an economy to withstand shocks through the use of reserves as a cushion hinges heavily on whether these reserves are being naturally endowed or acquired. In the former case, this presents lesser strains on the economy while in the latter case, once reserves are found at a critical stage, the authorities may no longer be able to intervene so that this unleashes major detrimental impacts on the economy – the most glaring instance pertains to foreign exchange interventions in the case of a fixed exchange rate regime clung by an economy.

Derivatives present an important area of focus for financial stability. This can best be explained in the words of Warren Buffet who labelled derivatives as financial time bombs. Since derivatives appear to be a subject of its own area and based on its immense significance in the world, a meticulous approach is undertaken when explaining derivatives from theory to practice. Big losses, metrics of assessments, rationale behind hedging, types of hedging, elements to factor for sound hedging and different instruments of derivatives, such as swaps, options, futures and forwards, are all being given due consideration.

It is ironical to note that it was only after the global financial crisis that the authorities in Europe decided to engage into a European Fiscal Union. Such a workout plan should have been decided long back ago during the ongoing stage of establishment of the European Monetary Union. The underlying rationale relates to the Mundell–Fleming theory of capital flows and exchange rate regimes. It has been proven that in the case of a flexible exchange rate regime, monetary policy becomes highly effective under free capital flows. Conversely, fiscal policy is recommended in the case of a fixed exchange rate regime. Apart from these issues, investigations are also being made as to the US–China case – a clear-cut case of non-conformity to economic theory – depreciating currency for balance of payment deficit economy and an appreciating currency for balance of payments surplus economy. It tends to be a common feature in economic parlance to have Asian economies striving hard to maintain weaker currencies to boost their exports. Quantitative easing in the US and in Europe which generated massive liquidity could be benefiting to developing countries which have relatively higher interest rates than these advanced economies so that this could contribute to higher capital inflows to developing countries but with pressures on exchange rates, adding lustre to the application of Mundell–Fleming theory to the practical world.

The core areas of focus have been considered based on the experience of the author in analysing various financial stability reports issued by various countries (mainly through their central banks) in the world. These core areas have been arranged into local and international developments, payment and settlements system, reserves, derivatives and exchange rate. In essence, these five core areas are given full consideration in this book. No stone is left unturned in terms of unleashing a complete analysis of all these five components.

It is of paramount significance to note that financial stability constitutes a highly complex and subtle state by virtue of the fact that financial instability can manifest even if there are strong signs of financial stability, making it a must to focus on these five core areas. For instance, even if all sectors of an economy exhibit healthy signs as to trigger low risks to financial stability, nonetheless, if the economy's payment and settlements system is badly affected by some unknown risk, this may entail significant decline in the level of trust and confidence in the country's money as to drive payments gridlocks and instability conditions. Conflicting goals may also be ingrained in financial stability. On 29 September 2015, the governor of the Bank of England pointed out that 'The abrupt transition to a low-carbon economy is "a financial stability risk"'. This explains the underlying rationale as to why a truly full-fledged analysis of financial stability necessitates sound investigation of these five core areas.

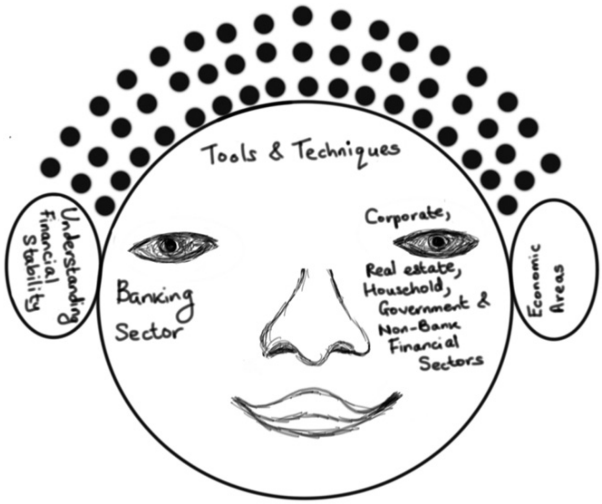
The disparity in savings between surplus and deficit countries has been cited as the major cause of global imbalances. Going ahead, the servicing cost of high public debts still pose lingering risks to financial stability though fears become abated via lower yields.

The author strongly believes that a new area of focus will need to be given consideration, namely cryptocurrencies and FinTech. However, as at of date, not many central banks are in favour of the use of cryptocurrencies chiefly when the latter are anticipated to gnaw at the very essence of existence of central banks and their authority through their vested powers to issue notes and coins in the economy. Nonetheless, as and when required, different chapters of this series of 4-volume books were given full consideration with respect to the link between technological developments and financial stability. For instance, in the current volume, cyberattacks risks are being discussed in payment and settlements system.

The book has been written as a reference material to cater for the needs of both new and experienced professionals such as central bankers, researchers, economists and policy-makers who are involved in the field of financial stability. As a matter of fact, many central banks now have a financial stability unit or a department but so far, there is no textbook which weaves through the various aspects of financial stability. Central bankers can use the book to beef up the analytical part of their financial stability reports by incorporating new tools of assessments. The book appeals to courses/programmes on financial stability as provided by Yale School of Management (Macroprudential Policy or Financial Stability Regulation/Master of Management studies in Systemic Risk), Goethe Business School (Financial Stability and Regulation/Executive Education course) and Florence School of Banking and Finance (Banking and Financial Stability course). To date, there are no textbooks or referenced materials which undertake an intensive and coherent approach to financial stability. For example, there is no such framework as to how financial stability, as a process, should be performed. This book attempts to provide all key issues in a highly comprehensive and critical manner. In that respect, the book is expected to be widely used worldwide, both by professionals and by researchers.

The author expects the book to be particularly useful to economists, policy-makers, researchers and students in the sphere of financial stability in the banking sector. As at date, there is no textbook on financial stability which weaves through all aspects of financial stability – from theory to practice. This series of five books on financial stability attempts to fill in such a vacuum. Comments and suggestions can be made to i.ramlall@uom.ac.mu/iiramii3@gmail.com. The author seizes this opportunity to thank an anonymous referee from the London School of Economics for his suggestions and reviews made by professionals from central banks and reputable organisations.

Dr Indranarain Ramlall
June 2018



Financial Stability as a field of its own.
Dr. I. Ramlall 20/09/18

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Chapter 1

Local and International Developments

1.1. Introduction

It is no wonder that the level of a state's financial stability hinges on developments at both domestic and international levels. This can be clearly noted through financial stability reports or financial stability reviews published by central bankers in the world whereby the first part or section or chapter usually probes into local and international developments. The objective of this chapter is to introduce to the readers the key components which fall under the purview of local and international developments, respectively. However, to unleash a sound approach to dealing with local and international developments, recourse is made to a well-articulated systematic approach in which weights (more precisely, probabilities) are given to specific events. More specifically, it is being argued that a properly wholesome approach to dealing with local and international developments involves not only focusing on the historical events which manifested since the last the financial stability report (or review) published but also being proactive by giving the likelihood of impacts of events along with their occurrences. A key point to bear in mind is that while international developments will tend to centre on those advanced economies which drive the global output, local developments are invariably tilted towards country-specific features. It is strongly believed that if all economies were to adhere to the suggested approach, that would induce a more standardised reporting approach which would ease comparative assessments between countries. Indeed, to date there is no imposed or recommended standardised approach as to how financial stability reports should be presented.

An important lesson to be borne in mind by policy-makers relates to the notion that the global financial crisis of 2007 still permeates the present economic environment in terms of lingering effects in spite of the fact that the financial system is now better supervised and regulated. The Banque de France (2017) stated that 'The financial crisis had a huge impact on the real economy: many countries have still not seen a return to pre-crisis levels of output and are suffering from high levels of unemployment, which the cost of bank bailouts to public finances continues to weigh on growth'. The global nature of the 2007 financial crisis implied that the solutions required had to be of global nature too.

Local developments encompass all events which manifest on the domestic front. Governments have great concern about the effectiveness of the tools that they wield to control their economies. This explains the reason as to why local macroeconomic indicators are widely used to disseminate information on the financial stability path of an economy.

Interest rates data reflect the level to which financial intermediation is affordable in the economy. Household consumption is assessed based on its dependence on labour market conditions and the level of consumer sentiment. The financial soundness of households is negatively affected by interest rates but positively impacted by the level of disposable income. Therefore, the present era of low interest rates increasingly benefit the household sector in terms of affordability of loan repayment capacity. Inflation data translate the extent to which the public have confidence in the local currency. Unemployment data reflect the level of the opportunity cost to the economy because the larger the chunk of unemployed people in the participation rate, the higher the opportunity cost to the economy in terms of lost output. The level of private and public debts also constitutes key metrics to be watched. It is widely known that during crisis conditions, private debts decline while public debts increase. Savings are primordial for investments in an economy to the plain effect that dearth of savings translates into instant decline in investments which thereby squeeze on the potential economic growth level of the economy. Similarly, broad money is widely used to sieve out the extent to which economic activities are being monetised, though the components of broad money may differ from one country to another. Balance of payments data contain key information such as the level of external confidence put into the local economy through the inflows of capital and foreign direct investment. The import cover ratio captures the number of weeks or months to which reserves can sustain imports.

Besides, the assessment of key macroeconomic variables alone do not suffice, there is also the need to undertake a full-fledged analysis of the various sectors which make up the economy. Specific sectors may pose greater risks to financial stability than other sectors. In a nutshell, developments at the domestic level can be dichotomised into specific sectors and specific areas of focus. Specific sectors comprise the banking sector, the government sector, the household sector, the corporate sector, the real estate sector and the non-banking sector. In a parallel manner, consideration should also be given to other elements which fall under the purview of local developments such as the payment and settlement systems and derivatives. Therefore, based on the notion that financial stability risks emanate from different sectors and areas of the economy, it becomes considerate to gauge the risks to financial stability through stress index indicators which simultaneously give due consideration to all sectors and areas of focus in the economy under scrutiny. Thus, importance should also be given to the different tools and techniques employed in assessing risks to financial stability.

As far as global developments are concerned, the focus is invariably laid on the performance of advanced economies along with closely related trading partners. Geopolitical tensions and the political economy are given prominent roles in this endeavour such as the North Korea and US tensions in 2017. In addition, key economies of focus usually comprise the US, the UK, Europe, India and China along with some other emerging market economies.

Figure 1.1 provides a snapshot of the distinct elements which fall under the purview of local developments when it comes to analysing financial stability reports of different countries in the world. The list is not exhaustive but reflective for most financial stability reports/reviews in the world.

Developments at the international level are depicted in Figure 1.2.

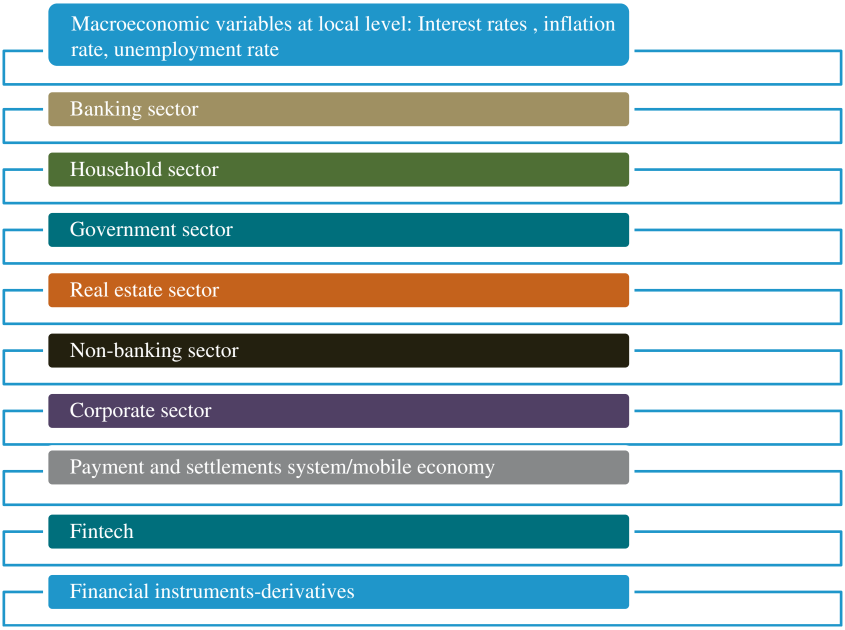

Figure 1.1: Developments at the Local Level. *Source*: Author's illustration.

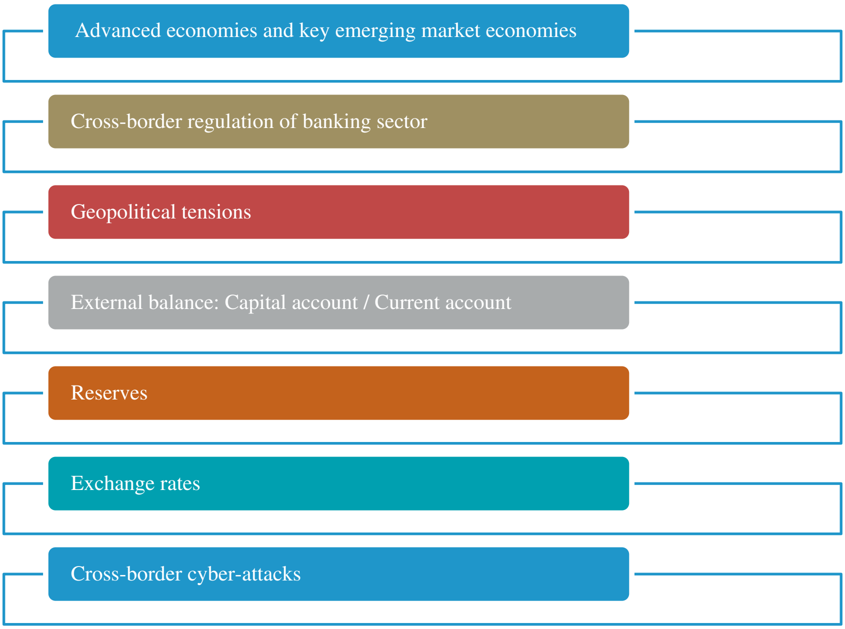

Figure 1.2: Developments at the International Level. *Source*: Author's illustration.

1.2. Conventional Risk Assessment Matrix à la IMF Flavour

Financial stability reports regularly report risk maps pertaining to various types of risks which are susceptible to buffet an economy. As a matter of fact, to generate enhanced visual assessments, many countries resort to different visual mapping of risks as illustrated in the case of Namibia in Figure 1.3. For more complex economies, it may not be easy to use risk maps. This explains the reason as to why the IMF resorts to RAM (risk assessment matrix).

To assess risks from various sources, the IMF employs the risk assessment matrix. This is shown in Tables 1.1–1.6 in the case of UK under IMF country report.

The IMF (2018a) stated that the "The Risk Assessment Matrix (RAM) shows events that could materially alter the baseline path (the scenario most likely to materialise in the view of IMF staff). The relative likelihood is the staff's subjective assessment of the risks surrounding the baseline ('low' is meant to indicate a

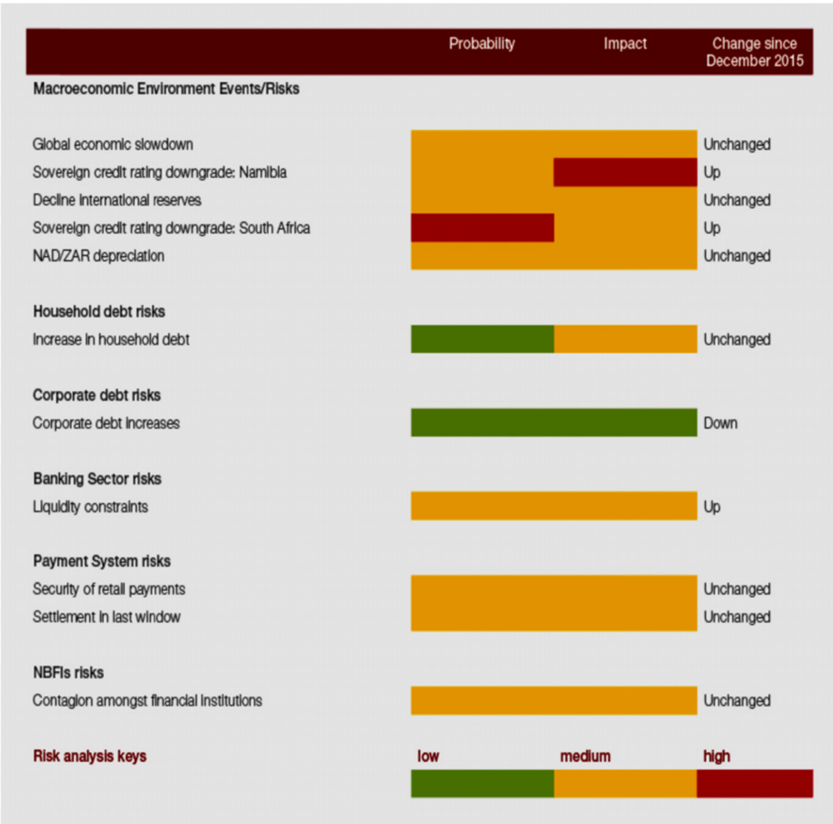

Figure 1.3: Risks to Financial Stability in Namibia. *Source*: Namibia Financial Stability Report (April 2017).

Table 1.1: Risk Assessment Matrix for UK.

Source of Risks and Relative Likelihood	Expected Impact of Risk	Policy Recommendations
Low Leaving the EU with no deal	High A significant increase in trade barriers will lead to lower production, investment and exports On impact, there could be widespread disruptions of production and services in various sectors. A sharp decline in confidence could also trigger elevated financial volatility and asset prices declines There is a risk of a period of stagflation Higher import tariffs and further sterling depreciation would depress households' real incomes and consumption A decline in asset prices, including real estate prices, would affect the balance sheets of financial and non-financial corporations and households, reducing further investment and consumption Negative economic consequences in the rest of the EU – due to higher trade barriers and a possible increase in the cost and availability of financial services – would have spillback effects to the UK Over the medium term, the supply capacity of the economy would fall due to lower domestic and foreign investment, less competition and lower benefits of economic integration	• Close collaboration to ensure a smooth and predictable transition to a new economic relationship with the EU • Contingency planning for risks that may arise in the event of heightened market volatility, including liquidity support • Let automatic fiscal stabilisers operate fully. A temporary slowing of the structural fiscal consolidation could be considered in the event of a sharp growth slowdown. The scope for monetary stimulus will depend on an assessment of slack in the economy and the extent to which longer-run inflation expectations remain well-anchored • Implement structural policies to boost productivity and competitiveness over the medium term

Sources: The International Monetary Fund (2017). Article IV Consultation Press Release, Staff Report and statement by the Executive Director for the United Kingdom.

Table 1.2: Risk Assessment Matrix for UK.

Source of Risks and Relative Likelihood	**Expected Impact of Risk**	**Policy Recommendations**
Medium Cyberattacks on interconnected financial system and broader private and public institutions	Medium A successful cyberattack on one or more systemically important financial institutions or market infrastructure (payment, clearing and settlement payments) causes delay, disruption or loss of services, affecting many institutions that reply on the attached hub. This could also lead to a loss of confidence in the functioning of the financial system	• Pre-emptively, carry out regular testing of the resilience of computer systems to cyberattacks and address vulnerabilities
Financial conditions: • Tighter global financial conditions. Fed normalisation and tapering by ECB increase global rates and term premia, strengthen the US dollar and the euro vis-à-vis the other currencies and correct market valuations. Adjustments could be disruptive if there are policy surprises (*High*) • Decompression of risk premia in UK corporate bond markets could also be triggered by domestic concerns (*Medium*) • European bank distress: strained bank balance sheets amid a weak profitability outlook could lead to financial distress in one or more major banks with possible knock-on effects on the broader financial sector and for sovereign yields in vulnerable economies (*Medium*)	Medium A decompression of global term premia and tighter financial conditions could affect the balance sheets of financial and non-financial corporations and lead to tighter local credit conditions and higher funding costs Negative spillovers to economic activity from weaker external demand	• Maintain strong balance sheets and high capital buffers in the financial sector • Domestic financial conditions could be controlled to some extent through monetary and macro-prudential policies • Clear and timely communication of changes in the assessment of economic developments that could affect the optimal path of the policy rate or the yield curve more generally would reduce the risk of domestically generated policy surprises

Sources: The International Monetary Fund (2018b). 2017 Article IV Consultation Press Release, Staff Report and statement by the Executive Director for the United Kingdom.

Table 1.3: Risk Assessment Matrix for UK.

Source of Risks and Relative Likelihood	**Expected Impact of Risk**	**Policy Recommendations**
Weaker-than-expected global growth: • Significant China slowdown and its spillovers: efforts to rein in financial sector risks, though desirable, expose vulnerabilities of indebted entities and reduce near-term growth. Over the medium term, overly ambitious growth targets lead to unsustainable policies, reducing fiscal space and further increasing financial imbalances. Should a sharp adjustment occur, this would entail weak domestic demand, which in turn would lower commodity prices, roil global financial markets and reduce global growth (*Medium*) • Structurally weak growth in key advanced economies (*High*). Significant slowdown in large EMs (*Medium*)	Medium/High Slowdown in exports and GDP growth China accounts for only 3½%of UK exports, so spillovers through trade would be limited. However, financial sector linkages are significant: system-wide exposures to China and Hong Kong SAR equal to about 189% of system-wide CET1 Bank of England's November 2017 stress tests indicate that the UK banking system can withstand a severe downturn in China and EMs along with lower growth in the euro area, while preserving its ability to provide credit to the domestic economy	• Allow automatic fiscal stabilisers to operate; could temporarily ease macroeconomic policies if growth slows sharply • Implement structural policies to boost investment, productivity and competitiveness
High • Protracted period of low productivity domestically • Failure of productivity growth to recover due to higher trade barriers,	High Decline in actual and potential GDP growth Loss of competitiveness Possible pressure on unit labour costs and prices	• Implement productivity enhancing structural reforms • Tighten monetary policy if earnings growth outpace

Table 1.3: (*Continued*)

Source of Risks and Relative Likelihood	**Expected Impact of Risk**	**Policy Recommendations**
reduced FDI inflows and more restrictive immigration policies		productivity, increasing price pressures
High A significant decline in house and commercial real estate prices	High High household leverage exposes banks and households to adverse shocks to house prices. Even if debtors continue to service their mortgages, consumption would be affected through wealth effects	• Pre-emptively, maintain prudent lending standards • In case of significant negative macroeconomic effects, consider easing monetary policy

Sources: The International Monetary Fund (2018b). 2017 Article IV Consultation-Press Release; Staff Report; and statement by the Executive Director for the United Kingdom.

probability below 10%, 'medium' a probability between 10 and 30% and 'high' a probability between 30 and 50%). The RAM reflects staff views on the source of risks and overall level of concern as of the time of discussions with the authorities. Non-mutually exclusive risks may interact and materialise jointly".

As per Tables 1.1–1.4, the information provided pertains more to local developments side in the UK. Global or external developments are principally being assessed in Tables 1.5 and 1.6.

Some countries even report their own type of risk assessment map as shown below in the case of South Africa (Table 1.7).

1.3. A Framework to Induce a Systematic Approach in News Analysis at the International Level

An innovative framework is being introduced here to gauge the impact of future developments at both the local and the international levels on the performance of an economy. Based on the vast experience of the author in digesting economic news, it is strongly believed that the approach spelt down here will be of immense assistance to central bankers and policy-makers in best understanding how different news will ultimately impact on their respective economies. The chief advent of the suggested technique, as depicted in the Table 1.8, is that it