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A Risk-Controlled Sustainable Investment Approach

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1. Sustainable Investing

The concept of sustainable investing is a modern investment strategy, wherein investments are directed at not only financial results but also on seeking positive social and environmental impacts. It is a form of smart investment since there is an extended focus from traditional financial gains towards making the world a better place by engaging in responsible investments.

Sustainable investing is commonly identified as Socially Responsible Investing (SRI) or ethical investing whereby environmental, social and governance (ESG) considerations are integrated into the investment process (Capelle-Balncard & Monjon, 2012).

Therefore, sustainable investors are on the lookout for firms engaging in best practices on areas of community relations, labor conditions, environmental sustainability and shareholder engagement whilst avoiding investments in sin stocks such as alcohol, gambling, weapons, tobacco and pornography.

Table 1: Typical ESG elements

ENVIRONMENTAL ("E")	SOCIAL ("S")	GOVERNANCE ("G")
Biodiversity/land use	Community relations	Accountability
Carbon emissions	Controversial business	Anti-takeover measures
Climate change risks	Customer relations/product	Board structure/size
Energy usage	Diversity issues	Bribery and corruption
Raw material sourcing	Employee relations	CEO duality
Regulatory/legal risks	Health and safety	Executive compensation schemes
Supply chain management	Human capital management	Ownership structure
Waste and recycling	Human rights	Shareholder rights
Water management	Responsible marketing and R&D	Transparency
Weather events	Union relationships	Voting procedures

(Corporate Social Responsibility Initiative, Harvard Kennedy School, 2018)

2. The Origin of Sustainable Investing

Methodists' money management practices which existed 200 years ago, refrained from investing funds with those who had businesses in gambling, alcohol and tobacco, screening investments from such counterparts (Donovan, 2018). During the transformative 1960s and 1970s, sustainable investments were influenced by the emergence of the anti-war movement against the Vietnam War and the rise of racial equality, women 's rights, consumer protection and environmental conservation movements. Socially responsible investors boycotted investing in companies that conflicted with their values. For an instance, during the Vietnam War, certain investors in North America were on the lookout for methods to avoid "war profiteering" in their portfolios.

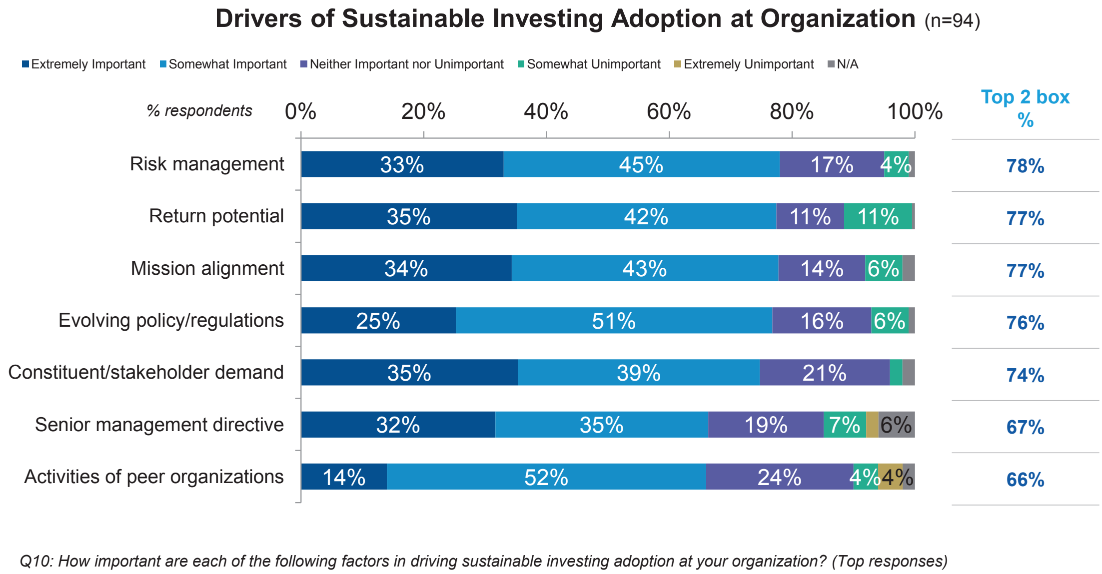
As the world started to react on climate change and human trafficking, socially responsible investors followed their value based principles strongly and by early 1970s, the first mutual fund based upon faith-based values, civil rights and environmental concerns was created (Townsend, 2017). 1980s saw the emergence of mutual funds catering to socially responsible investors by screening investments for involvement in basic concerns of the Methodists such as weapons, gambling, alcohol and tobacco as well as on modern issues of nuclear energy, environmental pollution and treatment of workers. The Domini Social Index was introduced in the 1990s in view of the growth of socially responsible investments by mutual funds, with the objective of providing investors with a benchmark to measure performance of screened investments against their unscreened counterparts (Donovan, 2018).

3. Present Day Sustainable Investing

Sustainable investing has become increasing popular in the present business context where organizations are increasingly becoming aware of the sustainability of their operations, alongside the need for wellbeing of society and conservation of nature for the future generations. Responsible investment by asset owners focuses on ESG factors in the present investment climate where earning returns in a socially responsible manner is identified to be integral. The results of an online survey on ESG investing conducted by Greenwald and Associates on behalf of Morgan Stanley Investment Management Institute (MSIMI) and the Morgan Stanley Institute for Sustainable Investing have gathered information from asset managers in three global regions of North America, Europe and Asia Pacific and these results provide sufficient evidence on the importance placed by socially responsible investors on sustainable investments.

Key findings of the survey indicate that 84 per cent of the institutions which participated are integrating sustainable investing criteria into the investment process or are actively considering doing so and, amongst those institutions 60 per cent have begun the process within the last four years. Results indicate higher number of respondents adopting sustainable investment practices for risk management, return enhancement and mission alignment purposes to address global sustainability issues through their investments.

The overall investment process for global asset owners is increasingly being influenced by sustainable investment criteria including Request For Proposal (RFP) processes and Investment Policy Statements (IPS). ESG integration, restriction screening and shareholder engagement emerge as common approaches to sustainable investing. Additionally, it could be identified that78 per cent of institutions considering sustainable investing have also considered aligning with the United Nations (UN) Sustainable Development Goals (SDGs) as part of their investment strategy.



(Morgan Stanley Investment Management Institute, 2018)

4. Approaches to Sustainable Investing

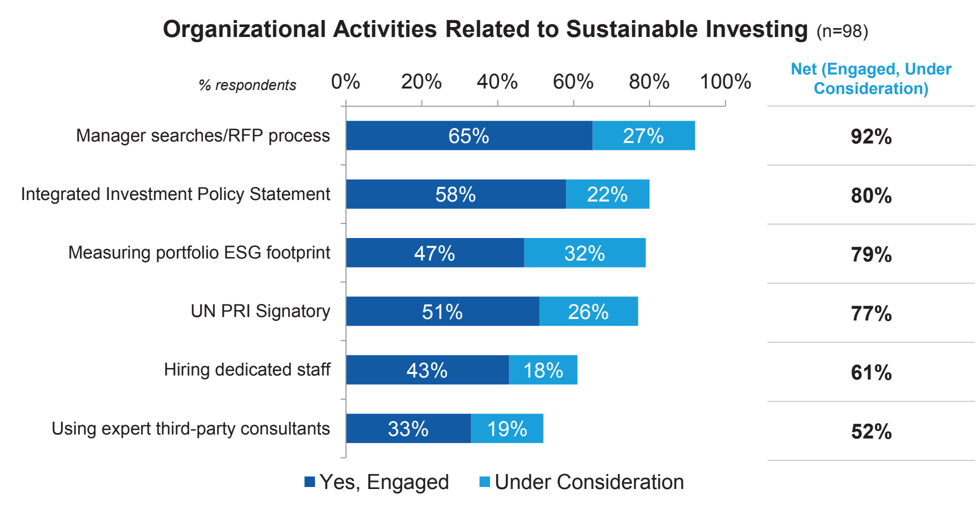
Sustainable investing could be adopted in the form of ESG incorporation, restriction screening, thematic, stakeholder engagement and/or impact investment.

4.1 ESG Incorporation

ESG criteria are applied when analyzing investments and constructing portfolios across asset classes under this approach (The Forum for Sustainable and Responsible Investment, 2017).

In incorporating ESG criteria to their investments, asset managers either actively include companies with strong ESG policies and practices into their portfolios, or exclude companies with weak ESG track records. Accordingly ESG incorporation strategies could be as follows.

- Positive/ best-in- class screening: Investments will be directed to companies or projects with positive ESG performance.
- Negative/ exclusionary screening: Refraining from investments in companies



(Morgan Stanley Investment Management Institute, 2018)

that are engaged in activities which do not fall under the ESG criteria.

- ESG integration: Explicit inclusion of ESG criteria in financial analysis of companies and investments.
- Impact investing: Investments are directed at projects focused at addressing social and environmental issues.
- Sustainability themed investing: Investments are targeted at projects aimed at sustainability improvements.

4.2 Restriction Screening

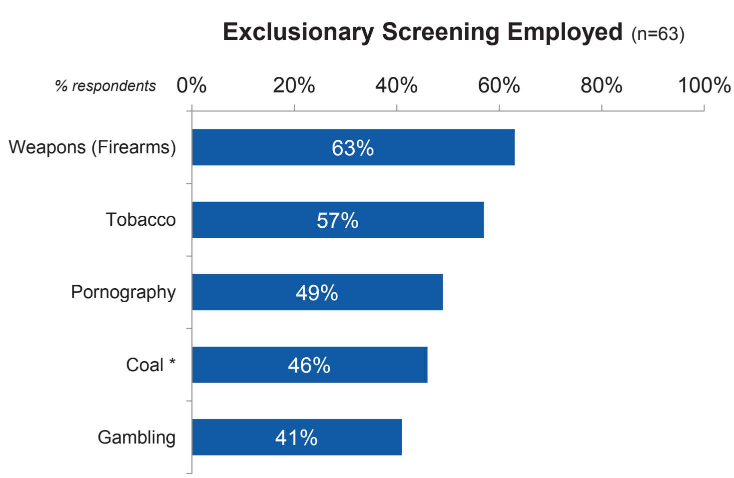
Institutions screen to avoid or restrict their investments from industries which are not involved in sustainable businesses. The study conducted by MSIMI in 2018 revealed that institutions which practice responsible investments screened for restrictions for weapons, tobacco, pornography, coal and gambling.

4.3 Thematic Approaches to Sustainable Investing

The main focus in thematic funds is to pursue investments on sectors such as water or energy or issues relating to the need to transform to sustainable development and a low carbon economy, whereby ESG criteria are the main considerations in the portfolio design process (Graaf & Slager, 2006). The MSIMI's survey results showed climate change, inclusive growth and gender diversity are the main issues the participating investments were seeking to address through their sustainable investments.

4.4 Stakeholder Engagement

Increasing interests of stakeholders on the impact companies make on society has encouraged companies to involve their stakeholders in sustainability efforts they undertake. In this process, identification of stakeholders, determining expectations of stakeholder groups and developing an engagement plan with stakeholders to create value to the society can be identified as the main steps. For an example, at Coca Cola Hellenic Bottling Company, varying forms of stakeholder engagement forms are used based on the stakeholder groups; where the Company practices sustainable sourcing by engaging with suppliers and organizing community meetings, lectures at universities and sponsorship activities to engage with the local communities (Vasileva, 2014).



Q12a: When employing Exclusionary/Negative/Values-Based Screening, which of the following screens does your organization seek to apply? (Top responses)
** Note: only 21% of respondents seek to apply a screen for Fossil Fuels broadly*

(Morgan Stanley Investment Management Institute, 2018)

4.5 Impact Investment

Impact investing is focused on creating a positive social or environmental impact alongside a financial return. In other words, commercial solutions are found for environmental and social challenges under this approach. The main criteria evaluated under impact investing are intended to generate positive social and/or environmental impacts, in addition to financial returns, measured against a benchmark for actual change/s caused and verification of proof such that invested capital is positively correlated with the intended outcome (Freedman, et al., 2016).

5. Advantages and Disadvantages of Sustainable Investing

5.1 Advantages of sustainable investing

- Personal values: Values of investors encourage them to make returns for their investments in a socially responsible manner, whereby the returns investors earn can be enjoyed in peace with a feel-good factor (J. Safra Sarasin, 2013).

- Economic efficiency: Environmentally friendly and socially responsible investments generate returns for investors in the long run with high potential for enjoying higher profits in the future as the demand for environmentally and socially compatible products are increasing. Nielsen statistics have found that nearly three-quarters of millennials are willing to pay a surcharge for sustainable goods and services (Affinity Capital, 2017).

- Catalyst for change: With investor demand for socially responsible companies and projects growing, companies will be driven towards similar endeavors which in turn will drive them towards achieving greater sustainability in their business operations, reaping the benefits of these efforts to the environment and other important social causes (Affinity Capital, 2017).

- Form of investment with a competitive return at a limited risk: A significant positive effect is identified by researchers by studying its economic relationship over the years (J. Safra Sarasin, 2013).

5.2 Disadvantages of Sustainable Investing

- Time and research: Since sustainable investing is not a passive strategy, continuous research on potential investments is critical to ensure they align with the investors' values, which becomes more complex in the case of all investments in the portfolio having to meet certain benchmarks (Affinity Capital, 2017).

- Not often an optimal strategy: Ethics might become more important than performance and would result in investors having to sacrifice financial returns for pursuing an ethical approach. As a result, some investors prefer to pursue conventional investment approaches instead and donate a portion of their financial returns to charitable causes (Affinity Capital, 2017).

- Higher fees: With the constant need to monitor companies' activities to ensure the standards of socially responsible and environmentally friendly values are upheld, portfolio managers charge higher fees for sustainable investing which can drag down portfolio performance (Glassman Wealth Services, 2016).

- Subjective definition: The definition of a socially responsible company is ambiguous and subjective which could misguide investors (Glassman Wealth Services, 2016).

6. Risk-controlled Multi-asset Investing with an ESG flavor

The starting point of asset allocation under a risk controlled framework is to commence with risk identification with each portfolio being assigned a target volatility. A broad asset mix consisting of fixed income, equity, commodity-linked investments, cash and other asset classes are calibrated accordingly to achieve the said risk target. In order to participate in rising markets and to seek protection from the volatile market downturns associated with global economic events, a dynamic approach to allocate risks could be pursued via a flexible asset allocation. The aim of such a risk controlled asset allocation process is to add value through tactical positioning of asset classes in regions and sub-asset classes with quantitatively-driven implementation supported by qualitative decision making.

6.1 Investment Process Overview

An investment process comprises three steps of risk profiling, tactical positioning and quantitative position sizing, to ensure that the process is repeatable, scalable and efficient.

The first step of a forward-looking approach to asset allocation is determining the risk profile by anticipating volatility and dynamically managing the broad asset mix to meet the risk target. When conducting tactical positioning within broad asset classes as the second step of the process, determining preferences across regions and sub-asset classes is the key. The final step of the investment process is to perform a disciplined translation of tactical views into position sizes with portfolio managers focusing on determining tactical asset class views and preferences, using standard 'quant' techniques to translate preferences to implied excess returns and assigning directional scores to reflect tactical preferences.

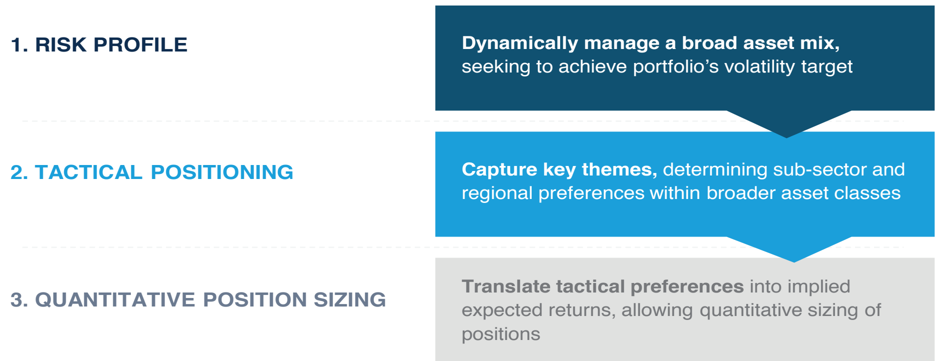
6.2 Incorporating ESG Criteria

The new step added to the investment process is that of incorporating ESG criteria to enhance the risk profile. At Morgan Stanley, this step is performed by mitigating stock-specific risks based on 'sustainanalytics' data where companies rated '5' on a scale of 0-5 are excluded including all coal stocks, creating ESG-tilted baskets ensuring optimized security baskets are tilted towards ESG-friendly stocks with additional emphasis on 'high potential' ESG factors such as climate change without overpaying and opportunistically engaging with selected companies held by the portfolio on a targeted set of ESG issues.

7. Importance of a Risk-Controlled Sustainable Investment Approach in Central Bank of Sri Lanka's Perspective

Institutional investors, central banks, government and private banks as well as other private sector financial institutions manage trillions of dollars of investible capital. The manner in which such organizations channel their funds have a significant impact on which companies, technologies and projects succeed in supporting sustainable solutions (World Resources Institute, 2019).

Sustainable investments have become increasingly popular in the recent past with the concerns on environment, equality and social responsibility being discussed and emphasized by lawmakers such as governments as well as business organizations. Globally, there are now US$22.89 trillion of assets

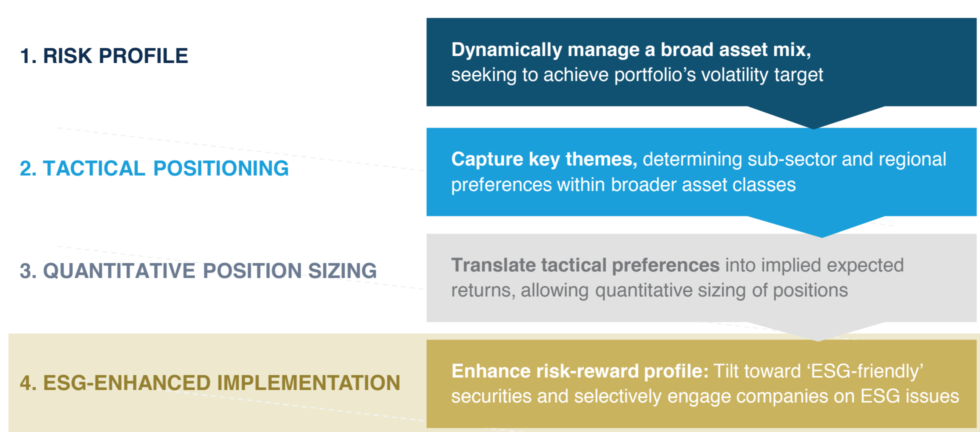


(Morgan Stanley Investment Management Institute, 2018)

being professionally managed under responsible investment strategies, reflecting an increase of 25 per cent since 2014. In relative terms, responsible investment stands at 26 per cent of all professionally managed assets globally. Therefore, sustainable investing constitutes a major force across global financial markets (Global Sustainable Investment Alliance, 2016).

In Europe, total assets committed to sustainable and responsible investment strategies grew by 12 per cent from 2014 to 2016 to reach US$ 12.04 trillion. 53 per cent of total professionally managed assets in Europe use responsible investment strategies. In the U.S., the total sustainably invested assets at the beginning of 2016 stood at US$8.72 trillion, up 33 per cent from US$ 6.57 trillion in 2014. In Australia and New Zealand combined, sustainably invested assets have grown from 2014 to 2016 to reach US$ 515.7 billion, and to a point where in Australia, sustainable investments now account for 50 per cent of all professionally managed assets. The overall market for sustainable investment in Asia has been growing more slowly and as of 2016, US$ 52.1 billion in assets were managed using one or more sustainable investment strategies with Japan leading its way in Asia (Global Sustainable Investment Alliance, 2016).

Moreover, the Sustainable Development Goals (SDGs) introduced by the United Nations in 2015 place a higher prominence and responsibility on the private sector to solve some of the most urgent problems the world is facing, by contributing to achieve the 17 SDGs through their business operations, investment decisions and resource



(Morgan Stanley Investment Management Institute, 2018)

allocations by 2030 to reach economic, social and environmental development. Central Banks, as responsible investors have a critical role to play in this regard as the SDGs are the globally agreed upon sustainability framework, revealing the macro risks the world is facing, that are unavoidable considerations of which the investors are the universal owners. SDGs drive global economic growth whilst playing the role of a risk framework and a capital allocation guide (Principles for Responsible Investment, 2017).

Sustainable investments led by ESG focus could be implemented across asset classes without compromising on risk-adjusted returns as such ESG friendly portfolios can be resilient in risk-on periods (Blackrock Investment Institute, 2018). A significant amount of academic research conducted around the world show that sustainable investing does not hold a negative relationship on investment performance. Moreover, sustainable investing is found to be performing on par with comparable conventional funds and indexes with companies with high ESG scores and ratings outperforming their counterparts in accounting as well as stock market terms (Hale, 2016).

As the monetary authority of the country, the Central Bank of Sri Lanka (CBSL) holds a foreign reserve of approximately USD 7.6 billion as at end of 2019 and mainly adopts a passive management strategy considering the liquidity requirements as the primary objectives of a Central Bank's reserve management are assuring safety and liquidity. However, CBSL pursues active management strategies in managing the excess reserve level after allocations are made for liquidity constraints driven by the objective of generating higher and sustainable risk-adjusted returns in the medium to long-term. Fixed income securities (FIS), Money Market (MM) instruments and Gold are the main assets the foreign reserve is comprised of; and these assets are distributed amongst the currencies of USD, AUD, JPY, GBP, EUR, NZD, CNY and XAU.

In comparison with the rest of the world and other emerging economies, Sri Lanka has not yet placed due recognition to the importance of pursuing sustainable investments, despite the role sustainable investments play in the context of contributing to the achievement of SDGs by the country. Accordingly, the foreign reserve management activities of CBSL could be considered as a vital stepping stone for Sri Lanka to embark on sustainable investments and show its support and encouragement to the rest of the Sri Lankan investors.

As the world investor community is increasing, the prominence of sustainable investments with solid risk-adjusted returns providing sound evidence of the success of sustainable investment practices, with empirical research findings also advocating in the same direction, CBSL could benefit from adopting a risk-adjusted sustainable investment approach in the medium to long-term. Accordingly, in the light of the growing global demand for sustainable investments, the CBSL too followed the trend and invested in green bonds denominated in USD during 2019.

However, CBSL is only allowed to invest in FIS, MM and Gold as per its Foreign Reserve Management Guidelines and investment in equities is not permitted therein yet. Furthermore, FIS holding the highest asset composition, is being restricted by the ability to hold only one third of its FIS investments in approved supranational and agency institutions mentioned in the Counterparty Credit Risk Management System. Therefore, CBSL is constrained in effectively transmitting into a risk-adjusted sustainable investment approach in the present context, if such sustainable investments refer to bonds issued by supranational or agency institutions or equities issued by corporates. Nevertheless, since adoption of a risk-adjusted sustainable investment approach is a major trend in the world markets and has the potential to generate sustainable returns over the long run, as shown by empirical evidence, focused efforts will have to be undertaken on guiding CBSL reserve management activities in this avenue.

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Strengthening contract management to improve value for money in public procurement

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1. Introduction

"There is often an inverse relationship between the amount of time spent in preparing tender, contract conditions, and the resources required to deal with problems in contract administration and disputes after the contract has been formed." [1]

The public sector operates in a value-oriented environment with a view to safeguard "public interest". When maximizing the public interest, government institutions, at times engage with private sector or public sector institutions to procure works, goods or services. In the procurement process, contracting is an integral part, as the parties to the contract frame the trust between them in delivering the objectives of the process to a written document, i.e., the contract. As a result, contract management has become important to ensure that public resources are involved to deliver on public interest objectives. There are globally recognized principles that shape contract management. Guided by such principles, each contract can be managed through a workable contract management plan.

2. Public procurement in brief

Public procurement involves the whole process of spending public money to acquire property or services or works for public programmes or projects. It begins when a public institution has identified a need or a requirement and decided on its procurement requirement. Procurement continues through the processes of risk assessment, seeking and evaluating alternative solutions, terms of references, contract award, delivery of and payment for the property or services and, where relevant, the on-going management of a contract and consideration of options related to the contract. Procurement also extends to the ultimate disposal of property at the end of its useful life.[2] In Sri Lanka, according to the Public Procurement Guidelines, which comprise the main regulatory framework, currently applicable for procurement by government institutions, public procurement involves purchase, rental, lease or hire purchase, of goods, services or works by

1 Australian Government Solicitor, *Competitive Tendering and Contracting – Strategic and Legal Issues*, Legal Briefing No. 35 (1997), p. 2.

2 Commonwealth Procurement Guidelines, (2020). p. 10.

government institutions. These will also include services related to the provision of goods or services or the execution of works.

Within the public financial management process, procurement is identified as critically important, mainly due to following reasons.

(i) Public procurement deals with public funds, and controls should be in place to ensure that such funds are converted into timely, cost-efficient and effective services. In simple terms, value for money (VfM[3]) should be ensured at all levels.

(ii) For enhanced accountability of public expenditure and to support good governance. Public accountability and transparency are essential to secure public trust in government institutions.

(iii) Public procurement has evolved from simple purchases of goods and services to complex government activities involving multiple stakeholders such as major infrastructure projects where significant amounts of public funds are used.

(iv) To ensure timely delivery of goods, services or works intended for citizens, and to promote competitiveness, trade and investments.

In addition to the said regulatory framework, there are institution specific procedures and principles that govern public procurement. However, the common intention of such frameworks is to conduct public procurement process, giving due regard to the aforementioned reasons as to why public procurement is critically important within the public finance management.

3. Contract management in a procurement process

Public procurement process in nutshell

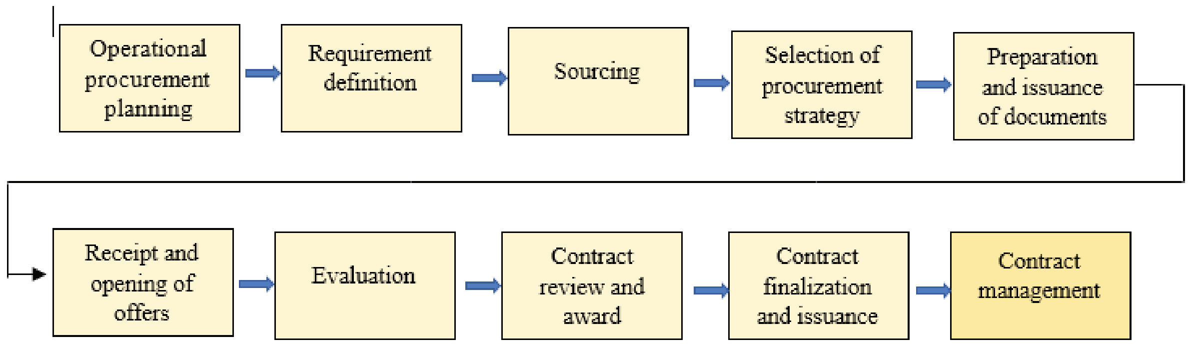
A typical procurement process as given in Flowchart 1 below, will consist of planning, initiating a request, development of requirements (technical, timing, quality, constraints), request approval, procuring authority, bid/proposal review, contract award, contract management, in brief.

Every stage in this process requires a government institution to prepare procurement documents. These documents include general procurement notice, special procurement notice, requests for bids, procurement documents (providing necessary information for a prospective bidder to prepare a responsive bid/proposal), addenda (if any), contract forms (including general conditions of contract which will be followed up with special conditions of contract, if available), expression of interest, request for quotation(s), request for proposal(s), whether in hard or electronic form.

Upon completion of the evaluation process and once a bid/proposal submitted by a successful bidder is accepted, the contract will be awarded to the successful bidder. In this regard, a formal contract is entered into between the respective procuring entity and

3 As per the World Bank Policy on "Procurement in Investment Project Financing and Other Operational Procurement Matters, (2016), "… value for money means effective, efficient, and economic use of resources, which requires an evaluation of relevant costs and benefits, along with an assessment of risks, and non-price attributes and/or life cycle costs, as appropriate. Price alone may not be necessarily representing value for money".

Flow chart 1: Public procument process



Source: UN Procurement Practitioner's Handbook

the successful bidder.

What is a "public contract" ?

In the absence of a generally applicable definition for the words public contract, it is useful to look at an interpretation provided in a legislation, i.e., the interpretation given for the words "public contract" in section 45 of the Public Contracts Act, No. 3 of 1987. Accordingly, a "public contract" means any contract for the performance of any work or services or for the supply or sale of any goods, materials or property to any public body[4] which is intended to be, or is or has been, entered into in pursuance of tenders by or on behalf of that public body, and includes any contract for the sale or disposal by that public body of any goods, materials or property in its possession, power or control.

Even though the contract type, its nature or complexity may vary based on the requirements of the contracting parties, a conventional public contract may include terms and conditions covering the scope of the assignment, rights and obligations of the contracting parties (including general and special conditions), price adjustments, payment provisions that may address the performance security (if any), policy on corrupt and fraudulent practices, dispute resolution mechanisms, termination of the contract and laws governing the contract, etc.

What is contract management?

Contract management is the process of actively managing contract implementation to ensure the efficient and effective delivery of the contracted outputs and/or outcomes[5].

As part of the contract management activities, the government entity takes the lead in determining, *inter alia*, the appropriate contract type and contract terms, taking into account the nature, risk, and complexity of the activity, fit-for-purpose considerations, optimum apportionment of risk and liabilities, and the roles and responsibilities of the parties to the contract.

4 In terms of the provisions of section 45 of the Public Contracts Act, No. 3 of 1987, a "public body" means any department, office or establishment of the Government, public corporation or local authority and includes any undertaking vested in the Government under any written law.

5 The World Bank, *Procurement Guidance: Contract Management Practice*, (2018), p. 4.

Figure 1 below illustrates the phases of a contract. It is displayed that formation of a contract commences at the time of planning and it ends after the closure of a contract.

This indicates that the contract management activities focus its implementation not only after awarding the contract (downstream activities), but also during the procurement planning, selecting the appropriate contract type and the contractor selection phase (upstream activities). In other words, the success of contract management is influenced by both downstream, as well as upstream activities as indicated in Figure 1, above.

Why "contract management" is critical in public procurement process ?

In addition to the successful execution of a contract that binds all contracting parties, effective contract management facilitates achieving VfM which is one of the main objectives of public procurement. This will be achieved by ensuring that deliverables are met as agreed in the contract, according to the required specifications, standards and/or quality and within the agreed price range. Thus, contract management continues throughout the life of a public contract as it is illustrated in Figure 1, above. In other words, contract management is underlined in every activity behind planning certain procurement, implementing such plan, monitoring the procurement process and ascertaining whether the objectives of the particular procurement have been achieved.

4. **Sound principles for contract management**

Governments in many countries have identified several contract management principles that are stemming from the best practices adopted by many institutions engage in public sector procurement processes. Commonly adopted contract management principles are listed below.

(i) **Understand and understood:** Ensure that all the terms and conditions in a contract

Figure 1: Upstream and downstream phases of a contract

Source: The World Bank, *Procurement Guidance: Contract Management Practice*, (2018).

are fully understood by all the parties to the contract including allocation of sufficient resources, well before the award of contract.

(ii) **Clear roles and responsibilities:** Appointment and demarcation of roles and responsibilities at appropriate levels with sufficient seniority. These should clearly be documented in a contract management plan to ensure contract ownership, management and governance mechanisms are carried out accountably.

(iii) **Strategic oversight:** Governance structures should be proportionate to the size and the risks associated with a contract, and should support the outcomes and objectives of the procurement process.

(iv) **Risk based approach:** Vigilance and management can be proportionate to the associated risks where lower risks contract can be self-managed whilst strategic contracts with higher rewards are scrutinized persistently.

(v) **Public service outcome:** Focus on successful outcome, i.e., VfM while observing the public service accountability obligations. Parties to the contract can work as a single team with one focus for successful outcome.

(vi) **Change can happen to anyone at any time:** Accept the fact that changes may happen to any party to the contract during a lifetime of a contract. Hence, a flexible approach to manage changes need to be adopted while ensuring that the strategic intent of the contract is not altered due to such changes. An assessment between profit *vs.* the excess profit or loss *vs.* material loss will guide to decide the extent of flexibility.

(vii) **Incentivise good performance:** Proactive administering of benchmarks with performance measurement data (achievement of key performance indicators) assists managing the outcome of a contract. Regular incentives for achieving such benchmarks may ensure good performance through out the life of a contract.

(viii) **Continuous improvement and innovation:** Active use of contract tools and facilitation of innovative ideas for improvements within the framework of a contract.

The best practices of transparency and fairness knit the above eight (8) principles, together.

5. **Key to a "fit-for-purpose" contract management plan**

For operational and monitoring convenience, it may be prudent for government institutions to design contract management plans for each procurement process based on the principles as described in paragraph 4, above. Every contract management plan should be designed to provide a structured and systematic approach to the requirements that are unique at each institution and should also be fit-for-purpose of a particular procurement process. It is significant that every action identified within the plan be proportionate to the scope, value, complexity, duration of the contract and associated risks. Key activities to be covered under a contract management plan can be seen as follows.

- Segregation of roles and responsibilities of each party to the contract based on the authorization/delegations already obtained by each party at the very beginning of the contract.
- Governance structure that prevails at the institution on contract management.
- List of key contracts that are part of a single procurement process, if relevant.
- Compilation of all key contractual terms and conditions including contract documents (this may include insurance, guarantees or securities, price adjustment formulas etc.).
- Critical milestones expected in the procurement process such as key performance indicators and descriptions of the standards/measurement processes etc.
- Accurate and updated contract deliverables.
- Reporting requirements, frequency of reporting and lines of reporting.
- Payment procedures as specified in the contract.
- Record keeping and connected procedures.
- Manner of conducting regular audits.
- Contract amending and the manner in which such changes are to be managed.
- Dispute management, escalation procedure and remedies available in the contract.
- Stakeholder engagement and risk management plan(s).
- Procedure to conclude a contract.

In summary, identification of key functions under a contract, sequencing, streamlining inter-dependencies and estimating times for completion are critical in formulating the plan which should be robust and realistic for contract implementation. Once a comprehensive and implementable plan is formulated, the plan can be shared among all parties to the contract who are involved in contract execution, supervision, administration and governance management. This will assist any procurement process to accomplish its prime objective of VfM throughout the contract by managing time, cost, quality and risks.

6. Matters to consider in public sector contract management

Even though a sound contract management plan is designed, there may be instances where public sector institutions are unable to implement the plan or achieve the desired level of VfM. The public sector operates in an environment where multiple objectives or outcomes are expected to be achieved under the umbrella of "public interest". This may lead to situations where there may not be any direct business focus to contract management and may give rise to difference of opinion as to what constitutes the "public interest".

On the other hand, the range of legal and policy requirements that are relevant to public sector procurement, in general and contract management, in particular vary from time to time. Many of these requirements are reflected in the contracts and monitoring compliance with such requirements needs specific skills in the public sector. Perhaps, the skills that require not only to monitor the compliance, but also to manage a contract effectively have not been given sufficient prominence as other skills that one may need to have at a government institution. Lack of skills and ability in managing contracts in the procurement process may lead to situations where lack of priority being given to sound contract management would jeopardise the ultimate objectives of the process.

However, having clear accountability and attention in place at the beginning of the process, and between the parties to the contract, it is possible to successfully deliver the outcomes as expected at the time of initiating the procurement process.

7. Conclusion

The effective contract management is an essential element of public sector procurement process as many a time, the benefit of "public interest" is delivered through contractual arrangements. There are many aspects to successful contract management, including a well-designed procurement phase, skilled resources in implementing contract management and handling the relationships successfully throughout the life of a contract. In many respects, contract management ensures that the parties to a contract realise VfM as desired at the time of contract award, and lessen the risks in contract implementation, thereby increasing the probability that such VfM is achieved.

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Monetary Policy Modernisation - Global Perspectives and Sri Lankan Experience

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1. Introduction

Monetary policy regimes around the world evolved with several modifications and improvements over the decades from the gold standard in the nineteenth century to inflation targeting (IT) / flexible inflation targeting (FIT) in present days. Each regime encompassed certain processes, organisational arrangements, rules and principles, which could have caused the failure of one regime in achieving the intended objectives of monetary policy and later given birth to successive regimes. The suitability and the success of the existing monetary policy arrangements were often challenged by the events and developments in the external global environment and the domestic economic and financial conditions. This article intends to highlight the underlying issues in traditional monetary policy formulation that paved the way for the monetary policy modernisation agenda that is increasingly being followed by countries when stabilising inflation. Greater emphasis is placed on the role of modelling and forecasting in the current enhanced monetary policy processes. Moreover, this article provides a summary of the progress of monetary policy modernisation and the modelling experience in the context of Sri Lanka.

2. Monetary Policy Modernisation - A Global Perspective

Monetary policy frameworks vary across countries and within a country over time. These frameworks share common elements, such as central bank objectives, institutional structure, monetary policy strategy, policy instruments and the communication strategy. Dynamics of these building blocks define the monetary policy framework adopted by a country. Although defining a monetary policy framework and a monetary policy process is theoretically simple and straight forward, there are a plenty of practical difficulties that central banks encounter when deciding on the most suitable framework or process, which essentially makes the conduct of monetary policy a complicated task in the real world. Traditional monetary policy formulation has been rather backward-looking, based on adaptive expectations of economic agents. In this context, central banks respond to past and current developments in macroeconomic conditions with little emphasis on expectations about the economic outlook. Experiences, especially among the low and middle income countries, highlight the

1. The author wishes to express her sincere thanks to the Reviewer Dr. Chandranath Amarasekara for his valuable comments and encouragement and Mr. Navin Perera for providing linguistic review of this article.

following key challenges that countries had to face under conventional monetary policy frameworks and policy implementation (IMF, 2015).

- Multiple, inconsistent objectives and lack of primacy of price stability
- Lack of institutional and operational independence of the central bank
- More emphasis on exchange rate stabilisation and/ or growth stabilisation
- Emphasis on quantity targeting (monetary targeting) though with frequent deviations from the targets
- Limited analytical capacity for effective forward looking monetary policy formulation
- Ineffective governance and organisational structure
- Ineffective central bank communication and lack of transparency and accountability
- Lack of fiscal discipline and fiscal-monetary coordination
- Weak balance sheets and budgetary independence
- Lack of operational capacity for effective policy implementation

These practical issues in conventional monetary policy conduct and resulting failures in maintaining price stability warranted modernisation of monetary policy processes. Advanced economies such as New Zealand, Canada and United Kingdom have migrated to modern monetary policy regimes more than two decades ago, while emerging economies are gradually following the footprints of their counterparts in recent times.

Modern monetary policy is governed by the following key principles:

- **Price stability mandate**

Price stability is explicitly recognised as the primary or overriding objective of monetary policy, while growth, exchange rate stability and financial stability could be subordinate objectives. The rationale behind the primacy of price stability is that monetary policy alone should not be expected to achieve multiple and inconsistent objectives. In the absence of a price stability mandate, monetary policy formulation may be susceptible to short term economic and/or political pressures. Though it appears practically challenging, the experiences of successful countries stress the need to credibly commit to the price stability objective that would eventually give space, over time, for other competing objectives. Many developing and emerging economies are required to achieve other objectives in addition to price stability through monetary policy as outlined in their respective mandates. It should be noted that having a price stability mandate in legislation alone does not preclude instances that the monetary policy prioritising exchange rate stability or growth concerns over price stability at certain times, in practice. Legislative mandate is expected to be backed by credible monetary policy formulation with price stability at the core.

- **Independence, accountability and transparency**

Monetary policy effectiveness depends on a clear mandate in terms of goal and operational independence. Modern central banks possess both institutional and operational independence, to a great extent. Liberation from fiscal dominance and political influence allows central banks to have autonomy in selecting monetary policy tools to achieve the objectives that are independently set. Several indices are being developed by researchers to measure the level of independence, accountability and transparency of central banks. As independence without accountability is not desirable, central banks are expected to be more publicly accountable at present as opposed to the convention of being accountable to the government. Public accountability of central banks in the pursuit of its objectives is required to ensure that independence given to central bank is not unconditional. Transparency is the tool to assess central banks' public accountability. Central banking has gone through a notable transformation from being recognised as a profession bound by 'secrecy' to a more transparent and publicly accountable profession.

- **Forward-looking policy strategy**

As Alan Greenspan, Former Chair of the Federal Reserve, pointed out, "The challenges of monetary policy are to interpret current data on the economy and financial markets with an eye to anticipating future inflationary forces and to countering them by acting in advance". Forward-looking thinking in monetary policy formulation is useful when devising policy strategy today given the developments in current economic conditions, outlook for key macroeconomic variables and related projections along with an assessment of risks in order to meet the medium term inflation objective. Since the full impact of monetary policy measures on real macroeconomic variables is observed only with a time lag, deferring monetary policy action until inflation breaches the desired target, popularly known as backward-looking monetary policy, would be inappropriate. A well-articulated forward-looking monetary policy backed by timely and comprehensive policy analysis forms an essential component of modern monetary policy principles. This strategy also gives priority to rational expectations of economic agents and the need to shape their expectations towards the desired path. Since the effectiveness of pre-emptive policy strategy largely relies on the availability of reliable medium term projections, policy simulation, risk analysis and an analysis of alternative trajectories, modern central banks are continuously engaged in improving their modelling and forecasting capacities. Empirical evidence show that forward-looking approach to monetary policy formulation has lowered volatility in inflation and interest rates, increased resilience of economies to transitory shocks and improved policy communication.

- **Effective Monetary Policy Communication**

Transparent and timely communication of monetary policy actions towards anchoring expectations and building trust among economic stakeholders have been currently recognised as a key to enhancing the effectiveness of monetary policy. Expectations of economic agents significantly influence the monetary policy transmission through economic agents' decision making process. Currently, most central banks use communication as a policy instrument to shape economic agents' expectations about the macroeconomic outlook and future monetary policy decisions that in turn improves the central banks' ability to achieve their objectives. The importance of communication was endorsed during the global financial crisis and its aftermath as conventional policy instruments turned increasingly ineffective. There is a general belief among researchers and central bankers that unconventional monetary policy measures adopted by many advanced economies have worked mainly through the buildup of confidence and signaling channels driven by 'forward guidance' (Blot and Hubert, 2018). Thus, timely and effective communication of monetary policy actions to reach a large audience is an essential component of modern monetary policy. In a recent study Haldane et al. (2020) suggest that managing expectations through simplified communication alone is necessary, but not sufficient. Central banks need to actively involved in 3 E's of public communication: Explanation, Engagement and Education. Simple communication targeting broader audience needs to be complimented by active engagement and education to mitigate communication errors.

Governing the key principles of policy modernisation discussed above, transformation process from traditional monetary policy to modern monetary policy is illustrated in Figure 1. According to the figure, monetary policy is transformed from multiple and inconsistent objectives to a single objective of price stability. The modern monetary policy process is enriched with inflation forecasts and forward looking economic analysis in an environment of enhanced monetary policy transmission and increased exchange rate flexibility. Interest rate based operational framework of monetary policy and market based flexible exchange rate compliments this modernization process.

3. The Role of Modelling and Forecasting in Monetary Policy Modernisation

As discussed earlier, forward-looking monetary policy formulation process aims at achieving

Figure 1: Stylized Policy Modernization Agenda

Source: Evolving Monetary Policy Frameworks in Low-Income and Oher Developing countries, IMF, 2015 the medium term inflation objectives (inflation target) over the policy horizon, rather than policy responding to past or current inflation and other macroeconomic developments. Hence, it heavily relies on reliable projections for future inflation and other related key macroeconomic variables and an assessment of key risks to the projections. The International Monetary Fund (IMF) has pioneered a model based system called the 'Forecasting and Policy Analysis System' (FPAS) and has provided extensive support to many emerging and developing countries that are adopting or in transition to an IT framework by providing technical assistance in developing, implementing and institutionalising customised FPAS. The building blocks of an FPAS could be customised to suit the need and the economic characteristic of countries. FPAS is a set of elements (tools) and organisation of processes to deliver a consensus view on current economic developments and its forecast, including risks. While elements include data management, near term forecasting, medium term forecasting based on a core Quarterly Projection Model (QPM), forecast team and staff judgement, organisation includes series of policy discussions and meetings to present economic updates, forecasts, policy analysis and risk assessments.

In practice, forecasting and policy analysis follow a pre-planned forecast calendar designed for each monetary policy review. The calendar starts with an initial update of the centralised database, followed by nowcasting of GDP, which is usually unavailable at the end of a quarter. Once the data set for the model estimation is completed, near-term projections are obtained. A country may have one or a suite of near term models to project key macro variables for a couple of quarters in the immediate future. FPAS has a core QPM that produces medium term projections consistent with the near-term projections and staff judgements. The original projection with underlying basic assumptions from the QPM is known as the baseline projection. In addition to the baseline projection, the monetary policy making body is presented with a detailed risk assessment of the baseline projection. Further, alternative policy simulations could be developed depending on emerging risks and economic developments. Regardless of the nature of the economy, the FPAS processes are very similar and share common features across countries.

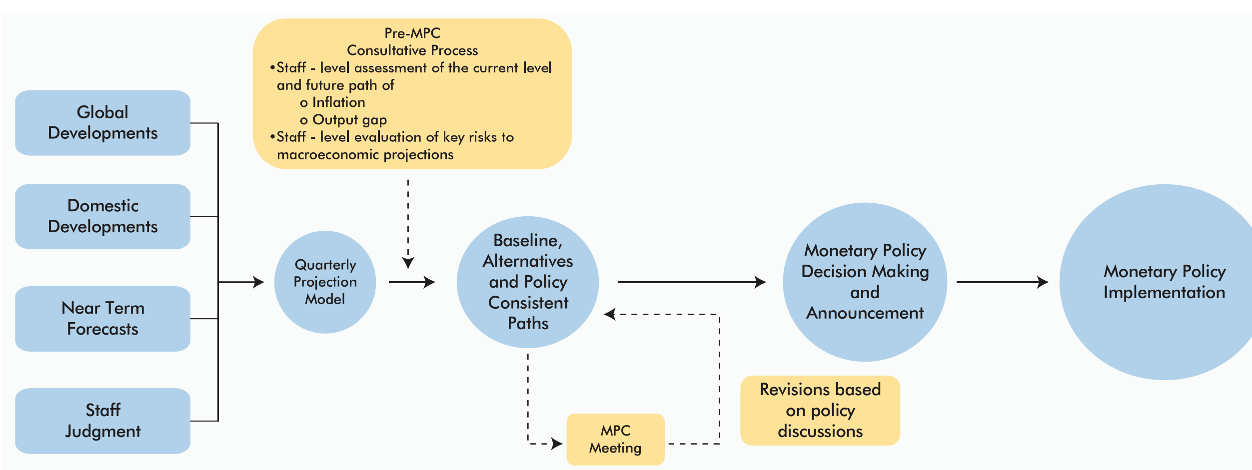
Countries with extensive experience in modelling and forecasting and having adequate technical and financial capacity rely on a suite of structural and time series models to support well informed monetary policy decision making. Many advanced economies use customised Dynamic Stochastic General Equilibrium (DSGE) models as core models for forecasting and policy analysis.

4. Sri Lankan Experience on Monetary Policy Modernisation and Modelling

Sri Lanka's initial attempts to move away from the conventional monetary policy framework began with early research at the Central Bank of Sri Lanka (CBSL) by late 1990s highlighting the issues in monetary aggregate targeting and stressing the feasibility of moving to an IT framework. This was further backed by shifting to free floating exchange rate, streamlining the objectives, moving towards more market-based monetary policy operations, commencement of conducting inflation expectations surveys and other surveys to collect information on leading indicators of growth, initial capacity building on modelling and forecasting and enhancing communication.[2] The enhancement of the monetary policy framework towards flexible inflation targeting (FIT) was initiated in 2015 with an interim arrangement that officially replaced reserve money based operating target of the monetary policy with a short-term interest rate, which is a common feature observed in most of inflation targeting countries. Eventually, many measures were initiated to fulfil some of the important prerequisites of the move to FIT framework. These mainly included reaching consensus between the CBSL and the government on adopting FIT as the new monetary policy regime, initiating the necessary institutional and legislative changes to create a conducive environment to suit the new framework. Further, modelling and forecasting capacity of the CBSL is being enriched with the assistance of the IMF with a customised FPAS with a QPM for medium term projection and a few models for near-term projections.[3] Forward-looking monetary policy formulation backed by model-based inputs being adopted at the CBSL is illustrated in Figure 2. The communication strategy of the CBSL, both internal and external, is also being gradually improved with more focus on greater clarity and transparency in an attempt to anchor the expectations of the public. Moreover, the internal processes with regard to monetary policy formulation is being enhanced with comprehensive analysis of current domestic and global macroeconomic developments, medium term projections and risk analysis at a series of staff level meetings before arriving at monetary policy decisions.

Measures to amend the Monetary Law Act (MLA) have been initiated with the approval of the Cabinet of Ministers in early 2018 to facilitate

Figure 2: Monetary Policy Formulation Process with Model Based Inputs at Central Bank of Sri Lanka

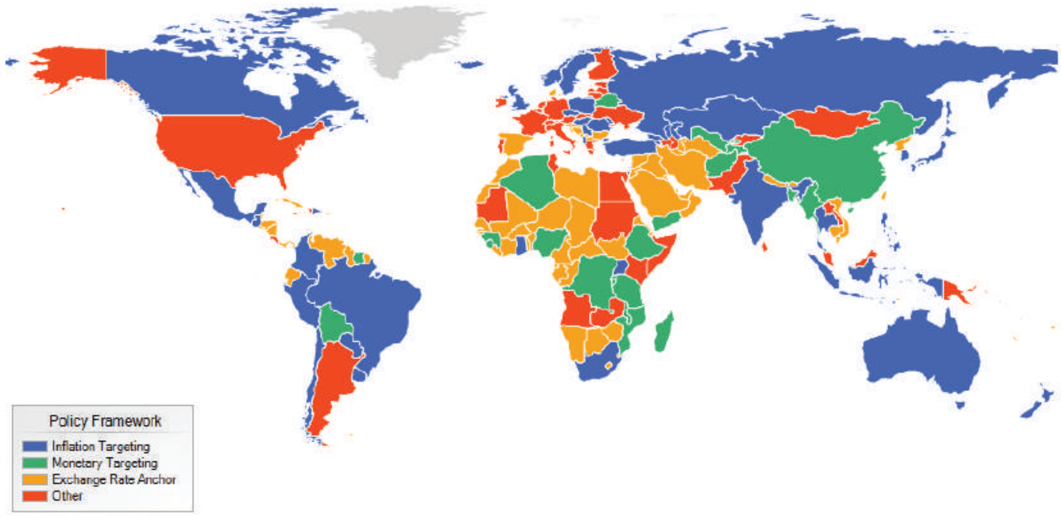


Source: Central Bank of Sri Lanka, Annual Report 2016

2 For further details on the progress of CBSL's effort to enhance monetary policy process, refer Box Article 1 of Central Bank Annual Report 2007 ('Moving towards inflation targeting from a monetary targeting framework') and for details on model based approach to monetary policy refer Box Article 1 of Annual Report 2016 ('Model Based Approach to Monetary Policy Analysis in Sri Lanka')

3 Further details of QPM developed for Sri Lanka could be found in Amarasekara et. al. (2018).

Figure 3: Monetary Policy Frameworks Around the World



Source: Annual Report on Exchange Arrangements and Exchange Restrictions series, IMF, 2016

the implementation of FIT and to enhance the governance and the independence of the CBSL, while establishing price stability as the primary objective. Draft Bill on Central Bank of Sri Lanka has been gazetted in November 2019 with provisions to incorporate price stability mandate, increased independence and accountability of the CBSL, increased fiscal-monetary coordination in an environment of limited fiscal dominance and explicit provisions on inflation targeting. However, political regime change in 2019 and subsequent changes in policy priorities have slightly diverted the path towards adopting FIT in Sri Lanka. Reconstructed Monetary Board of the Central Bank has given its consent to officially transit to FIT from 2020 without amending MLA. The Monetary Board is of the view that provisions of current MLA are adequately broad to accommodate this monetary policy regime change. Subsequently, the CBSL commenced adopting FIT in 2020. Like many other central banks operating under this monetary policy regime, the CBSL will also commence publishing monetary policy reports incorporating medium term projections with a view to provide macroeconomic guidance and direction to all stakeholders of the economy starting from 2021.

5. Conclusion

The evolution of monetary policy frameworks has taken various dimensions in the past and the process keeps evolving. The inflation targeting framework that gained fame since the late 1990s among key central banks is being increasingly adopted by the emerging and developing economies in recent years due to its effectiveness in stabilising inflation at desired levels, improving transparency and credibility of the central banks (Figure 3). This framework combines both ‘rules’ and ‘discretion’ and is therefore generally characterised as ‘constrained discretion’. Notable progress in meeting many prerequisites of this framework, such as central bank’s instrumental independence, freedom from fiscal dominance, sound financial system, a flexible exchange rate, sound technical infrastructure and transparent policies and communication, is expected in the future. However, Adrian et. al. (2018) suggest that newcomers to IT need not pass all the milestones, rather they can enter the road at any time depending on the technical capacity since the road has been tested and smoothed over several decades now. Sri Lanka has just begun the journey along this road, though all prerequisites have not been fully met. Although some turbulence could be expected at the commencement of the journey, careful adherence to rules and traffic discipline, such as fiscal and monetary discipline, transparency, accountability, would ensure that the economy would cruise smoothly and arrive safely at the desired destination of low and stable inflation to support long term stable growth.

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Opportunities and Challenges of a Data Driven Digital Economy

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The Rapid Pace of Data Creation in the Digital Economy

Today, the human race is churning out digital information at a staggering speed resulting in a data deluge. The rapid rate of digitalisation is reflected by the increase in the share of total global information stored in digital form. This figure which was only around 25 per cent of the total information stored in the world as recently as in 2000, rapidly increased to around 98 per cent by 2013. To set this in perspective, the information revolution created through the invent of the printing press in the 15th century saw the amount of information in the world double during a span of around 50 years but by 2013 this time span had reduced to around three years due to the vast amounts of information being created through digital platforms. The pace of digital information creation is also reflected through the over 2.8 million emails that are sent out every second, the over 80,000 Google searches that are carried out every second and the over 82,000 YouTube videos that are viewed every second by the over 4.4 billion internet users across the globe[1]. Meanwhile, the potential economic value of the digital economy is reflected through the number of internet based companies that are in the top 10 companies in terms of market capitalisation. Accordingly, seven of the companies that make up the top 10 companies in terms of global market capitalisation are based on internet technologies.

Hence, the current information revolution has created opportunities for economic development with the rapid expansion of the digital economy. On one hand, day to day economic transactions that took place at physical retail outlets are now rapidly migrating towards virtual stores while on the other hand, the provision of traditional services such as financial, education, transportation and accommodation are also being transformed to digital platforms bridging geographical divides. Another aspect that is driving progress are the prospects that have arisen due to the data deluge that is created by these activities. The content that is uploaded to the over 1.7 billion websites are not the only information that is available in the digital economy. The by-products or data exhausts such as browsing logs of websites, call records or GPS coordinates that are created in the process of information sharing and extraction also generates a vast amount of data. This vast amount of data that is created in the digital economy provides numerous opportunities and benefits for all economic agents.

1 Internet Live Stats extracted from https://www.internetlivestats.com/ on 03 February 2020

As with any technology driven activity, better access to resources as well as early adoption will ensure higher economic gains as evident from the largest beneficiaries of the digital economy. Hence, in the case of Sri Lanka, both the private sector and the public sector need to be poised to make use of these information sources. Moreover, the role of the public sector would have additional responsibilities in terms of putting in place necessary frameworks to promote inclusiveness and ensuring security in the digital economy.

Making use of Data Driven Opportunities of the Digital Economy

Digital technologies have transformed the way business is carried out and have helped to boost growth by expanding economic opportunities amidst improving service delivery. In addition to the transformation of traditional business models, there are far reaching applications for the data that is created through the digital economy. Accordingly, businesses and policy makers across the globe are making use of the information to improve and develop their activities.

While Sri Lankan institutions are making inroads towards harnessing the benefits of this digital transformation, there is further potential for improvement in both the private sector and the public sector. One sector that faces numerous challenges in managing market demand and supply conditions is the agriculture sector. This issue could be addressed to some extent through the use of information on customer transactions that is generated through retail websites, which were particularly popular during the Covid-19 pandemic, to identify market demand. This can be used to plan the required level of extent under cultivation for a given crop to meet market demand. Meanwhile, records on distribution and/or sale of seed, fertilizer and water along with information extracted from satellite imaging could provide potential supply estimates in terms of agriculture products for selected commodities. By merging this data, possible measures to balance supply and demand conditions could be identified. This would benefit not only producers and consumers, but also help in conserving limited resources that are used in the production process.

The financial sector is again an area where data records are generated at a rapid pace with the vast amounts of electronic transactions that take place every second. These transactions, be it a payment at a grocery store, obtaining a loan to set up a business or making an overseas payment for an international procurement, in aggregate form can reveal numerous facets on the flow of resources in an economy. Accordingly, information on the nature and timeliness of resources sought by economic agents both for local as well as international goods and services can be extracted in a timely manner by monitoring this aggregate data. Hence, this data can be used to identify demand and supply conditions and provide crucial information for resource planning for both financial and public sector institutions including Central Banks. This information can also be used to provide better customer service and to strengthen security by identifying misuses of funds through credit and debit cards, preventing money laundering and mitigating risk.

Digital technologies have been used to address issues in the transportation sector. There are numerous online applications that capture data on the transportation sector and this information is used for efficient route planning and traffic control. Philippines in one example where real time traffic data is used to optimize traffic flows providing solutions for a public problem that is faced by numerous urban cities particularly in developing countries, including Sri Lanka. The benefits so derived are not limited to society as a whole, but also to individuals as well. One such instance is in deciding on the best possible time to purchase an airline ticket as air ticket prices vary based on the time it is sold. In order to address this issue, data available in various online platforms on airline ticket prices have been used to develop a model that estimates the price of an air ticket in relation to the departure day. This application provided the opportunity for air travellers to save money on their tickets through the use of data on air travel details available in digital form. While similar applications have been developed in many sectors, this is one area where there is further potential for development in Sri Lanka.

There are numerous instances where such data created by digital networks have helped in the health sector. During the 2009 flu virus in the US, although there was information on the spread of the disease that were reported through medical records, this information was only made available with a lag of two weeks. However, through the use of the data generated from the billions of Google search queries, the company was able to predict the spread of the virus in a more timely manner than traditional indicators, highlighting the potential of the data driven economy in contributing to disease control. Further, similar experiences have been reported even in less information technology driven economies as evident from the use of mobile call detail records during 2013 to map the spread of dengue disease in Pakistan. These measures in improving health conditions would invariably support better economic prospects for these economies.

Moreover, these technologies and associated data can also be used to track developments in national level indicators such as the Sustainable Development Goals of the World Bank. This is particularly useful in less developed countries and sectors that do not even have a satisfactory level of data collected through traditional data sources. Accordingly, mobile data on anonymous call records and satellite images have been used to measure population estimates and poverty prevalence in Afghanistan and Sudan. In addition to measuring economic and social indicators, the information available on social media platforms are capable of providing insights in to the perceptions of economic agents, which can be made use of by both, the public sector and the private sector. Based on the these facts, it is clearly evident that there are numerous benefits to be derived from the information that is generated from digital technologies.

Ensuring inclusive development amidst challenges

Although the digital economy provides many opportunities, there are numerous challenges to be addressed, both in terms of usage of information extracted from the digital economy and ensuring equitable access to all stakeholders in a manner that would safeguard security and privacy of individuals, as well as basic rights and social values of society as a whole.

The World Economic Forum publication on a shared digital future highlights six goals (Figure 1) that are to be taken in to consideration for 'Building an Inclusive, Trustworthy and Sustainable Digital Society'. The first of which is to 'Leave no Person Behind'. Having access to digital platforms is necessary for both economic and social progress in a rapidly digitalising environment. The internet not only provides avenues for an array of economic opportunities but also provide skills that are necessary to harness the potential of the digital economy. Hence, lack of access to these opportunities will not only stunt the progress of the current generation but also the future generations. Moreover, a digital divide in terms of lack of access and know-how in navigating the digital economy today would lead to far fewer opportunities in the future. In this context, internet connectivity is a key ingredient in ensuring digital inclusiveness. Although internet connectivity has rapidly improved reaching over 50 per cent of the global population, the rate of internet penetration has slowed down highlighting the issues in striving towards inclusiveness. As with income poverty, the challenge for improving internet connectivity would become more difficult in penetrating to the more vulnerable sectors of the digital economy.

The findings of the Computer Literacy survey of the Department of Census and Statistics reveal that the Computer Literacy[2] rate was 29.0 per cent (Table 01) while the Digital Literacy[3] rate was 42.7 per cent in Sri Lanka during 2018. Meanwhile, as presented in Chart 1 internet and email usage[4] in 2018 stood at 26.8 per cent and 10.2 per cent, respectively with over 70 per cent of users accessing these facilities through smartphones (chart 2). These statistics indicate that Sri Lanka needs to make significant inroads towards improving its Information Technology (IT) literacy. Although Sri Lanka has made commendable progress in improving traditional literacy in the country through its universal education policy, the IT literacy rate highlights Sri Lanka's delay in adopting new education reforms and investments to develop its education system in a timely manner. Moreover, these findings are consistent with the Digital Adoption Index[5] (DAI) of the World Bank as well. Out of the three sub-indexes of the DAI, Sri Lanka ranks lowest for the people sub-index. The people sub-index considers the extent and quality of individuals' connections to the digital world, through access to mobile phones, basic internet, and mobile and fixed broadband. Although Sri Lanka has reached the level of over 161 telephone connections per 100 persons in 2018, internet penetration stood at 48.7 connections per 100 persons. Accordingly, this information indicates that there is further room for improving internet access and usage in the country. Hence, in order to ensure that no one is left behind, it is essential that all stakeholders, including the private sector, come together to bridge the digital divide to enhance our prospects towards a knowledge based economy.

Another important component towards ensuring inclusiveness in the digital economy as highlighted under the second goal of the 'Shared Digital Future' report is empowering users through good digital identities. Having a physical identity document is an essential component of our lives as citizens in terms of the right to vote, access financial and education services, and for international travel. Similarly, the

2 A person (aged 5-69) is considered as a computer literate person if he/she could use a computer on his/her own.

3 A person (aged 5-69) is considered as a digital literate person if he/she could use a computer, lap top, tablet or smartphone on his/her own

4 Defined as the percent of the population aged 5 to 69 years who use internet/email facilities at least once during twelve months in 2018

5 The Digital Adoption Index is a global index that measures a countries' digital adoption across three dimensions of the economy: people, government, and business.

Figure 1: Six Shared Goals for Building an Inclusive, Trustworthy and Sustainable Digital Society

Source: World Economic Forum

need for a digital identity is required in the current context to access digital platforms. These include carrying out payments via digital transactions, ordering goods online, processing of online visa applications and to interact through social media platforms. Hence, safe and secure digital identities are playing an increasingly important role in terms of gaining access to opportunities in the digital economy. Accordingly, with the increasing usage of digital identities, the need for ensuring security of personal information and privacy has become more important. However, these concerns have to be balanced with convenience of use. As more and more business models shift towards digital platforms, several challenges arise in making them work for the people as reflected under the third goal of making businesses work for the people. Meanwhile, the fourth and fifth goals, to keep everyone safe and secure, and to build new rules for a new game, also calls for action from all stakeholders in the digital economy.

The final shared goal, break through the data barrier, looks into benefitting from the data driven economy while ensuring stakeholder interests. Though the value that can be extracted from the immense amount of data that is generated from the digital economy is evident, these opportunities need to be calibrated with other goals such as keeping everyone safe and secure, and empowering users to decide on the manner in which information about them is used. Accordingly, institutions that have this data may face commercial, legal, regulatory, reputational and liability barriers in making use of this data. In addition to these institutional level concerns, more holistic issues such as national security, criminal justice and national economic interests may arise in this regard as well. The General Data Protection Regulation implemented in Europe provides a policy framework for the use of data. This regulation requires companies to protect personal data through proper systems, to obtain user permission prior to use and report breaches to such data or face penalties. In addition to policy initiatives, other mechanisms such a technical and legal approaches, can also be employed to make use of digital data in a safe and secure manner.

Table 1: Computer Literacy Rate during 2015 – 2019 First Half (H1)

Sector	Computer literacy rate (%)				
	2015	2016	2017	2018	2019 H1
Sri Lanka	27.1	27.6	28.6	29.0	30.1
Sector					
Urban	39.2	39.2	40.5	40.4	41.5
Rural	25.5	26.1	27.1	27.5	28.6
Estate	9.0	10.4	9.1	10.8	13.7

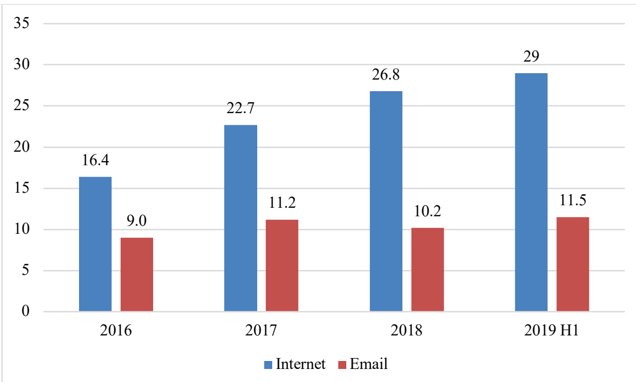
Source: Department of Census and Statistics

Way Forward

Considering all these factors the data generated through the digital economy would grow as a valuable asset going forward. Hence, all stakeholders should strive to continuously evolve to make use of these opportunities. In this context improving digital connectivity while ensuring security is a key challenge particularly for developing economies. As digitalisation would touch all aspects of human interaction, including how we work, learn, travel and shop, the public sector has a crucial role to play in ensuring inclusiveness. This could be done through education and improving access to digital infrastructure, while strengthening all aspects of governance, including harmonising all policies and laws to be capable of handling the necessities that arise in a digital ecosystem.

In the case of economic policy makers and financial regulators, knowledge on developments that are taking place in these sectors as well as being equipped with the skills and having in place necessary frameworks to assess the developments, are some of the aspects that may warrant attention. Governments have the additional responsibility of ensuring that all stakeholders in the economy

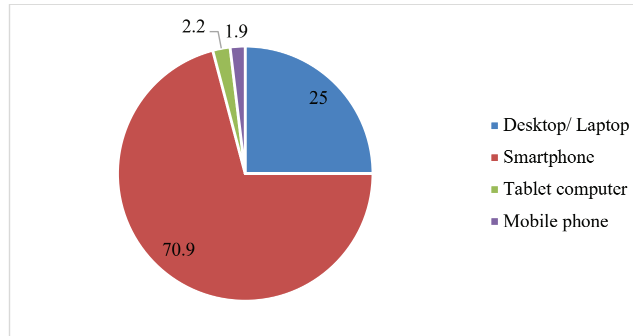
Chart 1: Percentage distribution of internet and email usage in the household population aged 5 – 69 years



Source: Department of Census and Statistics

have equitable access to these opportunities while taking necessary action to safeguard personal and sensitive information. In this aspect, in addition to development of the information technology infrastructure, it is important to develop an inclusive environment enabling opportunities for technology absorption by all economic agents. Further, the overall government framework should be tuned towards this phenomena with particular emphasis on National Statistical Offices and Information Technology Regulatory Institutions.

Chart 2: Percentage of device usage to access internet and email by household population aged 5-69 years during 2018



Source: Department of Census and Statistics

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