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Undertaking Regulatory Impact Assessment in India

A practical guide for policymakers, regulators, decision-makers, and their advisors in government.

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1. Introduction

Regulation may broadly be defined as “any obligation endorsed by the government, where there is an expectation of compliance”. Governments make rules in various contexts in order to address identified issues, but these can sometimes impose unwelcome burdens on businesses, community organisations and individuals. Poorly thought out regulations can also stifle competition and innovation, reducing the ability of markets and industries to dynamically create value for society and generate employment.

1.1. Intended Audience and Beneficiaries

Regulatory actions are taken by governments or authorized regulatory bodies to influence, direct, or control the behaviour of individuals, businesses, and organizations to address identified problems or achieve specific public policy goals.

This web book is intended to be a guide for such policy makers, regulators, decision makers, and their advisors in government to make better policy decisions by preparing high quality **Regulatory Impact Assessments (RIA)**.

It can also support public policy practitioners and researchers in enhancing the quality of evaluation of government decisions.

1.2. Scope

This web book focuses on the use of regulatory instruments to improve the functioning of markets. The central premise of Regulatory Impact Assessment is that regulatory intervention should be considered where markets fail to deliver economically *‘efficient’* outcomes. Economic efficiency may be allocative, productive or dynamic. When resources are allocated to their highest and best uses and goods and services to those who value them the most, allocative efficiency is achieved. Productive efficiency is achieved when goods and services are produced at the lowest possible costs. Dynamic efficiency refers to a state of the market where barriers to new entrants and to innovation are minimal.

The analytical framework developed in this book is therefore concerned with assessing whether regulatory interventions are likely to improve outcomes relative to a baseline scenario and whether the benefits of intervention outweigh its costs. It primarily treats RIA as a tool for assessing potential regulatory responses to identified policy problems.

The book does not seek to address the broader design of fiscal policy instruments such as taxation, public expenditure, social security systems, or income-transfer programmes. Fiscal measures may pursue objectives such as revenue generation, macroeconomic stabilisation, poverty reduction, redistribution, or social justice across the economy as a whole. While such objectives are unquestionably important and may form part of the wider mandate of government, they are generally analysed through public finance, tax policy, welfare economics, and budgetary processes rather than through regulatory impact assessment.

Accordingly, while this book is concerned with the distributional consequences of regulatory interventions, such as how regulatory costs and benefits are allocated across consumers, firms, investors, workers, or vulnerable groups, it does not attempt to evaluate broader questions of income redistribution through tax-and-transfer systems. The objective is not to determine how wealth should be redistributed within society, but rather to assess whether particular regulatory interventions constitute proportionate, effective, and evidence-based responses to identified market failures i.e. when markets fail to achieve economically efficient outcomes.

2. Undertaking a Regulatory Impact Assessment

An RIA is a comprehensive analysis, evaluation and assessment of the problem or issue that needs to be addressed, and of the various options available to the policymaker to address it. The main objective to undertake an RIA is to assist the making of optimal, well informed and well evidenced regulatory interventions to address a problem, that maximise the net benefits to society.

An RIA typically consists of the following:

- A well identified policy problem that needs to be addressed, including its nature and scale of impact on various stakeholders
- Identification and analysis of the various options to address the problem, including analysis of the current state of affairs, which includes:
    - an explanation of how each option addresses the problem
    - the various stakeholders impacted by the problem and by each option
    - the costs, benefits and risks of each option
    - a methodology to compare and contrast the options, including any criteria to compare them against
    - The selection of a preferred option based on the evaluation and comparison

- analysis of impacts of the option on different groups of individuals, businesses and other stakeholders in terms of costs, benefits and risks, including an assessment of the chosen option's impact on competition and innovation in markets.
- analysis of how each option will be implemented and its performance evaluated, and the various costs that will be faced by stakeholders under each option's implementation.

Regulatory impact assessments can also incorporate lessons learnt from a public consultation process, which can elicit relevant, valuable information from various stakeholders impacted, to inform the analysis.

Following the consultation process, the RIA can be updated, the preferred option reviewed and confirmed, or amended based on the information received, and final regulations written and implemented.

2.1. Ex ante and Ex post assessment

RIA is most commonly associated with ex ante analysis, that is, assessment undertaken before a regulatory measure is adopted. At this stage, the regulator seeks to anticipate the likely consequences of different policy options and use this evidence to inform the choice of whether and how to intervene. The analysis necessarily involves assumptions about how regulated entities, consumers and other stakeholders are likely to respond, and about how the market and other relevant conditions may evolve in the absence of intervention.

However, impact assessment need not end when a regulation is adopted. Ex post assessment examines what actually happened after the intervention was implemented. It can assess whether the regulation achieved its stated objectives, whether its actual costs and benefits corresponded with those anticipated ex ante, whether there were unintended consequences, and whether the regulation remains necessary, proportionate and effective. The distinction is important because an ex ante RIA is necessarily based on forecasts and assumptions, whereas an ex post assessment can draw upon observed evidence.

The relationship between the two is therefore iterative rather than sequential and disconnected. A well-designed regulatory system should use evidence generated after implementation to improve subsequent regulatory decisions and the quality of future ex ante RIAs. Ex post evaluation can reveal whether the assumptions about behavioural responses, compliance costs, effectiveness or distributional impacts made during the original RIA were accurate. It can also identify effects that were not anticipated at the time of the original assessment.

For instance, the Better Regulation Framework of the United Kingdom (UK) distinguishes between a RIA, which is a pre-regulatory assessment of the expected effects of a measure, and a Post-Implementation Review (PIR), which assesses the actual effects of a measure after it has been implemented and operated for a period of time. The UK guidance specifically states that the PIR should examine whether the measure achieved its original objectives, whether those objectives remain valid, whether the measure is still necessary and whether it remains the best option for achieving them. It also emphasises that planning for the PIR should begin while the RIA is being prepared, so that the regulator identifies the evidence and data that will need to be collected after implementation

2.2. Questions Answered by Regulatory Impact Assessment

A useful approach to undertaking an RIA is to answer the nine key questions below.

1. **What is the problem you are trying to address and why is government/regulator action or intervention needed to address the problem?**
2. **What policy options are you considering?**

3. **Who are all the stakeholders that are likely to be impacted by the current situation and the options under consideration?**
4. **What are the costs of each option?**
5. **What are the benefits of each option?**
6. **What is the present value of impacts and how to deal with uncertainty?**
7. **What is the likely net benefit (benefit minus cost) of each option?**
8. **What are the criteria against which options are to be evaluated and compared?**
9. **What is the best option from those you have considered?**

This web-book is structured to guide policy practitioners and those tasked with developing RIA through these steps that are represented by the questions above.

The first step in undertaking an RIA is problem identification.

3. Identifying the Problem

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This step can be thought of as answering the first of the above questions, i.e.:

What is the problem you are trying to address and why is government/regulator action or intervention needed to address the problem?

One of the first questions that regulators will often need to ask up-front while attempting to identify the problem is: *"is there a* ***market failure*** *which is allocating resources inefficiently and restricting society from maximising the gains from trading in the market?"*

Regulatory intervention is often undertaken when markets fail to function smoothly. When markets function well, scarce resources are allocated efficiently, allowing all the suppliers to compete effectively and providing consumers with plenty of choice and all the information that enables them to make well-informed buying decisions.

Determining the presence of market failure involves asking three basic questions:

- What is causing the market to produce a poor outcome?
- Who is affected, and how?
- How large or serious is the problem?

A clear answer to these questions helps show whether regulatory intervention is justified and what kind of response may be suitable.

The factors that cause markets to fail and the impacts from those failures are discussed in detail next.

3.1. Market failure

A market failure exists when the market does not allocate resources in a way that leads to the maximisation of social welfare. Social welfare refers to the total gains from the market, including gains to consumers and producers. When markets fail, these gains are not fully realised. Too much or too little of a good or service may be produced. Prices may not reflect the true costs or benefits of an activity. Some people may make decisions without the information they need. In such cases, regulation may help correct the problem and improve how resources are allocated.

Markets can fail for several reasons. In each case, the failure arises because one or more of the conditions needed for a well-functioning competitive market do not exist in practice. For example, there may be too little competition, unequal access to information, spillover effects such as pollution, or goods and services that the market has little incentive to provide. Identifying whether a market failure exists, and understanding its nature, is therefore an important early step in an RIA. It helps the regulator decide whether intervention is justified and what kind of response may be appropriate.

Markets are commonly seen to fail for a few well-known reasons. These include externalities, public goods, market power, and information asymmetry. Each of these involves a situation in which private decision-making does not lead to an efficient outcome for the market or the wider economy.

The key reasons why markets are seen to fail in practice are the following:

3.1.1. Externalities

Externalities arise when the production or consumption of a good or service affects others who are not directly part of the transaction. These effects may be negative or positive. Negative externalities impose costs on others. Common examples include pollution and traffic congestion. Positive externalities create benefits for others. For example, vaccination can reduce the spread of disease beyond the individual receiving it, and education can produce wider social benefits. Because these wider costs or benefits are not fully reflected in market prices, the market may produce too much of an activity in some cases and too little in others.

3.1.2. Public goods

Some goods and services have the characteristics of a public good. Public goods are usually described as non-rival, non-excludable, or both. A good is non-rival if one person's use of it does not reduce its availability to others. A good is non-excludable if, once it is provided, it is difficult or impossible to prevent others from using it. For example, national defence, public parks (at least to an extent).

Markets often fail to provide public goods at an efficient level because individuals have little incentive to pay for them when they cannot easily be excluded from consuming them and enjoying the benefit. This is known as the free-rider problem. As a result, such goods may be under-provided unless the government steps in to support or arrange their provision.

3.1.3. Market power

Markets can also fail when one or a small number of suppliers have enough power to influence prices, output, quality, or other market conditions. This is more likely in concentrated markets, especially where there are high fixed costs, strong barriers to entry, network effects, or other features that limit effective competition. In such markets, firms may be able to charge prices above competitive levels, restrict output, or earn profits above what would be expected in a competitive market. Consumers

may then pay higher prices, face less choice, or receive lower quality than they would in a well-functioning competitive market.

Examples can be found in sectors such as telecommunications, electricity distribution, and airports. An airport, for example, may operate as a local monopoly because users often have few practical alternatives. In such cases, regulation may be used to address the effects of market power. This may take the form of price regulation, revenue regulation, access regulation, or information disclosure requirements.

3.1.4. Information asymmetry

Information asymmetry arises when one side of the market has more or better information than the other, and that information matters for decision-making. This is common where suppliers know more than consumers about the quality, safety, or performance of a good or service, and consumers cannot easily verify that information.

A common example is the market for used cars. A seller may know the vehicle's true condition, accident history, or maintenance record, while a potential buyer may not. If buyers cannot tell the difference between good quality and poor quality vehicles, they may be unwilling to pay a fair price for better vehicles. Over time, this can drive good quality vehicles out of the market and reduce the overall quality of what is offered. In such situations, disclosure requirements, certification, warranties, or quality standards may help improve market outcomes.

These market failures provide one of the main economic grounds for regulatory intervention. Once the type of market failure has been identified, the next step in the RIA is to examine how it affects different stakeholders, how serious the effects are, and whether regulation is likely to improve the situation.

3.2 How to identify market failure

The process of identifying market failure helps policymakers understand what kind of problem they are dealing with. It helps distinguish between problems caused by the structure of the market, problems that arise because of the nature of the good or service, and problems caused by gaps in information. This matters because the policy response should be shaped by the source of the problem.

3.2.1. Step 1: Define the market clearly

Defining market comprises of:

- Identifying the good or service involved.

- Identifying who the buyers and sellers are.
- Asking whether there are other people or groups affected by the transaction, even if they are not directly buying or selling.

This step is important because market failure cannot be identified in the abstract. It must be identified in relation to a particular market. A clear definition of the market helps policymakers understand where the problem is occurring, who is involved, and who may be affected by it.

3.2.2. Step 2: Identify the source of the problem.

Market failures can be broadly divided into three categories (**NSW, 2017**):

1. *The nature of the market*: These are problems that arise because of the way the market is structured. For example, there may be too few suppliers, high barriers to entry, or strong market power. In such cases, firms may be able to raise prices, restrict output, or reduce quality below otherwise competitive levels.

1. *The nature of the good:* These are problems that arise because of the characteristics of the good or service itself. For example, the good may create spillover effects on others, as in the case of pollution, or it may have public good characteristics, such as non-rivalry or non-excludability. In such cases, the market may produce too much, too little, or none at all relative to what is socially desirable.

1. The availability of information: These are problems that may arise when one side of the market has more or better information than the other, and that information is important for decision-making. For example, sellers may know more than buyers about the quality or safety of a product. It would be hard or impossible for the buyers to obtain such knowledge. This can lead to inefficient market outcomes due to the presence of ‘moral hazard’ and ‘adverse selection’.

Using these three categories can help policymakers move from a general concern that “the market is not working well” to a more precise diagnosis of why the problem has arisen. This diagnosis can then provide the basis for deciding whether regulatory intervention is justified and what form it should take.

3.3. Does the market failure fall within the regulator's jurisdiction?

The next step in an RIA is to assess whether regulatory intervention is feasible, and justifiable, i.e. does the problem fall within the regulator's jurisdiction and are there options for the regulator to intervene positively, i.e. intervene\ intervene in a way that improves the overall welfare of stakeholders involved.

This question is at times treated as self-evident i.e., the regulator who identifies the problem should be the one addressing it. But that assumption might not always be correct in regulatory practice.

The OECD's recommendation on improving the quality of government regulation explicitly asks, what is the appropriate level of government for this action? And where multiple levels or bodies are involved, it requires that regulators design effective systems of coordination between them.

This matters especially because the type of market failure has direct implications for which institution is best placed to respond. A failure rooted in market power where a dominant firm uses its market power to restrict competition, sits most naturally within a competition authority's mandate. A failure rooted in information asymmetry between a financial product provider and retail consumers sits more naturally with a financial conduct regulator. Similarly, a failure involving cross-border data misuse may engage the mandates of a data protection authority, a telecommunications regulator, and a financial regulator simultaneously.

3.3.1. Test for institutional appropriateness

Before a regulator can be confirmed as the right institution to act, an RIA should work through three questions.

The first is **legal jurisdiction**: Regulators are created by statute, and their contours are by that statute. Acting beyond those bounds, even in pursuit of a genuine public interest objective, undermines institutional legitimacy. Regulators or "*decision-maker must understand correctly the law that regulates his decision-making power and must give effect to it*.". In multi-regulator environments, the question of which body has primacy over a given problem is not obvious, and must be worked through explicitly. For instance, the **Supreme Court** had set aside the RBI's circular on resolution of stressed assets. ruling that the RBI had gone beyond its powers under the Banking Regulation Act.

The second is **technical competence**: even within its legal mandate, does the regulator have the expertise to understand the market it proposes to regulate and to design responses that will work? Technical proficiency is not only a necessity for tackling the sector's problems and assessing alternatives, it is also a source of legitimacy for the regulator (Baldwin, Cave, and Lodge 2010).

The third is **practical capacity**: does the regulator have the operational resources to implement and enforce its interventions over time? Even where a regulator has clear statutory authority to act, it may lack the practical capacity to do so effectively.

When capacity gaps exist, the RIA should address them directly: whether the intervention should be phased, whether external technical partnerships are needed, or whether a less administratively demanding instrument would achieve comparable results at lower institutional cost.

3.3.2. The multi-regulator problem

Another issue arises when a single regulator clearly lacks authority, but when several regulators have a partial claim on the same problem. Modern markets, particularly in financial services, digital platforms, and telecommunications frequently produce harms that may cut across institutional boundaries.

Consider a case in which consumers are being defrauded through a digital payment platform. The fraud may involve the payment infrastructure itself (engaging a financial regulator's remit), the telecommunications network over which the transaction ran (engaging a telecoms regulator), and the personal data that was harvested or misused in the process (engaging a data protection authority). No single regulator has full sight of the problem. Each has an incentive to act within its own mandate, and little structural incentive to coordinate with the others. The result can be duplicated or incompatible enforcement action, contradictory requirements imposed on the same firms, or a gap between mandates through which the harm falls unaddressed.

Policy makers should aspire to identify cross-cutting regulatory issues across all levels of government and design explicit information sharing and coordination mechanisms to promote coherence and avoid duplication or conflict between regulatory approaches.

References

1. NSW (2017) Market failure guide. **https://www.nsw.gov.au/sites/default/files/noindex/2025-08/market-failure-guide.pdf**
2. Sane et al (2023) Should consumers be prohibited from storing card data on the internet, Indian Law Review, **https://www.tandfonline.com/doi/full/10.1080/24730580.2023.2230827**
3. Patnaik et al (2019) Supreme Court striking down RBI circular will alter India's financial & judicial landscape, The Print, **https://theprint.in/opinion/supreme-court-striking-down-rbi-circular-will-alter-indias-financial-judicial-landscape/217603/**

4. Identifying and Designing Options

The next step in undertaking an RIA is to identify and design options that can address the problem that has been identified. This step should ideally answer the question:

What policy options are you considering?

Once the market failure (or the problem to be addressed) is identified, and the scale of the problem in terms of its on various stakeholders is quantified to the extent possible using available data and information, the next step in an RIA process is to identify and design options for addressing the problem and achieving the regulatory objectives.

However, before identifying the options, policymakers should ask some key questions, which are discussed next.

4.1. Are there private solutions that address the problem/market failure?

It is important to carefully consider what might happen if the private market is left to resolve the situation on its own without government intervention. Private solutions can be preferable to regulation, because they avoid the compliance costs and distortions to incentives that arise from regulation. They also avoid the costs of establishing and monitoring a regulatory regime, and can be more flexible and adaptable to changing circumstances.

An option to address the problem may therefore be to do nothing, and allow private solutions to develop organically, to help guide the market back towards the efficient outcome. For example, warranties, online reviews, and consumer groups can lessen asymmetric information about product quality. Industry groups can help resolve market failures through self-regulatory mechanisms, such as voluntary certification and industry standards to indicate business quality.

Sometimes regulation ‘crowds out’ private solutions, preventing them from developing, so the assessment should look for any evidence that existing regulation has done this. It is also important to consider if regulation can facilitate private solutions, such as through clarifying property rights or lowering transaction costs to better enable market participants to resolve externality or information problems.

4.2. Is there a risk of government failure?

While governments are generally well-intentioned in addressing market failures to increase society's welfare, their incentives and limited information about various aspects of the market mean they can fail to achieve this - or can create unintended consequences from intervening. As a result, government intervention may inadvertently create a larger reduction in society's welfare than results from the market failure. For instance, RBI's regulatory interventions in the prepaid payment instruments (PPI) market, issued without an RIA, have adversely impacted market outcomes for PPI operators and consumers.

Governments may not have sufficient information to determine the optimal response to a market failure, because that information is dispersed across society and constantly changing. All these effects are examples of government failure, which skew outcomes away from those that are welfare-maximising. Any proposed regulation should also be assessed as to whether it creates a risk of government failure.

Elected members of government may also be seeking re-election while appointed officials may be looking to expand an agency's influence or budget, or being influenced by lobbying to put the interests of specific parties above those of society (that is, they may be subject to 'regulatory capture'). These forces can mean that despite best intentions, the incentives that policymakers face might lead to interventions that do not necessarily lead to an improvement in the overall welfare of stakeholders.

4.3. When to Start Designing Options

The timing of options identification is important. If options are developed too early, before the problem, and its underlying causes are properly understood, there is a risk that the resulting interventions will be misaligned with the actual policy need. Conversely, if options are developed too late— there is a risk that political or institutional preferences get crystallised—and the exercise risks becoming a mere justification of a pre-selected solution.

It is therefore important that no preconceived notions, preferences or biases are able to influence the option design process. The RIA can then genuinely inform decision-making rather than retrospectively rationalise pre-decided outcomes.

In practice, our recommendation is that regulators begin designing options only once three conditions are satisfied:

- First, the problem has been clearly articulated in terms of its causes (for example, information asymmetry, externalities, or market power) and its impact on various stakeholders.
- Second, the objectives of intervention clearly define the problem or issue to be addressed and, where possible, measurable; and
- Third, a credible baseline scenario has been established using available evidence and data.

The baseline (no change or a no regulation scenario) is particularly important because it provides the counterfactual against which all options are to be assessed. The importance of sequencing is illustrated in the United Kingdom's **Online Harms framework**, where the UK Government first undertook a detailed articulation of harms in digital markets before identifying a range of options.

4.4. Policymakers should consider multiple options

It is important to consider multiple ways in which the identified issues or market failures can be addressed, and regulatory objectives can be achieved. A regulator must not limit its options to interventions it can make, but should also consider possible non-regulatory and co-regulatory solutions.

Regulation is only one among many possible instruments of public policy, therefore all plausible alternatives, including non-regulatory solutions must be taken into account.

The options identified should also include those with variations in stringency.

For instance, in order to address the problem of systemic risks to financial markets due to overleveraging, while different similar options may comprise capping leverage at different levels, other options can include imposing higher capital requirements, increased information disclosure and reporting, and strengthening monitoring and supervision to contain bad actors.

Different options will generate different distributions of costs and benefits across stakeholders, and may vary significantly in their effectiveness, efficiency, and feasibility. Only by comparing these options can policymakers identify the intervention that maximises net social welfare.

The "no-change" scenario should also be included as an option. This is because the costs and benefits of the options need to be compared with this no change scenario to determine whether benefits of the options outweigh their costs, if they do not and instead, the costs of an option are greater than its benefits, then an RIA can support the decision to not intervene and let the status quo continue.

RIA therefore can also help prevent unnecessary regulation as much as it helps design optimal and effective regulation.

For instance, in order to address the problem of overleveraging in financial markets, letting firms fail in a no-change scenario, which leads to freeing up of resources, should also be considered.

Different options may diverge along several dimensions. They may differ in:

- their likelihood of correcting the identified market failure
- in the extent to which they impose costs on stakeholders
- in their distributional impacts across different stakeholders, and,
- in their administrative and enforcement requirements.

For example, an information disclosure requirement may impose relatively low compliance costs but may be ineffective in addressing information asymmetry because consumers may lack the capacity to interpret complex information. Conversely, a price control option may be highly effective in addressing monopoly pricing but may reduce incentives for investment.

An example of this approach can be seen in the development of the **Consumer Data Right** framework in Australia, where the Australian Government evaluated a spectrum of options ranging from no action, to voluntary industry-led solutions to a comprehensive regulatory framework. The final decision was based on an explicit comparison of these alternatives.

4.5. Safeguards in Designing Regulatory Options

The identification of multiple options is a necessary but not a sufficient condition for effective RIA. The quality of the options—and the integrity of the process through which they are developed—are equally important.

One common problem is the presentation of options that are not meaningfully distinct. For example, regulators may present three options that differ only in minor parameters, such as thresholds or timelines, while excluding fundamentally different approaches. This undermines the comparative nature of RIA and limits its analytical value.

A second challenge is confirmation bias. Regulators may have implicit or explicit preferences for particular interventions, leading to the construction of alternative options that are designed to appear inferior. The **OECD** warns against this tendency, noting that RIA should not become an exercise in "justifying a particular regulatory action."

To address these risks, several safeguards are necessary. Transparency in documenting how options were identified and shortlisted is critical. Independent oversight bodies can play an important role in scrutinising the adequacy of the options considered. Stakeholder consultation can also serve as a check on bias, particularly when conducted early in the process.

Another important safeguard is proportionality. The range and depth of options considered should reflect the significance of the problem. As the OECD notes, RIA should be "proportional to the significance of the regulation," ensuring that analytical effort is focused where it is most needed.

Finally, the baseline scenario must be constructed carefully. An unrealistic baseline can skew the comparison of options and lead to misleading conclusions.

4.6. Iterative and Participatory Design of Options

Option design is not a one-off exercise but an iterative process that evolves as new information becomes available. The OECD explicitly recognises RIA as an “iterative process,” in which different stages may be revisited in light of new evidence or stakeholder input.

Stakeholder engagement plays a central role in this process. Early consultation can help identify feasible options, reveal unintended consequences, and improve the overall quality of analysis. Stakeholders often possess detailed knowledge of market conditions and operational realities that may not be available to regulators.

In some cases, stakeholder input can fundamentally reshape the set of options under consideration. For example, industry participants may propose voluntary or co-regulatory approaches that achieve policy objectives at lower cost, while civil society organisations may highlight distributional impacts that were not initially apparent.

Recognising the iterative and participatory nature of option design is particularly important in complex or rapidly evolving sectors, where rigid or overly prescriptive approaches may quickly become outdated.

References

1. UK Government (2020). Online Harms White Paper **https://www.gov.uk/government/consultations/online-harms-white-paper/online-harms-white-paper**
2. Australian Government (n.d.) Consumer Data Right **https://treasury.gov.au/policy-topics/economy/consumer-data-right**
3. OECD (2020), Regulatory Impact Assessment, OECD Best Practice Principles for Regulatory Policy, OECD Publishing, Paris, **https://doi.org/10.1787/7a9638cb-en**.
4. UK Financial Reporting Council (2024) Corporate Governance Code **https://www.frc.org.uk/library/standards-codes-policy/corporate-governance/uk-corporate-governance-code/**
5. EU General Data Protection Act (2016) **https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32016R0679**
6. TRAI Prohibition of Discriminatory Tariffs for Data Services Regulations (2016) **https://trai.gov.in/sites/default/files/2024-09/Regulation_08022016_0.pdf**
7. European Commission (2012), Working Paper on Impact Assessment **https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52012SC0072**

5. Stakeholder Identification

This step may be thought of as answering the following question:

Who are all the stakeholders that are likely to be impacted by the problem and the options that might be under consideration as solutions?

Once regulatory options have been designed, the next step in RIA is the identification of stakeholders and how they are impacted by them.

Without a comprehensive understanding of who is affected—and how—subsequent analysis of costs, benefits, and distributional impacts risks being incomplete or misleading.

The **OECD** emphasises that RIA should identify "all groups affected by the policy, whether directly or indirectly," thereby ensuring that analysis captures the full range of impacts rather than focusing narrowly on regulated entities. Similarly, the **European Commission**'s Better Regulation framework requires policymakers to systematically assess "who is affected and how," including impacts on businesses, citizens, and public administrations.

Stakeholder identification is therefore not a mechanical listing exercise. It is an analytical process that requires regulators to understand the structure of the market, the relationships between actors, and the broader systems within which regulation operates.

5.1. Stakeholders Directly Impacted by Regulatory Options

5.1.1. Consumers and End Users

Regulation is often undertaken to benefit consumers. When regulatory intervention is addressing a market failure, the key intended group of beneficiaries is consumers.

As we have seen earlier, market failures lead to a loss of allocative efficiency in the market, and one of the key aspects of this is the reduction in 'consumer surplus' compared to a counterfactual situation of a well functioning market.

Regulatory intervention that addresses the market failure typically leads to an increase in consumer surplus, particularly when the market failure is attributable to the presence of a monopoly or oligopoly.

Regulations which help increase product safety, consumer information, or enhance consumer rights also lead to more beneficial outcomes for consumers.

5.1.2. Producers and Service Providers

Producers of the relevant market for goods or services that the regulation applies to are the next key group of stakeholders impacted by the options chosen.

Regulatory intervention to correct a market failure arising due to the presence of a monopoly or significant market power, typically results in lower prices and margins for producers. It is also expected to reduce overall profitability since producers have to shift away from the prices that maximised their profits in an unrestricted and unregulated market. Typically, competition authorities are tasked with regulating monopolies and one of the important regulatory interventions used is price regulation or margin regulation which targets a maximum allowable margin for the monopolist.

Regulations may impose requirements on producers to disclose more details about the product or service or label the products better - both of which impact producers by imposing some costs or undertaking these actions. For instance, firms may become subject to license or registration requirements or may be required to pay increased license fees.

The impacts on this group are often the most readily measurable, as they include compliance costs, administrative burdens, changes to business models, and potential effects on profitability. However, even within this category, heterogeneity is significant. Large firms may have the resources to absorb compliance costs and adapt quickly, whereas smaller firms may face disproportionate burdens.

Impacts on small firms or businesses in terms of the burden of complying with regulations that should be given due consideration when selecting the most preferred option.

5.1.3. Regulators and Public Authorities

Regulators themselves are often overlooked as stakeholders, yet they play a central role in implementation. New regulatory options may require additional administrative capacity, specialised expertise, monitoring systems, enhanced use of technology, and enforcement mechanisms.

These requirements have direct implications for regulators in terms of additional costs of implementation and enforcement.

For instance, in the development of the General Data Protection Regulation (GDPR), the European Commission explicitly identified supervisory authorities as key stakeholders, noting that the proposed framework would require stronger coordination mechanisms, increased staffing, and enhanced enforcement capabilities across Member States.

Different options impose different levels of costs on regulators. Also, in scenarios where self-regulation or co-regulation is proposed, some of the regulatory and/ or enforcement burden may shift to self-

regulatory bodies, industry associations and external expert bodies entrusted with functions like standard setting and dispute resolution.

Some options may impose costs on judiciary and quasi-judicial bodies, and other government agencies that may be required in the enforcement of regulations.

5.1.4. Entities in the supply chain

Modern markets often involve complex value chains, where the final regulated firm sources raw materials, intermediary goods etc from other suppliers. They may also interact with intermediaries such as platforms, agents, or service providers in order to reach consumers. Regulatory interventions targeting one segment of this chain can have cascading effects on others.

For example, in the **Reserve Bank of India**'s framework for **payment aggregators** and payment gateways, while payment aggregators are directly regulated, the framework also affects merchants, payment gateways, and technology providers who must adapt their operations to comply with revised onboarding, settlement, and data management requirements.

Thus, options considered under an RIA exercise may impact **other entities** part of the value chain. It is important to take into account the impact on such firms which conduct RIA.

A rigorous RIA must therefore adopt a value-chain perspective, identifying not only who is regulated, but also who is economically connected to those actors—and how regulatory effects propagate across these linkages.

5.1.5. Potential Market Entrants

Regulation also shapes the conditions under which new firms can enter a market. Entry barriers—whether in the form of licensing requirements, capital thresholds, or compliance costs—can significantly influence competition and innovation.

RIA should consider the impacts on future market dynamics under the various options, particularly on competition impacts and impacts on potential market entrants. Ideally, markets should aim to remain as competitive as possible and a key enabler of this is the ease of entry for potential entrants.

5.1.6. Potential Consumers and Financial Inclusion

In many sectors, particularly in developing economies, regulation plays a critical role in determining who can access markets on the consumer side. Regulatory design can either expand or restrict access to services such as banking, insurance, or digital platforms.

The experience of mobile money regulation in Kenya, overseen by the Central Bank of Kenya, demonstrates how regulatory choices affect potential consumers. A flexible, "test-and-learn" approach

enabled the rapid expansion of mobile financial services to previously unbanked populations. This highlights that stakeholder identification must include not only current users but also those who may be brought into the market as a result of regulatory change.

By recognising that regulatory choices determine not only how markets function but also who can access them, policymakers can better evaluate the broader welfare implications of different options, particularly in contexts where **inclusion** and access are central policy concerns.

5.2. Factors Impacted: Markets, Environment, and Society

In addition to impacts on various stakeholder groups, regulatory interventions can have an impact on the broader market structure and the economy, as well as the environment. RIA requires an assessment of these impacts since they have the potential to affect overall wellbeing in society.

5.2.1. Markets and Economic Structure

Regulation can fundamentally alter market dynamics by influencing competition, pricing, innovation, and entry. Although we have identified potential market entrants as an important stakeholder group, broader impacts on the overall structure of the market can also have lasting effects on the welfare of consumers, producers and intermediaries.

These effects may not be immediately visible at the level of individual firms but can have significant long-term implications.

5.2.2. Environment

Where relevant, regulatory interventions may have environmental implications. These may include changes in energy consumption, emissions, or resource use.

RIA should ideally include consideration of any environmental impacts of regulatory interventions, including changes to emissions, and resource efficiency. This helps make regulatory decisions more well-rounded and criteria such as environmental sustainability can then be given due importance in option selection where this is needed.

5.3. Preventing regulatory capture

Policymakers should aim to avoid a situation in which the RIA process is disproportionately influenced by a particular stakeholder group, typically those that are well-organised, well-resourced, or have privileged access to decision-makers.

Regulatory processes that are transparent, inclusive, and evidence-based, mitigate the risk that policy outcomes are shaped by narrow interests rather than broader public welfare. Regulatory capture can arise not only at the stage of decision-making, but also earlier—during problem definition, option design, and stakeholder identification itself.

In the context of RIA, capture may manifest in more subtle ways. For exa7mple, regulators may:

- Focus disproportionately on the concerns of incumbent industry players
- Frame the problem in terms that reflect industry perspectives
- Identify stakeholders narrowly, excluding less organised or future groups
- Give greater weight to submissions from well-resourced actors during consultation

For instance, consultation processes often receive disproportionate input from industry stakeholders, while consumers, small businesses, and diffuse interest groups are underrepresented.

Similarly, in many developing countries, regulatory processes tend to be dominated by formal sector actors, with insufficient consideration given to informal participants, small enterprises, and potential entrants.

The risk of capture underscores the need for a holistic and deliberately inclusive approach to stakeholder identification. Regulators are recommended to go beyond readily visible or vocal stakeholders and actively seek to identify groups that may be:

- Diffuse or poorly organised (e.g., consumers, households)
- Indirectly affected (e.g., workers, supply chain participants)
- Future stakeholders (e.g., potential entrants, future consumers)
- Vulnerable or underrepresented (e.g., small firms, marginalised communities)

References

1. OECD (2020), *Regulatory Impact Assessment: OECD Best Practice Principles for Regulatory Policy*, **https://doi.org/10.1787/7a9638cb-en**
2. European Commission, Better Regulation Guidelines, **https://commission.europa.eu/system/files/2021-11/swd2021_305_en.pdf**

3. UK Government (2022). Online Safety Act Impact Assessment **https://www.gov.uk/government/publications/online-safety-act-enactment-impact-assessment**
4. Kulkarni (2018) Not the way to promote digital payments, CUTS CCIER. **https://cuts-ccier.org/pdf/DP_the_way_to_promote_digital_payments.pdf**
5. RBI (2020) Master Circular on Payment Aggregators **https://www.rbi.org.in/scripts/BS_ViewMasCirculardetails.aspx?id=11822**
6. European Union (2012). Working Paper on Impact Assessment **https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52012SC0072**
7. Kulkarni and Sane (2025). Prepaid Payment Instruments: How has regulation impacted market outcomes. The Leap Blog **https://blog.theleapjournal.org/2025/05/prepaid-payment-instruments-how-has.html#gsc.tab=0**
8. World Bank (n.d.) Financial Inclusion **https://www.worldbank.org/en/topic/financialinclusion**
9. European Commission (2021), Better Regulation Guidelines **https://commission.europa.eu/system/files/2021-11/swd2021_305_en.pdf**
10. UK Government (2023) Better Regulation Framework **https://www.gov.uk/government/publications/better-regulation-framework**
11. World Bank (n.d). Global indicators of Regulatory Governance **https://rulemaking.worldbank.org/en/key-findings#1**

6. Identifying Costs of Different Options

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This next step in the RIA process aims to answer the question:

What are the costs of the options?

6.1 Role of Cost Identification in Regulatory Impact Assessment

As noted earlier, RIA helps policymakers make more informed decisions regarding the type of interventions they choose to make in various broader economic or more specific industry and market contexts. A key component of the information provided by an RIA to policymakers is to do with identification and to the extent possible, quantification, of the various costs of the proposed regulatory interventions on all the identified stakeholders.

The identification and quantification of costs of the options also helps ensure that regulatory interventions remain **proportionate to the problem or market failure they are intended to address**. For example, environmental regulations aimed at reducing pollution may impose compliance costs related to emissions monitoring systems or pollution control technologies. If these costs are not identified and quantified, policymakers risk introducing regulations whose overall costs outweigh their overall benefits to stakeholders.

Finally, by identifying costs that may be borne by various stakeholders, policymakers can gauge the winners and losers from each option and determine equitable ways to fund the implementation of the options so that beneficiaries bear a commensurate share of implementation costs.

To illustrate, consider a regulation requiring packaged food manufacturers to display detailed nutritional information.

One policy option may involve voluntary labelling guidelines issued by the regulator. Another option may involve mandatory disclosure requirements that require firms to redesign packaging and verify nutritional data. A third option may involve digital disclosure through QR codes that provide additional product information online.

Each of these approaches involves different compliance and administrative costs -as well as a different level of benefits to consumers. Identifying these costs for each option helps policymakers i) Evaluate

whether overall benefits exceed overall costs for a given option ii) evaluate which option delivers the highest net benefits (I.e. benefits minus costs) to society and iii) who bears the various costs and to what degree which can help in considering options along equity/fairness principles.

6.2 Types of costs

There are a few key properties of costs that are a useful starting point to use for the analysis of costs in an RIA. These are:

6.2.1. Timing and frequency of costs

One-time costs tend to usually occur during the initial implementation of a regulation. These costs may include purchasing equipment, upgrading technology systems, or conducting initial staff training. For example, implementing a new digital tax reporting system may require businesses to upgrade accounting software and train employees on new reporting procedures.

Recurring costs are those that are repeated multiple times over the lifetime of the regulatory intervention. These costs may include periodic reporting costs, compliance audit costs, periodic licence fees, and routine costs of maintaining compliance systems.

Transition costs arise when organisations adjust to new regulatory frameworks. These costs may include retraining workers, modifying supply chains, or replacing outdated infrastructure. Transition costs are often temporary but can be substantial during the early stages of regulatory implementation.

Long term structural costs emerge gradually as markets adjust to regulatory changes. These costs may include changes in industry structure, reduced entry of new firms, or shifts in investment patterns across sectors.

6.2.2. Whether the costs can be quantified or monetised or whether they can only be qualitatively described

Monetisable costs are costs that can be estimated using market prices or financial data. Examples include price paid to set up compliance equipment and systems, paying licence fees, hiring additional staff for compliance functions, or investing in information technology systems required to meet regulatory requirements.

However, some costs, such as impacts on competition in the market or the impact on the ease of entry into the market for new suppliers are hard to quantify and monetise. Highly prescriptive regulations may also limit firms' ability to experiment with new business models or innovative technologies.

These can have significant future impacts on end consumers via final prices and product quality.

6.3. Distribution of Costs Across Stakeholders

Regulatory costs are rarely distributed evenly across society. Instead, they are borne by different stakeholders, including businesses, workers, and regulatory institutions.

Identifying how costs are distributed across stakeholders helps policymakers assess whether regulatory impacts are **concentrated on particular sectors, regions, or population groups**. This can inform decisions about regulatory design, implementation timelines, and potential mitigation measures.

Small and medium scale enterprises make up a significant share of industry in several sectors of the Indian economy. Identifying and quantifying costs can help policymakers consider the impacts of each option on small and medium sized businesses, and in particular on their ability to continue to operate and compete effectively in the market.

6.4. Identifying Costs in Practice

Identifying regulatory costs requires a combination of analytical methods and stakeholder engagement. Policymakers often rely on consultations with regulated entities, industry associations, and subject matter experts to understand the costs that may be imposed by the proposed regulation.

Surveys and interviews can help estimate the time and resources required to comply with regulatory requirements.

Administrative data and industry reports can provide information on compliance investments and operational costs.

Policymakers may also examine similar regulations implemented in other jurisdictions to estimate potential cost impacts.

6.5. Methods and Data Requirements for Estimation of Costs

Once costs associated with regulatory options have been identified, the next step is to quantify, wherever possible, their magnitude and significance.

Cost estimation can be a combination of monetised, quantified, and qualitative approaches. The choice of approach depends on the nature of the cost, the availability of reliable data, and the expected significance of the impact. These approaches are discussed in greater detail below.

Quantifying and monetising the cost impacts allows systematic comparison of costs across policy options. It also enables policymakers to understand how costs are distributed across stakeholders (firms, households, government etc), over the lifetime of the regulation.

Cost estimation can be undertaken through different but complementary approaches. These approaches vary in terms of the level of precision they offer and the type of data they require. In most analyses, a combination of methods is used to reflect the diversity of cost components.

6.5.1. Monetised Estimation

Monetised cost estimation involves expressing costs in monetary terms so that they can be compared across regulatory options. This approach is particularly useful where costs are clearly defined and measurable from market transactions or where reliable proxies can be used to estimate economic value.

For example, capital costs may be estimated using market prices of equipment and installation, while operational costs may include labour, maintenance, and energy consumption. Where costs occur over time, they must be adjusted to reflect their present value, taking into account discounting and inflation.

In situations where market prices do not fully reflect the economic value of resources, alternative valuation techniques may be required. Time spent on compliance activities is often valued using wage rates, while the cost of capital may be estimated using expected rates of return. Such approaches allow analysts to approximate the opportunity cost of resources even in the absence of direct price signals.

Where uncertainty exists, ranges or sensitivity analysis may be used to reflect variability in estimates.

6.5.2. Quantification Without Monetisation

Quantification without monetisation is used where costs can be measured in physical or operational terms but cannot be reliably converted into monetary values.

Costs may be expressed in units such as time, number of transactions, volume of output, or number of affected entities. For example:

- administrative burdens can be measured as the number of hours required to complete reporting obligations,
- regulatory requirements affecting licensing may be quantified in terms of applications processed annually.

A structured approach to quantification involves identifying the relevant activity, estimating the time or effort required per unit, and multiplying this by the number of occurrences. This approach allows analysts to build up cost estimates in a transparent and replicable manner.

Quantified estimates may later be monetised if reliable valuation parameters become available. For instance, if hourly wage rates of those who work on reporting obligations become available, they can be used to monetise the costs of complying with the reporting obligations.

Quantification can be particularly useful in stakeholder engagement, as regulated entities often find it easier to validate estimates expressed in operational terms rather than monetary values (which can lead to more disagreement). It also supports comparison across options by highlighting differences in scale and intensity of compliance requirements.

6.5.3. Qualitative Assessment

A qualitative assessment may be used for cost components that cannot be reliably quantified or monetised. A systematic qualitative approach involves clearly describing the nature of the cost, the mechanism through which it arises, and the stakeholders affected. It also requires an assessment of the likely direction of impact, its potential magnitude, and the time horizon over which it may materialise. This helps ensure that qualitative assessments are consistent and comparable across policy options.

Qualitative analysis is particularly important in cases where regulatory interventions may have unintended consequences, such as impacts on market competition, via discouraging innovation or creating barriers to entry which are hard to monetise or even quantify.

Qualitative assessments may be supported by evidence from case studies, expert judgement, or comparable international experience. Where appropriate, structured scoring or ranking systems may be used to organise qualitative information and facilitate comparison.

6.5.4. Choosing the Appropriate Approach

The choice of estimation approach depends on the nature and significance of the cost being assessed. High-impact cost components that are likely to influence decision-making should be prioritised for detailed estimation, including monetisation or rigorous quantification where feasible. This ensures that the most material aspects of the analysis are supported by robust evidence.

For cost components that are less significant or subject to high uncertainty, qualitative assessment may be more appropriate. Attempting to monetise such costs may introduce additional error without improving decision quality. A proportionate approach therefore balances analytical effort with expected benefits in terms of improved decision-making.

Data availability is another key consideration. Where reliable and representative data is available, more detailed estimation methods can be applied. In contrast, where data is limited, analysts may need to rely on proxies, benchmarks, or qualitative descriptions.

6.6. Data Requirements and Sources

Cost estimation - and in particular monetisation of costs, relies on the availability of data. Different cost categories rely on and can be informed by different types of datasets.

Administrative data provides information on regulatory processes, compliance requirements, and enforcement mechanisms.

Market data can be used to estimate the costs of inputs such as labour, equipment, and services.

Firm-level data captures how regulated entities respond to regulatory requirements, including changes in behaviour and operational adjustments.

Primary data collection methods include surveys, interviews, and stakeholder consultations. These methods are particularly useful for capturing firm-level impacts that are not available in administrative datasets. Designing effective surveys requires careful consideration of sampling, questionnaire structure, and validation of responses to ensure reliability.

Secondary data sources include industry research and reports, government/public datasets (such as data available with national statistical or sample survey agencies) and reports, academic studies, and industry benchmarks.

International comparators may be used to fill data gaps, especially in cases where similar regulations have been implemented in other jurisdictions. Such comparisons require adjustment for differences in market structure, exchange rates, price levels and regulatory design, to ensure that estimates remain contextually appropriate.

Analysts should assess whether data is representative, current, and methodologically sound in terms of how it has been produced/sourced. Where limitations exist, triangulation across multiple sources can improve robustness by reducing reliance on any single dataset.

6.7. Methods for Estimating Costs for key costs of regulations

Different categories of costs may require different estimation techniques.

- **Compliance Costs:** Compliance costs are typically estimated using a bottom-up activity-based costing approach. This involves estimating the cost per firm or activity and then aggregating across all affected entities. The approach requires identification of all relevant compliance activities, estimation of time and resources required for each activity, and scaling based on the number of affected firms.
- **Government and Enforcement Costs:** Government costs include the resources required to implement, monitor, and enforce regulations. These may include staffing, training, infrastructure,

and operational expenses. Estimation typically relies on budgetary data, staffing plans, salary band information, and historical expenditure patterns in similar contexts.

- **Impact on competition, small businesses:** These impacts eventually impose costs on consumers. These may include changes in prices, output levels, variety and quality of products in the market. It can also have longer term impacts on consumers by influencing investment decisions, and the ability to compete and innovate.

Estimating such costs often requires scenario analysis or economic modelling, as they cannot be directly observed or quantified. Microeconomic tools, market simulation exercises etc may be used to forecast alternate scenarios for prices and outputs in the market.

Market-based valuation relies on observable prices for goods and services. Where such prices are unavailable, proxy measures may be used to estimate the value of time.

Shadow pricing is used to adjust for market distortions and reflect the true economic cost of resources. This is particularly relevant in cases where subsidies, taxes, or market imperfections affect observed prices.

Cost transfer methods involve adapting estimates from existing studies or comparable jurisdictions. These methods require careful adjustment to ensure that differences in context are appropriately accounted for. Consistency in valuation methods is essential to ensure that cost estimates are comparable across policy options.

6.8. Addressing Uncertainty and Data Gaps

Uncertainty is an inherent feature of cost estimation. It arises from limitations in data, the need to make assumptions about behaviour change, and unpredictability of future markets and broader economic conditions.

Sensitivity analysis is a useful tool to address uncertainty in cost estimation. It can be used to test how cost estimates might change when key assumptions are varied. It also helps identify which parameters have the greatest influence on outcomes. Scenario analysis can be used to explore different possible futures, such as best-case and worst-case scenarios.

Where precise estimates are not possible, ranges may be used instead of point estimates. This provides a more realistic representation of uncertainty and avoids overconfidence in results.

6.9. Using Proxies for Estimation of Costs

A proxy is a substitute value used when a cost cannot be directly observed or priced. Proxies are employed where direct cost measurement is not feasible. Their appropriateness depends on how

closely they approximate the underlying economic value:

1. **Shadow Prices:** Shadow pricing is used where market prices are absent or distorted due to externalities, market power, or policy interventions. It seeks to approximate the true social opportunity cost of a resource.

For example, if an intervention leads to greater greenhouse gas emissions, the cost of these emissions on society may be proxied by prices of emissions in a regulated emissions trading market. However, there also exists studies that estimate the true marginal social cost of additional emissions and this reflects the actual negative externality of the added emissions and is the appropriate metric to use as the shadow price. This is usually much higher than the price of a tonne of carb on emissions in regulated emissions trading schemes.

1. **Proxies for Time Costs:**

- **Wage rates**

The wage rate proxy rests on the assumption that time devoted to compliance represents an opportunity cost equal to what the same hour could produce in the next best use. The standard approach is to value this time at the relevant wage rate, or a multiple of it.

- **Cost of capital**

Time delays or any additional time added to approvals, permitting or production processes impose costs on suppliers. These can be monetised using the cost of capital for the relevant industry and applying it to the amount of delay. Cost of capital data is usually available from macroeconomic lending information on interest rates for different industries.

1. **Budget Allocations as Cost Proxies:** At early stages of appraisal, total budget allocations may serve as a proxy for costs where detailed estimates are unavailable. While useful for high-level decisions, this approach lacks granularity and limits comparison across alternative designs within the same budget envelope.

1. **Unit Cost Proxies:** Unit-based estimates (e.g., cost per facility, per kilometre, or per beneficiary) allow scaling from known benchmarks. The reliability of a unit cost proxy depends critically on the comparability of the reference project: a cost-per-kilometre estimate for urban road construction is unlikely to provide an adequate proxy for a rural highway project in hilly terrain.

1. **Cost Transfer:** Cost transfer is the practice of adapting monetary values from an existing study to a new policy context. The key risk is 'valuation error' arising when the study context differs from the application context in ways that affect the value being transferred.

6.10. How to Frame Assumptions Credibly

The credibility of cost estimates depends not only on the quality of the data but on the quality of the assumptions that underpin it. The following steps can help improve the credibility of cost estimates in an RIA.

1. **Grounding Assumptions in Evidence:** Effort should be made to allow each assumption regarding a cost to be traceable to a data source: published data, a comparable study, expert judgement obtained through a structured technical process, or stakeholder consultation. Where evidence diverges, analysts should either justify a central estimate or carry alternative values into sensitivity analysis.
2. **Distinguishing Assumptions from Facts:** A source of analytical error can be the treatment of contestable judgements as settled facts. For example, values drawn from other jurisdictions should not be used without testing their applicability to local context. Making these distinctions visible prevents decision-makers from placing unwarranted confidence in cost estimates.
3. **Documenting Assumptions Transparently:** Maintaining a structured record of assumptions, including their sources, plausible ranges, and impact on results improves both internal consistency and external credibility.
4. **Proportionality: Matching Rigour to Significance:** Not all assumptions require equal scrutiny. The analytical effort devoted to validating and testing an assumption should be proportional to its influence on the overall cost estimate.

References

1. Department of Expenditure, Ministry of Finance, Government of India. (2022). Appraisal and approval of public funded schemes. **https://doe.gov.in/files/circulars_document/appraisal_and_approval_of_public_funded_scheme.pdf**
2. Asian Development Bank. (2014). *Financial management technical guidance note: Preparing and presenting cost estimates*. **https://www.adb.org/sites/default/files/institutional-document/34142/files/fmtgn-preparing-presenting-cost-estimates.pdf**
3. U.S. Army. (2018). *Cost-benefit analysis guide*. **https://www.asafm.army.mil/Portals/72/Documents/Offices/CE/US%20Army**

4. U.S. Environmental Protection Agency. (2024). *Guidelines for preparing economic analyses*. **https://www.epa.gov/system/files/documents/2024-12/guidelines-for-preparing-economic-analyses_final_508-compliant_compressed.pdf**
5. HM Treasury. (2026). *The Green Book: Appraisal and evaluation in central government*. **https://assets.publishing.service.gov.uk/media/698dbcd17da91680ad7f4308/The_Green_Book_2026.pdf**
6. Organisation for Economic Co-operation and Development. (2008). *Building an institutional framework for regulatory impact analysis (RIA): Guidance for policy makers*. **http://regulatoryreform.com/wp-content/uploads/2015/02/OECD-HANDBOOK-FOR-UNDERTAKING-RIA.pdf**
7. European Commission. (2015). *Guide to cost-benefit analysis of investment projects*. **https://ec.europa.eu/regional_policy/sources/studies/cba_guide.pdf**
8. World Bank. (2019). *Cost benefit analysis technical note: Global program for safer schools*. **https://gpss.worldbank.org/sites/default/files/knowledge_products/2019/CBA%20Technical%20Note_IPF.pdf**
9. New Zealand Treasury. (2026). *The Treasury's CBAx Tool*. **https://www.treasury.govt.nz/information-and-services/public-sector-leadership/investment-management/investment-planning/treasurys-cbax-tool**
10. World Bank. (n.d.). *About the International Comparison Program (ICP)* **https://www.worldbank.org/en/programs/icp**
11. World Bank. (2023). *Price Benchmarking - Works, Goods and Non-consulting Services in World Bank-financed Projects*. **https://thedocs.worldbank.org/en/doc/a67dfe2685f063233ccfbb0cbea46ea2-0290012023/original/16651-wb-price-benchmarking.pdf**
12. International Cost Estimating and Analysis Association. (2013). *Sensitivity analysis in cost-benefit analysis*. **https://www.iceaaonline.com/wp-content/uploads/2017/09/M2-9_Presentation_SensitivityAnlaysisInCBAs_Ikeler.pdf**
13. Mccabe, Christopher & Paulden, Mike & Awotwe, Isaac & Sutton, Andrew & Hall, Peter. (2019). One-Way Sensitivity Analysis for Probabilistic Cost-Effectiveness Analysis: Conditional Expected Incremental Net Benefit. PharmacoEconomics. 38. 1-7. **https://www.researchgate.net/publication/337947485_One-Way_Sensitivity_Analysis_for_Probabilistic_Cost-Effectiveness_Analysis_Conditional_Expected_Incremental_Net_Benefit**
14. The WallStreet School. (2025). *Sensitivity and Scenario Analysis Finance Guide for 2026* **https://www.thewallstreetschool.com/blog/sensitivity-analysis-finance-guide/**
15. New Zealand Treasury. (2023). *Approaches to sensitivity analysis*. **https://www.treasury.govt.nz/information-and-services/public-sector-leadership/investment-management/better-business-cases/additional-better-business-case-guidance/approaches-sensitivity-analysis**
16. EcoShape. (n.d.). *Monte Carlo simulation and social cost-benefit analysis*. **https://www.ecoshape.org/en/tools/monte-carlo-simulation-and-social-cost-benefit-analysis/practical-applications/**
17. OECD (2020), *Regulatory Impact Assessment*, OECD Best Practice Principles for Regulatory Policy, OECD Publishing, Paris, **https://doi.org/10.1787/7a9638cb-en**.
18. European Commission. (n.d.). *What is better regulation?* **https://commission.europa.eu/law/law-making-process/better-regulation_en**

19. Dudley, S., Belzer, R., Blomquist, G., Brennan, T., Carrigan, C., Cordes, J., ... Zerbe, R. (2017). Consumer's Guide to Regulatory Impact Analysis: Ten Tips for Being an Informed Policymaker. *Journal of Benefit-Cost Analysis*, *8*(2), 187–204. **https://www.cambridge.org/core/journals/journal-of-benefit-cost-analysis/article/consumers-guide-to-regulatory-impact-analysis-ten-tips-for-being-an-informed-policymaker/FAF984595B822A70495621AEA7EF7DEB**

20. Organisation for Economic Co-operation and Development. (2014). *OECD regulatory compliance cost assessment guidance*. OECD Publishing. **https://doi.org/10.1787/9789264209657-en**

21. Andrews, D., S. Turban and S. Tyros (2026), "Regulatory compliance costs and productivity: New task-based evidence", *OECD Economics Department Working Papers*, No. 1856, OECD Publishing, Paris, **https://doi.org/10.1787/1c1da52e-en**.

22. World Bank Group. (2010). *Measuring red tape in developing countries: Use and adaptation of the standard cost model*. **https://documents1.worldbank.org/curated/en/643151468331775348/pdf/586960NEWS0SCM10Box353814B01PUBLIC1.pdf**

23. U.S. Environmental Protection Agency, Office of Air and Radiation. (2011). *The benefits and costs of the Clean Air Act from 1990 to 2020*. **https://www.epa.gov/sites/default/files/2015-07/documents/fullreport_rev_a.pdf**

24. European Commission. (2012). *Commission staff working paper: Impact assessment*. **https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52012SC0072**

25. HM Treasury. (2026). *The Green Book: Appraisal and evaluation in central government*. Government of the United Kingdom. **https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government**

26. European Commission. (2025). *Better regulation toolbox*. **https://commission.europa.eu/document/download/9c8d2189-8abd-4f29-84e9-abc843cc68e0_en**

27. Office of Impact Analysis. (2023). *Cost-benefit analysis guidance note*. Government of Australia. **https://oia.pmc.gov.au/sites/default/files/2023-08/cost-benefit-analysis.pdf**

28. New Zealand Treasury. (2015). *Guide to social cost benefit analysis*. **https://www.treasury.govt.nz/publications/guide/guide-social-cost-benefit-analysis**

29. Financial Conduct Authority. (2024). *How we analyse the costs and benefits of our policies*. **https://www.fca.org.uk/publication/corporate/how-we-analyse-costs-benefits-policies-2024.pdf**

30. Organisation for Economic Co-operation and Development. (2014). *OECD regulatory compliance cost assessment guidance*. OECD Publishing. **https://doi.org/10.1787/9789264209657-en**

31. Asian Development Bank. (2017). *Guidelines for the economic analysis of projects*. **https://www.adb.org/sites/default/files/institutional-document/32256/economic-analysis-projects.pdf**

32. Department for Transport. (2025). *TAG unit A1.1: Cost-benefit analysis*. Government of the United Kingdom. **https://assets.publishing.service.gov.uk/media/683833d2c99c4f37ab4e864a/tag-unit-a1-1-cost-benefit-analysis-may-2025.pdf**

33. World Bank. (2019). *Cost benefit analysis technical note: Global program for safer schools*. **https://gpss.worldbank.org/sites/default/files/knowledge_products/2019/CBA%20Technical%20Note_IPF.pdf**

7. Identifying Benefits of Different Options

This next step in the RIA process answers the following question:

What are the benefits of the options?

The entire point of regulatory intervention is to achieve an overall improvement in welfare of stakeholders in the aggregate. Unless there are benefits to be had from regulation, there is no point incurring costs that come with it.

The identification, quantification and where possible, monetisation of these benefits, allows policymakers to understand the positive impact brought about by the regulatory intervention.

Regulators should evaluate benefits as improvements relative to a baseline or the status quo situation without any regulation.

7.1. Linking Benefits to Market Failure and Unrealised Welfare

Benefits in the context of addressing a market failure arise because market failures suppress outcomes that would otherwise enhance welfare. Regulatory intervention, if well-designed, removes or mitigates these distortions and enables those gains to materialise.

For instance, in the presence of information asymmetry, consumers may make suboptimal choices, leading to welfare losses. Regulatory interventions such as disclosure requirements or standardisation can improve decision-making and generate benefits in the form of better outcomes. Similarly, market power may result in higher prices and restricted output; competition-enhancing measures can yield benefits through lower prices, greater choice, and improved quality. It also leads to an increase in overall allocative efficiency by reducing ‘deadweight losses’.

In the case of externalities, regulatory intervention can lead to a more socially optimal provision of the good or service under question.

Regulatory options are often ways of removing or mitigating constraints such as lack of reliable information, high switching costs, barriers to market entry, weak enforcement mechanisms.

Benefits arise when these constraints are relaxed, enabling improved behaviour by consumers and firms. For example, reducing switching costs may encourage consumers to change providers, leading

to more competitive outcomes. Strengthening grievance redress mechanisms may increase trust in markets, encouraging participation.

The **World Bank**'s guidance on RIA emphasises the importance of articulating this causal link, noting that regulators should clearly explain how interventions lead to improved outcomes relative to the baseline.

Identifying the mechanism through which benefits accrue also helps in their quantification or monetisation.

7.2. Nature and Diversity of Benefits

Not all benefits take the form of allocative efficiency gains.

Many interventions are designed to reduce harm, such as risks to health, safety, financial well-being, or the environment. For instance, the **UK Government**'s Impact Assessment for online safety regulation identifies benefits primarily in terms of reduced exposure to harmful content, particularly for vulnerable users.

Regulation can also improve trust and confidence in markets, which in turn influences participation and can lead to market expansion. The **European Commission** has emphasised that regulatory frameworks in areas such as data protection and consumer rights can enhance trust, thereby encouraging individuals and businesses to engage more actively in markets.

In addition, interventions may generate dynamic benefits over time, including increased investment, innovation, and entry of new firms. The Australian CDR reform explicitly links data portability to innovation and competition, recognising that improved access to data can enable new business models and services. These benefits often emerge over time and may be more significant than immediate gains.

Finally, interventions may produce broader social and distributional benefits, such as enhanced inclusion, improved access to services, increased income opportunities, and time savings. The World Bank has highlighted that regulatory reforms in sectors such as finance can expand access for underserved populations, thereby generating welfare gains that extend beyond traditional efficiency considerations.

7.2.1. Immediate and Long-term Benefits

A critical analytical distinction in RIA is between patent (immediate and observable) benefits and latent (indirect or long-term) benefits. Patent benefits include outcomes such as immediate price reductions, improved safety standards, or enhanced disclosure. These are often easier to identify and, in some cases, quantify.

Latent benefits, by contrast, emerge over time and may include innovation, structural changes in markets, increased competition, and behavioural adjustments. RIA should consider both short-term and long-term impacts, recognising that regulatory effects may evolve and may not be immediately observable.

For example, a reform that improves market entry conditions may not yield immediate price reductions but may lead to increased competition and innovation over time. Similarly, improvements in trust may gradually increase participation in markets, generating cumulative welfare gains.

Failure to account for latent benefits can result in an incomplete assessment of regulatory options, particularly in sectors characterised by rapid technological change or network effects.

7.2.2. Timing, Behavioural Responses, and Conditions for Realisation

Benefits may not always accrue immediately upon the introduction of interventions; their realisation depends on how stakeholders respond and how markets adjust. Some benefits may be immediate, particularly where harmful practices are eliminated. Others depend on responses by consumers and firms, complementary measures, or the development of supporting infrastructure.

Therefore, it is important to consider the timing of benefits and evaluate them over appropriate time horizons. This is particularly important where benefits are delayed or contingent on future developments.

7.2.3. Baseline and Incremental Benefits

Benefits must be measured relative to what would have happened in the absence of intervention. If markets are already evolving toward efficient outcomes, the incremental benefits of regulation may be limited. Conversely, in markets characterised by persistent failures, the same intervention may generate substantial gains.

7.2.4. Risk, Uncertainty, and Avoided Costs

Benefits are often uncertain and may depend on assumptions about future conditions and depend on unobservable factors that drive individual or firm responses.

Therefore, where possible, it is useful to present ranges of benefit outcomes rather than just point estimates.

A significant proportion of regulatory benefits also arise in the form of avoided costs. These include reductions in risks such as illness, accidents, financial loss, or environmental damage. In many regulatory contexts, particularly in safety and environmental policy, avoided costs constitute the primary source of benefits.

7.3. Identifying Beneficiaries Across Stakeholders

A rigorous benefit analysis must explicitly identify who benefits and how. Different stakeholders experience benefits in different ways, and the distribution of these benefits may vary across regulatory options.

Consumers may benefit through lower prices, improved quality, enhanced transparency, better grievance redress, and increased trust.

Firms may benefit from clearer rules, reduced uncertainty, improved market conditions, and reputational gains.

Potential entrants may benefit from reduced barriers to entry, while workers and society may benefit from improved employment opportunities, environmental outcomes, and social welfare.

Understanding the distribution of benefits across stakeholders can also play a role in designing how the regulatory intervention is funded in a fair manner.

7.4. Estimation of Benefits

Once you have identified the benefits associated with regulatory intervention, estimation seeks to determine their magnitude, distribution, and likelihood, thereby enabling meaningful comparison across regulatory options.

It is useful to quantify and monetize benefits to the extent possible, while recognising that some benefits may need to be described qualitatively if data is unavailable.

Benefit estimation can be usefully thought of as three interrelated analytical steps:

- identifying the stakeholders who benefit
- identifying the way in which benefits accrue
- assigning a value to these changes, either in quantitative or where possible, in monetary terms.

These steps can be implemented through a range of methods, discussed below.

7.4.1. Estimating Benefits through Harm Reduction and Consumer Surplus

Steps involved in estimating harm reduction include:

- identify the number of consumers currently experiencing harm (for example, overpaying for services or making suboptimal choices).

- estimate how many of these consumers are likely to experience improved outcomes under the regulatory option.
- estimate the magnitude of harm per consumer in the baseline scenario, followed by the magnitude of harm under the regulatory scenario. The difference between these two (i.e. the reduction in harm) provides the per capita benefit, which, when aggregated across affected consumers, yields total benefits.

For example, if after the intervention, the prices are lower and market demand is higher, the difference in the price multiplied by the additional demand in the market can serve as an estimate of the additional benefits from the regulation.

The **UK Impact Assessment** on "*Open Communications: A Smart Data Scheme for the Telecoms Market*" identifies a key form of harm—the "loyalty penalty"—where consumers remain on expensive contracts even after expiry. Using data from Ofcom, the assessment estimates that out-of-contract mobile consumers overpay by approximately £10.83 per month, while broadband consumers overpay by approximately £5.10 per month.

The population affected is estimated using market shares (e.g., 10% of mobile users and 35% of broadband users being out-of-contract), allowing regulators to calculate the aggregate scale of harm. The benefits of regulatory intervention are then estimated as reductions in this overpayment.

Similar methodologies are used by the United States Environmental Protection Agency to estimate benefits of environmental and quality regulation in terms of avoided mortality and morbidity.

7.4.2. Estimating Benefits for Business Consumers and Market Participants

Benefit estimation must extend beyond retail consumers to include business users and other market participants. In many sectors, particularly telecoms, finance, and energy, small businesses face similar informational and behavioural constraints as consumers.

The UK telecoms Impact Assessment shows that SMEs spend, on average, £1,400 annually on communications services, with significant variation by firm size. Importantly, it estimates that SMEs may overspend by as much as 96% due to market complexity and limited ability to compare tariffs.

Rather than directly monetising all such benefits, the analysis uses this evidence to demonstrate the scale and distribution of potential gains, particularly for smaller firms with higher per-employee costs. With approximately 5 million small business consumers in the UK, the assessment establishes a substantial base of potential beneficiaries.

This reflects a broader methodological point: benefit estimation often combines quantitative data with contextual interpretation, particularly where precise monetisation is difficult but the direction and magnitude of impacts are clear.

7.4.3. Time Savings Valuation

Time savings are a significant and often quantifiable category of benefits, particularly where regulation reduces search costs, traffic congestion, administrative burdens, or switching frictions.

The estimation process involves identifying time spent in the baseline scenario, estimating time required under the regulatory option, and calculating the difference. This time saving is then monetised using wage rates or willingness-to-pay estimates.

The UK telecoms Impact Assessment provides a particularly clear illustration. Under a more advanced regulatory option involving automated data portability, consumers are assumed to save approximately 30 minutes annually. When scaled across the population and valued appropriately, this results in an estimated benefit of approximately £271 million per year.

Importantly, the analysis distinguishes between regulatory options. While basic data access may increase transparency, it may also increase search costs. In contrast, automated solutions reduce effort and generate net time savings. This highlights that benefit estimation must be sensitive to design differences between regulatory options, not just their broad objectives.

7.4.4. Stated Preference Methods

Where market data is unavailable, regulators may need to rely on stated preference methods to estimate benefits. These methods involve surveys designed to elicit individuals' willingness to pay (WTP) or willingness to accept (WTA) compensation.

A range of techniques are used in practice. Choice experiments ask respondents to rank, rate, or select between alternatives, allowing regulators to infer the value of different attributes. Contingent valuation methods ask respondents directly about their willingness to pay, using formats such as open-ended questions, dichotomous choice, iterative bidding, or payment cards.

These approaches are widely used in environmental regulation, transport policy, and digital markets, particularly where benefits relate to non-market goods such as privacy or trust.

7.4.5. Revealed Preference Methods

Revealed preference methods infer values from observed behaviour in real markets. These methods are generally preferred where data is available, as they are grounded in actual decisions rather than hypothetical responses.

Such methods may involve comparing purchasing behaviour under different conditions, across similar products, or between observed behaviour and stated preferences. In the UK telecoms example, the estimation of overpayment based on actual tariffs represents a form of revealed preference analysis.

The **United States** Office of Management and Budget recommends prioritising revealed preference methods wherever feasible.

7.5. Addressing Challenges in Benefits estimation

Data availability and uncertainty

When data is insufficient, unavailable or there is uncertainty around key parameters, scenario analysis and ranges can be used.

Confusion between intermediate impact and final benefits

When consumers switch providers more readily, the increased level of switching itself is not the measure of benefit, but the consequent reduction in prices that they face is the actual benefit.

References

1. OECD (2020), *Regulatory Impact Assessment: OECD Best Practice Principles for Regulatory Policy*, **https://doi.org/10.1787/7a9638cb-en** and **https://www.oecd.org/en/publications/serials/oecd-best-practice-principles-for-regulatory-policy_g1g3fcdf.html**
2. US Office of Management and Budget, *Circular A-4*, **https://bidenwhitehouse.archives.gov/wp-content/uploads/2023/11/CircularA-4.pdf**
3. World Bank, *Regulatory Impact Assessment Guidance*, **https://rulemaking.worldbank.org/en/ria-documents**
4. UK Government (2021), *Online Safety Bill Impact Assessment*, **https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/985283/Draft_Online_Safety_Bill_-_Impact_Assessment_Web_Accessible.pdf**
5. European Commission, *Better Regulation Guidelines*, **https://commission.europa.eu/system/files/2021-11/swd2021_305_en.pdf**
6. OECD, *Behavioural Insights and Public Policy*, **https://www.oecd.org/gov/regulatory-policy/behavioural-insights.htm**
7. European Commission (2012), *Impact Assessment – GDPR*, **https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52012SC0072**
8. UK Government (2023), *Open Communications: A Smart Data Scheme for the UK Telecoms Market – Impact Assessment*, **https://assets.publishing.service.gov.uk/media/65045e5fdec5be000dc35f7f/open_communications_a_smart_data_scheme_for_the_UK_telecoms_market_impact_assessment.pdf**

9. US Environmental Protection Agency, *Guidelines for Preparing Economic Analyses*, **https://www.epa.gov/environmental-economics/guidelines-preparing-economic-analyses**
10. Financial Conduct Authority (2018), *Occasional Paper 39*, **https://www.fca.org.uk/publication/occasional-papers/occasional-paper-39.pdf**
11. Financial Conduct Authority, *Well-being effects related to FCA interventions*, **https://www.fca.org.uk/publication/external-research/wellbeing-effects-related-fca-interventions.pdf**

8. Determining Present Value and Conducting Sensitivity Analysis

Monetised costs and benefits often involve impacts that occur over time. Comparing options must therefore include a comparison of total costs and benefits from each option over the entire time period that impacts are assumed to be relevant for.

Thus, this step can be thought of as answering the question:

What is the present value of impacts and how to deal with uncertainty?

8.1. Determining present values of costs and benefits

Usually, regulatory regimes are intended to be stable and long-lived so depending on the context, evaluation of costs and benefits is likely to span multiple years or even multiple decades.

Even if monetised costs and benefits are attributed to future years, a question that arises is, how do we aggregate them and value them today? This is where the concept of discounting is utilised to evaluate future monetised values in present value terms. Discounting is based on the principle that money has a time value. That is to say that, receiving a hundred rupees a year from today does not carry the same value (purchasing power) as a hundred rupees received today.

This can be seen in two ways. First is that if you invest a certain amount of money today, you are able to earn interest on it. Therefore, receiving a hundred rupees today is nominally the same as receiving a hundred rupees plus interest on it, a year from now. However, inflation erodes some purchasing power over time as well. Subtracting the rate of inflation from the rate of interest equals what is called the 'real rate of interest' i.e. which reflects the true purchasing power of money after netting out the effect of inflation.

This real interest rate can be used to discount future monetised values to arrive at their equivalent present values.

Another way to understand the exercise of arriving at the present value (PV) is that it allows us to convert future costs and benefits into equivalent values in today's terms, using a discount rate, reflecting the principle of time preference, whereby individuals and societies generally value present consumption more than future consumption of a similar magnitude.

UK Impact Assessments routinely present costs and benefits in present value terms over a specified appraisal period, typically 10 years. The Green Book framework ensures consistency in discounting

across policy areas.

In the United States, agencies are required to present discounted costs and benefits using multiple discount rates. They are also required to explicitly report both annualised and present value estimates, allowing policymakers to compare options across time horizons.

The European Commission's Better Regulation Toolbox requires discounting of future impacts and emphasises transparency in assumptions regarding time horizons and discount rates.

8.2. Methodology: Discounting and Net Present Value

In practice, present value is calculated by applying a discount factor to future costs and benefits. Once the present value of costs and the present value of benefits are calculated using the discount rate, a net present value of an option is arrived at by subtracting the present value of costs from the present value of benefits, i.e.

Net Present Value (NPV) = Present value of benefits - Present Value of costs

A positive NPV indicates that a regulatory option generates net benefits over time and is therefore economically justified.

Different jurisdictions prescribe standard discount rates. Generally, a combination of factors influences the choice of discount rates. Generally speaking, the prevailing real interest rates (net of inflation) in risk-free investments form a benchmark for the value of money. However, often, in regulatory contexts where costs and benefits are felt across society, a 'social rate of time preference (SRTP)' may also be applied. The SRTP reflects society's rate of time preference of money. In general, it is understood that societies display a greater degree of patience than individuals or firms. This means that the SRTP is usually lower than the prevailing risk-free interest rate.

The UK's HM Treasury recommends a social discount rate of 3.5% in its **Green Book**. The **US OMB** Circular A-4 recommends using 3% and 7% to reflect different perspectives on the opportunity cost of capital. The European Commission similarly requires discounting in impact assessments to ensure temporal comparability.

However, inflation in India usually is higher than these economies and therefore short-term interest rates set by the Reserve Bank tend to be higher as well. In India, the 10-year government bond rate which ordinarily provides yields of around 7-8% per annum could be utilised as a basis for arriving at a discount rate.

The choice of discount rate can significantly affect results. A higher discount rate reduces the present value of future benefits, potentially biasing analysis against long-term interventions such as environmental or infrastructure regulation.

The higher the discount rate, the higher is the rate at which future costs and benefits 'lose' value over time. An interesting example of how changing the discount rate in evaluation of future costs and benefits can change policy recommendations is when by using a 7% discount rate, a clean power plan of the US Environmental Protection Agency was found to **not yield net benefits** as compared to when a 3% discount rate is used.

Second, the selection of the time horizon is critical. Some benefits—such as improved competition or innovation—may materialise over extended periods and may be underestimated if the time horizon for evaluation is too short.

Third, distributional considerations may arise where benefits accrue to future generations. This can have implications for how to fund options. For instance, major urban infrastructure investment in countries like New Zealand and Australia is funded significantly out of property rates/taxes which distribute the cost burden across generations.

OECD guidance highlights the importance of considering such intertemporal effects in regulatory decision-making.

8.3. Addressing uncertainty - Sensitivity Analysis

RIA must also address uncertainty in estimates and assumptions. More often than not, policy is made under conditions of incomplete information on various aspects of the problem and the impacts from various interventions. Impacts depend on several factors that may not be directly controllable by policy makers either. Broader macroeconomic, environmental, political and social factors also can impact the magnitude of impacts. Therefore, any quantification or monetisation of costs and benefits needs to acknowledge the presence of uncertainty and present ranges of estimates to capture the possible extremities of magnitudes of impacts.

Sensitivity analysis is the primary tool used for this purpose. Sensitivity analysis involves systematically varying key assumptions—such as discount rates, behavioural responses, compliance costs, or uptake rates—to examine how results change under different scenarios.

The United States Office of Management and Budget requires agencies to conduct sensitivity analysis for "key uncertainties" and to present results under alternative assumptions[1] The OECD similarly emphasises that RIA should test the robustness of conclusions by exploring best-case and worst-case scenarios.

8.3.1. Types of Sensitivity Analysis

In practice, several forms of sensitivity analysis are used.

(a) Parameter Sensitivity

This involves varying key parameters such as:

- discount rates
- compliance costs
- number of affected stakeholders

For example, US regulatory analyses often present results using both 3% and 7% discount rates to illustrate how conclusions depend on time preference assumptions.

(b) Scenario Analysis

Scenario analysis examines outcomes under different plausible scenarios—for example, low, medium, and high uptake of a regulatory intervention.

The UK telecoms **Smart Data** Impact Assessment uses scenario analysis to estimate benefits under different switching rates and adoption levels, reflecting uncertainty in consumer behaviour.

(c) Monte Carlo and Probabilistic Analysis

In more complex RIAs, probabilistic techniques may be used to model uncertainty across multiple variables simultaneously. While less common, such approaches are increasingly used in environmental and financial regulation.

By modelling different assumptions, sensitivity analysis allows regulators to explore these possibilities and ensure that RIA does not rely on a single deterministic outcome.

References

1. US Office of Management and Budget, *Circular A-4*, **https://bidenwhitehouse.archives.gov/wp-content/uploads/2023/11/CircularA-4.pdf**
2. OECD (2020), *Regulatory Impact Assessment: OECD Best Practice Principles*, **https://doi.org/10.1787/7a9638cb-en**
3. European Commission, *Better Regulation Toolbox*, **https://commission.europa.eu/law/law-making-process/better-regulation/better-regulation-guidelines-and-toolbox_en**
4. UK HM Treasury, *The Green Book*, **https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government**
5. UK Government (2023), *Open Communications: Smart Data Impact Assessment*, **https://assets.publishing.service.gov.uk/media/65045e5fdec5be000dc35f7f/open_communications_a_smart_data_scheme_for_the_UK_telecoms_market_impact_assessment.pdf**

9. Aggregating and Comparing Costs and Benefits

Once costs and benefits of different regulatory options have been identified and estimated, the next critical step in RIA is their aggregation and comparison. This stage is central to decision-making, as it determines whether a regulatory option produces a **net positive impact** on society, and how that impact is distributed across stakeholders.

This step can be thought of as answering the question:

What is the likely net benefit (benefit minus cost) of each option?

RIA frameworks across jurisdictions emphasise that the purpose of aggregation is not merely arithmetic consolidation, but structured comparison across options, enabling policymakers to identify the alternative that delivers the greatest net benefit. As noted in a policy primer by the **Mercatus Center**, RIA requires a comparison of alternatives "so that the alternative with the most net benefits can be identified."

Similarly, guidance from the **OECD** stresses that policymakers must assess costs and benefits across stakeholders to determine whether regulatory interventions enhance overall welfare and justify their associated burdens.

9.1. Conceptual Foundations of Aggregation

Aggregation in RIA operates at two levels. First, it involves consolidating impacts across different categories—monetary, quantitative, and qualitative. Second, it involves aggregating across stakeholders—such as firms, consumers, government, and broader society.

At a conceptual level, aggregation is grounded in welfare economics, where policy choice is framed as selecting the option that maximises net social benefit (i.e., total benefits minus total costs). It must account not only for total magnitude but also for distributional effects, as costs and benefits may accrue to different stakeholders. UK and EU guidance explicitly require that RIAs consider how impacts are distributed "within and between groups," highlighting that aggregation is not purely an exercise in summation but also in distributional assessment.

9.1.1. Aggregation at the Stakeholder Level

One approach to aggregation involves first analysing costs and benefits at the level of individual stakeholder groups and then comparing net impacts across these groups.

Under this approach, regulators estimate the net impact for each stakeholder category—for example:

- regulated firms (compliance costs vs efficiency gains)
- consumers (price reductions vs reduced choice, if any)
- government (administrative costs vs improved policy outcomes)

This method is particularly useful where impacts are unevenly distributed or where trade-offs between stakeholders are central to policy choice.

The approach is reflected in the framework used by the Prudential Regulation Authority, which explicitly analyses costs and benefits at multiple levels—firm-level, market-level, and macroeconomic level—before considering their overall effect.

For instance, prudential regulation may impose direct compliance costs on financial institutions but generate benefits for depositors, policyholders, and the broader economy through increased financial stability. The PRA recognises that such impacts may involve transfers between stakeholders, where costs borne by one group may correspond to benefits for another.

This stakeholder-level aggregation is particularly valuable in sectors such as finance, telecoms, and competition law, where regulatory interventions often involve redistribution of surplus rather than purely net creation of welfare.

9.1.2. Aggregation at the Aggregate (Economy-Wide) Level

An alternative and widely used approach is to aggregate all costs across stakeholders and all benefits across stakeholders to determine a single net impact at the societal level.

This approach is characteristic of standard cost-benefit analysis, where Net Social Benefit = sum of Total Benefits on all stakeholders- sum of Total Costs on all stakeholders

Under this framework, a regulatory option is considered desirable if aggregate benefits exceed aggregate costs, even if some stakeholders are worse off.

In the United Kingdom, regulatory proposals are often summarised using the Equivalent Annual Net Cost to Business (EANCB) metric, which converts impacts into an annualised net figure to facilitate comparison across options. Similarly, EU-level RIAs aim to demonstrate that “the benefits resulting from the proposal justify the costs” and that the regulation produces a positive net impact on society as a whole.

This aggregate approach is particularly useful where policymakers need a single decision metric, but it must be complemented by stakeholder-level analysis to ensure that important distributional effects are not obscured.

9.1.3. Matching Types of Costs and Benefits

A critical methodological principle in aggregation is that like must be compared with like. This means that:

- Monetary costs should be compared with monetary benefits
- Quantified (non-monetary) costs should be compared with quantified benefits
- Qualitative costs should be compared with qualitative benefits

This principle ensures analytical consistency and avoids misleading comparisons.

RIA guidance across jurisdictions emphasises that impacts should be monetised wherever feasible, but where monetisation is not possible, they should at least be quantified or qualitatively described.

In practice, this often leads to a layered presentation of results, where:

- monetised impacts are aggregated into net present value or annualised figures
- quantified impacts (e.g., number of consumers benefiting) are presented alongside
- qualitative impacts (e.g., trust, fairness, innovation) are discussed narratively

This layered approach ensures that decision-making is informed by the full spectrum of impacts, rather than being constrained by what can be monetised.

In practice, RIAs across jurisdictions adopt a combination of these approaches.

In the United Kingdom, Impact Assessments routinely present a summary table of costs and benefits, including monetised impacts (e.g., compliance costs, cost savings), alongside qualitative impacts (e.g., improved consumer confidence). The use of EANCB provides a standardised metric for comparing options.

In EU practice, RIAs emphasise demonstrating that benefits outweigh costs, while also identifying who gains and who loses, thereby combining aggregate and distributional analysis.

The PRA's cost-benefit framework provides a particularly sophisticated example, tracing impacts from firm-level effects to market-level and macroeconomic outcomes, and recognising that some impacts may offset each other across stakeholders.

These examples highlight that aggregation is not a purely mechanical exercise but involves judgment, transparency, and careful interpretation of evidence.

9.2. Key Analytical Considerations and Challenges

Several challenges arise in aggregating costs and benefits.

First, there is the risk of double counting, particularly where the same impact is captured through multiple channels (e.g., time savings and productivity gains). Care must be taken to ensure that each impact is counted only once.

Second, aggregation may obscure distributional impacts, particularly where aggregate net benefits mask significant losses for specific groups. This underscores the importance of presenting both aggregate and stakeholder-level results.

Third, some impacts represent transfers rather than net welfare gains. For example, a regulation that shifts surplus from firms to consumers may produce distributional effects without changing total welfare. Regulators must distinguish such transfers from genuine efficiency gains.

Finally, uncertainty in estimates must be transparently addressed, often through sensitivity analysis or scenario-based aggregation.

In synthesis, aggregation of costs and benefits is the culmination of the RIA process, translating detailed analysis into decision-relevant conclusions. It requires both technical rigour and analytical judgment, combining monetised, quantified, and qualitative impacts across stakeholders.

A robust approach to aggregation typically involves:

- analysing impacts at the stakeholder level
- aggregating impacts at the societal level
- ensuring consistency across types of impacts

When undertaken carefully, aggregation enables policymakers to determine not only whether a regulatory option is beneficial in aggregate, but also how those benefits and costs are distributed, thereby supporting more transparent, accountable, and evidence-based decision-making.

9.3. Maintaining proportionate boundaries to RIA analysis

RIA should be sufficiently comprehensive to capture the material consequences of the regulatory options under consideration, but it should not become an open-ended exercise in tracing every conceivable consequence of an intervention. A regulatory measure may produce a first-order effect on the parties directly subject to it, followed by second-order effects on suppliers, consumers, competitors and workers, and then further effects on investment, prices, employment, innovation, household expenditure or other markets. In principle, this chain can continue almost indefinitely. If

every possible downstream consequence is required to be identified, quantified and monetised, the RIA may become unending, while the additional analysis may contribute little to the actual regulatory decision.

This is one reason why proportionality is a fundamental principle of RIA. Proportionality does not mean ignoring indirect or unintended consequences. Rather, it requires the regulator to distinguish between effects that are material to the decision and effects that are sufficiently remote, uncertain or insignificant that analysing them in greater detail would not materially change the assessment of the available options.

The European Commission recognises the need to identify the relevant impacts without attempting to analyse every possible effect with the same degree of detail. This is particularly important because regulatory proposals can have economic, social and environmental consequences extending across different groups and over different time horizons. The purpose of proportionality is therefore to ensure that analytical resources are concentrated on those consequences that are most relevant to the decision.

The regulator should consider the strength of the causal relationship, the likelihood and magnitude of the effect, the availability and reliability of evidence, and whether including the effect is likely to alter the comparison between regulatory options.

First-order effects will ordinarily warrant detailed analysis. These may include compliance costs imposed directly on regulated entities, price changes experienced by consumers, changes in access to a service, or administrative costs incurred by the government. Second-order effects may also require analysis where there is a credible causal pathway and a reasonable likelihood that their magnitude could materially affect the decision. These could include scenarios where compliance costs are likely to be passed through into consumer prices or where a regulatory requirement could materially affect market entry. By contrast, effects that depend on several uncertain behavioural or economic assumptions and are unlikely to affect the relative ranking of the options may appropriately be recorded qualitatively rather than subjected to increasingly elaborate modelling.

This does not mean that regulators should ignore longer causal chains. Material indirect and unintended consequences should remain within the scope of RIA, particularly where they could change the preferred option. The appropriate response to uncertainty is often to record the effect, explain the causal mechanism, assess its likely direction and significance, and, where feasible, test it through sensitivity or scenario analysis. There is little value, however, in attempting to attach increasingly precise monetary estimates to an effect when the underlying causal relationship itself is highly uncertain. False precision can make an RIA appear more rigorous while actually making the decision-making process less transparent.

References

1. Mercatus Center, *A Primer on Regulatory Impact Analysis*, **https://www.mercatus.org/research/policy-briefs/primer-regulatory-impact-analysis**

2. OECD (2020), *Regulatory Impact Assessment: OECD Best Practice Principles*, **https://doi.org/10.1787/7a9638cb-en**
3. OECD, *Better Regulation Practices across the EU*, **https://www.oecd.org/en/publications/better-regulation-practices-across-the-european-union-2022_6e4b095d-en/full-report/component-9.html**
4. Scottish Government, *BRIA Toolkit*, **https://www.gov.scot/publications/business-regulatory-impact-assessment-bria-toolkit/pages/7/**
5. UK Government, *Validated costs and benefits of regulation*, **https://www.gov.uk/government/publications/validated-costs-and-benefits-to-business-of-regulations**
6. Bank of England / PRA, *Approach to Cost Benefit Analysis*, **https://www.bankofengland.co.uk/prudential-regulation/publication/2026/april/pra-approach-to-cost-benefit-analysis-statement-of-policy**

10. Identifying the Most Preferred Option

Once the overall net benefits of each option have been calculated based on the monetised costs and benefits and accompanied by the quantified and qualitatively described costs and benefits, we are ready to make comparisons and select the most preferred option.

This step can be thought of as answering the question:

What are the criteria against which options are to be evaluated and compared?

Several criteria have been developed against which options are to be evaluated and compared.

10.1. Criteria for comparing options

Policy makers may be concerned about more than just overall net benefits of each option when it comes to their decision making in terms of option selection.

Often other criteria such as equity (the distribution of costs and benefits across various stakeholders) or the ease of implementation and monitoring can be important considerations.

Once the criteria for comparison of the options are determined, it is time to apply methodologies to undertake the comparison. These methodologies include multi-criteria analysis and cost-effective analysis

10.1.1. Multi-Criteria Analysis (MCA)

Multi-Criteria Analysis (MCA) is a useful complement to traditional cost-benefit analysis where impacts are multidimensional or difficult to monetise. MCA enables policymakers to compare options against a range of criteria “that may not be commensurable or quantifiable in monetary terms,” particularly where distributional, environmental, or social considerations are important. The **European Commission** Better Regulation Toolbox identifies MCA as a suitable method where policy choices involve trade-offs between economic efficiency and non-monetary objectives such as equity, precaution, or social cohesion.

Under MCA, policymakers first identify a set of decision criteria relevant to the policy objective. These may include:

- increase in economic efficiency or net benefits from solving the problem (safety, consumer protection etc)
- equity - distribution of costs and benefits
- impact on small businesses,
- impact on competition and innovation,
- inclusiveness and accessibility,
- administrative feasibility and simplicity,
- enforceability

Each regulatory option is then assessed against these criteria, either qualitatively or quantitatively. In many cases, criteria are assigned weights to reflect policy priorities. Weighting is often the most politically and analytically sensitive stage of MCA because it reflects implicit policy priorities. For instance, a financial regulator may assign greater weight to systemic stability, whereas a competition regulator may prioritise market contestability and consumer welfare.

Weights and criteria should be informed through stakeholder consultation, expert workshops, or deliberative exercises. This improves legitimacy and helps ensure that regulatory choices reflect broader societal priorities rather than only technocratic calculations.

Each option is then scored against the identified criteria. Scoring may be qualitative (e.g., low-medium-high), numerical, or based on empirical estimates. The final assessment in MCA thus reflects not merely aggregate welfare maximisation, but a broader balancing of competing public policy objectives.

For example, MCA-style approaches are frequently used in environmental and sustainability regulation, where monetisation of biodiversity, social cohesion, or precautionary concerns may be incomplete or controversial.

A practical illustration can be found in transport and environmental RIAs, where policymakers often compare options using criteria such as:

- travel time savings,
- carbon emissions,
- safety outcomes,
- regional inclusion,
- and long-term sustainability.

An option with slightly lower aggregate NPV may still be preferred if it significantly improves accessibility for disadvantaged regions or reduces environmental harms.

Similarly, in digital and financial regulation, policymakers may prioritise options that enhance consumer trust or inclusion, even where immediate monetised benefits are lower. For instance, the

Financial Conduct Authority has increasingly incorporated consumer vulnerability and well-being considerations into its assessments, recognising that welfare effects may extend beyond measurable monetary gains.

Also, an option may be preferred even if quantified net benefits are uncertain, provided it significantly reduces catastrophic or irreversible risks. The precautionary principle in EU environmental regulation reflects this logic. In addition, a regulatory option may maximise aggregate welfare but disproportionately burden small businesses or rural consumers. Another option may generate lower net economic benefits but substantially improve accessibility, inclusion, or trust in markets. MCA enables these competing considerations to be systematically evaluated rather than implicitly ignored.

10.1.2. Cost Effectiveness Analysis

In addition to MCA, several other analytical tools are used to identify the preferred option in RIA. One important tool is Cost-Effectiveness Analysis (CEA), which is particularly useful where benefits are difficult to monetise but outcomes can be measured quantitatively. Instead of asking which option maximises net benefits, CEA asks which option achieves a specified outcome at the lowest cost. This approach is commonly used in health, environmental, and safety regulation. The **OECD** notes that CEA is particularly valuable where "policy objectives are fixed and measurable."

MCA and CEA can be used along with scenario analysis, particularly in sectors characterised by uncertainty or rapid technological change. Rather than selecting the option with the highest expected value under a single scenario, policymakers may prefer options that perform reasonably well across multiple possible futures.

However, MCA also has limitations. One criticism is that weighting and scoring may introduce subjectivity or political bias. Different policymakers may assign very different weights to the same criteria, potentially producing different preferred options. Transparency and justification when assigning weights and scores is therefore crucial.

Another challenge is the risk of "double counting," where similar impacts are inadvertently reflected under multiple criteria. For example, improved consumer trust may already be partly reflected in increased market participation or competition. Careful design of the criteria matrix is therefore essential.

Stakeholder consultation often plays a role in dealing with such concerns and identifying the preferred option. Consultation may reveal implementation challenges, behavioural responses, or distributional effects not fully captured in formal modelling.

Taken together, MCA and CEA are broad options evaluation processes involving the consideration of trade-offs between efficiency, equity, feasibility, resilience, sustainability, and legitimacy. Multi-Criteria Analysis and related tools therefore play an important role in ensuring that RIA supports not only economically efficient regulation, but also socially and institutionally balanced decision-making.

10.2. Presentation of options

To help policy makers decide on the most appropriate option to take forward, different options may be presented to policy makers in the following matrix format:

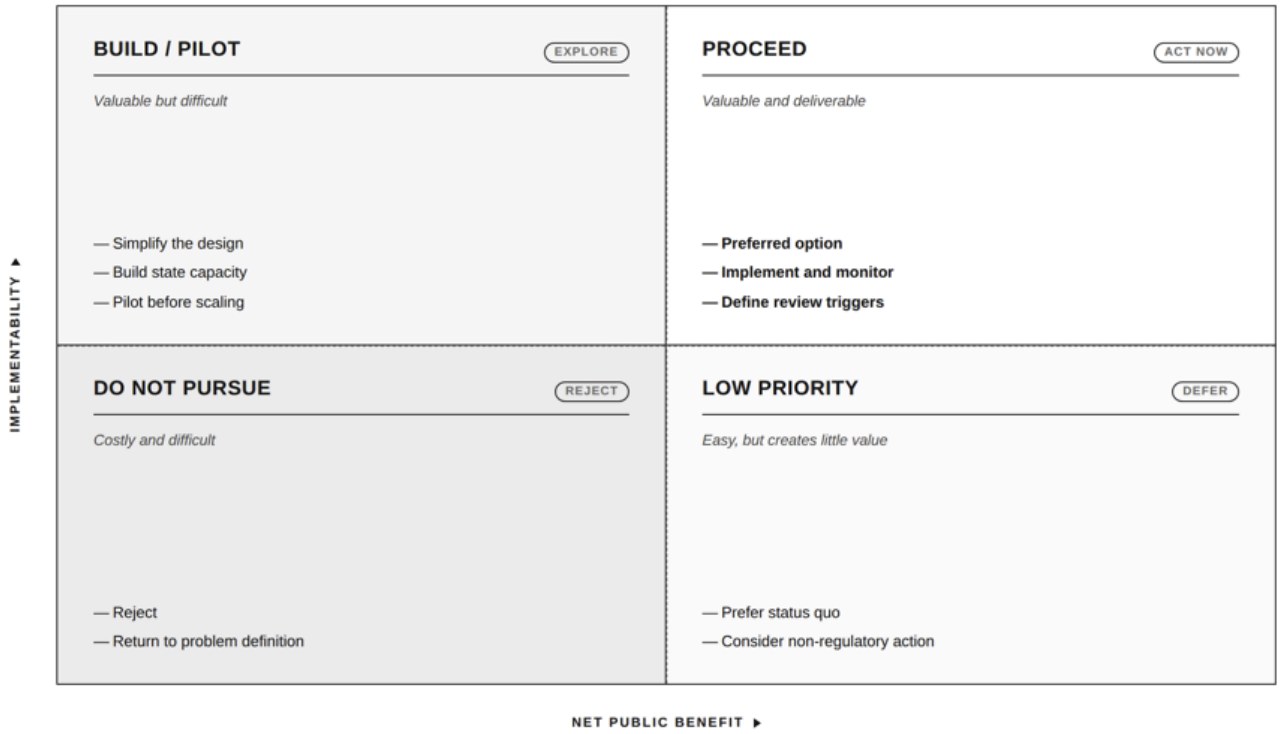

Figure 10.1. Options presentation matrix.

Similarly, different potential impacts of options may be presented in a reader friendly manner, to help policymakers easily discern the impact of different options and decide on the most appropriate option. A template is provided below:

TABLE 10.2. ILLUSTRATIVE COMPARISON OF THE IMPACTS OF LABELLING OPTIONS

Benefit Type	Status Quo	Outcome-Based	Co-regulation	Mandatory FoP	FoP + Health
Improved consumer information	Low	Medium	Medium	High	Very High
Comparability across brands	Low	Moderate	Moderate	Medium-High	High (visual cue)
Trust / transparency	Low	Medium	Medium-High	High	High

Benefit Type	Status Quo	Outcome-Based	Co-regulation	Mandatory FoP	FoP + Health
Reduction in misleading claims	Low	Medium	Medium	High	Very High
Reduction in complaints	Low	Medium	Medium	High	High
Market discipline	Low	Medium	Medium-High	High	High

Following these ten steps can help in conducting a robust RIA, and answer the last question: **What is the best option from those you have considered?**

References

1. OECD (2020), *Regulatory Impact Assessment: OECD Best Practice Principles for Regulatory Policy*, OECD Publishing, Paris, **https://doi.org/10.1787/7a9638cb-en**
2. European Commission, *Better Regulation Toolbox*, **https://commission.europa.eu/law/law-making-process/better-regulation/better-regulation-guidelines-and-toolbox/better-regulation-toolbox_en**
3. UK HM Treasury, *The Green Book: Central Government Guidance on Appraisal and Evaluation*, **https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government**
4. Financial Conduct Authority (2018), *Occasional Paper No. 39: Estimating the benefits of interventions that affect consumer behaviour*, **https://www.fca.org.uk/publication/occasional-papers/occasional-paper-39.pdf**

Annexure I. Default Loss Guarantees in Digital Lending

By Harshal Chitale and Amol Kulkarni

Case study: RBI's approach to regulating default loss guarantee in digital lending

Draft Reserve Bank of India (Non-Banking Financial Companies - Credit Facilities) Directions, 2025 (Provisions related to Default Loss Guarantee)

About the case study

This case study describes the methodology of RIA, and applies it to the key digital lending related provisions of the Draft Reserve Bank of India (RBI) (Non-Banking Finance Companies (NBFC) - Credit Facilities) Directions, 2025.[1] This regulation proposes to regulate the role of NBFCs in facilitating credit, including digital lending, to potential borrowers. The focus of this case study is digital lending, particularly, the regulation of default loss guarantee (DLG) in digital lending.

These regulations were chosen due to increased regulatory focus on digital lending in the past few years[2], availability of data on digital lending, particularly by industry associations and self regulatory body[3], and recent adoption of a framework for regulation making by the RBI, which provides for impact assessment of regulations.[4]

A DLG arrangement is essentially a structure wherein a third party compensates lenders if the borrower defaults.[5] The DLG provider practically takes over credit risk from the lender of a portion of loan for which it promises to make good the loss, if any, incurred by the borrower due to default by borrowers. See Box 2 for details.

Box 2: Unpacking the DLG structure

N is an NBFC lender with target customers being high risk underserved low income groups. The target customers are unlikely to have a formal credit history, no or limited collateral, unstable incomes, unpredictable spending patterns, and thereby no or low scores in credit bureau records. They may behave in a manner which may remain unobserved from the lenders (how is the loan amount being utilised, success of intended use, etc). N has a loan portfolio of INR 100 crore for such customers. However, owing to the aforementioned risks involved, it charges interest at the rate of 23 percent per annum.

This is unattractive or unaffordable to a lot of potential customers in this segment. As a result, N is unable to get enough borrowers, and a lot of low income individuals remain excluded from

formal credit, particularly C, a low income individual, who needs a loan of Rs. 50 lakhs, but cannot afford to pay interest of INR 11.5 lakhs.

D is a default loss guarantee provider which has agreed to recoup defaults of up to INR 20 crore to N. For the guarantee, N agrees to pay to D agreed fee or a part of its revenue generated. As a result, N has reduced the rate of interest to 20 percent per annum.

This is attractive to a lot of potential customers, including C, who can afford to pay interest of INR 10 lakhs. As a result, N is able to expand its credit portfolio and C is able to access finance. In case C defaults, D will recoup the loss incurred by N.

Step 1: Identification of market failure

The first step in a RIA is to identify market failure or the key problem which needs to be resolved. Market failure is a situation when the market fails to ensure efficient allocation of resources leading to sub-optimal outcomes for participants and loss of overall societal welfare.[6]

In the DLG enabled digital lending market, credit risk is effectively transferred from lender to DLG provider, to the extent of DLG cover available. As a result, the DLG provider has more information and control over terms of credit than the borrower. It can influence actual annual percentage rate/ cost of borrowing, processing charges, maintenance charges, prepayment terms, penalties for delayed payments and defaults, recovery mechanisms, grievance redress, data collection and sharing protocols, and dispute resolution mechanisms.[7]

Consequently, there is information asymmetry between DLG provider and borrower. This can lead to following problems:

1. Lack of consumer protection: Borrowers may not have complete information about terms of loan, or DLG arrangement. Even when information is provided, it may be technical in nature, which borrowers may not clearly understand. This could lead to unsuitable borrowing, or borrowers agreeing to unfavourable terms. Borrowers may lack clarity on amount borrowed, rate of interest, or repayment period, penalties for delayed payments, recovery mechanisms, and mechanisms to seek redress from lenders. This can result in consumer protection related challenges.

2. Systemic risk: If a DLG provider is unable to honour its commitments, counterparty risk arises. The lender will need to bear the credit risk, absorb the losses, which may increase its cost of operations, resulting in operational risk. This may impact its existing and potential borrowers and the digital lending market. If this happens with large or multiple DLG providers, systemic risk concerns may arise. Similarly, insurance from default risk by DLG provider may create moral hazard and nudge lenders to make risky lending, which can increase the possibility of delinquency. This may increase the liability of the DLG provider, which it may not be in a position to cover.

There have been instances in the past when a DLG provider suffered a significant loss owing to its DLG commitment and had to rely on capital infusion by its related parties to continue operations.[8] If the loan book is substantial or the DLG arrangement covers a significant part of the loan, or there are multiple such DLG arrangements, the possibility of systemic risk cannot be ruled out.[9] Consequently, significant enhancement in risky lending may exacerbate systemic risks.

In India, these concerns have been amplified since DLG has been reportedly recorded to be as high as 80 percent of the loan portfolio.[10] Some DLG providers provided DLGs a few times their equity cushions and therefore it was unclear whether they had adequate means to service the claims, if they materialised.[11] The government-appointed working group recognised this issue and highlighted the concerns with the rent-an-NBFC model by digital lenders.[12]

As a result, since the borrower and lender do not have complete and accurate information regarding DLG provider, which could result in consumer protection and systemic stability related risks, the key market failure in the case of DLG enabled digital lending is caused by *information asymmetry*. Bad actors can take undue advantage of this situation, which can result in fraud, cheating, and related concerns.

Addressing the market failures caused by information asymmetry can lead to several positive consequences. These include prevention and reduction in grievances and complaints by borrowers, reliable counterparty arrangements between digital lenders and DLG providers, increased trust and confidence in the digital lending ecosystem. The window of opportunity with suspicious actors to engage in misrepresentation and illegal activities will reduce leading to prevention and reduction of fraudulent activities. Addressing market failure leading to efficient functioning of markets and consequent reduction in fraudulent actors and actions may also help enhance investment in the market, or prevent reduction in investment. Similarly, addressing information asymmetry may also help market players be more confident in engaging with potential borrowers and ensure inclusion.

Box 3: Market failure in DLG arrangements

N is directly regulated by the RBI, and has obtained RBI's permission to operate. It is subject to restrictions imposed by the regulator, needs to make periodic reporting to the regulator, and the RBI can impose sanctions in case N violates any applicable regulations.

D is an unregulated entity, not requiring any license from any regulator. RBI has not imposed any conditions on D, neither can review its operator, nor can impose any sanctions.

Despite being unregulated, as a result of the DLG arrangement between D and N, D practically takes over credit and default risk from N, at least partially. In some cases, D may guarantee up to 80 percent of N's portfolio, effectively becoming the lender. For instance, say N has a loan portfolio of Rs. 100, and D assures a cover of default up to Rs. 80. The typical default rate for the target segment is Rs. 25, but D has capital of only Rs. 10. For the covered loan portfolio, borrowings of Rs. 30 suffer a default. However, D is unable to cover defaults of the additional Rs. 20, i.e. twice its equity cushion.

Moreover, the arrangement between D and N is not disclosed to the RBI or the borrowers. While N enters into agreement with the borrower, if D guarantees a substantial portion of the loan portfolio, it may be considerably influencing rate of interest, repayment terms, delayed or early payment charges, processing fees/ charges, recovery practices, data collection, processing and sharing mechanisms. Many of these may not be clearly disclosed to the borrower. In case the borrower has some queries or raises some grievances, N may not be in a position to provide necessary support or redress. This may lead to more complaints and grievances by borrowers against lenders. Consequently, addressing the market failure due to information asymmetry may help reduce or prevent such complaints or grievances.

Similarly, in case of disagreement between interpretation of terms of agreement between N and D, leading to D not honouring terms of guarantee arrangement, N's operational cost will rise, and its existing and potential borrowers might be adversely impacted, consequently impacting the digital lending market.

Step 2: Does the market failure fall within the regulator's jurisdiction?

The RBI is the regulator of lending, including digital lending. The RBI Act authorises it to operate the credit system of the country.[13] It also regulates non-banking institutions receiving deposits and other financial institutions.[14] Thus, the RBI is best placed to address the market failures caused due to information asymmetry.

In DLG enabled digital lending, several critical decisions, including those related to collection, use, and processing of data of borrowers, may effectively be taken by the DLG provider and not solely by the lender. Among other things, borrowers may not have clarity about how their data is being collected and used, and information asymmetry may exist in this regard as well. In case of misuse/ theft of data or violation of privacy of borrowers, accountability related concerns may arise, such as, if the digital lender or DLG provider is data fiduciary under the digital personal data protection laws of the country. To avoid inconsistent approach towards addressing borrower data related information asymmetry, RBI may need to coordinate with data protection agencies of the country . [15]

Step 3: Identification of options before the regulator

There are always multiple options available to the regulator to address the market failure.[16] While identifying options, the regulator must consider varied possibilities ranging from no-regulation/ do nothing to stringent regulation, its experience of enforcing regulation, market readiness to internalise

the changes required, and broader policy objectives. For instance, while considering regulation of DLG enabled digital lending by NBFCs, the regulator must realise its role in ensuring availability of credit to MSMEs, small entrepreneurs and low income consumers, one of the key policy objectives of the government. All the options which the regulator considers should be compared with do nothing scenario, to clearly identify changes proposed to the baseline, and consequent impacts on stakeholders.

Some of the options that the regulator could consider are as follows:

- *Option 1:* Mandatory complete and accurate disclosure to the regulator (reporting) and public (publication) about risk allocation and risk management practices between NBFCs and DLG provider, accountability mechanisms, and periodic updates. Disclosure of key consumer-relevant terms to borrowers, particularly cost of loan, repayment terms, and interest in case of delayed payment, in standard understandable template.
- *Option 2:* Capping DLG cover to a certain proportion of loan portfolio (5 percent), and imposing additional conditions on loans covered by DLG, recognition of non-performing assets (NPA) by NBFC, and calculation of regulatory capital for DLG provider. This is the RBI's preferred approach and it has proposed it in the draft RBI (NBFC - Credit Facilities) Directions, 2025.[17]
- *Option 3:* Authorising a self-regulatory body (SRB)[18] for the sector to determine, monitor and enforce acceptable levels of DLG depending on the DLG provider and NBFC, risk management, proportionate capital requirements, and disclosure standards, and issue such codes in consultation with stakeholders.
- *Option 4:* Allowing graded approach for DLG cover (ranging from 5-50% of the outstanding loan portfolio)[19] as a proportion of loan outstanding and capital available with DLG provider, taking into account fraud risk, and periodic certification from NBFC of compliance with regulatory requirements.

Box 4: Options to address market failure in DLG arrangements

Option 1: N discloses terms and conditions of DLG arrangement to RBI and its customers. This will help the regulator understand the arrangement between D and N and fix accountability in case D is unable to honour its commitment. Similarly, disclosure to the regulator will nudge D and N to act responsibly and articulate the terms of their arrangement clearly. This will also reduce the possibility of misinterpretation and disputes. Disclosure to borrowers will also help them understand whom to contact in case of clarifications, concerns, questions, and grievances, and in case any legal action is required.

Option 2: Capping DLG to a certain proportion of N's portfolio, say 5 percent. In such a case, if N's portfolio is INR 100 crore, the DLG cannot be of more than INR 5 crore. This will help limit the role of unregulated third parties in the digital lending ecosystem and reduce the possibilities of D not honoring their commitments, thereby helping ensure market certainty and stability.

Option 3: Authorising a self regulatory body to determine, monitor and enforce acceptable levels of DLG. No one size fits all cover but SRB decides and enforces on a case-by-case basis.

This will help market participants contribute to the determination of DLG levels, in a manner that they are not overly restrictive, make periodic improvements, and maintain compliance. This will ensure transparency, peer-level monitoring of DLG arrangements.

Option 4: Allowing graded approach to DLG coverage, ranging from 5 to 50 percent, depending on loan outstanding, capital with DLG provider. No one size fits all cover but SRB decides and enforces on a case-by-case manner, based on clearly prescribed principles and requirements. This will help adopt a customised approach for DLG coverage corresponding to the risk taking abilities of D and also ensuring that adequate levels of DLG covers are available, N is not worse-off because of D's inability to honour their commitment, and adequate finance is available for potential borrowers. Avoiding one-sized fit all approaches and ensuring regulatory recognition of DLG arrangements will ensure certainty and predictability.

Step 4: Identifying stakeholders and factors likely to be impacted

The fourth step in the RIA process is identifying key stakeholders likely to be impacted directly as well as indirectly by the different options being considered by the regulator. These could include market players, intermediaries, consumers, regulators, potential consumers, potential market players/ entrants. In addition, impact on factors/ aspects like markets, society, environment, competition, innovation, among others, also needs to be identified. Important to note is that these may not necessarily be neatly identified stakeholder categories (like lenders) at this stage, and can include factors (like innovation) as well. Casting the net as wide as possible is essential to ensure that interest of no stakeholder/ factor is overlooked and a holistic exercise is undertaken.

Considering the options, the key stakeholders likely to be impacted would be:

- NBFCs engaged in digital lending;
- DLG providers;
- Borrowers (including MSME, new to credit, and existing borrowers);
- entities in the value chain, such as digital lending apps/ platforms through whom borrowers receive and provide all the relevant information;
- Investors in NBFCs engaged in digital lending and DLG providers;
- Regulator i.e. RBI;
- Self-regulatory body;
- intermediaries involved in managing relationships between NBFCs and DLG providers and ensuring compliance with regulations, including lawyers, advisors, auditors, company secretaries, etc;

- Potential NBFCs;
- Potential DLG providers;
- Potential borrowers;
- family/ household of borrowers

Similarly, the key factors likely to be impacted would be:

- Competition in the digital lending market
- Access to credit to potential borrowers
- Innovation in the digital lending market

It must be recognised that regulatory interventions may affect different stakeholders to varying degrees. For instance, the impact on large firms may differ materially from that on small firms. Similarly, sophisticated consumers or borrowers may be affected differently from vulnerable ones; in the context of lending, the impact on MSMEs may not be the same as that on retail borrowers. Where such differences are material, these stakeholders will be treated as distinct categories. It should also be noted that this stage involves only the initial identification of stakeholder groups. As the analysis of impacts deepens, certain groups may be consolidated into broader categories, while others may be further disaggregated to reflect meaningful differences in impact.

Step 5: Selection of RIA method

The fifth step in the RIA process is selection of RIA method. Selection of an appropriate method is important as RIA methods help evaluate and compare/contrast the strength of various options against each other - and arrive at a preferred option, likely to address the market failure in a manner that net benefits on the stakeholders are highest or net costs are lowest.

Key methods of RIA include cost-benefit analysis, cost-effective analysis, multi-criteria analysis, least cost method, and partial RIA. A method is chosen based on availability of relevant data and information; broad understanding of costs and benefits including the possibility of their quantification, and monetisation; dissimilarity in different options; prioritisation of certain stakeholder interests; and time available. For instance, when benefits of different options are largely similar, cost-effective analysis is used, however, benefits are not relevant, least cost method is used.

In case of DLG enabled digital lending by NBFCs, different options may lead to different costs and benefits, and it is possible to examine each of them differently. Cost-benefit analysis is also the most popular and most used method of RIA, which will be used for the purposes of this case study as well.

Step 6: Identification of costs of different options

The sixth step of the RIA process is identifying direct and indirect costs of different options. The methods of estimating/ calculating such costs is Different cost categories can be clubbed together in the following manner:

- *Familiarisation costs*: Stakeholders like market participants, consumers, intermediaries may require external or expert support in understanding the implications of new regulatory requirements. Familiarisation costs capture such costs of understanding new requirements.
- *Regulatory charges*: New regulatory requirements may impose application/ license fees and renewal charges on market players and intermediaries. These may be one time or periodic in nature, to be paid to the regulator or the SRO. Regulatory charges capture such direct costs imposed on stakeholders.

- *Time costs*: Stakeholders like affected firms may need to recruit or depute dedicated staff to manage compliance with new regulatory requirements. Alternatively, existing staff may need to devote more time towards complying with new requirements. Time costs capture time required to be invested by staff to comply. Similarly, consumers may also need to follow new processes, deal with new forms, or technologies, as a result of new regulations. This may require investment of more time for compliance. Time costs also aim to capture such costs incurred on consumers and beneficiaries. At the same time, the regulator or SRO may need to depute dedicated staff to review applications, filings, and compliance documents filed by stakeholders, emerging from new regulatory requirements. They may also be required to enhance their monitoring and supervision activities. This could mean more time investment by existing staff of regulatory or SRO, or recruitment of additional staff. Time costs also aims to capture such costs incurred by regulators and SRO. These costs may also be categorised as administrative costs.
- *Substantive costs:* As a result of new regulatory requirements, stakeholders, particularly market players and intermediaries, may need to procure and install systems, processes, materials, to ensure compliance. Consumers may also need to procure new technological devices to follow the desired processes or submit relevant forms that may be required owing to the new regulatory requirements. Similarly, regulators or SROs may need to procure systems or tools to process documents or ensure required monitoring and supervision, emerging from the new regulatory requirements. All such new procurement owing to the additional regulatory requirements is captured by substantive costs. These also include cost of non-compliance, i.e. sanctions, in form of penalties and/ or other actions taken by the regulator or the SRO.
- *Capital cost:* New regulatory requirements may require market players to invest in specific instruments or keep additional capital for risk management or credibility purposes. As a result, the capital gets locked-in. The capital cost capture costs incurred by stakeholders owing to such locked-in capital or similar resources.
- *Opportunity costs:* The new regulatory requirements may require stakeholders to undertake specific activities in a particular manner. This would require deployment of time, efforts and resources by such stakeholders. Consequently, they may not be able to use such time, effort and resources in the manner they deem fit, resulting in loss of opportunities like delayed expansion, loss of projects, and deferred investments. Such opportunity loss is captured by opportunity costs.

Owing to inability to undertake preferred activities, market players may also lose out on revenue and profits. Thus, revenue lost may be categorised as opportunity cost, or it may be categorised separately as well.

- *Insurance/ indemnity:* Some new regulatory requirements may increase risk or uncertainties for market players, who may need to obtain insurance for business activities or incorporate indemnity clauses in their ongoing agreements. The cost of such insurance/ indemnity and related mechanisms to manage unpredictability needs to be captured.
- *Revenue lost:* As indicated earlier, owing to new regulatory requirements, stakeholders, particularly market players may not be able to undertake planned business activities. One of the unintended consequences of inability to do so could be loss of revenue, which needs to be captured. While it is possible to record revenue lost along with opportunity cost, revenue lost is often a consequence of opportunity cost. In other words, inability to expand business is opportunity cost, but the revenue not earned due to inability to expand business is revenue lost.

- *Intermediary costs:* Fees paid to third parties like lawyers, bankers, accountants, auditors, certification agencies
- *Entry costs:* The new regulatory requirements may impose stringent eligibility criteria, requirements or restrictions for market entry. Such costs on potential market players are captured in the form of entry costs.
- *Access costs:* Due to new regulatory requirements, market players may increase the price of their products and services. Alternatively, the availability of relevant products and services may become limited. They may be available at specific locations within a specified time frame. The difficulty in accessing relevant products and services by consumers due to limited availability, high price, stringent availability criteria is captured in the form of access costs.
- *Search costs:* Engagements between different market players, such as service providers and intermediaries may be a normal business practice. The new regulatory requirements may make it difficult to identify right counterparties, thereby increasing search costs, which need to be captured.
- *Switching costs:* The new regulatory requirements may lead to reduction in the number of market players, thereby unintentionally creating difficulties for consumers and other stakeholders in changing their counterparties or service providers. Such costs are captured as switching costs.
- *Costs passed on:* The new regulatory requirements may impose costs on a specific stakeholder category, which may pass on such costs to other stakeholders. For instance, the regulatory requirements may impose additional time and substantive costs on businesses, to recover which, they may increase the price of their products and services for consumers. In this case, the consumers end up bearing the actual costs, which need to be captured as costs passed on. The costs incurred on businesses are compensated by additional revenue they generate by raising the price of their products and services. Consequently, the impact on industry, to the extent the costs are passed on to consumers, is net zero. If industry internalises some portion of the costs, that should not be included in costs passed on.
- *Slow growth:* As indicated earlier, inability to invest time, money and resources in business activities owing to new regulatory requirements may adversely impact growth of the affected firms, which may eventually affect growth of the market/ sector. While firm level impact may be

captured with opportunity costs, the market/ sector level impact, in terms of reduced growth, may need to be separately captured.

- *Reduced investment:* As indicated earlier, the requirement to lock-in capital and other resources owing to new regulations may limit the ability of firms to make investments in business operations. While it may be possible to capture such firm level impact within opportunity costs, any impact in the form of reduced investments at a market/ sector level may need to be separately captured. In addition, new regulatory requirements may reduce the attractiveness of the sector/ market for existing and potential investors. Such costs also need to be separately captured.
- *Reduced competition:* The new regulatory requirements may make it difficult for interested stakeholders to enter the market and may also nudge some existing players to exit the market, thereby freeing labour and capital. This may lead to reduced competition, which needs to be captured.
- *Reduced innovation:* The compliance cost imposed on businesses may limit their ability to innovate. While it may be possible to cover firm level impact with opportunity cost, the market/ sector level reduction in innovation may be separately captured.
- *Delay cost:* The new regulatory requirements may lead to increase in processes, and impose due diligence, certification, monitoring or supervision requirements, which could lead to delay in business operations, partnerships, or expansion. The cost of such delay needs to be captured, which can be estimated by using the average daily net profit multiplied by the number of days of delay. Owing to delay in certification, starting of business and engaging with consumers.
- *Income loss:* The new regulatory requirements may impose restrictions on existing or potential market players and intermediaries to enter or operate in some markets. This may lead to loss of existing or potential income. While it is possible to cover this within opportunity cost, it may be useful to segregate loss of existing income from loss of income which could have been earned if restrictions were not in place.
- *Co-ordination costs:* The new regulatory requirements may require different stakeholders, particularly, regulators, to co-ordinate with each other. Time, efforts, and resources would be required for such co-ordination. These costs will need to be assessed.
- *Inconsistency:* Some regulatory requirements may seem inconsistent with the broader or other policy objectives of the government. Lack of consistency may require affected stakeholders, particularly firms, to incur costs, which need to be assessed.
- *Informality:* The costs imposed by some regulatory requirements may force some stakeholders, particularly small and micro businesses, workers, consumers, to move out of formal ecosystem, and enter into informal markets of finance (unregulated financers), jobs (contract labour), which may impose further costs on such stakeholders, which need to be captured.
- *Health and consumption:* In order to meet costs imposed by new regulatory requirements, some stakeholders, particularly consumers and households, may end up cutting down on their health and/or consumption related expenditure, leading to negative impacts. Some may also end up facing health and/or consumption shocks. These impacts need to be captured.

Some of these costs may be incurred by stakeholders to varied degrees depending on the option.

A representation of key costs on stakeholders as a result of different options discussed above is as follows:

TABLE 11.4

Cost	Op 1: Reporting and disclosure and periodic updates	Op 2: Standard low cap, with restrictions on DLG availability, conditions on NPA recognition, and capital requirements	Op 3: SRB to determine and enforce acceptable DLG levels, capital requirements, and risk-management practices	Op 4: RBI's Graded approach to DLG based on capital invested, loans disbursed, fraud-possibility, certifications
Familiarisation	✓	✓	✓	✓
Regulatory			✓	
Time	✓			✓
Substantive				
Capital		✓	✓	
Opportunity		✓		
Revenue		✓		
Intermediary				✓
Indemnity			✓	
Entry		✓		
Access		✓		
Switching				
Search				
Passed-on		✓	✓	✓
Growth rate		✓	✓	✓
Investment		✓		
Competition		✓		

Cost	Op 1: Reporting and disclosure and periodic updates	Op 2: Standard low cap, with restrictions on DLG availability, conditions on NPA recognition, and capital requirements	Op 3: SRB to determine and enforce acceptable DLG levels, capital requirements, and risk-management practices	Op 4: RBI's Graded approach to DLG based on capital invested, loans disbursed, fraud-possibility, certifications
Innovation		✓		
Delay				
Income		✓		
Co-ordination			✓	
Inconsistency		✓		
Informality		✓		
Health		✓		
Consumption		✓		

The table represents key costs imposed on diverse stakeholders under different options. Some other costs may appear as understanding of the impact of different options evolve. Also, a stakeholder may get adversely impacted under different options, but by varied degrees. For instance, the growth rate of a market may get adversely impacted in all options, but to varied degrees. Also, a greater number of cost types may not necessarily mean higher burden. Some costs may be negligible in nature, spread over a large number of units in a stakeholder category, or occur sometime in future. On the other hand, a lesser number of costs may need to be incurred immediately and could be severe in nature.

Step 7: Identification of benefits of different options

The seventh step in the RIA process is identification of direct and indirect benefits to different stakeholders, of varied options considered by the regulator. It must be noted that benefits can accrue over a period of time, or sometime in future. Also, benefits may differ with size of the firm and sophistication of the consumer.

Some key benefits could include:

- *More choice*: Increase in reliable options for stakeholders

- *Lower price*: Reduction in cost of loan for borrowers
- *Better quality/ transparency*: Addressing challenges caused by the information asymmetry constraints between lenders and DLG providers can help improve reliability of counterparty services
- *Reduction in harm*: Addressing the problem caused by information asymmetry may reduce the possibility of fraudulent actors to engage in the market Reduced possibility of fraud/ engaging with a fraudulent actor, or actors not fulfilling their promises for unreasonable reasons, and consequently reduction in complaints
- *Improved grievance redress*: Reduction in information asymmetry may lower the possibility of disputes, disagreements, grievances and complaints between stakeholders, thereby improving the rate of grievance redress
- *Increased trust*: Addressing information asymmetry and reduction in possibility of fraud would enhance the trust and confidence among stakeholders, particularly borrowers in the digital lending market
- *Enhanced inclusion*: Clarity in terms of engagement between stakeholders, particularly, lenders, DLG providers, and borrowers, can enable these stakeholders to operate efficiently in the market, increasing the possibility of including hitherto excluded groups in the market
- *Enhanced income*: Reduction in information asymmetry and reduced possibility of fraud is likely to lower the rate of defaults, leading to enhanced income or reduced losses
- *Time savings*: Reduced information asymmetry can help lower search and time costs which can save time of stakeholders, particularly lenders and borrowers in the digital lending market
- *Increased investment*: Reduction in information asymmetry, lowering of fraud rate, reduction in disputes and grievances can enhance predictability and certainty in the market. This can lead to increased investment in the sector
- *Reputation enhancement:* Removal or reduction of bad actors from the market and addressing information disproportionality would lead to only genuine players remaining in the market, strengthening their reputation.

While the benefits may accrue to stakeholders under different options to varied degrees, a representation of key benefits on stakeholders as a result of different options discussed above is as follows:

TABLE 11.5

Benefits	Op 1: Reporting and disclosure and periodic updates	Op 2: Standard low cap, with conditions on NPA recognition and capital calculation	Op 3: SRB to determine and enforce acceptable DLG and risk-management practices	Op 4: RBI's graded approach to DLG based on capital invested, loans disbursed, certifications
More choice	✓			

Benefits	Op 1: Reporting and disclosure and periodic updates	Op 2: Standard low cap, with conditions on NPA recognition and capital calculation	Op 3: SRB to determine and enforce acceptable DLG and risk-management practices	Op 4: RBI's graded approach to DLG based on capital invested, loans disbursed, certifications
Better quality		✓	✓	✓
Fraud reduction		✓		✓
Improved redress				
Increased trust		✓		✓
Enhanced inclusion	✓			
Enhanced income	✓			
Time saving		✓		✓
Increased investment	✓		✓	✓
Reputation		✓		✓

The table represents key benefits likely to be experienced by diverse stakeholders under different options. Some other benefits may appear as understanding of the impact of different options evolve. Also, a stakeholder may get benefits under different options, but by varied degrees. For instance, harm may get reduced in all options, but to varied degrees.

Also, a greater number of benefit types may not necessarily mean higher benefit. Some benefits may be negligible in nature, spread over a large number of units in a stakeholder category, or occur sometime in the future. On the other hand, a lesser number of benefits may be experienced immediately and could be significant in nature.

Step 8: Estimation of costs [20]

The eighth step in the RIA process is estimation of costs. While it may be possible to qualitatively understand some costs, for some others it may be possible to go beyond qualitative assessment and quantify the costs (for instance, number of firms going out of the market). In case of some other costs, it may be possible to attribute a monetary value (for instance, salary cost of an employee engaged in compliance).

Key methods for estimation of costs include:[21]

- Data available with regulator: This can include data related to entry and exit of entities, fees/ charges collected, growth of market, nature of consumers, complaints addressed, and periodic compliances, across markets it regulates, including digital credit. The regulator should also collect data on time devoted by firms in managing compliances.
- Cost/ fees/ charges provided in regulation
- Proxies from data available regarding similar compliances:
    - in other areas
    - on other stakeholders
    - by other regulators
    - in other countries
- Proxies from data available regarding other compliances on same stakeholders
- Estimates available in public domain
- Data collection from stakeholders/ representatives/ associations/ self-regulatory organisations. For instance, the Fintech SRO issues data related to the fintech industry (including digital credit) and its growth on a periodic basis.[22]
- Quotes from service providers/ vendors/ third parties
- Estimating time invested for compliance and calculating time value of money, through standard cost model[23]
- Surveys using methods like willingness to pay and accept[24]
- Experiments, simulations, and behaviour analysis
- Focus group discussions
- Expert interactions and stakeholder consultations

For the purpose of case study on digital lending, we focus on publicly available data released by the regulator, SRO, and credible research and media reports. Given options 2, 3, and 4 deal with imposing caps on DLG cover by the regulator, albeit to varied degrees, the discussion of costs likely to be imposed by them is done together.

As per the fintech SRO report, as of June 2025, the digital personal loan volumes were 5.69 crore with an outstanding value of Rs 1.20 Lakh crore. Of these, digital NBFCs sanctioned 3 crore loans amounting to Rs 43,019 crore, with an average ticket size of Rs 14,270.[25] Digital NBFCs typically deal in loans of small ticket size[26], and around 46% of their loans were below Rs 50,000.[27]

Digital NBFCs address credit needs of unorganized MSME and retail segments,[28] and specifically target borrowers who are new to formal financial services. Many of these (around 40% of digital NBFC borrowers), do not have a credit score or are scored high risk or above in bureau records.[29]

Consequently, digital NBFCs borrower segments are those wherein default risk remains higher than usual.[30] In order to provide unsecured personal and business loans to such groups, NBFCs resort to innovative mechanisms like default loss guarantee wherein the DLG typically cover 15-20% of their portfolio.[31]

As indicated above, one of the ways to estimate costs of a regulatory option is to examine if the stakeholders have been subjected to similar regulatory frameworks in the past. Past experience of market response to regulatory changes can be a good proxy to estimate the likely impact of proposed changes.

Market growth: The digital NBFC sector has been subject to regulatory tightening for quite some time now. The regulator has been worried about risk exposure to the sector and thus intends to push industry towards careful lending. As a result, the growth rate of the loan sanctions is moderating over time.

As per SRO reports, In Q1 FY 2025-26, the loan sanction volume and value increased by 13% and 17%, respectively, as against 23% and 34% in Q1 FY 24-25.[32] Stakeholders attribute this slowdown to tightening of norms around unsecured lending by digital NBFCs. Previously as well, tighter norms and resulting business model changes resulted in decline of digital lending volumes by 10% in Q3 of FY 22-23 compared to Q2 of 22-23.[33]

Consequently, it is likely that options that aim to put restrictions on DLG may contribute to decline in growth rate of the digital lending market. A small one size fits all cap on DLG, such as 5%, is likely to result in greater decline in growth rate, as against other options wherein RBI imposes proportionate risk based measures, or when the regulation is designed by SRO in consultation with industry.

Industry estimates indicate that digital NBFC loan value as of June 2025 was Rs 43019 crore, and the market had grown at the rate of 17% the previous year. Given the stringency of proposed options, following scenarios have been been envisaged, regarding growth rate of digital lending market:

TABLE 11.6

Scenario	1 (Growth rate %)	2 (Growth rate %)	3 (Growth rate %)
Option 2	11	12	13
Option 3	12	13	14
Option 4	13	14	15

Growth of digital lending market in different scenarios and estimated opportunity lost in terms of value of digital lending market when compared with normal growth rate of 17 percent is showcased below:

Scenario 1

TABLE 11.7

Option	Estimated market size (Rs crore)	Estimated opportunity lost (Rs crore)
Normal growth rate (17%)	50332	
Option 2 (11%)	47751	2581
Option 3 (12%)	48181	2150
Option 4 (13%)	48611	1721

Scenario 2

TABLE 11.8

Option	Estimated market size (Rs crore)	Estimated opportunity lost (Rs crore)
Normal growth rate (17%)	50332	
Option 2 (12%)	48181	2150
Option 3 (13%)	48611	1721
Option 4 (14%)	49042	1291

Scenario 3

TABLE 11.9

Option	Estimated market size (Rs crore)	Estimated opportunity lost (Rs crore)
Normal growth rate (17%)	50332	
Option 2 (13%)	48611	1721
Option 3 (14%)	49042	1291
Option 4 (15%)	49472	860

Consequently, the opportunity loss in terms of NBFC digital market loan value growth not realised owing to restrictions under three options is as follows:

TABLE 11.10

Option	Estimated opportunity lost (Rs crore)
2 (5% DLG cap)	1721 - 2581
3 (SRO cap, monitoring and enforcement)	1291 - 2150
4 (RBI proportionate risk based)	860 - 1721

As is evident, assumptions are an important component of estimation of costs. While the basis of assumptions can be past experience, both the assumptions as well as consequent impact are required to be validated through stakeholder consultations and expert interactions.

Digital NBFCs: In order to comply with the proposed provisions, particularly of option 2, digital NBFCs will need to increase provisions for potential loan defaults. This is in addition to guarantee protection against the same loss, offered by the DLG provider. In effect, multiple entities will need to set aside buffers for the same loan pool,[34] resulting in opportunity cost of capital not being deployed elsewhere. Such stringent operational conditions will impact origination volumes and fee income and therefore earnings.[35] This may diminish their appeal for new business and expansion.[36] Reportedly, members of United Fintech Forum, an industry association, had met the regulator with a request for reconsideration of the requirements for provisioning for digital lenders (NBFCs) with risk-sharing arrangements.[37]

For instance, at present, the cost of funds for digital NBFCs is usually around 8 percent and they typically charge 20 percent interest, which means a net interest margin of 12 percent. The cost of operations are typically 4 percent and the NPA is around 3 percent. This leaves the profit margin to be around 5 percent.[38] This is summarised in the table below:

TABLE 11.11

S. no	Baseline	
1	Total loan	Rs. 100 crore
2	Cost of funds (8%)	Rs. 8 crore
3	Interest charged (20%)	Rs. 20 crore

S. no	Baseline	
4 (3 -2)	Net interest margin (total revenue before operating cost)	Rs. 12 crore
5	Operations cost [39]	Rs. 4 crore
6 (4-5)	Revenue after operating cost but before NPA (profit before NPA)	Rs. 8 crore
7	NPA [40]	Rs. 3 crore
8 (6-7)	Profit after NPA	Rs. 5 crore

When DLG is capped at 5 percent, the operations cost increases as the lender will need to invest more time and resources in screening, due diligence, examining creditworthiness of prospective applicants, and also make efforts for recovery in case of default.

However, such efforts by the lender are also likely to improve the quality of credit, repayment by borrowers, and reduce the likelihood of default, and the loan becoming NPA.

Assuming that the cost of operations increase by 10% and NPAs reduce by 10%, the net profit likely to be realised by the lender after NPA is likely to reduce:

TABLE 11.12

S. no	Option 2: DLG cap at 5%	
1	Total loan	Rs. 100 crore
2	Cost of funds (8%)	Rs. 8 crore
3	Interest charged (20%)	Rs. 20 crore
4 (3 -2)	Net interest margin (total revenue before operating cost)	Rs. 12 crore
5	Operations cost [41]	Rs. 4.4 crore
6 (4-5)	Revenue after operating cost but before NPA (profit before NPA)	Rs. 7.6 crore
7	NPA [42]	Rs. 2.7 crore

S. no	Option 2: DLG cap at 5%	
8 (6-7)	Profit after NPA	Rs. 4.90 crore

When there is no one-size fits all cap on DLG, and it is determined by the regulator based on past performance of the lender, capital availability, and risk profile of borrowers, while the operations cost is likely to increase, it is unlikely to increase as much as in case of 5% cap on DLG.

At the same time, since DLG still remains regulated, including its invocation and use remaining subject to conditions imposed and monitored by the RBI, the lender will remain cautious in lending, resulting in reduction in default rate. Consequently, the NPA is likely to reduce, however, not as much as in the case of 5% cap on DLG.

Assuming that the cost of operations increase by 5% and NPAs reduce by 5%, the net profit likely to be realised by the lender after NPA is likely to reduce from baseline scenario, but remain higher than the scenario in which a 5% cap is imposed on DLG. This is summarised in the figure below:

TABLE 11.13

S. no	Option 4: Proportionate DLG regulation by RBI	
1	Total loan	Rs. 100 crore
2	Cost of funds (8%)	Rs. 8 crore
3	Interest charged (20%)	Rs. 20 crore
4 (3 -2)	Net interest margin (total revenue before operating cost)	Rs. 12 crore
5	Operations cost [43]	Rs. 4.2 crore
6 (4-5)	Revenue after operating cost but before NPA (profit before NPA)	Rs. 7.8 crore
7	NPA [44]	Rs. 2.85 crore
8 (6-7)	Profit after NPA	Rs. 4.95 crore

In a situation wherein DLG cap is designed, monitored and enforced by SRO, since the cap is co-designed by the industry, the cost of operations for the lenders are likely to witness minimal increase, less than the two scenarios discussed above.

However, since the enforcement by SRO is unlikely to be as stringent as a regulator, the NPAs, while may reduce, may remain higher than the two scenarios discussed above.

Consequently, assuming that the cost of operations increase by 2.5% and NPAs reduce by 1.5%, the net profit is likely to remain less than the scenario when risk based proportionate regulation is adopted by the RBI. This is summarised below:

TABLE 11.14

S. no	Option 3: DLG design and enforcement by SRO	
1	Total loan	Rs. 100 crore
2	Cost of funds (8%)	Rs. 8 crore
3	Interest charged (20%)	Rs. 20 crore
4 (3 -2)	Net interest margin (total revenue before operating cost)	Rs. 12 crore
5	Operations cost [45]	Rs. 4.1 crore
6 (4-5)	Revenue after operating cost but before NPA (profit before NPA)	Rs. 7.9 crore
7	NPA [46]	Rs. 2.96 crore
8 (6-7)	Profit after NPA	Rs. 4.94 crore

Consequently, per firm reduction in profits after NPA due to proposed options are estimated to be as follows:

TABLE 11.15

Option	Profit after NPA (Rs. crore)	Estimated reduction in profit (Rs. crore)
Baseline	5	
2 (5% DLG cap)	4.90	0.10
3 (SRO regulation and monitoring)	4.94	0.06

Option	Profit after NPA (Rs. crore)	Estimated reduction in profit (Rs. crore)
4 (RBI proportionate regulation)	4.95	0.05

The aforementioned estimates are for a loan book of Rs. 100 crore. As indicated earlier, the total estimated market size is around Rs. 50,000 crore. Consequently, the industry wide estimated reduction in profit is discussed below:

TABLE 11.16

Option	Industry wide estimated reduction in profit (Rs. crore)
2	50
3	30
4	25

Moreover, several digital NBFCs operate in high-risk segments where NPA risks are above 12 percent and occasionally reaching 20 percent. In these situations, a 5 percent cap on DLG may squeeze margins, [47] and even make businesses unviable.[48]

Smaller NBFCs: Given the provisions of option 2 are proposed to be uniformly applicable across digital NBFCs, apprehensions exist among smaller players that digital lending operations may not continue to remain feasible for them.[49] Moreover, the lack of capital could mean that NBFCs would be at the mercy of larger financial institutions and would need to rely on partnerships for lending business, with their potential competitors,[50] thereby adversely impacting the competition and innovation in the market. These fears may be reduced in option 4, which ensure proportional risk-based regulation, i.e. DLG cover would depend on lender performance, DLG provider's standing, default risk, and other relevant factors.

DLG providers: The option 2 also proposes to impose significant restrictions on DLG providers in terms of maintaining regulatory capital. This may reduce attractiveness for new business generation for them.[51] Apprehensions exist that the DLG business may not remain viable for some new players.[52] Several firms may be forced to shut shop or pivot.[53] This is indicated below:

TABLE 11.17

Period ending	Loan outstanding value (Rs. cr.)[54]	DLG cover possible (Rs. cr.)
Mar 23	56,927	8,539 (15%)

Period ending	Loan outstanding value (Rs. cr.)[54]	DLG cover possible (Rs. cr.)
Mar 24	90,977	13,647 (15%)
Mar 25	111,261	16,689 (15%)
Jun 25	120,122	6,006 (5%)

Thus, the restrictions on DLG cover are likely to significantly reduce the potential market for DLG, thereby adversely impacting DLG providers. DLG market of around Rs. 10,000 crore is likely to be unavailable in case 5% cap on DLG is enforced. Other options, with no stringent one size fits all caps, are unlikely to adversely impact DLG markets.

Borrowers: The host of restrictions around DLGs may push NBFCs to increase interest rates for borrowers. This will be considered as a cost passed on to consumers. For sectors like MSME loans which used to benefit from competitive rates due to credit guarantees, it has been estimated that lending rates may increase by 3 percent, reflecting the additional risk and provisioning costs to be borne by lenders.[55] This may make borrowing considerably expensive for MSME, informal and low income retail segments, and could result in additional outflow of around Rs. 1,000 crore for loans sanctioned during first quarter of FY 25-26, as indicated below.

TABLE 11.18

Item	Baseline	Option 2	Option 3	Option 4
Digital personal loans sanctioned during Q1 FY 25-26 (Rs. crore)[56]	43,019	43,019	43,019	43,019
Rate of interest	20%	23%	22%	21%
Total outflow from borrowers (Rs. crore)	51,623	52,913	52,483	52,053
Additional outflow (Rs. crore)		1,290	860	430

If the cost of loans increase, some potential borrowers may not be able to afford digital loans, and remain excluded from the formal market. Around 1 million potential borrowers may not be able to afford digital loans, as indicated below:

TABLE 11.19

Period ending	Live unique fintech borrowers (million) [57]	Potential borrowers remaining unserved (million)
Dec 22	14.4	
Dec 23	20.2	
Dec 24	23.3	
Dec 25 (estimated at 12% growth, if normal trend continues)	26.1	
Dec 25 (estimated at 6% growth, under option 2)	24.7	1.4
Dec 25 (estimated at 8% growth, under option 3)	25.2	0.9
Dec 25 (estimated at 10% growth, under option 4)	25.6	0.5

Also, estimates indicate that only about 18% of MSMEs access credit through digital lending platforms. Unavailability of credit at competitive rates is one of the key hurdles to growth of MSMEs, with an addressable credit gap addressable to be around Rs. 30 lakh crore. Around 12% of micro enterprises still borrow from informal sources.[58] While digital NBFCs have been slowly making inroads into the MSME segment, regulatory restrictions may pose a challenge for them to offer loans to MSMEs, particularly micro enterprises, at affordable terms.

Investment: It has been reported that as a result of stringent regulatory scrutiny resulting into fears of growth slowdown, the venture capital funding for the alternative lending sector has experienced a decline of 12.9% this year, with a funding of USD 380.7 million from January to September 2025, as compared to USD 437.3 million during the same period last year.[59] Continued tightening of norms, particularly under option 2, may see further slowdown in investment in the sector, which will adversely affect its growth. Even a 1 percent decline may mean unavailability of investments worth USD 3.8 million.

Co-ordination: While the government continues to encourage credit expansion to MSMEs and low income groups, the withdrawal of DLG is expected to raise cost and conditions for borrowing for the sensitive MSME and low income sector (as discussed above), for which the government continues to encourage credit expansion.[60] This may lead to inconsistencies between different government policies, leading to co-ordination costs.

As a result of cap on DLG, and additional conditions, most companies will avoid risky unsecured lending to thin file customers, and end up lending to customers with good credit scores, who are coveted by all financial institutions. This could adversely impact the financial inclusion mandate and the goal of bringing more people into the formal credit system. [61]

Default rates: One of the key objectives of stringent regulatory approach towards digital NBFC lending is to ensure that non-performing assets remain low, i.e. loans are repaid on time. Even after stringent regulatory scrutiny in the past, loans which have remained unpaid even 90 days past due date (DPD) have remained highest in tier III and beyond locations (2.8%), among less than 25 year age group (3.8%), comprising loans of less than Rs. 10,000. [62] For these segments, loans that are 180 DPD climbed to 8.6% in June 2025 from 7.1% a year ago.[63] These segments are new to credit customers served by digital NBFCs.

Consequently, it appears that the regulator's approach to ensuring low risk levels is not leading to desired results in the segment. This is why the importance of DLG lies, as it enables higher risk taking, and serves potentially risky, but hitherto underserved customer segments. There appears to be little evidence to suggest that capping DLG at low levels can help contain default rates.

Intermediary: To comply with the revised regulations, existing collaborations will need to be reviewed, digital outsourcing and DLG contracts will have to be redrawn. Digital NBFCs may need to move away from structures where loan portfolios and self-funded DLG cover were fluid and evolved over time depending on the customers on-onboarded, to well defined structures which have upfront specification and funding of DLG cover.[64] This will require incurring intermediary cost, in form of fees to lawyers, advisors, consultants, accountants, auditors and company secretaries.

Time costs: In terms of costs imposed by option 1, which impose reporting and disclosure obligations on digital NBFCs, the major costs will be the cost of time incurred by staff to prepare relevant reports and disclosures. The cost can be monetised using the standard cost model, after estimating the number of hours required to be deployed by a staff per firm for compliance and calculating their hourly remuneration.

For instance, assuming that 8 hours (1 day) are required to be devoted for compliance function every month, and the monthly (20 working days) remuneration for the relevant staff is Rs. 40,000, the 1 day remuneration comes to Rs. 2,000 which will be the per firm per month time cost for the purposes of the case study. Consequently, the annual time cost per month per firm would be Rs. 24,000.

Administrative costs: As indicated earlier, in addition to costs on stakeholders, it is also important to assess the cost of regulatory options on the regulator, in terms of ensuring administration and enforcement. The time spent in these activities by the regulator can be monetised as per the standard cost model.

Assuming the likely efforts required from the regulator to administer different options, option 2 is likely to impose least cost on the regulator, owing to fixed DLG cap, while option 4 is likely to impose most cost on regulator, since regulator will need to determine risk for different kinds of DLG covers, considering varied factors, including borrower and lender profile and DLG providers' performance in the past. Similarly, option 3 is likely to impose time costs on SRO as it will need to design and enforce codes and standards of practice for digital NBFCs and DLG providers.

While this section estimated costs of different options on varied stakeholders based on publicly available data and certain assumptions, it will be important to verify such estimates and assumptions through stakeholder consultation and expert interaction, to arrive at a robust estimation of costs.

Step 9: Estimation of benefits

The ninth step in the RIA process is estimation of benefits. Estimating benefits is typically a more creative exercise than estimation of costs, and may require use of innovative assumptions and proxies. Methods for estimation of benefits include:[65]

- Estimating the number of consumers and other stakeholders likely to not experience harm/ experience benefits, for which proxies can be number of complaints/ grievances/ frauds/ regulatory actions by the regulator
- Examining subjective well-being by identifying effect of comparable historical decisions and preferred alternatives
- Estimating time savings and monetary values of such savings
- Estimating consumer and producer surplus through:
    - stated preference methods, involving choice experiments and contingent evaluation
    - revealed preference methods, involving observations and comparison
- Surveys with likert scale and similar mechanisms
- Mystery shopping
- Delphi method: obtaining group opinion from experts
- Simulations and modelling
- Scenario analysis
- Stakeholder consultation

For the purpose of this case study, we will focus on publicly available information and credible research and media reports to estimate benefits of different options on stakeholders.

Transparency: Estimates suggest that clear caps on DLG will increase transparency, improve risk management, and reduce systemic risk.[66] The likelihood of hidden charges and undisclosed cost will decrease, and in the event of default, the responsibility and its proportion on digital NBFCs and DLG providers will be pre-defined.

Estimates suggest that dark patterns or deceptive practices, particularly related to drip pricing or hidden charges, are prevalent in the digital lending industry at present.[67] It is expected that some options will enhance transparency in DLG enabled digital lending by NBFCs, and reduce hidden charges and dark patterns for consumers.

Risk management: It is expected that the requirement of additional provisioning and requirements under option 2 is expected to improve underwriting skills of digital NBFCs[68] and reduce off-balance sheet risks.[69] Estimates indicate that regulatory tightening over time has led to portfolio recalibration and improved risk distribution among digital NBFCs. This is because low DLG cover availability will make digital lenders extra careful with their funds, invest more in exercises like due diligence, assessment of credit worthiness, and choosing whom to lend. For instance, if 10% DLG cover is available, then for 10% of loans, digital lenders are likely to take higher risk than for the remaining loan portfolio. A report from industry body Unified Fintech Forum and credit bureau CRIF High Mark indicates that the share of high-risk segments for NBFC fintechs has declined from 38.4% to 28.9% over two years between June 23 and June 25, reflecting better risk controls.[70] This will lead to responsible growth, orderly development of credit sector,[71] lending to borrowers with respectable credit scores, thereby reducing the possibility of default.

Reduction in sanctions: Since April 2024, the RBI has cancelled certificate of registration of at least 6 digital NBFCs for irregular lending practices, such as outsourcing core decision making functions, customer verification, credit appraisal, loan disbursal, loan recovery,[72] data sharing[73], failure to review practices of lending service providers,[74] charging excessive interest,[75] among others. With enhanced regulation under options 2, 3, and 4, it is expected that such episodes will reduce going further.

Reduced harm: One of the proxies of reduced fraud/ harm to consumers could be reduction in the rate of complaints against digital lending players. Based on the trend of complaints against digital lending players, the harm reduction due to options is estimated below:

TABLE 11.20

Period	Complaints against digital lending players	Estimated reduction in consumers facing harm
2021-22	7,813[76]	
1 April 2022 – 30 Nov 2022	5,090[77]	
Estimated complaints in 2026-27[78] (normal growth rate of negative 2.28 percent)	6,947	
Estimated complaints if option 2 introduced in 2025-26 leads to growth in complaints rate by negative 5.28 percent)	6,740	207
Estimated complaints if option 4 introduced in 2025-26 leads to growth in complaints rate by negative 4.28 percent)	6,810	137

Period	Complaints against digital lending players	Estimated reduction in consumers facing harm
Estimated complaints if option 3 introduced in 2025-26 leads to growth in complaints rate by negative 3.28 percent)	6,879	68
Estimated complaints if option 1 introduced in 2025-26 leads to growth in complaints rate by negative 2.78 percent)	6,917	30

Reduced delinquency rates: In case of digital lending, evidence suggests that regulatory tightening does not immediately lead to reduced default rates.[79] Delinquency may reduce over a period of time as the market and borrowers adjust to a new regime. At present, around 20% of digital loans by NBFCs, i.e. Rs. 8,000 crores, are to customers in a very high risk category, including having no credit history. These have delinquency rate of around 8% at present (i.e. Rs. 640 crore). Estimating that these rates are likely to moderate[80] to 5% (option 2), 6% (option 4) and 7% (option 3) in three years, the likely benefits are likely to be following:

TABLE 11.21

Scenario	Default after three years (Rs. crore)	Estimated benefit after three years (Rs. crore)
Baseline	640	
Option 2	400	240
Option 3	560	80
Option 4	480	160

Likert scale: As indicated earlier, one of ways to assess benefits is to ask stakeholders to rate the options on the scale of 1-5, with 1 resulting in least benefits and 5 being highly beneficial.

Considering the commentary around benefits and likely meeting of regulatory objectives, benefits under different options may be rated as follows:

TABLE 11.22

Item	Op 1: Reporting and disclosure	Op 2: Low cap and additional restrictions	Op 3: SRO codes and monitoring	Op 4: Graded risk-based regulation
Rating of benefits	2	4	1	3

While this section estimated benefits of different options on varied stakeholders based on publicly available data and certain assumptions, it will be important to verify such estimates and assumptions through stakeholder consultation and expert interaction, to arrive at a robust estimation of benefits.

Step 10: Estimating costs and benefits at aggregate level

The tenth step of the RIA process is estimating costs and benefits at an aggregated level and differentiating impact on big firms and small firms and sophisticated consumers and vulnerable consumers, if required.

This would require clarity on the number of digital NBFC lenders in the market, segregated by size. RBI should collect and publish such numbers. Industry studies have published data analysis from 120+ NBFCs engaged in digital lending.[81]

Assuming that 100 NBFCs are engaged in digital lending enabled by DLG, and taking into account time cost per NBFC per year was estimated to be Rs. 24,000, the total industry wide annual time cost is estimated to be Rs. 24 lakhs.

As indicated earlier, estimates suggest that while regulatory scrutiny may make larger lenders opt for responsible less risky lending, smaller lenders may find it difficult to continue operations owing to increase in operations cost, and unavailability of higher DLG cover.

Similarly, while existing customers of formal financial services including digital credit will have more options to choose from, low income thin file borrowers who do not have a collateral may find it difficult or expensive to access digital loans from NBFCs.

Step 11: Determining present value of costs and benefits

The eleventh step of the RIA process is to determine the present value of costs and benefits, through a discounting method.[82] Given that several benefits and costs are likely to be experienced over a

period of time in the future; in order to make them comparable, it is important to determine their present value by discounting them with relevant time value of money.

As indicated earlier, the delinquency rate moderation benefits are likely to accrue after 3 years. In advanced economies such as the UK, discount rates for regulatory impact analysis is around 3.5 percent. In India, the 10-year government security (g-sec) yield (the risk-free rate) rarely drops below 6.5-7.0 percent. Thus, the discount rate for India needs to be higher. Even the World Bank suggests higher discount rates for developing economies.[83]

Consequently, for the purpose of this RIA, delinquency benefits after three years across three options are calculated for three scenarios: discount rates of 5 percent, 8 percent, and 10 percent:

TABLE 11.23

Option	Delinquency benefits[84] after three years (Rs. crore)	Present value (Rs. crore) (discount rate of 5%)	Present value (Rs. crore) (discount rate of 8%)	Present value (Rs. crore) (discount rate of 10%)
2	240	207.32	190.52	180.32
3	80	69.11	63.51	60.12
4	160	138.21	127.02	120.21

Step 12: Conducting sensitivity analysis

The twelfth step of the RIA process is to conduct sensitivity analysis, i.e. taking into account worst-case and best-case scenarios for different stakeholders across options, and determining a range for costs and benefits.

For instance, for digital lending, it was estimated that the growth rate of the digital lending market may drop to 8% owing to option 2. Its worst case and best case scenarios are mentioned below:

TABLE 11.24

Scenario	Amount	Opportunity lost (Amount)
Estimated loan value (June 2026) at normal growth rate (17%)	Rs 50,332 crore	

Scenario	Amount	Opportunity lost (Amount)
Estimated loan value (June 2026) in option 2 growth rate (8%)	Rs. 46,461 crore	Rs 3,871 crore
Best case scenario: Estimated loan value (June 2026) in option 2 growth rate (10%)	Rs. 47,321 crore	Rs 3,011 crore
Worst case scenario: Estimated loan value (June 2026) in option 2 growth rate (6%)	Rs. 45,600 crore	Rs 4,732 crore

Step 13: Comparison of costs and benefits

The thirteenth step of the RIA process is to compare costs and benefits of all options on all stakeholders to determine net impact of each option. In addition, the net impact of all options needs to be compared with each other.

Typically, while comparing an option, to the extent possible, monetised costs on a stakeholder should be compared with monetised benefits for such stakeholder groups. Similarly, to the extent possible, quantitative costs should be compared with quantitative benefits and qualitative costs should be compared with qualitative benefits for each stakeholder, under every option.

For the purposes of digital lending case study, this can be represented as:

TABLE 11.25

Stakeholder	Impacts	Op 1: Reporting and disclosure	Op 2: Low caps and restrictions	Op 3: SRO codes and monitoring	Op 4: Risk-based regulation

Stakeholder	Impacts	Op 1: Reporting and disclosure	Op 2: Low caps and restrictions	Op 3: SRO codes and monitoring	Op 4: Risk-based regulation
Digital NBFC	Cost	Increase in time cost by around Rs. 24 lakhs annually	Significant Increase in cost of operations, leading to substantial reduction in profits, of about Rs. 50 crore	Considerable increase in cost of operations, leading to considerable reduction in profits, of about Rs. 30 crore	Slight increase in cost of operations, leading to minor reduction in profits, of about Rs. 25 crore
	Benefit	Better communication with regulator and consumer	Significant improvement in delinquency rate, resulting in savings of around Rs. 180-207 crore. Significant reduction in sanctions	Slight improvement in delinquency rate, resulting in savings of around Rs. 60- 69 crore. Slight reduction in sanctions	Considerable improvement in delinquency rate, resulting in savings of around Rs. 120-138 crore. Considerable reduction in sanctions
DLG provider	Cost	Increase in time cost	Significant reduction in market, by around Rs. 10,000 crore	Considerable reduction in market	Slight reduction in market
	Benefit	Better communication with regulator and consumer	Significant improvement in risk management	Slight improvement in risk management	Considerable improvement in risk management
Borrower	Cost	Slight increase in loan cost	Significant increase in loan cost, by around Rs. 1,290 crore Credit unavailable to around 1.4 million potential borrowers	Considerable increase in loan cost, by around Rs. 860 crore Credit unavailable to around 0.9 million potential borrowers	Slight increase in loan cost, by around Rs. 430 crore Credit unavailable to around 0.5 million potential borrowers
	Benefit	Improved understanding of NBFC and DLG responsibilities Negligible reduction in harm (no complaints) to about 30 borrowers	Significant increase in transparency, and reduction in hidden costs Significant reduction harm (no complaints) to about 207 borrowers	Slight increase in transparency, and reduction in hidden costs Slight reduction in harm (no complaints) to about 68 borrowers	Considerable increase in transparency, and reduction in hidden costs Considerable reduction in harm (no complaints) to about 137 borrowers
Regulator	Cost	Significant increase in time cost	Considerable increase in time cost	Slight increase in time cost	Significant increase in time cost
	Benefit	Improved understanding of NBFC and DLG responsibilities	Significant reduction in fraudulent actors	Ability to fix accountability on SRO	Orderly growth of market

Stakeholder	Impacts	Op 1: Reporting and disclosure	Op 2: Low caps and restrictions	Op 3: SRO codes and monitoring	Op 4: Risk-based regulation
Market	Cost		Significant reduction in market growth. Opportunity loss of Rs. 1721 - 2581 crore	Considerable reduction in market growth. Opportunity loss of Rs. 1291 - 2150 crore.	Slight reduction in market growth. Opportunity loss of Rs. 860 - 1721 crore
	Benefit		Over cautiousness in lending		Responsible lending

As discussed earlier, these estimates of costs and benefits are based on publicly available information and certain assumptions, and should be verified through stakeholder consultation and expert interactions.

Box 5: Impacts of different options

Option 1: N is required to incur some additional reporting costs, and can continue with the DLG ongoing arrangement, and offer loan to C at affordable interest rates. However, in case of delay in repayment, the rate of interest doubles.

Option 2: Due to stringent limits on DLG, N can offer loan to C at the interest rate of 22 percent per annum. This is not affordable for C.

Option 3: Due to considerable conditions on DLG, N can offer loan to C at the interest rate of 21 percent per annum. C may be able to afford this, but may need to cut down on other essential expenditures. Moreover, in case of delay in repayment, the rate of interest substantially increases.

Option 4: Due to proportionate regulation on DLG, N can offer loan to C at the interest rate of 20 percent per annum. C can afford this. N and D are required to have adequate capital and provisions to deal with unforeseen circumstances. In case of delay in repayment, the rate of interest proportionally increases, and restructuring should be possible.

Step 14: Selection of most appropriate option

The fourteenth step of RIA process is suggestion of most-appropriate option; i.e. which has the potential to address market failure, and achieve policy objectives, in a manner that costs on

stakeholders are significantly outweighed by the benefits realised by them, i.e. net benefits experienced by the stakeholders are likely be highest.

For the purposes of digital lending case study, net impact can be represented as:

TABLE 11.27

Impacts	Op 1: Reporting and disclosure	Op 2: Low caps and restrictions	Op 3: SRO codes and monitoring	Op 4: Risk-based regulation
Costs	Increase in time cost for digital NBFCs, DLG provider, and regulator Slight increase in loan cost for borrowers	Significant Increase in cost of operations, leading to reduction in profits by about Rs. 50 crore to digital NBFCs Significant reduction in market for DLG providers, by around Rs. 10,000 crore for DLG providers Significant increase in loan cost for borrowers, by around Rs. 1,290 crore Unavailability of credit to around 1.4 million potential borrowers Significant reduction in market growth. Significant increase in time cost for regulators	Considerable increase in cost of operations, leading to reduction in profits by about Rs 30 crore to digital NBFCs Considerable reduction in market for DLG providers Considerable increase in loan cost for borrowers, by around Rs. 860 crore Unavailability of credit to around 0.9 million potential borrowers Considerable reduction in market growth. Considerable increase in time cost for regulators	Slight increase in cost of operations, leading to reduction in profits by about Rs 25 crore to digital NBFCs Slight reduction in market for DLG providers Slight increase in loan cost for borrowers, by around Rs. 430 crore Unavailability of credit to around 0.5 million potential borrowers Slight reduction in market growth. Significant increase in time cost for regulators.

Impacts	Op 1: Reporting and disclosure	Op 2: Low caps and restrictions	Op 3: SRO codes and monitoring	Op 4: Risk-based regulation
Benefits	Better communication with regulator and consumer for digital NBFCs, DLG providers Improved understanding of NBFC and DLG responsibilities for borrowers Negligible reduction in harm (no complaints) to about 30 borrowers Improved understanding of NBFC and DLG responsibilities with the regulator	Significant improvement in delinquency rate Significant reduction in sanctions for digital NBFCs Significant improvement in risk management for DLG providers Significant increase in transparency, and reduction in hidden costs for borrowers Significant reduction harm (no complaints) to about 207 borrowers Regulator could ensure significant reduction in fraudulent actors, and lead to over-caution in lending	Slight improvement in delinquency rate Slight reduction in sanctions for digital NBFCs Slight improvement in risk management for DLG providers Slight increase in transparency, and reduction in hidden costs for borrowers Slight reduction in harm (no complaints) to about 68 borrowers The regulator will be able to fix accountability on SRO	Considerable improvement in delinquency rate Considerable reduction in sanctions for digital NBFCs Considerable improvement in risk management for DLG providers Considerable increase in transparency, and reduction in hidden costs Considerable reduction in harm (no complaints) to about 137 borrowers The regulator will be able to ensure orderly growth of digital lending market, and foster responsible lending
Net impact	Slight benefits at low costs. Net impact being positive.	High benefits at significantly higher costs. Net impact being negative.	Some benefits at considerable costs. Net impact being neutral.	Considerable benefits at low costs. Net impact being highly positive.

Based on the case study of digital NBFC lending backed by DLG cover, it appears that option 4 of risk based DLG covers based on transparent parameters is likely to achieve regulatory objectives, in a manner that net benefits to stakeholders are highest. While benefits of option 2 are estimated to be higher than benefits of option 4, however, the costs imposed by option 2 on different stakeholders are likely to be significantly higher than other options. Thus, option 4 is likely to result in maximum net benefits.

Post-RIA process

Typically, the RIA exercise is reviewed by the regulator's board, finalised, approved by the Chair of regulator, and published,[85] for the purpose of receiving comments from stakeholders.

The methodology, assumption, proxies, data, data sources, and all other information is clearly disclosed in the RIA document/ statement so that interested stakeholders are able to carefully review

the regulator’s proposals and respond.

Based on inputs, feedback, and comments received from the public, the RIA statement is amended, finalised, and published. The most appropriate option is suggested for adoption, to the regulator’s board.

Footnotes and references

1. Draft Reserve Bank of India (Non-Banking Financial Companies - Credit Facilities) Directions, 2025, **https://rbidocs.rbi.org.in/rdocs/notification/PDFs/10NBFCCREDITFACILITIES10102025979D5FE1F37D49F9BD2F50A0F51673E2.PDF**

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2. In the past 3 years, a high level committee on digital lending has been constituted by the RBI, which has since published its reports. The RBI has issued and amended regulations on digital guidelines, and has also taken enforcement actions against alleged violators. The GoI has also

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3. such as Fintech Association of Consumer Empowerment

↑

4. RBI framework for framing regulations, May 2025, available at **FRAMRWORK07052025BE1CD2043A3A4D998A27B6E38D5AA2E6.pdf**

↑

5. RBI, Report of the Working Group on Digital Lending including Lending through Online Platforms and Mobile Apps, 2021, **https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/DIGITALLENDINGF6A90CA76A9B4B3E84AA0EBD24B307F1.PDF**

↑

6. Typically, there are three causes of market failures: information asymmetry, negative externalities, and market power. Information asymmetry is a situation when one participant operates with exclusive information which is capable of influencing choices of other participants. Negative externalities refer to health or safety hazards due to activities of market participants, for which they do not pay. Market power could lead to fixing of price or supply caps and quotas. See, Jackson et al, Understanding market failure in the developing country context, MPRA, April 2019, **MPRA_paper_94577.pdf**

↑

7. Also, it is important to note that the borrower's willingness and ability to repay, reliability of income, use of borrowed amount, are factors which the borrowers know better than lenders.

Problems may arise from such information asymmetry, however, these issues do not relate to default loss guarantee, and thus are not part of this study.

↑

8. Mehta, RBI tightens default loss guarantee rule; NBFCs to exclude cover on fintech-sourced loans, Economic Times, May 2025, **https://m.economictimes.com/industry/banking/finance/rbi-tightens-default-loss-guarantee-rule-nbfcs-to-exclude-cover-on-fintech-sourced-loans/amp_articleshow/121420936.cms** indicates in the context of regulatory actions, ".....A senior fintech executive said the RBI directive stems from the collapse of a large fintech company that suffered a loss in the first half of the previous fiscal year, as it had to provide Rs 172 crore as DLGs to NBFCs.....This company's ability to service the DLGs was contingent on capital infusion that was eventually done by a Singapore financial services company in the beginning of this calendar year.....Japanese bank Sumitomo Mitsui Financial Group-backed SMFG India Credit's net profit fell to Rs 344 crore in FY25, down 44% from FY24, as it had to provide Rs 115 crore additionally toward DLGs, its audited results showed.....Similarly, Japan's largest credit card service provider's local entity, Credit Saison India, reported a 22% dip in net profit to Rs 107 crore in FY25 over the previous year, on the back of Rs 178 crore additional provisions on DLGs, according to its audited results."

↑

9. RBI, Report of the Working Group on Digital Lending including Lending through Online Platforms and Mobile Apps, 2021, **https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/DIGITALLENDINGF6A90CA76A9B4B3E84AA0EBD24B307F1.PDF**, noted "It has also been observed that the entire costs associated with first loss default guarantee or any other such mechanism offered by the platforms to their lending partners are passed on to the borrowers resulting in higher interest rates. Though it is difficult to have the same benchmark for the level of interest rates for all borrowers across all segments, rates of interest beyond a certain level are indeed excessive and can neither be sustainable nor justifiable"...."Since the loan insurance comes to the lender at the cost of uncertainty and fees, the burden of such arrangements are typically passed on by the lenders to the consumers."

↑

10. George et al, RBI must accommodate fintech innovations, not ban them, May 2022, Money control, **https://www.moneycontrol.com/news/business/rbi-must-accommodate-fintech-inovations-not-ban-them-8447011.html**

↑

11. George et al, RBI must accommodate fintech innovations, not ban them, May 2022, Money control, **https://www.moneycontrol.com/news/business/rbi-must-accommodate-fintech-inovations-not-ban-them-8447011.html**

↑

12. RBI, Report of the Working Group on Digital Lending including Lending through Online Platforms and Mobile Apps, 2021, **https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/DIGITALLENDINGF6A90CA76A9B4B3E84AA0EBD24B307F1.PDF** It notes that due to unregulated nature of DLG provider, it is difficult to make sure that it has sufficient capital to make good the losses, should

such requirement arise. It pointed out, “For all practical purposes, credit risk is borne by the LSP without having to maintain any regulatory capital. The loan portfolio backed by FLDG is akin to off-balance sheet portfolio of the LSP wherein the nominal loans sit in the books of the lender without having to partake in any lending process. In some cases, the LSP, as a non-banking non-financial company (NBNC) may be undertaking balance sheet lending in partnership with a bank/ NBFC or on stand-alone basis, while not satisfying the principal business criteria to remain outside regulation. Besides, there are higher operational risks which arise due to increasing reliance of lenders on third-party service providers. With increasing share of digital lending in retail/ personal space, there is a potential for risk build-up because of these platforms. This may also be adding to counterparty risks posed by the platform to its lending partners.”.....”For instance, say a lender has a loan portfolio of Rs. 100, and the DLG provider assures a cover of default up to Rs. 80. The typical default rate for the target segment is Rs. 25, but the DLG provider has capital of only Rs. 10. For the covered loan portfolio, borrowings of Rs. 30 suffer a default. However, the DLG provider is unable to cover defaults of the additional Rs. 20, i.e. twice its equity cushion.”

↑

13. Preamble of the RBI Act, 1934, **https://www.indiacode.nic.in/bitstream/123456789/2398/1/a1934-2.pdf**

↑

14. Chapter IIIB of the RBI Act, 1934, **https://www.indiacode.nic.in/bitstream/123456789/2398/1/a1934-2.pdf**

↑

15. The Information Technology Act, 2020 **https://www.indiacode.nic.in/bitstream/123456789/13116/1/it_act_2000_updated.pdf**, The Digital Personal Data Protection Act 2023, **https://www.meity.gov.in/static/uploads/2024/06/2bf1f0e9f04e6fb4f8fef35e82c42aa5.pdf**

↑

16. OECD lists alternatives to command and control regulations as performance based regulations, process based regulations, co-regulation, economic regulation, economic instruments, information and education, voluntary approaches and behavioural insights. OECD Best Practice Principles for Regulatory Policy, Regulatory Impact Assessment, 2020 **https://www.oecd.org/content/dam/oecd/en/publications/reports/2020/02/regulatory-impact-assessment_0bf78a03/7a9638cb-en.pdf**

↑

17. Directions 21 - 26 of Draft RBI (NBFC - Credit Facilities) Directions, 2025 **https://rbidocs.rbi.org.in/rdocs/notification/PDFs/10NBFCCREDITFACILITIES10102025979D5FE1F37D49F9BD2F50A0F51673E2.PDF**. These include, NBFCs to not enter into DLG arrangements on the loans which are covered by credit guarantee schemes; NBFC – P2P to not enter into DLG arrangements for the loans facilitated over its platform; DLG only in form of cash, FD, and BG; cap on DLG to 5% on fixed identified loan portfolio; inability to reinstate DLG amount once invoked, even if recovery happens; and, DLG provider to deduct full amount of DLG outstanding from its capital.

↑

18. Like Fintech Association for Consumer Empowerment, **https://faceofindia.org/**

↑

19. The RBI Working Group on Digital Lending had considered capping the maximum first loss default guarantee on lines of capital adequacy ratio (around 15-20%).

↑

20. Note: The data used in this study is as of June 2025. It will be updated in due course

↑

21. FCA Statement of Policy on Cost Benefit Analyses, July 2024, **https://www.fca.org.uk/publication/corporate/statement-policy-cba.pdf**

↑

22. FACE, Resources, **https://faceofindia.org/resource-center/**

↑

23. EC, The Standard Cost Model A framework for defining and quantifying administrative burdens for businesses, 2004, **https://ec.europa.eu/eurostat/documents/64157/4374310/11-STANDARD-COST-MODEL-DK-SE-NO-BE-UK-NL-2004-EN-1.pdf/e703a6d8-42b8-48c8-bdd9-572ab4484dd3**

↑

24. FCA, How we analyse the costs and benefits of our policies, 2024, **https://www.fca.org.uk/publication/corporate/how-we-analyse-costs-benefits-policies-2024.pdf**

↑

25. FACE, Digital Personal Loans, June 2025 **https://faceofindia.org/wp-content/uploads/2025/10/Digital-Personal-Loans-Jun-2025.pdf**

↑

26. CRIF, How India Lends, June 2025, **https://www.crifhighmark.com/media/5051/how-india-lends-digital.pdf**

↑

27. FACE, Digital Personal Loans, June 2025 **https://faceofindia.org/wp-content/uploads/2025/10/Digital-Personal-Loans-Jun-2025.pdf**

↑

28. Boliya et al, Exploring User Adoption of Digital Lending Platforms in NBFCs: Insights from the Retail Loan Segment. (2025). *Journal of International Financial Trends*, *1*(1), 18-28. **https://doi.org/10.55578/jift.2504.002**

↑

29. FACE, Digital Personal Loans, June 2025, **https://faceofindia.org/wp-content/uploads/2025/10/Digital-Personal-Loans-Jun-2025.pdf**

↑

30. Yadav, The Rise of Digital Credit: An Analysis of Fintech NBFCs in India's Personal Credit Market, International Research Journal of Modernization in Engineering Technology and Science, April 2025 **https://www.researchgate.net/profile/Sudhir-Yadav-23/publication/391480996_THE_RISE_OF_DIGITAL_CREDIT_AN_ANALYSIS_OF_FINTECH_NBFCS_IN_INDIA'S_PERSONAL_CREDIT_MARKET/links/6819c914ded4331557428760/THE-RISE-OF-DIGITAL-CREDIT-AN-ANALYSIS-OF-FINTECH-NBFCS-IN-INDIAS-PERSONAL-CREDIT-MARKET.pdf**

↑

31. Anand, Behind RBI's move to cap FLDG at 5% and why it's not good news for fintechs, June 2023, Money control, **https://www.moneycontrol.com/news/business/behind-rbis-move-to-cap-fldg-at-5-and-why-its-not-good-news-for-fintechs-10804571.html**

↑

32. FACE, Digital Personal Loans, June 2025 **https://faceofindia.org/wp-content/uploads/2025/10/Digital-Personal-Loans-Jun-2025.pdf**

↑

33. Sengupta, Digital lending volumes grows by 131% in FY23 led by small-ticket loans: Report, June 2023, Economic Times, **https://bfsi.economictimes.indiatimes.com/news/fintech/digital-lending-volumes-grows-by-131-in-fy23-led-by-small-ticket-loans-report/100933860**

↑

34. Kayastha, Fintechs in talks with RBI for easier provisioning for default loss guarantee-backed loans, June 2025, Livemint, **https://www.livemint.com/industry/banking/fintechs-rbi-digital-lending-lenders-default-loss-guarantee-nbfc-loan-provisioning-paytm-phonepe-mobikwik-11748776028482.html**

↑

35. Mehta, RBI Loss Guarantee Diktat to Trip Up Fintechs' Run, May 2025, Economic Times, **https://cfo.economictimes.indiatimes.com/news/policy/rbis-directive-on-default-loss-guarantees-a-blow-to-fintech-lending/121433500**

↑

36. Mehta, RBI tightens default loss guarantee rule; NBFCs to exclude cover on fintech-sourced loans, May 2025, Economic Times, **https://economictimes.indiatimes.com/industry/banking/finance/rbi-tightens-default-loss-guarantee-rule-nbfcs-to-exclude-cover-on-fintech-sourced-loans/articleshow/121420936.cms**

↑

37. United Fintech Forum, Quarterly Newsletter, June 2025, **https://unifiedfintech.in/wp-content/uploads/2025/08/UFF-Quarterly-NL-Vol.-9.pdf**

↑

38. Anand, Behind RBI's move to cap FLDG at 5% and why it's not good news for fintechs, June 2023, Moneycontrol**, https://www.moneycontrol.com/news/business/behind-rbis-move-to-cap-fldg-at-5-and-why-its-not-good-news-for-fintechs-10804571.html**

↑

39. The operations cost differs across options owing to different DLG covers available. Since minimum DLG cover is available in option 2, the lender will have to put in maximum efforts to identify creditworthy borrowers, and also maintain necessary provisions, to deal with losses. The operations cost is lowest in option 1 as it does not impose any limits on DLG cover.

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40. The NPAs are different across options owing to different lending strategies adopted by lenders across options. When higher DLG cover is available, lenders take more risk, and thus NPA is also likely to be higher. Similarly, low DLG cover may lead to low NPA.

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41. The operations cost differs across options owing to different DLG covers available. Since minimum DLG cover is available in option 2, the lender will have to put in maximum efforts to identify creditworthy borrowers, and also maintain necessary provisions, to deal with losses. The operations cost is lowest in option 1 as it does not impose any limits on DLG cover.

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42. The NPAs are different across options owing to different lending strategies adopted by lenders across options. When higher DLG cover is available, lenders take more risk, and thus NPA is also likely to be higher. Similarly, low DLG cover may lead to low NPA.

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43. The operations cost differs across options owing to different DLG covers available. Since minimum DLG cover is available in option 2, the lender will have to put in maximum efforts to identify creditworthy borrowers, and also maintain necessary provisions, to deal with losses. The operations cost is lowest in option 1 as it does not impose any limits on DLG cover.

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44. The NPAs are different across options owing to different lending strategies adopted by lenders across options. When higher DLG cover is available, lenders take more risk, and thus NPA is also likely to be higher. Similarly, low DLG cover may lead to low NPA.

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45. The operations cost differs across options owing to different DLG covers available. Since minimum DLG cover is available in option 2, the lender will have to put in maximum efforts to identify

creditworthy borrowers, and also maintain necessary provisions, to deal with losses. The operations cost is lowest in option 1 as it does not impose any limits on DLG cover.

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46. The NPAs are different across options owing to different lending strategies adopted by lenders across options. When higher DLG cover is available, lenders take more risk, and thus NPA is also likely to be higher. Similarly, low DLG cover may lead to low NPA.

↑

47. Bhakta, Digital lending sector sees slowdown in growth, higher bad loans as regulator increases scrutiny, December 2024, Economic Times, **https://economictimes.indiatimes.com/tech/technology/digital-lending-sector-sees-slowdown-in-growth-higher-bad-loans-as-regulator-increases-scrutiny/articleshow/115981871.cms?from=mdr**

↑

48. Anand, Behind RBI's move to cap FLDG at 5% and why it's not good news for fintechs, June 2023, Moneycontrol**, https://www.moneycontrol.com/news/business/behind-rbis-move-to-cap-fldg-at-5-and-why-its-not-good-news-for-fintechs-10804571.html**

↑

49. Anand, Behind RBI's move to cap FLDG at 5% and why it's not good news for fintechs, June 2023, Moneycontrol**, https://www.moneycontrol.com/news/business/behind-rbis-move-to-cap-fldg-at-5-and-why-its-not-good-news-for-fintechs-10804571.html**

↑

50. Anand, Behind RBI's move to cap FLDG at 5% and why it's not good news for fintechs, June 2023, Moneycontrol**, https://www.moneycontrol.com/news/business/behind-rbis-move-to-cap-fldg-at-5-and-why-its-not-good-news-for-fintechs-10804571.html**

↑

51. Mehta, RBI Loss Guarantee Diktat to Trip Up Fintechs' Run, May 2025, Economic Times, **https://cfo.economictimes.indiatimes.com/news/policy/rbis-directive-on-default-loss-guarantees-a-blow-to-fintech-lending/121433500**

↑

52. Chherawala, Tasneem and Alka Vaidya (2023), "Digital Lending and Default Loss Guarantee". NIBM Working Paper Series: Policy Research Paper WP 30/August, **https://www.nibmindia.org/static/working_paper/NIBM_WP30_TCAV_5WKNjCc.pdf**

↑

53. Anand, Behind RBI's move to cap FLDG at 5% and why it's not good news for fintechs, June 2023, Moneycontrol**, https://www.moneycontrol.com/news/business/behind-rbis-move-to-cap-fldg-at-5-and-why-its-not-good-news-for-fintechs-10804571.html**

↑

54. FACE, Digital Personal Loans, June 2025 **https://faceofindia.org/wp-content/uploads/2025/10/Digital-Personal-Loans-Jun-2025.pdf**

↑

55. SME loans likely to become costlier as NBFCs face higher provisions under digital lending norms, May 2025,

    https://bfsi.economictimes.indiatimes.com/articles/rbis-new-digital-lending-norms-to-increase-msme-loan-costs/121477427

↑

56. FACE, Digital Personal Loans, June 2025, **https://faceofindia.org/wp-content/uploads/2025/10/Digital-Personal-Loans-Jun-2025.pdf**

↑

57. TransUnion CIBIL, FinTech Compass April 2025, **https://www.transunioncibil.com/content/dam/transunion-cibil/corporate/documents/fintech-compass-report-april-2025-updated.pdf**

↑

58. 18% of MSMEs use digital lending platforms, 90% accept online payments: SIDBI report, May 2025, Economic Times, **https://economictimes.indiatimes.com/small-biz/sme-sector/18-of-msmes-use-digital-lending-platforms-90-accept-online-payments-sidbi-report/articleshow/121139728.cms**

↑

59. Nair, Digital lending start-ups see funding drop 21% to $324.8 mn in 2025, September 2025, Financial Express, **https://www.financialexpress.com/business/brandwagon-digital-lending-start-ups-see-funding-drop-21-to-324-8-mn-in-2025-3989959/**

↑

60. SME loans likely to become costlier as NBFCs face higher provisions under digital lending norms, May 2025 **https://bfsi.economictimes.indiatimes.com/articles/rbis-new-digital-lending-norms-to-increase-msme-loan-costs/121477427**

↑

61. Anand, Behind RBI's move to cap FLDG at 5% and why it’s not good news for fintechs, June 2023, Moneycontrol, **https://www.moneycontrol.com/news/business/behind-rbis-move-to-cap-fldg-at-5-and-why-its-not-good-news-for-fintechs-10804571.html**

↑

62. FACE, Digital Personal Loans, June 2025, **https://faceofindia.org/wp-content/uploads/2025/10/Digital-Personal-Loans-Jun-2025.pdf**

↑

63. Salman, RBI's clampdown reins in fintech lending growth, yet delinquencies remain stubbornly high, Livemint, October 2025, **https://www.livemint.com/industry/banking/rbi-clampdown-reins-in-fintech-lending-growth-yet-delinquencies-remain-stubbornly-high-11759830279380.html**

↑

64. Chherawala, Tasneem and Alka Vaidya (2023), "Digital Lending and Default Loss Guarantee". NIBM Working Paper Series: Policy Research Paper WP 30/August, **https://www.nibmindia.org/static/working_paper/NIBM_WP30_TCAV.pdf**

↑

65. Lee, Estimating the benefits of interventions that affect consumer behaviour, FCA, July 2018, **https://www.fca.org.uk/publication/occasional-papers/occasional-paper-39.pdf**

↑

66. RBI's Default Loss Guarantee Guidelines For Digital Lending – Promoting Innovation, June 2023, Financial Express, **https://www.financialexpress.com/money/rbis-default-loss-guarantee-guidelines-for-digital-lending-nbsp-promoting-innovation-3140512/**

↑

67. LocalCircles, Despite Government efforts, most online platforms in India refrain from resolving their dark patterns, Sep 2025 **https://www.localcircles.com/a/press/page/ecommerce-dark-patterns-survey**. Also, ASCI et al, Study of Deceptive Patterns in top Indian apps, August 2024, **https://www.ascionline.in/wp-content/uploads/2024/08/Consious-Patterns-Report-Summary.pdf**

↑

68. Corpzo, RBI Cracks Down on Default Loss Guarantees with Stricter Rules, June 2025, **https://www.corpzo.com/rbi-cracks-down-on-default-loss-guarantees-with-stricter-rules**

↑

69. Dethe, Will digital lending slow down after RBI's filters?, May 2025, Economic Times, **https://bfsi.economictimes.indiatimes.com/news/editors-view/rbis-new-guidelines-the-future-of-digital-lending-under-threat/121502041**

↑

70. CRIF and UFF, Finsight, September 2025, **https://unifiedfintech.in/wp-content/uploads/2025/10/UFF-x-CRIF-FINSIGHT-2025.pdf**

↑

71. RBI issues guidelines on default loss guarantee on digital lending, June 2023, Times of India, **https://timesofindia.indiatimes.com/business/india-business/rbi-issues-guidelines-on-default-loss-guarantee-in-digital-lending/articleshow/100856183.cms** and Compliance Calendar, RBIs big

announcement on default loss guarantees: Strategic Shift for NBFC – FinTech Partnerships, 2025, **https://www.compliancecalendar.in/learn/rbi-big-announcement-on-default-loss-guarantees**

↑

72. Reserve Bank cancels Certificate of Registration of Polytex India Ltd due to irregular lending practices, Jul 2024, **https://rbi.org.in/scripts/FS_PressRelease.aspx?prid=58247**, Reserve Bank cancels Certificate of Registration of Datta Finance and Trading Private Limited due to irregular lending practices, September 2025, **https://rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=61259**, and Reserve Bank cancels Certificate of Registration of M/s N.Y. Leasing Private Limited due to irregular lending practices, May 2025, **https://rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=60544**

↑

73. Reserve Bank cancels Certificate of Registration of Star Finserv India Limited due to irregular lending practices, July 2024, **https://rbi.org.in/scripts/FS_PressRelease.aspx?prid=58248**

↑

74. Reserve Bank cancels Certificate of Registration (CoR) of Zavron Finance Private Limited due to irregular lending practices, December 2024, **https://rbi.org.in/scripts/FS_PressRelease.aspx?prid=59225**

↑

75. Reserve Bank cancels Certificate of Registration of M/s Acemoney (India) Limited due to irregular lending practices, April 2024, **https://rbi.org.in/scripts/FS_PressRelease.aspx?prid=57801**

↑

76. Lok Sabha unstarred question 122, Digital Lending Platforms, July 2022, **https://sansad.in/getFile/loksabhaquestions/annex/179/AU122.pdf?source=pqals&utm**

↑

77. Rajya Sabha uncorrected debates, 16 December 2022, **https://cms.rajyasabha.nic.in/UploadedFiles/Debates/VerbatimDebates/258/16122022/Full%20Day/16.12.2022%20%28RE-REVISED%20FULL%20DAY%29.pdf** indicates that complaints against digital lending providers between 1 Apr 2021 – 30 Nov 2022 were 12,903. Thus, complaints during 1 Apr 2022 – 30 Nov 2022 are estimated to be 5090 (12903 – 7813)

↑

78. Annual growth rate estimated to be negative 2.28 percent

↑

79. CRIF and UFF, Finsight, September 2025, **https://unifiedfintech.in/wp-content/uploads/2025/10/UFF-x-CRIF-FINSIGHT-2025.pdf**

↑

80. The reason to assume reduction in default rates across options is linked with risk-taking behaviour by digital lenders across options. In option 2, wherein the lender takes least risk (owing to minimal DLG cover available), and invests in due diligence and credit worthiness assessment, the default rates are likely to be minimal.

↑

81. CRIF and UFF, Finsight, September 2025, **https://unifiedfintech.in/wp-content/uploads/2025/10/UFF-x-CRIF-FINSIGHT-2025.pdf** indicates "This study analyzes data from 120+ NBFCs, primarily members of the Unified Fintech Forum (UFF) and the Fintech Association for Consumer Empowerment (FACE)-collectively referred to as 'NBFC Fintechs' in this report, who prioritize digital lending as a core strategy."

↑

82. FCA Statement of Policy on Cost Benefit Analyses, July 2024, **https://www.fca.org.uk/publication/corporate/statement-policy-cba.pdf** FCA UK applies discount rate of 3.5% to determine present value of costs and benefits expected in future years.

↑

83. Discounting Costs and Benefits in Economic Analysis of World Bank Projects, 2016, **https://documents1.worldbank.org/curated/en/099610503022315638/pdf/IDU02e978a2a023f704c140bb1b082595e67e593.pdf** indicates, " Many authors favoring the descriptive approach generally suggest discount rates for developing countries in the 8-12% range."

↑

84. The reason to assume reduction in default rates across options is linked with risk-taking behaviour by digital lenders across options. In option 2, wherein the lender takes least risk (owing to minimal DLG cover available), and invests in due diligence and credit worthiness assessment, the default rates are likely to be minimal.

↑

85. Australia Prudential Regulation Authority, Regulation Impact Statements, **https://www.apra.gov.au/regulation-impact-statements**, Bank of England and Financial Services Bill Impact Assessment Statement, January 2016, **https://assets.publishing.service.gov.uk/media/5a818ce7ed915d74e33fed19/BoE_Bill_Impact_Assessment_13_Jan_2016.pdf**

↑

Annexure II. Shortening Securities Settlement Cycles

Case Study on SEBI Interventions for Shortening Settlement Cycles in Securities Markets

1. Why Do Securities Market Regulators Intervene to Shorten the Settlement Cycle?

1.1 Is There a Market Failure in Existing Settlement Cycles?

In market economies, regulatory intervention can ideally be justified by the existence of a market failure. However, in practice, regulators intervene in markets for a host of reasons. These may or may relate to market failures. Other reasons for regulatory intervention include increased efficiencies, reduced costs, policy direction, market development, among others.[1]

The standard taxonomy of market failures identifies negative externalities, information asymmetries, and market power as causes for market failure.

Negative externalities arise when the actions of market participants impose costs on others that are not reflected in market prices. For example, in financial markets, the failure of a major intermediary may generate systemic risks that affect market participants beyond those directly involved in the transaction.

Information asymmetries occur when one party possesses materially better information than another, potentially leading to adverse selection, moral hazard, or inefficient decision-making. Securities markets, for instance, are particularly susceptible to information asymmetries between issuers, intermediaries, and investors, which can undermine investor confidence and market integrity.

Market power may arise where a firm or a small group of firms possesses sufficient influence to restrict competition, raise prices, reduce quality, or impede innovation. In financial market infrastructure, network effects and economies of scale may result in highly concentrated markets, creating the risk that dominant providers could exercise market power to the detriment of market efficiency and user welfare.

Settlement cycles, whether T+2 or T+1, do not constitute classic market failures in the strict economic sense. They are not characterised by the presence of monopoly power, severe information asymmetries, or catastrophic externalities. Trades are executed voluntarily, clearing corporations operate as regulated entities, and settlement systems function reliably, with very low failure rates.

1.2 Incremental Efficiency Gains and Addressing Coordination Failures

As indicated earlier, even in the absence of a classic market failure, regulators may choose to intervene. Reasons could include achieving incremental efficiency gains, i.e. improvements in market functioning that are theoretically available but that the market fails to capture voluntarily.

Shortening of settlement cycles can free up margins, reduce risk exposure duration, and accelerate receipt of securities and funds. These may be considered efficiency gains.

Addressing coordination failure can be another justification for regulatory intervention. This is a situation in which all participants would be better off collectively under the reformed scenario, but none has sufficient individual incentive to move first, because the benefits of the reform are only realised if all participants adopt it simultaneously.[2]

In the case of a settlement cycle, a broker who invests in T+1 systems when the rest of the market remains on T+2 cannot realise the benefits of T+1 settlement, because their counterparties, clearing members, and custodians have not made equivalent investments. The return on the individual investment is contingent on the simultaneous investment of all other participants.

These are, perhaps, legitimate basis for intervention, particularly where the efficiency gains are demonstrably large and the costs of achieving them are manageable.

1.3 Regulatory Rationales for Shortening Settlement Cycle

In the past half a decade, several regulators have intervened to shorten settlement cycles. These include India, the United States (US), the European Union (EU) and the United Kingdom (UK). While India transitioned from T+2 to T+1 cycle in 2023, the US completed this shift in 2024. The EU and the UK are still in the process of moving to T+1 and are likely to complete the shift by 2027. India has also begun preparations for T+0 or same day settlement cycle.

In India, the Securities and Exchange Board of India (SEBI) first proposed reducing the settlement cycle to T+1 in 2013. Its rationale was framed primarily as a risk management measure. It indicated that the overall risk in the system depends upon the duration of the settlement cycle and justified reducing settlement time as a means to streamline the risk management framework of Indian stock exchanges.

SEBI's formal introduction of an optional T+1 settlement, effective January 2022, identified three primary rationales for the shift to the T+1 settlement cycle: reduction in the number of outstanding unsettled trades of CCP; reduction in default risk in pay-ins and pay-outs; and improvement in capital efficiency through lower margin requirements.[3]

However, while outlining its rationale for moving to T+0 settlement in May 2024, SEBI added a competitive rationale to the risk reduction argument. It pointed out that increasingly, investors may show a preference for asset classes that claim to offer reliability, low-cost, and high speed of transactions. SEBI further noted that there was a risk of losing liquidity, particularly of retail investors, to less regulated markets and asset classes. To that extent, reducing settlement times (from T+1 to T+0) and hence increasing operational efficiency can further draw in and retain investors in the securities markets. This rationale goes beyond risk management and market efficiency, and may not necessarily be completely justifiable, particularly when costs of shifting to T+0 outweigh the envisaged benefits. No other jurisdiction has attempted a move to the T+0 cycle.[4]

The United States Securities and Exchange Commission (SEC) issued a cost-benefit analysis for shortening the settlement cycle from T+2 to T+1. It identified three primary objectives: investor protection; risk reduction; and operational and capital efficiency. On investor protection, the SEC noted that shorter cycles reduce the duration of the settlement risk borne by investors who have committed to a trade but not yet received their securities or funds. On risk reduction, the SEC cited two specific precipitating events: the extreme market volatility of March 2020 (COVID-19) and the meme stock events of January 2021, during which the Clearing Corporations margin calls spiked dramatically, highlighting vulnerabilities in the securities market. On operational and capital efficiency, the SEC noted that investors will receive funds sooner for reinvestment and productive use.[5]

The EU's approach to settlement cycle shortening has been shaped by a different primary concern: the cost of misalignment with jurisdictions that have already moved to T+1. With the United States moving to T+1 in May 2024 and the EU remaining on T+2, EU-based investors and intermediaries trading US securities faced a structural settlement mismatch, creating operational complexity and additional costs. The European Securities and Markets Authority (ESMA) also highlighted benefits of risk reduction, margin savings and the reduction of costs linked to the misalignment with other major jurisdictions globally.

ESMA also explicitly acknowledged the coordination failure dimension. It noted that although settling on T+1 was already technically and legally possible, a regulatory mandate was preferred over a voluntary framework, specifically to ensure coordinated transition and legal certainty.[6]

The United Kingdom' Accelerated Settlement Taskforce (AST), with respect to the shift to the T+1 settlement cycle, justified intervention for the reasons of risk reduction, efficiency gains, and competitive alignment. It also acknowledged the coordination failure argument, and noted that one will invest to upgrade their technology to enable T+1 unless the whole market does so at the same time.[7]

2. What are the Costs of Shortening the Settlement Cycle?

2.1 The Nature and Distribution of Costs

The reduction of the settlement cycle imposes a range of costs on market participants that are immediate, concrete, and unevenly distributed. The costs are borne upfront and fall disproportionately on specific categories of intermediaries, particularly brokers, custodians, and clearing members.

These costs fall broadly into five categories: (i) technology, systems, and infrastructure upgrade costs; (ii) operational and staffing costs; (iii) legal and contractual costs; (iv) liquidity arrangement and funding costs; and (v) foreign exchange management costs. In addition, there are indirect costs arising from disruptions to securities lending markets and reduced netting efficiency.

2.2 Technology, Systems, and Infrastructure Upgrade Costs

The compression of the settlement cycle requires that processes previously completed over two days, including trade matching, allocation, confirmation, affirmation, margin calculation, funds transfer, and securities transfer, be compressed into one day. This compression cannot be achieved through incremental process improvement alone; it requires fundamental re-engineering of back-office systems, order management systems, risk management engines, and connectivity interfaces with market infrastructure institutions.

In the US, the transition to T+1 cycle was described as "a transformational change for the securities industry" requiring a "comprehensive approach to identifying the implementation activities, timelines, dependencies, and risk impacts" across all participant categories.[8]

The investments required in technology, systems and infrastructure upgrade by different market participants include:[9]

Brokers: The **US SEC** noted that investments from brokers for transition to T+1 settlement include updates to systems for trade reporting, confirmation, allocation, and affirmation; straight-through processing infrastructure to meet the end-of-trade-date affirmation deadline; updates to service-level agreements with third-party providers of trade clearance and settlement, income processing, and corporate action processing; and enhanced risk management and surveillance systems. For many brokers, particularly smaller ones, these changes require updates to third-party system providers, which adds dependency risk and coordination complexity.

Custodians and clearing corporations: Custodians are required to invest in automated trade confirmation workflows capable of meeting end-of-trade-date deadlines; enhanced connectivity with central counterparties; and systems to process same-day foreign exchange-linked settlement funding.

Clearing corporations require upgrades to their core infrastructure to handle increased intraday processing demands.

The **US SEC** estimated total one-time and ongoing compliance costs for the US industry of between approximately USD 5.51 billion, On each depository and clearing corporation, the one time compliance cost was estimated at USD 16.1 million over six quarters. For institutional investors, initial expenditure of USD 4.29 million per entity was estimated over six quarters. For brokers of institutional investors, initial compliance cost was estimated at USD 8.74 million per broker, over six quarters. For brokers of retail investors, additional investment of USD 38.2 million was estimated for customer education, training and service delivery, with respect to transition to T+1 cycle.[10]

The **EU ESMA** also acknowledged that IT and automation investment constitutes the dominant cost category for EU participants, for shortening the settlement cycle.[11]

In India, for the transition from T+2 to T+1 settlement cycle, while **SEBI** has not published formal cost estimates, it adopted a phased rollout approach, beginning with the bottom 100 securities by market capitalisation in February 2022 and adding tranches monthly until January 2023. Presumably, this approach allowed incremental system upgrades rather than a single large capital investment by the industry. The NSE Clearing Limited noted that transition from T+1 to T+0 settlement cycle required changes to more than 180 processes.[12]

For transition from T+1 to T+0 settlement cycle, SEBI identified system and process changes at three levels: market infrastructure institutions (exchange, clearing corporation, and depository) level; broker/trading member level; and custodian level. Specifically, upon its review of the pilot of the T+0 settlement cycle, SEBI noted that orders were being manually processed and no front-end and back-end systems were put in place by the trading members for investors to participate seamlessly in this segment. This is indicative of the investments required by market participants for transitioning to the T+0 systems.[13]

For transition to T+0 cycle, SEBI also designated key systemically important brokers as Qualified Stock Brokers (QSBs) with enhanced obligation, and required these entities to maintain "scalable infrastructure and appropriate technical capacity" for transition to T+0 cycle. However, the readiness deadline for these QSBs has been repeatedly extended from May to November 2025, and subsequently to an indefinite date. This also perhaps reflects the magnitude of systems investment required for the T+0 settlement cycle and the difficulty of executing it without a commercially viable business case for market participants.[14]

2.3 Operational and Staffing Costs

Shortening the settlement cycle requires that post-trade processes previously executed over a normal business day be compressed into a shorter window. often requiring operations teams to work outside normal business hours.

The US SEC estimated that to manage transition to T+1 cycle, each depository and clearing corporation would require a dedicated staff of 10 operations specialists, 10 programmers, and one senior operations manager over six quarters. Similar estimates were made for each entity type

involved in the transitions. For instance, it was estimated that brokers of retail investors would require trainers in addition to these positions, as they are expected to build capacity and service consumer queries with respect to T+1 cycle.[15]

In India, under the T+1 system, custodians must confirm institutional trades by 1:00 PM on T+1 day. For a custodian serving European-based FPIs, this deadline falls in the early morning in European time zones, requiring dedicated early-shift staffing or automation of the confirmation process. Similarly, the compression of fund pay-in deadlines (9:00 AM on T+1 in India; end-of-trade-day in the US) requires that overnight funding and reconciliation processes be completed before markets open, placing additional demands on operations teams of brokers. In fact, reportedly, Citi had to introduce a working shift at 0400hrs to support the early morning confirmation deadlines.[16]

2.4 Error Remediation Under Compressed Timelines

A shorter settlement cycle reduces the time available to identify and correct trade errors before the settlement deadline. Under the T+2 cycle, a trade error identified on the trade date could be resolved on T+1 without affecting settlement. Under T+1, the same error must be resolved on the trade date itself. Under T+0, there is no buffer at all, increasing the possibility of errors and failures.

The cost of increased settlement failures, including buy-in costs, penalties, and reputational consequences, represents an ongoing operational cost that increases as the settlement cycle is compressed.

However, SEBI has recorded that the custodian defect rate, the proportion of custodian-confirmed trades that failed, fell from 0.82 per cent in January 2023 (the month of full T+1 implementation) to 0.41 per cent by October 2023, a reduction of approximately 50 per cent.[17]

2.5 Liquidity Arrangement Costs

A shorter settlement cycle reduces the time available for participants to arrange the funds required for the cash leg of the settlement. While this is partially offset by the reduction in margin requirements, the net effect on intraday liquidity demands is not uniform across all participant types[18]:

Clearing members with large institutional books must fund net settlement obligations earlier in the day, requiring access to intraday credit facilities. For clearing members whose net settlement obligations are large relative to their own capital, the earlier funding deadline may require maintaining larger standing credit lines, increasing the cost of these facilities.

Smaller brokers face a disproportionate increase in intraday liquidity pressure because they typically have less access to cheap intraday credit than larger, bank-affiliated clearing members. This creates a competitive disadvantage for smaller brokers relative to larger ones, potentially increasing market concentration over time.

2.6 Foreign Exchange Management Costs

The foreign exchange dimension of settlement cycle shortening arises from the structural mismatch between the settlement cycle of equity securities and the settlement cycle of foreign exchange transactions.

The Continuous Linked Settlement (CLS) is the primary multilateral settlement mechanism foreign exchange transactions. It operates on a T+2 settlement basis for most major currency pairs.[19] When equity securities move to T+1 or same-day settlement, a structural mismatch arises: the cash leg of the securities trade must be funded sooner, but the corresponding foreign exchange transaction settles on T+2. This means that investors cannot use CLS to fund their securities purchases through a straightforward foreign exchange transaction settled on the same basis as the securities.

Foreign investors facing foreign exchange mismatch under shorter settlement cycle may need to resort to alternative costly options such as:[20]

Pre-funding: The investor maintains a standing pool of the settlement currency (e.g., Indian Rupees or US Dollars) in its custodian account in the settlement market, funded in advance of trading. This eliminates the foreign timing problem but creates an opportunity cost, the pre-funded amount earns returns below what the same capital could earn if managed actively.

The cost of pre-funding has two components: the direct cost of maintaining idle liquidity buffers in the settlement market (earning below-market returns), and the opportunity cost of capital that cannot be deployed elsewhere during the pre-funding period. However, such pre-funding costs may ultimately be passed down to the fund and the clients they service.

Intraday overdraft: Where the investor cannot source funding in time for the securities settlement deadline, its custodian may extend a short-term intraday credit to bridge the gap. In such a scenario, foreign investors risk facing high overdraft charges to cover the funding component.

2.7 Testing and Change Management Costs

The transition to a shorter settlement cycle requires significant investment in testing, both internal system testing and industry-wide connectivity testing. The US SEC has pointed out that its T+1 transition involved more than 20 separate industry testing regimes coordinated by DTCC over a period of nearly two years, with hundreds of participating firms. Training costs for front-, middle-, and back-office staff are also considerable.[21]

In comparison, in India, SEBI allowed phased transition over a period of 13 months. There were concerns that market participants were not ready for transition.[22]

2.8 Legal and Contractual Costs

A shorter settlement cycle requires amendments to legal agreements governing the relationship between brokers and their clients, and between custodians and their institutional clients. These

agreements typically specify settlement timelines, default remedies, and the mechanics of the allocation and confirmation process, obligations and indemnities by parties, and dispute resolution clauses.

For brokers with large institutional client bases, negotiating and executing individual written agreements would require obtaining services of legal experts, which represents a material legal cost. [23]

3. What are the Benefits of Shortening the Settlement Cycle?

3.1 The Nature and Distribution of Benefits

The benefits of shortening the settlement cycle are largely systemic and diffuse. They accrue across the market as a whole rather than to specific identified entities. The incidence of benefits differs markedly from the incidence of costs: the parties that benefit most from shorter settlement cycles are, in many cases, not the same parties that bear the largest transition costs.

The principal benefit categories are: early receipt of funds and securities by investors; reduction in counterparty, credit, market, and liquidity risk; early release of margin capital; improvement in market liquidity and depth; systemic risk reduction for clearing corporations and the broader financial system; reduction in settlement failures; and technology modernisation as a collateral benefit.

3.2 Early Receipt of Funds and Securities

The most immediately visible benefit of a shorter settlement cycle is the acceleration of the moment at which investors receive the proceeds of their transactions, either funds (for sellers) or securities (for buyers). This benefit accrues directly and entirely to investors.

Retail Investors: For retail investors selling securities, a shorter settlement cycle means faster access to their money. Under the T+2 cycle, a retail investor selling shares on a Monday would receive the proceeds on Wednesday. In the T+1 cycle, they receive proceeds on Tuesday. Under T+0, they receive them on the same day.

This faster access to funds has a direct economic value. Investors can reinvest proceeds sooner, reducing the opportunity cost of the inter-settlement period. For investors with limited capital, particularly retail investors who rely on sale proceeds to fund new purchases, this benefit is material, it reduces the need to borrow funds or maintain idle cash balances as a funding buffer.[24]

SEBI identified a specific retail investor dimension in its analysis of T+0 in India. Its 2024 study found that approximately 94 per cent of delivery-based equity trades with a value below ₹1 lakh are

conducted with advance deposits of both funds and securities, meaning the vast majority of retail investors effectively pre-fund their trades. Under T+1, these investors pay on trade date but receive securities only the next day, a one-day asymmetry during which their capital is committed but their securities are not yet in hand. T+0 eliminates this asymmetry entirely, simultaneously crediting securities and funds on trade date.[25]

For buyers, a shorter settlement cycle means faster receipt of purchased securities, allowing them to exercise shareholder rights (voting, receiving dividends) earlier, and enabling faster onward transfer or use of the securities as collateral.

Institutional Investors: For institutional investors, such as mutual funds, pension funds, and insurance companies, faster receipt of settlement proceeds improves portfolio management efficiency. Fund managers can deploy sale proceeds into new investments without waiting for the settlement cycle to complete, reducing cash drag (the return loss from holding uninvested cash). For mutual funds facing large redemptions, faster receipt of securities sale proceeds directly reduces the risk of a liquidity shortfall between paying redeeming investors and receiving settlement funds from selling portfolio securities.

Based on the average daily delivery-based trade value of approximately ₹28,215 crore across NSE Clearing Limited (NSE Clearing) and Indian Clearing Corporation Limited (BSE Clearing), and applying the prevailing ten-year government securities yield of 6.8 per cent as the risk-free rate of return, SEBI estimated the annual benefit to investors from same-day receipt of settlement proceeds at approximately ₹1,920 crore, representing the interest income that investors would earn on funds currently held in transit between T and T+1, if those funds were instead in their hands from trade date.[26]

3.3 Reduction in Counterparty and Settlement Risk

Shortening the settlement period directly and proportionally reduces the period of exposure to risk that the counterparty to a trade will default before settlement is complete. This benefit accrues, in the first instance, to the clearing corporation, which bears the centralised counterparty risk through novation, and, by extension, to all clearing members and investors who would be affected if the CCP's default management resources were depleted.

The **SEBI** has estimated that moving from T+2 to T+1 would reduce the number of outstanding unsettled trades at any given point by approximately 50 per cent, and correspondingly reduce the clearing corporation's unsettled exposure by the same magnitude. This is a direct, proportional reduction in the duration of counterparty risk.[27] The NSE Clearing Limited confirmed that there was a reduction in the unsettled exposure of the clearing corporation by 50 per cent.[28]

The **SEC** has also noted that shortened standard settlement cycle will reduce certain risks inherent in the clearance and settlement process for all clearing agencies, such as a central counterparty's credit, market, and liquidity risk exposure to its members, because there will be fewer unsettled trades and a reduced time period of exposure to such trades. In its analysis, the aggregate notional value of unsettled transactions in the US was estimated to fall from USD 88 billion to USD 44 billion, due to shift from T+2 to T+1 settlement cycle.

3.4 Early Release of Margins

One of the most economically significant benefits of a shorter settlement cycle is the reduction in the quantum of margin capital that must be held by the clearing corporation against settlement risk, and the corresponding release of this capital back to clearing members and their clients.

This benefit accrues in the first instance to clearing members (who post the margins) and, through them, to investors (who ultimately fund the margin requirements through their brokers).

The SEBI November 2024 Board Paper documented that the T+2-to-T+1 transition in India resulted in a reduction of average daily margins at NCL from approximately ₹12,000 crore to approximately ₹4,000 crore, a reduction of ₹8,000 crore per day. Similarly, NSE estimated that shift to T+1 settlement cycle has freed up blocked margins at market level, thereby freeing up investor capital and potentially accruing an annual benefit of nearly INR 350 crore. It also estimated that transition to T+0 settlement cycle could enable same-day margin free up for investors, potentially generating annual benefits of approximately INR 180 crore for investors.[29]

In the US as well, it was projected that moving from T+2 to T+1 could reduce aggregate volatility margin component by approximately 41 per cent.[30] The aggregate estimated margin saving across EU CCPs from CCP simulations was approximately EUR 2.7 billion.[31]

3.5 Improvement in Market Liquidity and Depth

Another benefit of shorter settlement cycles is the improvement in market liquidity, particularly in less-liquid securities. This benefit accrues to market participants through tighter bid-ask spreads, improved price discovery, and greater depth of the order book.

The link between settlement cycles and market liquidity operates through the funding constraints of market makers and liquidity providers. When funding is tight, intermediaries reduce their market-making activity, bid-ask spreads widen, and market depth declines. Shorter settlement cycles, by reducing margin requirements, ease the funding constraints of market makers, enabling them to provide more liquidity at finer spreads.[32]

Sahoo et al (2024), using this quasi-experimental structure, find that shorter settlement cycle (shift from T+2 to T+1) in India improved market liquidity, measured as a reduction in impact cost (the difference between the actual execution price and the theoretical mid-price). The improvement in liquidity is greater for stocks with smaller market capitalisation. Thus, it appears that the liquidity benefit of settlement cycle shortening is not confined to large, already-liquid securities, it extends disproportionately to smaller and mid-cap stocks that face higher funding constraints.[33]

Improved liquidity in smaller-cap stocks specifically benefits retail investors, who tend to concentrate their portfolios in a broader range of securities than institutional investors. Tighter bid-ask spreads reduce the implicit transaction cost borne by retail investors every time they buy or sell a security.

3.6 Reduction in Settlement Guarantee Fund Requirements

As the settlement cycle shrinks and margin requirements fall, the Settlement Guarantee Fund (SGF), the shared pool of resources available to the CCP to meet a member default, can be calibrated at a lower level, in light of reduced duration of risk exposure to the CCP. This reduces the capital burden on clearing members (who contribute to the SGF), freeing resources for productive use. In the US, the Clearing Fund fell by approximately USD 3 billion following the T+1 transition, a direct reduction in the collective capital immobilised in this systemic safety buffer.[34]

3.7 Reduction in Risk Weight Asset Exposure

For custodian banks that are clearing members, shorter settlement cycles reduce their risk-weighted asset exposures. Under the Basel III framework, banks must hold capital against their exposures to CCPs, with the required capital calibrated to the margin period of risk. A shorter settlement cycle reduces the margin period of risk, and with it, the risk-weighted asset exposures, and capital requirement. When India moved from T+2 to T+1 settlement cycle, the RBI acknowledged this benefit, reducing the risk weight applicable to banks' exposures to CCPs.[35]

4. Do the Benefits of Shortening the Settlement Cycle Outweigh the Costs?

4.1 The Framework for Assessment

A comparison of costs and benefits in the context of shortening of the settlement cycle requires addressing three distinct questions. First, in aggregate, do the total benefits of a shorter settlement cycle exceed the total costs? Second, how are those costs and benefits distributed across different stakeholder categories, and does the distributional pattern create structural impediments to voluntary adoption? Third, how do the answers to these questions differ between the T+2-to-T+1 transition (now implemented in several major markets) and the T+1-to-T+0 transition (currently in pilot in India and contemplated nowhere else at a systemic level)?

4.2 The T+2 to T+1 Transition: Benefits Are Likely to Exceed Costs

As indicated earlier, the US and India are key jurisdictions which have transitioned to the T+1 settlement cycle, and EU and UK are in the process of the shift. From the assessment of costs and benefits, it appears that the aggregated incremental costs of transition to T+1 settlement are likely to be outweighed by the aggregated incremental benefits.

For instance, **in the US**, the SEC estimated total one-time and ongoing compliance costs for the US industry at between approximately USD 5.5 billion. On the benefits side, the aggregate notional value

of unsettled transactions was estimated to fall from USD 88 billion to USD 44 billion. Moreover, the NSCC Clearing Fund, i.e. Settlement Guarantee Fund, fell by approximately USD 3 billion (23–25%) post-implementation, representing a permanent reduction in the capital immobilised as settlement guarantee collateral. At a cost of capital of approximately 5–6%, this freed capital has an annual economic value of approximately USD 150–185 million per year.[36]

Similarly, **for India**, average daily margins at NCL fell by ₹8,000 crore per day. Annual investor benefit from margins freed was estimated at approximately ₹350 crore.[37]

In the case of **the EU**, ESMA's CCP simulations estimated aggregate margin savings of approximately EUR 2.7 billion across EU CCPs, representing freed capital with an annual economic value (at prevailing risk-free rates) of approximately EUR 100–130 million per year on a continuing basis. Average open positions could be reduced by 47.3%, and average margins by 41.8%. On the costs, some IT investment, operational restructuring, legal documentation, and FX management costs would be incurred.[38]

In summary, most costs of transition to T+1 settlement cycle were one-time in nature, and while there are additional periodic funding and foreign exchange management costs, these are likely to be outweighed by benefits in terms of freed margins, early receipt of funds, and reduction in risk that the markets bear.

4.3 The T+1 to T+0 Transition: The Case Is Not Yet Made

In contrast to the T+2-to-T+1 transition, the cost-benefit case for moving from T+1 to T+0 is materially weaker, and the evidence that incremental benefits would exceed incremental costs has not been established as yet.

As in case of T+1 transition, moving to the T+0 settlement cycle would require investments in system upgrades, processes and technologies. Moreover, liquidity, funding, and foreign exchange management and opportunity costs are likely to increase as complete funds would be required to be made available the same day.

T+0 requires the entire settlement chain, order routing, fund blocking, risk management, clearing corporation confirmation, depository credit, and bank debit, to complete within the trading day. This is a qualitatively different architecture from T+1, which processes end-of-day net positions.

Moreover, T+0 would require a real-time fund blocking mechanism in the investor's bank account, an infrastructure element that does not currently exist in the secondary market context and requires integration across brokers, banks, and the clearing corporation.

Such increased investments may lead to diminishing returns. For instance, in case of T+0 settlement, NSE estimated incremental benefits to investors of ₹180 crore (as against incremental benefits of ₹350 crore when the cycle shifted to the T+1 system). Similarly, the margin reduction from T+1 to T+0 is likely to be smaller, as the total reduction in duration of risk is likely to be just a few hours, and not one complete day. [39]

While incremental benefits are likely to diminish from T+1 to T+0, the transition costs are unlikely to diminish proportionally. In several respects, the T+1-to-T+0 transition is operationally more demanding than the T+2-to-T+1 transition.

The evidence for T+0 being unproven comes from the market itself. SEBI itself records that in the twenty-four weeks following the March 2024 launch of optional T+0 for 25 securities, total trades in the T+0 segment numbered only 126, with zero trades in multiple individual weeks. This near-zero adoption rate, despite T+0 being available at no additional cost to investors under T+1, reveals that when given a choice, market participants strongly prefer T+1 to T+0.[40]

Moreover, there is a complete absence of international precedent for the T+0 settlement cycle. No major market outside India has moved to or is formally planning T+0 as a default settlement cycle.

4.4 The Asymmetric Distribution of Costs and Benefits

The distributional mismatch between cost-bearers and benefit-recipients of shortened settlement cycle is the central structural obstacle to settlement cycle reform. The transition costs of settlement cycle shortening fall primarily on:[41]

- **Brokers and trading members:** System upgrade, operational restructuring, compliance, and working capital costs. These are the entities most exposed to transition costs and least positioned to recover them through fee increases (given regulatory oversight of brokerage charges, and the competitive market structure).
- **Custodians:** Costs include foreign exchange management systems, extended operating hours, legal documentation, and affirmation infrastructure. These are substantially ongoing, without any immediate recovery in sight.
- **Clearing members:** Intraday liquidity management and connectivity upgrades, costs that fall on the entities providing the critical risk infrastructure for settlement.

On the other hand, the primary beneficiaries of settlement cycle shortening are:

- **Investors (primarily retail):** Early receipt of funds and securities, improved market liquidity, reduced counterparty risk. These are diffuse benefits spread across tens of millions of investors.
- **Clearing corporations:** Reduced operational risk, smaller SGF requirement, lower default management burden are the key benefits realised by CCPs.

In India, the repeated extensions of the T+0 deadline, from May 2025 to November 2025, and then indefinitely, are a direct consequence of this structural mismatch. Brokers face real, upfront costs for building T+0 systems; the benefits of their investment flow primarily to investors (through faster settlement) and to the CCP (through reduced risk). Without a mechanism to transfer some of the benefit back to the cost-bearing intermediaries, or creating a more equitable cost bearing mechanism, the typical rational commercial response is to defer T+0 indefinitely.[42]

4.5 Addressing the Asymmetry

Recognising that the distributional mismatch is not merely a fairness concern but a practical impediment to reform. Mechanisms that can be designed to align incentives between cost-bearers and benefit-recipients are set out below:

Centralised Technology Infrastructure: Rather than requiring each broker to independently build T+0 systems, SEBI could mandate that NCL and ICCL, or a SEBI-designated entity, build a standardised T+0 order routing, fund blocking, and settlement confirmation API that all brokers connect to through a standardised interface. This model, analogous to what NPCI built for UPI payments and what DTCC provided for the US T+1 transition through its central matching and affirmation platforms, socialises the technology build cost across the entities best positioned to fund it, rather than placing it on individual brokers.

Creation of a Dedicated Fund: This mechanism is analogous to India's Universal Service Obligation Fund in telecommunications, where operators who benefit from market profits fund the cost of extending infrastructure to rural areas where individual commercial returns are insufficient. In the T+0 context, CCPs that benefit from reduced settlement risk could contribute to a technology development fund from which brokers draw reimbursements for verified T+0 system costs.

Footnotes and references

1. United States Department of Agriculture, Economic Research Service, "Market Failures: When the Invisible Hand Gets Shaky" (November 2008), available at: **https://www.ers.usda.gov/amber-waves/2008/november/market-failures-when-the-invisible-hand-gets-shaky/**. Also, Longbridge Financial, "Market Failure: Economic Causes and Real Examples" (December 2025), available at: **https://longbridge.com/en/learn/market-failure-100920**

   ↑

2. Cato Institute, "How 'Market Failure' Arguments Lead to Misguided Policy" (June 2022), available at: **https://www.cato.org/policy-analysis/how-market-failure-arguments-lead-misguided-policy**

   ↑

3. SEBI Circular No. SEBI/HO/MRD/MRD-PoD-3/P/CIR/2021/702, "Introduction of T+1 Rolling Settlement on an Optional Basis" (September 7, 2021), available at: **https://www.sebi.gov.in/legal/circulars/sep-2021/introduction-of-t-1-rolling-settlement-on-an-optional-basis_52462.html**

   ↑

4. SEBI Board Paper on T+0 Settlement Cycle (November 2024), available at: **https://www.sebi.gov.in/sebi_data/meetingfiles/nov-2024/1731577464307_1.pdf**

   ↑

5. SEC Final Rule, Release No. 34-96930, "Shortening the Securities Transaction Settlement Cycle" (February 15, 2023), 88 Fed. Reg. 13872 (March 6, 2023), available at: **https://www.sec.gov/files/rules/final/2023/34-96930.pdf**, and US Securities and Exchange Commission, Federal Register, "Securities Transaction Settlement Cycle" (March 29, 2017, Release No. 34-80295), p.15570, available at: **https://www.federalregister.gov/documents/2017/03/29/2017-06037/securities-transaction-settlement-cycle** and Dechert LLP, "SEC Adopts T+1 Settlement Cycle and Related Changes" (March 2023): Available at: **https://www.dechert.com/knowledge/onpoint/2023/3/sec-adopts-t-1-settlement-cycle-and-related-changes.html**

↑

6. European Securities and Markets Authority, "T+1 Feedback Report Shows Mixed Impacts of Shortening the Settlement Cycle in the EU" (March 2024), available at: **https://www.esma.europa.eu/press-news/esma-news/t1-feedback-report-shows-mixed-impacts-shortening-settlement-cycle-eu**

↑

7. UK Accelerated Settlement Taskforce, Report (March 2024), p.6, available at: **https://assets.publishing.service.gov.uk/media/6603f31bc34a860011be762c/Accelerated_Settlement_Taskforce_Report.pdf**

↑

8. SEC, Shortening the Securities Transaction Settlement Cycle Final Rule, May 2023, **https://www.sec.gov/files/rules/final/2023/34-96930.pdf**

↑

9. SIFMA, ICI, and DTCC, "The T+1 Securities Settlement Industry Implementation Playbook" (August 1, 2022), available at: **https://www.dtcc.com/-/media/Files/PDFs/T2/T1-Industry-Implementation-Playbook.pdf**

↑

10. SEC, Shortening the Securities Transaction Settlement Cycle Final Rule, May 2023, **https://www.sec.gov/files/rules/final/2023/34-96930.pdf**

↑

11. European Commission, "Shortening the Standard Securities Settlement Cycle in the European Union: Next Steps" (October 15, 2024), available at: **https://finance.ec.europa.eu/news/shortening-standard-securities-settlement-cycle-european-union-next-steps-2024-10-15_en**

↑

12. NSE Clearing Limited, Annual Report, 2022-23

↑

13. SEBI Circular on Qualified Stock Brokers (February 6, 2023); SEBI (Stock Brokers) Regulations 2026, Regulation 19(2), available at: **https://www.sebi.gov.in/legal/regulations/jan-2026/securities-and-**

exchange-board-of-india-stock-brokers-regulations-2026_98974.html

↑

14. SEBI Board Paper on T+0 Settlement Cycle (November 2024), available at: **https://www.sebi.gov.in/sebi_data/meetingfiles/nov-2024/1731577464307_1.pdf**; SEBI Circular SEBI/HO/MRD/MRD-PoD-3/P/CIR/2021/702, "Introduction of T+1 Rolling Settlement on an Optional Basis" (September 7, 2021), available at: **https://www.sebi.gov.in/legal/circulars/sep-2021/introduction-of-t-1-rolling-settlement-on-an-optional-basis_52462.html** and SEBI Circular on further extension of timeline for QSBs (October 31, 2025), available at: **https://www.sebi.gov.in/legal/circulars/oct-2025/further-extension-of-timeline-for-mandatory-implementation-of-systems-and-processes-by-qualified-stock-brokers-qsbs-with-respect-to-t-0-settlement-cycle_97551.html**

↑

15. SEC, Shortening the Securities Transaction Settlement Cycle Final Rule, May 2023, **https://www.sec.gov/files/rules/final/2023/34-96930.pdf**

↑

16. Citigroup, Navigating India's T+0, 24 April 2025, **https://www.citigroup.com/global/insights/navigating-india-t-0**

↑

17. SEBI Board Paper on T+0 Settlement Cycle (November 2024)

↑

18. The Investment Association, "T+1 Settlement Overview: Considerations for the Buy-Side" (November 2024), available at: **https://www.theia.org/sites/default/files/2024-11/IA%20T+1%20Settlement%20Overview.pdf**

↑

19. CLS Bank International, "CLS Settlement," at **https://www.cls-group.com/products/settlement/**

↑

20. DTCC, "T+1 Accelerated Settlement — FX Considerations White Paper" (March 2024), available at: **https://www.dtcc.com/ust1/-/media/Files/PDFs/T2/Accelerating-Settlement-FX-Considerations-White%20Paper.pdf** and BNY, "Navigating the T+1 settlement transition" (2024), available at: **https://www.bny.com/corporate/global/en/t1.html**

↑

21. OCC Bulletin 2024-3, "Securities Operations: Shortening the Standard Settlement Cycle" (2024), available at: **https://www.occ.gov/news-issuances/bulletins/2024/bulletin-2024-3.html**

↑

22. ICI Global, letter to SEBI on proposed T+1 settlement cycle (October 2021), available at: **https://www.ici.org/system/files/2021-10/indiasebit1.pdf**

↑

23. SIFMA, "T+1 Update" (presentation to the New York Federal Reserve Foreign Exchange Committee, May 2023), available at: **https://www.newyorkfed.org/medialibrary/microsites/fxc/files/2023/T1_Update_May_2023.pdf**

↑

24. SEC Chair Gary Gensler, Statement on Upcoming Implementation of T+1 Settlement Cycle (May 28, 2024), available at: **https://www.sec.gov/newsroom/press-releases/2024-62**

↑

25. SEBI Board Paper on Optional T+0 Settlement Cycle (May 2024), available at: **https://www.sebi.gov.in/sebi_data/meetingfiles/may-2024/1714651311614_1.pdf**

↑

26. SEBI Board Paper on T+0 Settlement Cycle (November 2024), available at: **https://www.sebi.gov.in/sebi_data/meetingfiles/nov-2024/1731577464307_1.pdf**

↑

27. SEBI Circular No. SEBI/HO/MRD/MRD-PoD-3/P/CIR/2021/702, "Introduction of T+1 Rolling Settlement on an Optional Basis" (September 7, 2021), available at: **https://www.sebi.gov.in/legal/circulars/sep-2021/introduction-of-t-1-rolling-settlement-on-an-optional-basis_52462.html**

↑

28. NSE Clearing Limited, Annual Report, 2022-23

↑

29. NSE, Indian Capital Markets, Indian Capital Markets: Transformative shifts achieved through technology and reforms, July 2024, **https://nsearchives.nseindia.com/web/sites/default/files/2024-07/20240724_NSE_Report_Indian_Capital_Markets_Digital.pdf**

↑

30. NSCC SRO Filing (SEC Release No. 34-99208, December 20, 2023), available at: **https://www.sec.gov/files/rules/sro/nscc/2023/34-99208.pdf** and US Securities and Exchange Commission, Federal Register, "Securities Transaction Settlement Cycle" (March 29, 2017, Release No. 34-80295), available at: **https://www.federalregister.gov/documents/2017/03/29/2017-06037/securities-transaction-settlement-cycle**.

↑

31. ESMA Public Hearing on Shortening the Settlement Cycle in the EU — Presentations (July 2024), available at: **https://www.esma.europa.eu/sites/default/files/2024-07/Public_hearing_on_shorten**

ing_the_settlement_cycle_in_the_EU_-_Presentations.pdf and ESMA, "Final Report: Assessment of the Shortening of the Settlement Cycle in the European Union" (November 18, 2024), available at: **https://www.esma.europa.eu/node/214007**

↑

32. SIFMA, ICI, and DTCC, "T+1 After Action Report" (September 2024), available at: **https://www.sifma.org/wp-content/uploads/2024/09/T1-After-Action-Report-FINAL-SIFMA-ICI-DTCC.pdf** and Brunnermeier, Markus K. and Pedersen, Lasse Heje, "Market Liquidity and Funding Liquidity," *NBER Working Paper No. 12939* (2007), available at: **https://www.nber.org/papers/w12939**

↑

33. Sahoo, Prashant and Thakur, Jyoti, "Unlocking Liquidity Through Shortened Settlement Cycle: Empirical Evidence from India," *Economics Letters*, Vol. 239 (2024), available at: **https://www.sciencedirect.com/science/article/abs/pii/S0165176524002192**

↑

34. Written Testimony of Michael C. Bodson, President and CEO, DTCC, before the US House of Representatives Committee on Financial Services (May 6, 2021), available at: **https://www.congress.gov/117/meeting/house/112590/witnesses/HHRG-117-BA00-Wstate-BodsonM-20210506.pdf**

↑

35. SEBI Board Paper on T+0 Settlement Cycle (November 2024)

↑

36. SEC Final Rule, Release No. 34-96930, available at: **https://www.sec.gov/files/rules/final/2023/34-96930.pdf**

↑

37. SEBI Board Paper on T+0 Settlement Cycle (November 2024), available at: **https://www.sebi.gov.in/sebi_data/meetingfiles/nov-2024/1731577464307_1.pdf** and NSE Report, "Indian Capital Markets: Transformative Shifts Achieved Through Technology and Reforms" (July 2024), referenced in Business Standard (July 31, 2024), available at: **https://nsearchives.nseindia.com/web/sites/default/files/2024-07/20240724_NSE_Report_Indian_Capital_Markets_Digital.pdf**

↑

38. ESMA Public Hearing on Shortening the Settlement Cycle in the EU — Presentations (July 2024), available at: **https://www.esma.europa.eu/sites/default/files/2024-07/Public_hearing_on_shortening_the_settlement_cycle_in_the_EU_-_Presentations.pdf**

↑

39. NSE Report, "Indian Capital Markets: Transformative Shifts Achieved Through Technology and Reforms" (July 2024), referenced in Business Standard (July 31, 2024), available at: **https://nsearchives.nseindia.com/web/sites/default/files/2024-07/20240724_NSE_Report_Indian_Capital_Markets_Digital.pdf**

↑

40. SEBI Board Paper on T+0 (November 2024)

↑

41. SIFMA/ICI/DTCC Implementation Playbook

↑

42. SIFMA/ICI/DTCC After Action Report

↑

Annexure III. Coffee-Chicory Labelling Requirements

By Gargi Surana

Case Study on FSSAI Labelling Regulations[1]

This Regulatory Impact Analysis (RIA) assesses the implications of proposed changes to India's food labelling regulations, specifically the **Food Safety and Standards (Labelling & Display) Regulations, 2020**[2] and the **Food Safety and Standards (Labelling and Display) First Amendment Regulations, 2025**[3] relating to coffee–chicory mixtures. The purpose of the RIA is to evaluate whether the proposed regulatory intervention effectively addresses the market failure that exists in the current labelling landscape, and whether it represents the most proportionate and efficient option available to the Food Safety and Standards Authority of India (FSSAI). The analysis examines the extent of information asymmetry faced by consumers, explores the regulatory choices before FSSAI, and compares their anticipated costs and benefits. By adopting an evidence-based, analytic approach, this RIA contributes to transparent decision-making and ensures that the regulatory measure aligns with the objectives of the Food Safety and Standards Act, 2006.

Background and Context

Coffee–chicory blends occupy a distinctive position in India's packaged food market. Chicory is frequently used as an additive to coffee, to alter its flavour profile, and reduce production cost. The commercial value, perceived quality, and consumer expectations surrounding these blends are determined primarily by the proportion of coffee relative to chicory.

Consumer-facing discourse and industry commentary indicate that many consumers associate chicory blends with a specific taste profile rather than with inferior quality, and in certain regional and cultural contexts, chicory is actively preferred for the body and strength it imparts to brewed coffee.[4]

National consumption data supports this differentiated market reality. The Coffee Board of India's Coffee Consumption Report 2023 indicates that a substantial share of coffee consumed in Indian households, especially instant coffee, is sold and consumed in blended form, commonly containing 20–40% chicory.[5] This suggests that blended coffee products are not a marginal or deceptive segment of the market, but a mainstream consumption category with established consumer acceptance. At the same time, media reporting and expert commentary clarify that consumer concerns arise not from the presence of chicory per se, but from ambiguity or lack of clarity about its proportion, particularly where products are marketed primarily as "coffee".[6]

Under the earlier regulatory regime, the Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011 mandated that coffee–chicory mixtures contain at least 51% coffee and that the composition be declared[7]. However, the regulations did not prescribe how or where such information should be displayed. As a result, manufacturers adopted heterogeneous labelling practices. Some disclosed percentages on the back panel in fine print; others presented the information using terminology that was difficult to compare across brands. The absence of a uniform display standard created persistent ambiguity for consumers as information asymmetry.

In response, the Food Safety and Standards Authority of India (FSSAI) issued the **Food Safety and Standards (Labelling and Display) First Amendment Regulations, 2025**, requiring that the composition of coffee–chicory blends be stated on the **primary display panel** using the standardised wording **"COFFEE __% / CHICORY __%"**.

Regulatory History of Coffee–Chicory Labelling Regulations in India

India's regulatory framework governing coffee–chicory mixtures has evolved gradually, reflecting FSSAI's broader shift toward greater transparency and standardisation in food labelling. The earliest provisions appeared in the **Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011**, which classified coffee–chicory mixtures as a standardised food and prescribed that such blends must contain **not less than 51% coffee by mass**. These regulations also required that the presence of chicory be declared in the ingredient list. However, they did **not** mandate any specific placement, font size, or format for the declaration of percentage composition, leading to wide variation in how manufacturers communicated this information.

Over time, FSSAI identified compliance challenges in how industry presented coffee–chicory declarations. This led to multiple advisory actions, including the **FSSAI Advisory on Compliance of Coffee–Chicory Mixtures (18 November 2021)**, which reminded State Food Safety Commissioners that labels must accurately declare the composition of coffee and chicory and must not mislead consumers.[8]

FSSAI's broader movement toward strengthening front-of-pack labelling also influenced the regulatory trajectory. The **Food Safety and Standards (Labelling and Display) Regulations, 2020** introduced the concept of a **Primary Display Panel (PDP)**. While these regulations did not include a coffee-chicory–specific PDP requirement, they outlined general principles of label legibility, clarity, and non-misleading presentation.[9]

The **2025 amendment** represents the first explicit, product-specific requirement for front-of-pack quantitative ingredient disclosure in India. It also aligns India's practice more closely with international models in sectors where quantitative ingredient declaration improves consumer understanding. The regulatory history highlights that FSSAI has recognised the need for greater transparency in this product category and has increasingly adopted more prescriptive measures to achieve it.

Identification of Market Failure

A key issue affecting outcomes in the food labelling ecosystem is the presence of asymmetric information between producers and consumers, which gives rise to a **market failure in the form of adverse selection and progressive quality degradation**. Coffee and chicory blends are indistinguishable in powdered form. While chicory is a traditional additive in coffee, it is significantly cheaper than coffee beans. Without exact percentage declarations on the front of the pack, consumers cannot make informed price-value comparisons. A blend containing 51% coffee may look identical to one containing 80% coffee, leading to **"economic adulteration"** where manufacturers profit by using higher ratios of cheaper filler without transparent disclosure.

Consumers often lack clear, consistent and easily comparable information regarding ingredients, nutritional composition, allergens and product formulation at the point of purchase. At the same time, producers possess private information about product composition and may have incentives to exploit ambiguities in labelling or presentation to secure a competitive advantage. These dynamics can result in inefficient market outcomes and undermine the objectives set out under Section 23 of the Food Safety and Standards Act, 2006, which requires that food labels not be false or misleading and that they provide accurate and meaningful information to consumers.

Within this broader context, the coffee–chicory mixture segment demonstrates a particularly acute manifestation of this market failure. Chicory is a lower-cost input relative to coffee, and producers therefore have a cost-based incentive to increase its proportion in the blend. However, consumers are generally unable to easily verify the coffee–chicory ratio, especially where such information is not prominently or consistently displayed. This limits consumers' ability to distinguish between higher- and lower-coffee products and weakens price signals linked to quality.

Crucially, the market failure in this segment does not stem from the existence of chicory blends themselves. Evidence from consumption data and consumer-facing commentary suggests that there is sustained demand for blended coffee, alongside demand for pure coffee. The failure arises when products are marketed in a manner that obscures the coffee–chicory ratio, particularly where packaging imagery and branding emphasise “coffee” without enabling consumers to easily discern composition. In such cases, consumers who prefer higher-coffee blends may inadvertently purchase lower-coffee products, while consumers who actively prefer chicory blends are unable to identify them with confidence.

Consumers often lack clear, consistent, and easily comparable information regarding product formulation at the point of purchase. At the same time, producers possess private information about composition and may have incentives to downplay or visually de-emphasise higher chicory content due to perceptions that chicory is a lower-status ingredient in some consumer segments. This creates a signalling problem: even where chicory is culturally accepted or preferred, firms using higher proportions of chicory have weak incentives to make this information salient.

As a consequence, consumer willingness to pay tends to reflect average expected quality rather than actual product composition. This **weakens price–quality signalling and distorts competition**, not only by enabling economic adulteration but also by preventing honest differentiation between pure coffee products and intentionally blended products. Over time, higher-quality products are unable to

credibly signal their attributes and risk being crowded out by lower-quality alternatives, resulting in the **under-provision of higher-quality goods despite consumer preference for them**. This outcome is consistent with adverse selection dynamics observed in markets characterised by asymmetric information.

International food labelling frameworks explicitly recognise the need to address such outcomes. Codex Alimentarius guidelines by Food and Agriculture Organisation (FAO) and World Health Organisation (WHO) note that quantitative ingredient declaration (QUID) is required where omission may mislead consumers or impair their ability to compare products[10]. Similarly, the European Commission emphasises that QUID is necessary when an ingredient is emphasised by imagery or affects consumer expectations of the product[11]. The Indian coffee–chicory market demonstrates these exact conditions: product packaging frequently emphasises coffee imagery, while actual coffee content varies substantially across brands.

The persistence of this market failure despite existing disclosure norms reflects underlying market incentives. Manufacturers using higher proportions of chicory have limited incentives to voluntarily make such information prominent, particularly where disclosure may adversely affect perceived product quality. Voluntary or non-standardised disclosure is therefore unlikely to sufficiently correct information asymmetry or prevent adverse selection, supporting the need for clear, standardised and enforceable labelling and display requirements.[12]

Does the Market Failure Fall Within Regulator's Jurisdiction?

FSSAI derives its powers from **Section 92(2)(k)** read with **Section 23** of the Food Safety and Standards Act 2006. The 2020 Regulations apply to all pre-packaged food (Reg. 1(2)). Thus, regulating labelling accuracy is *within FSSAI's mandate*. Coffee–chicory blends fall within **Schedule-II commodity-specific labelling**.

The 2020 Regulations address coffee-chicory mixtures in Schedule II para 2.2, but the lack of a clear front-of-pack percentage requirement limited transparency. The 2025 draft amendment replaces para 2.2 and mandates explicit declarations of "Coffee ...% / Chicory ...%" (including instant coffee–chicory) thereby targeting the information asymmetry in this niche market.

Options Before the Regulator

Regulatory options must be assessed in light of the broader question of how FSSAI can most effectively address information asymmetry through labelling interventions.

Food markets are frequently characterised by "asymmetric information," where producers possess superior knowledge about product composition compared to consumers. In the context of coffee-

chicory blends, the exact ratio is a “credence attribute” (a quality that consumers cannot easily verify even after consumption). While voluntary labelling schemes are often effective for positive attributes where firms are incentivised to disclose premium qualities, they consistently fail for cost-reducing attributes or inferior qualities. Firms rarely have an economic incentive to voluntarily disclose that their product contains a higher percentage of cheaper fillers like chicory, necessitating mandatory regulatory intervention to correct this information asymmetry.[13]

However, the intervention must be designed for maximum utility. Research on food labelling in India shows that consumer **awareness** of labels often **does not translate into comprehension or effective use in purchase decisions**, with many consumers prioritising factors like **price and expiry date** over detailed nutritional or compositional information.[14] This behavioural reality confirms that **mere disclosure** on the back-of-pack is insufficient. Evidence from consumer studies shows that front-of-pack labels with more salient and intuitive formats (e.g., colour coding) are more noticeable and perceived as easier to interpret than less prominent designs, suggesting that improvements in the prominence and presentation of information will go a long way in influencing purchase behaviour.[15]

Regulatory options must, therefore, move beyond mere disclosure to focus on effective consumer communication. The World Health Organisation (WHO) emphasises that for labelling to be effective, it must be noticeable, easily understood, and strategically placed (such as on the Front-of-Pack or FOP) to overcome consumer inertia and influence purchasing decisions.[16]

Therefore, the options below are evaluated on a continuum from ‘soft’ interventions (voluntary codes) to ‘hard’ interventions (prescriptive mandates):

- **Option 1: Baseline** entails retaining the 2020 Regulations as they are: relying on existing Schedule II disclosures and ingredient lists without introducing mandatory front-of-pack percentage declarations. This approach carries minimal immediate cost for industry since no new label redesign or format requirement is imposed, but it leaves the transparency gap unfilled.
- **Option 2: Performance-based regulation (outcomes focus)** requires that consumers are provided with clear, comparable information about coffee-chicory composition at the point of sale (either via front-of-pack or prominent online display) but does not mandate exact wording or format. Instead the regulator sets outcome-based standards such as “declaration readable at two metres” or “percentage composition displayed in the primary display panel.” This preserves flexibility for industry innovation in presentation while ensuring consumer clarity.

To support this approach, **FSSAI may permit or encourage digital supplementation**, such as a QR code or digital link on the package that directs consumers to detailed composition data, sourcing information, or testing reports. While this allows extended disclosure without overburdening physical labels, its effectiveness would depend on consumer access, scan rates, and digital literacy, which may vary across consumer segments and purchasing contexts.

- **Option 3: Co-regulation (Industry code + government endorsement)** envisions FSSAI working with relevant trade associations in the coffee-chicory sector to develop a voluntary industry code that specifies a standard front-of-pack format and testing protocols for coffee-chicory blends. Under Section 44 of the FSS Act, FSSAI may recognise organisations or agencies for the purposes of food safety audit and compliance verification; such recognised audit agencies could verify

compliance with the industry code and label declarations, while the regulator retains enforcement back-stop.

- **Option 4: Mandatory standardised front-of-pack quantitative ingredient declaration**: A mandatory, prescriptive regulation requiring front-of-pack declaration of "COFFEE ...% / CHICORY ... %" (and equivalent for instant blends), with specified wording, placement and format under Schedule II, para 2.2. This option offers immediate clarity for consumers but entails higher transition costs for industry. To mitigate these costs, this option may incorporate **phased implementation and transition measures**, such as extended compliance timelines (e.g., 12–18 months), exhaustion-of-stock provisions, or the temporary use of sticker-labels for existing inventory. These measures allow manufacturers to adapt to the new requirements while reducing packaging waste and short-term financial burden.
- **Option 5: Strengthened Consumer Signalling through Health-Oriented Labelling and Product Definition Standards:** This option moves beyond numerical disclosure to improve how composition-related and health-relevant attributes of coffee–chicory products are communicated to consumers at the point of purchase. Drawing from global nutrition labelling frameworks such as traffic-light systems,[17] this approach would use standardised visual cues or descriptors to signal compositional characteristics that may be relevant to consumer health considerations, sensitivity, or consumption preferences, rather than to denote product quality in absolute terms.

The objective would be to support informed choice for consumers who may prefer higher-coffee formulations, blended formulations, or lower-caffeine options. By embedding composition signals directly into symbols or nomenclature, this approach simplifies consumer decision-making and reduces reliance on numerical interpretation of percentages. However, unlike purely informational interventions, this option has **structural effects on the market**, as it influences how products are categorised, named, and positioned.

Stakeholders Impacted

Understanding this stakeholder landscape helps identify who bears compliance burdens, who receives informational benefits and where support mechanisms or transitional arrangements may be required. In the context of the coffee–chicory amendment, the primary stakeholders include:

- **Food Business Operators (FBOs) producing coffee/chicory blends** (large brands & small packers) - primary compliance burden.
- **Packaging suppliers / label printers** - retooling, plate changes, inventory write-offs.
- **Retailers / e-commerce platforms** - product listing updates and shelf display changes.
- **Consumers** (regular coffee buyers, price-sensitive buyers, health-conscious buyers) - main beneficiaries (better info).
- **Chicory producers / traders** - potential demand and price effects if labelling alters perceived value, given that chicory constitutes a distinct supply chain and is not a proximate crop of coffee cultivation.

- **Testing & certification labs** - increased sample testing demand.
- **FSSAI** - enforcement, market surveillance, guidance.
- **Trade associations** (co-regulatory partners) and consumer organisations.

Identification of Costs

Any regulatory intervention imposes direct and indirect costs on regulated entities, regulators and market intermediaries. These costs arise both from one-time transition activities and from ongoing compliance obligations such as testing and verification. While the magnitude of these costs varies by regulatory option and firm size, the following categories broadly capture the cost components relevant to labelling regulations:

- **Familiarisation**: time and cost for firms/regulators to understand guidance/regulations.
- **Design & Reprinting**: new label art, reprinting packaging, plate changes.
- **Inventory/Stock devaluation**: obsolete pre-printed packages.
- **Testing**: lab tests to verify percentage composition; frequency dependent.
- **Procedural Costs**: updating quality systems, ERP, e-commerce listings.
- **Third party verification / certification**: optional third-party audits under some options.
- **Compliance & Enforcement**: inspector training, market sampling by FSSAI.
- **Market Impact**: updating retailer listings, in-store signage.

TABLE 13.1

Cost Type	Status Quo	Outcome-Based	Co-regulation	Mandatory FoP	FoP + Health
Familiarisation	Low	Medium	Medium (industry + FSSAI)	Medium	High
Label redesign	None	Medium (flexibility allowed)	Medium	**Medium (spread over time)**	High (symbols, testing)
Inventory write-off	None	Medium	Medium	**Low–Medium** (transition reduces cost)	High
Testing/verification cost	None	Medium	**High (audit-based)**	Medium	**High (grading-based testing)**
Procedural/ERP updates	Low	Medium	Medium	Medium	Medium

Cost Type	Status Quo	Outcome-Based	Co-regulation	Mandatory FoP	FoP + Health
Third-party certification	None	Optional	**High**	Optional	**High**
Enforcement cost for FSSAI	Low	Medium	Medium–High	Medium	High
Market impact / reform costs	None	Low	Medium	Low	Medium

Identification of Benefits

The benefits of regulatory intervention primarily flow to consumers, but also accrue to firms and regulators through improved market functioning and reduced ambiguity. The following categories summarise benefits relevant to the coffee–chicory case and broadly applicable across food products:

- **Improved consumer information / reduced deception**
- **Consumer Trust and transparency**
- **Better comparability across brands**
- **Reduction in misleading claims**
- **Reduced complaints / enforcement cost over time**
- **Market discipline: product differentiation & quality signals**
- **Regulatory Certainty & Ease of Monitoring**
- **Long term customer welfare through increased transparency and trust**

TABLE 13.2

Benefit Type	Status Quo	Outcome-Based	Co-regulation	Mandatory FoP	FoP + Health
Improved consumer information	Low	Medium	Medium	High	Very High
Comparability across brands	Low	Moderate	Moderate	Medium-High	High (visual cue)
Trust / transparency	Low	Medium	Medium–High	High	High

Benefit Type	Status Quo	Outcome-Based	Co-regulation	Mandatory FoP	FoP + Health
Reduction in misleading claims	Low	Medium	Medium	High	Very High
Reduction in complaints	Low	Medium	Medium	High	High
Market discipline	Low	Medium	Medium–High	High	High
Ease of enforcement for FSSAI	Low	Medium	Medium	High	Medium
Long-term consumer welfare	Low	Medium	Medium	High	High

Cost of Compliance: Labelling Requirements

This section quantifies the compliance costs associated with different labelling options for coffee–chicory products in India. The objective is to derive cost of compliance for Back-of-Pack (BoP), Front-of-Pack (FoP), and Front-of-Pack with Health/Nutritional Labelling (FoP + Health) using India-specific cost data. Compliance costs arise from packaging-related inputs such as labels, printing plates, and printed pouches, as well as laboratory testing required to substantiate declared information where applicable. The analysis first sets out itemised cost components for each labelling format and then converts these into per-unit and per-SKU costs using transparent assumptions.

Back-of-pack labelling generally involves minor textual updates or the application of adhesive labels and does not require redesign of the primary display panel or new printing plates. Front-of-pack labelling requires redesign of the principal display panel, creation of new artwork, and new printing plates, leading to higher fixed and variable costs. Front-of-pack health or nutritional labelling entails all FoP costs and additionally requires laboratory testing to generate compliant nutritional information. These differences translate into progressively higher compliance costs across labelling formats.

Cost components: Back-of-Pack (BoP) labelling

TABLE 13.3

Cost component	Cost amount (India)
Labels / stickers (unit cost)	₹3.06 per label

Cost component	Cost amount (India)
Artwork / text layout modification (one-time, average)	₹10,000 per SKU
Printing plates	Not required
Laboratory testing	Not required

Cost components: Front-of-Pack (FoP) labelling

TABLE 13.4

Cost component	Cost amount (India)
Artwork redesign & pre-press (one-time, average)	₹15,000 per SKU
Printing plates (average)	₹3,000 per plate
Printed laminated pouch / pack (average incremental cost)	₹4 per pack
Composition testing (ingredient verification)	₹9,500 per sample

Cost components — Front-of-Pack + Health / Nutritional labelling

TABLE 13.5

Cost component	Cost amount (India)
Artwork redesign & pre-press (one-time, average)	₹15,000 per SKU
Printing plates (average)	₹3,000 per plate
Printed laminated pouch / pack (average incremental cost)	₹4 per pack
Nutrient testing (standard nutrition panel)	₹2,500 + GST per sample
Composition testing (ingredient verification)	₹9,500 per sample

Per-SKU and per-unit compliance cost calculation

Assumptions (common across labelling types)

- Production run: 100,000 packs per SKU
- One printing plate per SKU
- Laboratory testing required once per SKU for compliance

Calculation method:

Fixed cost per unit = Fixed cost per SKU ÷ 100,000 packs

Total per-unit cost = Fixed cost per unit + Variable cost per unit

Per-SKU and per-unit cost comparison

TABLE 13.6

Labelling format	Fixed costs per SKU (₹)	Variable cost per unit (₹)	Fixed cost per unit (₹)	Total cost per unit (₹/pack)
BoP	10,000	3.06	0.10	3.16
FoP	27,500 *(15,000 artwork + 3,000 plate + 9,500 testing)*	4.00	0.28	4.28
FoP + Health	30,000 *(15,000 artwork + 3,000 plate + 9,500 composition + 2,500 nutrient)*	4.00	0.30	4.30

Estimating Consumer Benefits

Consumer benefits are estimated by linking improved disclosure to price correction and expenditure savings. Cost-reflective benchmark prices for common coffee–chicory blends are constructed using observable input prices. The gap between observed retail prices and these benchmarks is treated as an excess premium attributable to limited transparency.

A conservative partial price correction assumption is applied, reflecting that only a portion of this excess premium is likely to adjust following improved disclosure. This correction is further weighted by empirically observed consumer responsiveness to different label formats, based on Indian studies of label use.

Differential consumer response across label types

Empirical evidence from Indian consumer studies shows that consumers respond very differently depending on the *format* of information disclosure. The key distinction is between dense textual information and salient, interpretive cues.

TABLE 13.7

Label type	Evidence from studies[18], [19]	Assumed Share of consumers whose behaviour changes
Back-of-Pack (BoP) labelling	Least-checked element was ingredient list (~20%)	**15% - 25%**
Front-of-Pack (FoP) labelling	Numeric nutrition info checked by <40%; FoP improves noticeability	**35% - 45%**
FoP + Health labelling	~60% of consumers read quality symbols	**55% - 65%**

Price correction under different labelling regimes (numerical modelling)

Step 1: Calculation of Cost-Reflective Prices

Market retail price for 100% instant coffee

TABLE 13.8

Brand	Price (₹/kg)
Nescafé Classic	3,968
BRU Gold	3,600
Tata Grand Premium	3,300

Average pure coffee price (used for modelling):

(3968+3600+3300) / (3)=3,623 ₹/kg

Assumption: Chicory is 10× cheaper than coffee (per kg). Therefore, implied chicory price:

3,623÷10=362 ₹/kg

Coffee–chicory blends

TABLE 13.9		
Brand	**Price (₹/kg)**	**Ratio**
Nescafé Sunrise	2,350	60:40
BRU Instant	3,100	70:30
Tata Coffee Grand	3,250	70:30

Cost-reflective blend prices *(based on cost of supply)*

Formula
(Cost of Coffee × Coffee Ratio) + (Cost of Chicory × Chicory Ratio)

TABLE 13.10			
Brand	**Actual price**	**Ideal price**	**Difference**
Nescafé Sunrise	2,350	2,319	**+31**
BRU Instant	3,100	2,645	**+455**
Tata Coffee Grand	3,250	2,645	**+605**

Step 2: Excess premium identified at baseline

Using observed prices and cost-reflective benchmarks:

TABLE 13.11				
Brand	**Blend**	**Observed price (₹/kg)**	**Cost-reflective price (₹/kg)**	**Excess premium (₹/kg)**
Nescafé Sunrise	60:40	2,350	2,319	~0
BRU Instant	70:30	3,100	2,645	455
Tata Coffee Grand	70:30	3,250	2,645	605

Only the excess premium is relevant for estimating consumer welfare gains.

Step 3: Partial pass-through assumption

A conservative **25% correction** of the excess premium is assumed where consumers respond to improved disclosure.

TABLE 13.12

Brand	Excess premium	25% correction (₹/kg)
BRU Instant	455	114
Tata Coffee Grand	605	151

Step 4: Adjustment by label-specific consumer response

The *effective* price correction varies by label format.

Back-of-Pack (BoP) (Effective correction = 25% price correction × 15%-25% consumer change)

TABLE 13.13

Brand	Effective correction (₹/kg)
BRU Instant	₹17.1 - ₹28.5
Tata Coffee Grand	₹22.65 - ₹37.75

Front-of-Pack (FoP) (Effective correction = 25% price correction × 35% - 45% consumer change)

TABLE 13.14

Brand	Effective correction (₹/kg)
BRU Instant	₹39.9 – ₹51.3
Tata Coffee Grand	₹52.85 - ₹67.95

FoP + Health labelling (Effective correction = 25% price correction × 55% - 65% consumer change)

TABLE 13.15	
Brand	**Effective correction (₹/kg)**
BRU Instant	₹62.7 - ₹74.1
Tata Coffee Grand	₹83.05 - ₹98.15

Monthly consumer savings (Using a conservative monthly household coffee spend of **₹500**)

The per-kg savings are converted into monthly household savings using a representative monthly expenditure of ₹500 on instant coffee at prevailing retail prices. Brand-specific estimates for BRU and Tata Coffee Grand are averaged to obtain a representative household-level saving for each labelling option.

TABLE 13.16	
Label type	**Average monthly saving per household (₹)**
Back-of-Pack (BoP)	~₹2.42 - ₹4.02
Front-of-Pack (FoP)	~₹5.64 - ₹7.25
FoP + Health	~₹8.86 - ₹10.47

Net Benefit Calculation

Step 1: Annual Savings

TABLE 13.17		
Label type	**Monthly saving**	**Annual saving**
BoP	~₹2.42 - ₹4.02	**₹29.04 - ₹48.24**
FoP	~₹5.64 - ₹7.25	**₹67.68 - ₹87**
FoP + Health	~₹8.86 - ₹10.47	**₹106.32 - ₹125.64**

Step 2: Annual Cost of Compliance

Assumptions to calculate annual cost of compliance:

- Average monthly spend: ₹500
- Representative retail price: ~₹3,100/kg
- Monthly quantity: ~0.16 kg
- Standard pack size: 100 g
- Packs purchased: ~1.6 packs/month → **19.2 packs/year**

TABLE 13.18

Label type	Cost per pack (₹)	Annual cost (₹/hh/year)
BoP	3.16	**₹61**
FoP	4.28	**₹82**
FoP + Health	4.30	**₹83**

Step 3: Annual Net Benefits and Benefit–Cost Ratios (Per Household)

TABLE 13.19

Label type	Annual consumer benefit (₹)	Annual compliance cost (₹)	Net benefit (₹/hh/year)	Benefit–Cost Ratio
BoP	₹29.04 - ₹48.24	61	(–31.96) - (-12.76)	**0.48 – 0.79**
FoP	₹67.68 - ₹87	82	(-14.32) – (+5)	**0.83 – 1.06**
FoP + Health	₹106.32 - ₹125.64	83	(+23.32) – (+42.64)	**1.29 – 1.51**

Conclusion (Preferred Regulatory Approach):

This case study assesses alternative labelling approaches for coffee–chicory blends by comparing their compliance costs with consumer welfare gains arising from improved disclosure. The analysis combines market price data, conservative behavioural assumptions, and empirically grounded evidence on consumer responsiveness to different label formats.

The results indicate that **back-of-pack disclosure alone does not generate net welfare gains**, as limited consumer engagement with such information constrains price discipline and resulting savings. Front-of-pack disclosure performs better but yields **mixed results**, with net benefits turning positive only at the upper end of plausible consumer-response assumptions. This suggests that while front-of-pack disclosure improves noticeability and comprehension relative to back-of-pack information, its welfare impact is **sensitive to actual levels of consumer engagement**.

The analysis further shows that **front-of-pack disclosure combined with interpretive or health-oriented cues yields the strongest outcomes**. This option produces the highest consumer savings, the largest net benefit, and the most favourable benefit–cost ratio, while imposing only marginally higher compliance costs than simpler front-of-pack formats.

Overall, the findings suggest that **regulatory effectiveness in food labelling depends not only on the availability of information, but also on how that information is presented**. Labelling formats that enhance salience and interpretability are more likely to translate disclosure into meaningful consumer choice and market discipline. On balance, **front-of-pack labelling with interpretive health labels emerges as the most welfare-enhancing regulatory option** among those considered.

Footnotes and references

1. This case study has been prepared by Civis

   ↑

2. Food Safety and Standards (Labelling & Display) Regulations, 2020**. https://fssai.gov.in/upload/uploadfiles/files/Comp_Labelling.pdf**

   ↑

3. Food Safety and Standards (Labelling and Display) First Amendment Regulations, 2025. **https://fssai.gov.in/upload/notifications/2025/08/689d8d163d422coffee%20chicory_gazette.pdf**

   ↑

4. Southfirst, Do you like your coffee with chicory? Coffee Board is considering a ban on this mixture, 2023. **https://thesouthfirst.com/news/do-you-like-your-coffee-with-chicory-coffee-board-is-considering-a-ban-on-this-mixture/**

   ↑

5. Coffee Board of India, Coffee consumption trends in India, 2023. **https://coffeeboard.gov.in/Publications/Coffee_Consumption_2023.pdf**

   ↑

6. India Today, Is coffee adulteration for real?, 2025. **https://www.indiatoday.in/lifestyle/food/story/is-coffee-adulteration-for-real-2745115-2025-06-24**

↑

7. Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011. **https://fssai.gov.in/upload/uploadfiles/files/11_%20Chapter%202_10%20%28BEVERAGES%2C%20%28Other%20than%20Dairy%20and%20Fruits%20%26%20Vegetables%20based%29.pdf**

↑

8. FSSAI Advisory on Compliance of Coffee–Chicory Mixtures, 2021. **https://fssai.gov.in/upload/advisories/2021/11/6195ef50cb7b3Letter_Compliance_Coffee_Chicory_18_11_2021.pdf**

↑

9. Food Safety and Standards (Labelling and Display) Regulations, 2020. **https://www.fssai.gov.in/upload/uploadfiles/files/Compendium_Labelling_Display_23_09_2021.pdf**

↑

10. FAO, Handbook on Food Labelling to Protect Consumers, 2016. **https://openknowledge.fao.org/bitstreams/71b7d4e0-966e-45c5-9f74-da5ebc133f66/download**

↑

11. Official Journal of the European Union, Commission Notice on the application of the principle of quantitative ingredients declaration (QUID), 2017. **https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52017XC1121(01)#:~:text=The%20QUID%20is%20a%20mandatory%20particular%20listed,of%20Article%2013%20'Presentation%20of%20mandatory%20particulars**'.

↑

12. Schmitt, S. & Bruckner D., (2023). Unaware consumers and disclosure of deficiencies. *Games and Economic Behaviour, 142, 1018-1042.* **https://www.sciencedirect.com/science/article/abs/pii/S0899825623001628**

↑

13. United States Department of Agriculture, Beyond Nutrition and Organic Labels—30 Years of Experience With Intervening in Food Labels, 2017. **https://ers.usda.gov/sites/default/files/_laserfiche/publications/85687/ERR-239.pdf?v=14476**

↑

14. Pahlani, M., Narendra Talati, K., Lopez-Arana, S., & Narayanan, P. (2025). Food labelling in India: a scoping review of consumer engagement, comprehension, and purchase behaviour. *Global health action*, *18*(1), 2574132. **https://pmc.ncbi.nlm.nih.gov/articles/PMC12608109/#s0003**

↑

15. Oswald, C., Adhikari, K., & Mohan, A. (2022). Effect of front-of-package labels on consumer product evaluation and preferences. *Current research in food science*, *5*, 131–140. **https://pubmed.ncbi.nlm.nih.gov/35036933/**

↑

16. WHO, Guiding principles and framework manual for front-of-pack labelling for promoting healthy diet, 2019. **https://cdn.who.int/media/docs/default-source/healthy-diet/guidingprinciples-labelling-promoting-healthydiet.pdf**

↑

17. Shrestha, A., Cullerton, K., White, K. M., Mays, J., & Sendall, M. (2023). Impact of front-of-pack nutrition labelling in consumer understanding and use across socio-economic status: A systematic review. *Appetite*, *187*, 106587. **https://pubmed.ncbi.nlm.nih.gov/37169260/**

↑

18. Vemula, S. R., Gavaravarapu, S. M., Mendu, V. V., Mathur, P., & Avula, L. (2014). Use of food label information by urban consumers in India - a study among supermarket shoppers. *Public health nutrition*, *17*(9), 2104–2114. **https://pmc.ncbi.nlm.nih.gov/articles/PMC111087719/**

↑

19. Ghosh, R.K., Sanghvi, R., & Sahay, A. (2023). Consumer preference for nutrition front-of-pack-label formats in India: Evidence from a large-scale experimental survey, *111*(0950-3293). **https://www.sciencedirect.com/science/article/abs/pii/S0950329323001878?**

↑