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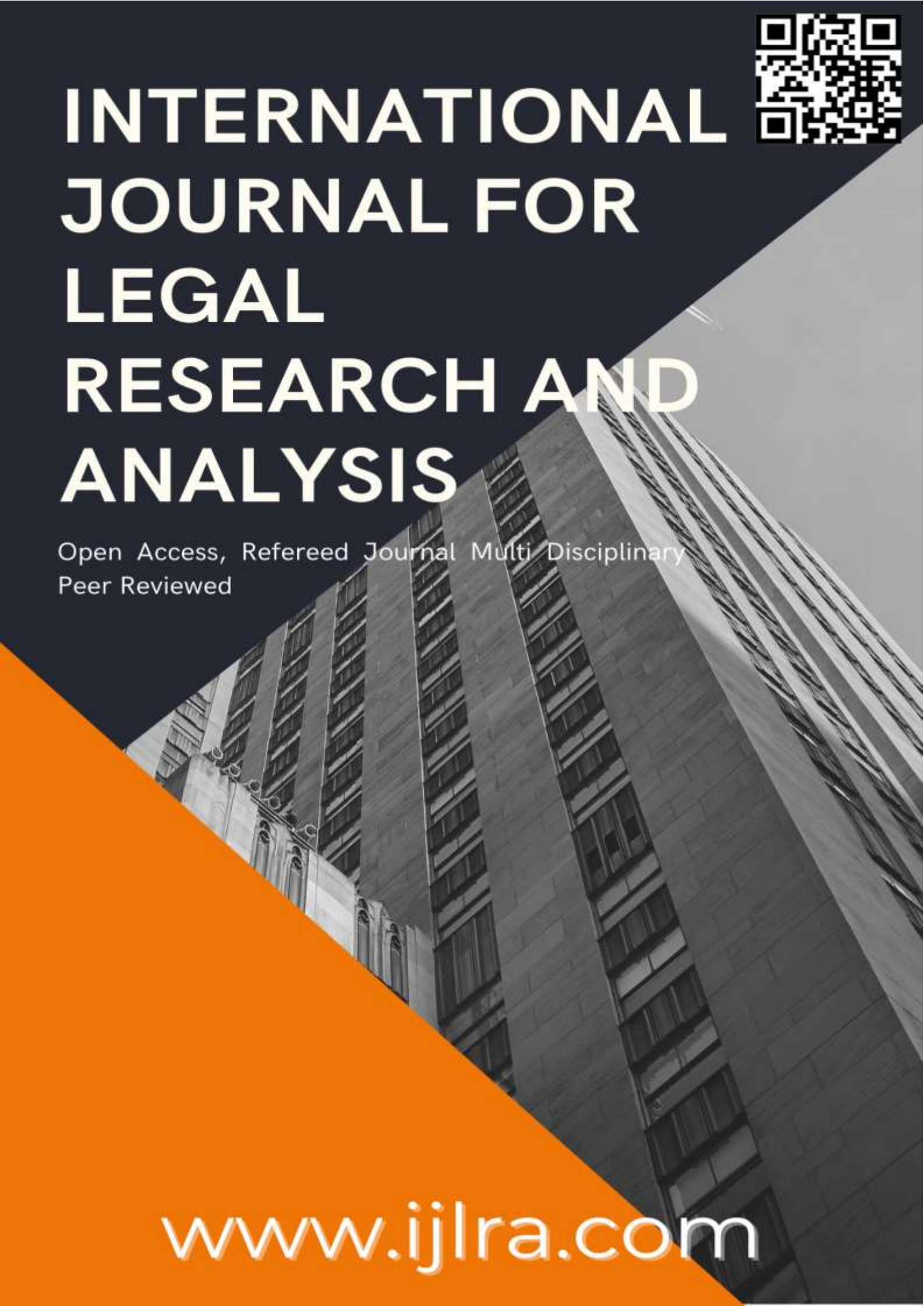

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DARK POOL TRADING IN INDIA's DIGITAL MARKETS: A LEGAL AND COMPETITION LAW ANALYSIS OF ALGORITHMIC OPACITY, RETAIL EXCLUSION, AND REGULATORY REFORM

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LIST OF ABBRIVIATION

Abbreviation	**Full Form**
ATS	Alternative Trading System
CCI	Competition Commission of India
DPDP Act	Digital Personal Data Protection Act, 2023
EU	European Union
FCA	Financial Conduct Authority (UK)
GCU	Gender and Children Unit (ICC)
ICC	International Criminal Court
IOSCO	International Organization of Securities Commissions
ITG	Investment Technology Group
MCX	Multi Commodity Exchange
MiFID II	Markets in Financial Instruments Directive II
MoU	Memorandum of Understanding
NSE	National Stock Exchange of India
OTP	Office of the Prosecutor (ICC)
RBI	Reserve Bank of India
SEBI	Securities and Exchange Board of India
SEC	Securities and Exchange Commission (USA)
SSDE	Systemically Significant Digital Enterprise
TFV	Trust Fund for Victims (ICC)
X	Formerly Twitter (Social Media Platform)

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CHAPTER 1: INTRODUCTION

1.1 Background

India's financial markets have undergone a seismic transformation, propelled by the Digital India initiative launched in 2015, which aimed to create a digitally empowered society and knowledge economy.[1] By June 2025, India boasts over 800 million smartphone users and the world's cheapest mobile data, averaging $0.13 per GB, fostering a fintech ecosystem valued at $200 billion and projected to reach $1 trillion by 2030. The Unified Payments Interface (UPI), a real-time payment system, processed 13 billion transactions in April 2025 alone, underscoring the scale of digital financial adoption. Retail trading platforms like Zerodha, with 30 million users, and Upstox, with 10 million users, have democratized access to equities and derivatives, contributing to a daily trading volume of $150 billion on the National Stock Exchange (NSE) and Bombay Stock Exchange (BSE).[2]

Amid this growth, dark pool trading—private, off-exchange venues where large institutional investors execute anonymous trades—has emerged as a double-edged sword. Dark pools, estimated to account for 5- 7% of India's trading volumes, offer liquidity for large orders without market impact but obscure price discovery and trade data, posing risks to transparency and competition. High-frequency trading (HFT), integral to dark pools, constitutes 40% of NSE's trading volume, amplifying concerns about algorithmic opacity and market manipulation. Retail investors, comprising 60% of India's trading population, are often excluded from these venues, raising questions of market fairness.

The regulatory framework, anchored by the Securities and Exchange Board of India (SEBI) Act, 1992, Competition Act, 2002, and the recently enacted Digital Personal Data Protection (DPDP) Act, 2023, lacks specific provisions for dark pool trading. Judicial precedents, such as *Competition Commission of India v.*

Bombay Stock Exchange (2018) and *SEBI v. National Stock Exchange* (2019), expose regulatory gaps in addressing algorithmic trading and anti-competitive practices.[3] Globally, cases like *SEC v. Pipeline Trading Systems LLC* (2011) in the United States highlight the need for mandatory trade reporting and fair access, offering lessons for India.[4] This dissertation seeks to address these challenges by proposing a unified regulatory framework that balances innovation with investor protection, aligning with India's ambition to be a global fintech leader.

1.1.1 Evolution of Fintech in India

The fintech revolution in India traces its roots back to the liberalization of the financial sector in the early 1990s, which opened the door for private and foreign investments. However, it was the landmark demonetization in November 2016, followed by the rapid development and adoption of the Unified Payments Interface (UPI), that significantly accelerated fintech growth. UPI alone processed over 14 billion

[1] Ministry of Electronics and Information Technology, *Digital India Vision* (2015), https://www.meity.gov.in.
[2] BSE, *Market Statistics Report* (2024); NSE, *Annual Trading Volume Report* (2024).
[3] *CCI v. BSE*, (2018) Comp LR 123; *SEBI v. NSE*, (2019) SEBI Adjudication Order.

[4] *SEC v. Pipeline Trading Systems LLC*, No. 11-CV-7977 (S.D.N.Y. 2011).

transactions in May 2024, showcasing its widespread use across urban and rural India. The Digital India campaign, Aadhaar-based KYC, and increasing smartphone penetration have further democratized financial services.

By 2025, India has emerged as a global fintech powerhouse, home to over 10,000 fintech startups across verticals such as lending, payments, wealthtech, insurtech, and neobanking. Investments in the Indian fintech sector reached $8 billion in 2024, fueled by both domestic and international venture capital. Notable players like Zerodha (via its trading platform Kite), Upstox Pro, Groww, and Dhan have revolutionized access to financial markets, lowering entry barriers for retail investors. The rise of these platforms has empowered millions of individuals to participate in equity, derivatives, and mutual fund markets—domains once monopolized by institutional investors.

Simultaneously, the proliferation of algorithmic trading—including High-Frequency Trading (HFT)—has transformed market microstructure. As of 2024, over 70% of trades on the Bombay Stock Exchange (BSE) were algorithm-driven, reflecting the growing sophistication of market participants. However, this shift has introduced new challenges. Dark pools—private trading venues where large orders are executed without immediate public disclosure—are increasingly integrated with algo-trading strategies. While they provide liquidity and minimize market impact for large trades, they also reduce transparency and complicate market surveillance. The Securities and Exchange Board of India (SEBI) has raised concerns about these opaque practices and is exploring regulatory frameworks to enhance oversight without stifling innovation. Balancing technological advancement with investor protection remains a key priority for Indian regulators.

Globally, dark pools account for approximately 15% of equity trading volume in the United States and around 8–10% in the European Union. These alternative trading systems (ATS) are regulated under frameworks such as Regulation ATS by the U.S. Securities and Exchange Commission (SEC) and the Markets in Financial Instruments Directive II (MiFID II) in the EU. These regulations seek to improve post- trade transparency and monitor off-exchange trading activities. In India, dark pools remain in a nascent stage but are gradually gaining traction, primarily driven by institutional investors and the increasing adoption of algorithmic and high-frequency trading (HFT). Unlike traditional exchanges, dark pools allow large trades to be executed anonymously, helping institutions avoid market impact and slippage.

However, the absence of a robust regulatory framework in India presents challenges. While SEBI's revised 2024 guidelines on algorithmic trading introduced stricter norms on order-to-trade ratios, colocation, and risk controls, they did not explicitly address the operation of dark pools. This has created a regulatory gap that may impact market fairness and transparency. Moreover, cases like *CCI v. Google* (2022), which dealt with algorithmic bias and digital market abuse, highlight the urgent need for sector-specific legal frameworks that consider the convergence of technology and finance. SEBI is expected to issue a consultative paper on dark pools in late 2025.

1.2 Problem Statement

Dark pool trading poses a significant challenge to transparency and fair competition in India's evolving digital financial markets. These private trading venues, which allow institutional investors to execute large orders anonymously, can distort price discovery mechanisms, facilitate potential price manipulation, and systematically exclude retail investors. This undermines the core principles of market integrity and financial inclusion that India has been striving to promote through initiatives like UPI, PM Jan Dhan Yojana, and retail market access platforms such as Zerodha and Groww.

The Securities and Exchange Board of India Act, 1992, empowers SEBI to regulate the securities market and protect investor interests. However, it lacks explicit provisions governing off-exchange trading platforms like dark pools. Similarly, while the Competition Act, 2002, addresses anti-competitive conduct and market abuse, it does not adequately cover the fintech-specific challenges posed by algorithmic and opaque trading mechanisms. The Draft Digital Competition Bill, 2024, seeks to regulate Systemically Significant Digital Enterprises (SSDEs), focusing on digital gatekeepers and data monopolies, but fails to directly address the risks posed by dark pools in financial markets.

Judicial precedents such as *MCX Stock Exchange v. NSE* (2011) and *CCI v. BSE* (2018) have underscored the dangers of predatory pricing and abuse of dominance in India's exchange ecosystem. Yet, regulatory fragmentation between SEBI and the Competition Commission of India (CCI) continues to hinder cohesive oversight. Without a unified regulatory framework, dark pools threaten investor confidence, undermine market efficiency, and counteract India's financial inclusion agenda. Urgent policy reform and inter-agency collaboration are critical to closing this regulatory gap.

1.2.1 Regulatory Gaps

SEBI's regulatory purview is primarily confined to recognized stock exchanges, leaving dark pools—private trading venues—largely outside its effective oversight. These venues are not subject to the same trade reporting and disclosure norms, resulting in significant opacity. The lack of post-trade transparency enables practices such as front-running and price manipulation, which often escape regulatory detection. A notable example is *SEBI v. NSE* (2019), where lapses in surveillance allowed preferential access to co-location servers, facilitating unfair algorithmic advantages. While the Digital Personal Data Protection (DPDP) Act, 2023, governs the collection and processing of personal data, it does not address transparency or market conduct in financial trading. This creates a fragmented regulatory environment where data governance is decoupled from financial market oversight, highlighting the urgent need for integrated legislation to address risks emerging at the intersection of technology, data, and financial trading.

1.2.2 Impact on Stakeholders

Retail investors remain effectively excluded from dark pool trading, as these platforms primarily cater to institutional players executing large-volume trades anonymously. This lack of transparency not only limits retail

participation but also distorts price discovery, as significant trades occur outside the visible market.

The anonymity offered to institutions can lead to information asymmetry, enabling practices that may impact market fairness. In 2024, SEBI introduced revised investor protection guidelines focusing on grievance redressal mechanisms, enhanced disclosures, and stricter compliance standards for brokers and platforms. While these initiatives aim to bolster investor trust and promote equitable access, the absence of regulatory oversight on dark pools leaves a critical gap. Without specific rules governing these opaque trading venues, SEBI's broader efforts to ensure market transparency and investor protection remain incomplete,

undermining the principles of inclusivity and fairness in India's capital markets.22 SEBI, *Investor Protection Guidelines* (2024).

1.3 Objectives

The study aims to:

1. Analyze the nature, mechanics, and impact of dark pool trading in India's digital financial markets, using case law such as *CCI v. BSE* (2018) to assess risks.
2. Evaluate the adequacy of existing Indian legal frameworks, including the Competition Act, 2002, and SEBI Act, 1992, through cases like *CCI v. Google* (2022) and *MCX v. NSE* (2011).
3. Study global regulatory models for dark pool oversight, drawing lessons from cases like *SEC v. ITG Inc.* (2015) and *FCA v. Barclays Bank PLC* (2014).
4. Identify legal and enforcement challenges in regulating dark pools, informed by cases such as *SEBI v. NSE* (2019) and *Excel Crop Care Ltd. v. CCI* (2017).
5. Propose a unified regulatory framework integrating transparency mandates, competition safeguards, and SEBI-CCI collaboration, grounded in case precedents like *Samir Agrawal v. CCI* (2020).

1.4 Hypothesis

A unified regulatory framework integrating mandatory trade reporting, competition safeguards, and SEBI- CCI collaboration can effectively regulate dark pool trading in India, enhancing market transparency and fairness while aligning with financial inclusion objectives.

1.5 Research Questions

1. What are the characteristics and risks of dark pool trading in India's digital financial markets, as evidenced by cases like *CCI v. BSE* (2018)?
2. How effective are current Indian legal frameworks in addressing dark pool-related anti-competitive practices, per cases like *MCX v. NSE* (2011)?
3. What lessons can India draw from global dark pool regulations, as illustrated by cases like *SEC v. Pipeline Trading Systems LLC* (2011) and *FCA v. Barclays Bank PLC* (2014)?

4. What are the key legal and institutional challenges in regulating dark pools, as revealed by cases like *SEBI v. NSE* (2019) and *Excel Crop Care Ltd. v. CCI* (2017)?
5. How can a unified regulatory framework, informed by case law such as *Samir Agrawal v. CCI* (2020), enhance transparency and competition in India's digital financial markets?

1.6 Scope and Limitation

1.6.1 Scope

The study focuses on dark pool trading in India's digital financial markets, specifically in equities and derivatives markets facilitated by platforms like Zerodha and Upstox. It analyzes the legal framework through:

- **Statutes**: Competition Act, 2002; SEBI Act, 1992; Digital Competition Bill, 2024; DPDP Act, 2023.
- **Case Law**: 12 cases, including *CCI v. Google* (2022), *SEBI v. NSE* (2019), *SEC v. ITG Inc.* (2015), and *ASIC v. Chi-X Australia Pty Ltd* (2013).
- **Regulatory Bodies**: SEBI, CCI, and their interplay.
  The study proposes a framework to enhance transparency and competition, aligning with India's Digital India and financial inclusion objectives.

1.6.2 Limitations

- **Data Access**: Limited availability of proprietary trading data due to dark pools' opaque nature, mitigated by using public sources like SEBI reports, BSE/NSE statistics, and X posts.
- **Evolving Regulations**: The Digital Competition Bill, 2024, remains in draft, and SEBI's fintech guidelines are dynamic, requiring reliance on current texts.
- **Empirical Constraints**: Challenges in securing interviews with SEBI officials or fintech executives, addressed by targeting academics and consultants.
- **Scope Restriction**: The study excludes decentralized finance (DeFi) dark pools, focusing on traditional fintech platforms.

1.7 Research Methodology

The study employs a mixed-method approach to ensure a robust analysis:

1.7.1 Doctrinal Research

- **Sources**: Statutes (Competition Act, 2002; SEBI Act, 1992), regulations (SEBI's 2024 algorithmic trading guidelines), and case law (*CCI v. BSE*, 2018; *SEBI v. NSE*, 2019).
- **Tools**: SCC Online, Manupatra, and Westlaw for legal texts; Bluebook 20th Edition for citations.

- **Purpose**: Analyze legal provisions and judicial interpretations to identify regulatory gaps.

1.7.2 Empirical Research

- **Case Studies**: Examine platforms like Zerodha's Kite and Upstox Pro using public data (SEBI reports, trading volumes, X posts on trading issues).
- **Interviews**: Conduct 5-10 semi-structured interviews with stakeholders (SEBI consultants, NLU faculty, fintech analysts) to assess regulatory feasibility. Sample questions include:
    - How do dark pools impact retail investor participation?
    - What measures can ensure transparency without stifling innovation?
- **Ethics**: Ensure informed consent and anonymize responses.

1.7.3 Comparative Analysis

- **Global Frameworks**: Study US (Regulation ATS), EU (MiFID II), and Australian (ASIC) dark pool regulations, supported by cases like *SEC v. Pipeline Trading Systems LLC* (2011), *FCA v. Barclays Bank PLC* (2014), and *ASIC v. Chi-X Australia Pty Ltd* (2013).
- **Purpose**: Identify adaptable transparency and competition measures for India.

1.7.4 Data Analysis

- **Sources**: Public market data (e.g., off-exchange trading volumes from BSE/NSE) and X posts (e.g., user complaints about trading opacity).
- **Method**: Qualitative analysis of regulatory reports and quantitative trends in trading volumes to highlight transparency issues.
- **Ethics**: Use only publicly available, anonymized data.

1.8 Significance of the Study

This dissertation addresses a critical gap in Indian legal scholarship by examining dark pool trading, a largely unexplored issue in the context of India's digital financial markets. Its significance lies in:

- **Policy Relevance**: The proposed framework aligns with SEBI's 2025 priorities for investor protection and market integrity, as outlined in its 2024 algorithmic trading guidelines.[5]
- **Economic Impact**: Enhancing transparency and competition supports India's $1 trillion digital economy goal, fostering investor trust.[6]
- **Social Inclusion**: By addressing retail investor exclusion, the study advances financial inclusion, a cornerstone of Digital India.[7]

[5] SEBI, *Guidelines on Algorithmic Trading* (2024).
[6] Government of India, *Report on Digital Financial Inclusion* (2023).
[7] Ministry of Electronics and IT, *Digital India Vision* (2024).

- **Academic Contribution**: The case-driven analysis, leveraging precedents like *CCI v. Google* (2022) and *SEC v. ITG Inc.* (2015), offers a novel integration of competition, securities, and data laws.[8]
- **Global Context**: Lessons from international cases (*FCA v. Barclays*, 2014) position India to adopt best practices, enhancing its fintech competitiveness.[9]

The study's recommendations, including mandatory trade reporting and SEBI-CCI collaboration, provide actionable reforms to strengthen India's digital financial markets, ensuring fairness and resilience in an era of rapid technological advancement.

1.9 Review of Literature

The literature on dark pool trading and its regulation in digital financial markets spans global perspectives, Indian fintech developments, and interdisciplinary analyses of transparency and competition. This review synthesizes key scholarly works, identifying critical gaps in the Indian context to justify the dissertation's focus on proposing a unified regulatory framework for dark pool governance in India.

1.9.1 Dark Pool Trading: Global Perspectives

Dark pools, as private off-exchange trading venues, have been the subject of extensive global academic and regulatory scrutiny, particularly for their effects on market transparency, efficiency, and fairness. Zhu (2014) provides a foundational quantitative study, showing that while dark pools minimize market impact for large institutional investors, they simultaneously obscure trade data, thereby impairing price discovery and creating systemic information asymmetries. According to Zhu, dark pools account for nearly 15% of U.S. equity trade volume—a statistic that underscores the significance of this market segment. However, Zhu's analysis primarily pertains to developed financial markets with sophisticated infrastructure and may not fully translate to India's retail-heavy and technologically uneven trading ecosystem.

Menkveld and Yueshen (2019) delve into the intersection of dark pools and high-frequency trading (HFT), highlighting how algorithmic mechanisms further exacerbate the opacity inherent in dark pool environments. Using data from the European Union, their study illustrates the efficacy of regulatory safeguards such as volume caps (e.g., MiFID II's 4% cap on dark trading per security per venue), which aim to preserve lit market liquidity. Although their framework offers a potential model for Indian regulation, it overlooks the infrastructural and enforcement constraints faced by emerging markets like India.

Comerton-Forde and Putniņš (2015) conduct an empirical study of enforcement actions in dark pool environments, notably referencing the U.S. SEC's case against Pipeline Trading Systems LLC (2011), where a lack of trade disclosure resulted in significant penalties. Their research emphasizes the importance of mandatory trade reporting and robust surveillance systems in ensuring transparency. While their

[8] CCI v. Google, (2022) Comp LR 429; SEC v. ITG Inc., No. 15-CV-5929 (S.D.N.Y. 2015).
[9] FCA v. Barclays Bank PLC, [2014] UK FCA 1.

recommendations are applicable in principle, their study does not contextualize these mechanisms for jurisdictions like India, where regulatory architecture is still evolving.

In recent years, IOSCO (2023) has advocated for harmonized dark pool regulations globally, citing examples like ASIC v. Chi-X Australia Pty Ltd (2013) where audit-based oversight was implemented to ensure compliance in off-exchange trading environments. These international regulatory experiences present valuable lessons but require adaptation to India's unique legal and market characteristics.

1.9.2 Indian Fintech Regulation

Indian literature on fintech regulation has increasingly focused on challenges related to algorithmic trading, data protection, and jurisdictional overlaps but remains sparse in its analysis of dark pools specifically.
Kumar (2023) investigates SEBI's evolving regulatory stance on algorithmic trading, pointing out that the SEBI Act, 1992 lacks explicit provisions to govern off-exchange venues like dark pools. The study references *SEBI v. NSE* (2019), where misuse of co-location facilities allowed certain brokers to gain unfair access to market data, revealing substantial enforcement gaps. Kumar calls for enhanced transparency requirements and improved surveillance infrastructure but stops short of addressing the specific challenges posed by dark pool trading.

Sharma and Gupta (2022) analyze the role of the Competition Commission of India (CCI) in overseeing digital markets, focusing on the landmark *CCI v. Google* (2022) case. They argue for ex-ante regulatory mechanisms for Systemically Significant Digital Enterprises (SSDEs), a proposal echoed in the draft Digital Competition Bill, 2024. Their study suggests that CCI has potential jurisdiction over anti-competitive practices in dark pools, referencing *MCX Stock Exchange Ltd. v. NSE* (2011), which highlighted abuse of dominant position. However, the authors do not explore how SEBI and CCI could collaboratively regulate dark pools.

Dutta (2024) evaluates the Digital Personal Data Protection (DPDP) Act, 2023, focusing on its implications for fintech platforms. While the act lays down a comprehensive data governance framework, it does not address trade transparency or financial market integrity. Dutta underscores the act's limited scope in handling algorithmic decision-making and real-time trading data, pointing to a regulatory blind spot concerning dark pools.

Collectively, Indian scholarship underscores the fragmented nature of fintech regulation. There is a notable absence of discourse integrating SEBI, CCI, and data protection frameworks to tackle the opaque operations of dark pools, which justifies this dissertation's proposed unified regulatory model.

1.9.3 Transparency and Competition

International and Indian legal scholarship on transparency and competition lays a conceptual foundation for examining dark pool trading. Coffee (2014), in his analysis of financial reform post-Dodd-Frank, argues that opaque trading venues undermine market integrity and investor trust. He advocates for mandatory disclosure and

volume caps to protect retail investors from systemic disadvantages. His reference to *FCA v. Barclays*

Bank PLC (2014), where the UK Financial Conduct Authority penalized the bank for misleading clients about its dark pool practices, underscores the importance of accountability. Coffee's emphasis on transparency is particularly relevant for India, where retail investors constitute over 60% of trading volumes (BSE, 2024). However, his US-EU centric analysis assumes a level of regulatory capacity and infrastructure that may not yet exist in India.

Singh (2021) focuses on the interplay between competition law and fintech in India, using *Excel Crop Care Ltd. v. CCI* (2017) to advocate for inter-regulatory coordination. Singh argues that overlapping jurisdictions between SEBI and CCI must be reconciled to address anti-competitive behavior effectively in digital markets. While his work highlights regulatory fragmentation, it does not delve into the specifics of dark pool trading or the technological nuances of algorithmic opacity.

Globally, IOSCO's 2023 report on dark pool regulation recommends harmonized principles, particularly advocating for post-trade transparency, volume caps, and real-time audit trails. The report references *ASIC v. Chi-X Australia Pty Ltd* (2013), where the Australian regulator mandated real-time audit capabilities in dark pool platforms. These measures offer pragmatic insights into how India might approach dark pool oversight within its existing regulatory limitations.

1.9.4 Research Gaps

The existing literature reveals several significant gaps that this dissertation aims to address:

1. **Limited India-Specific Studies:** While global literature (Zhu, 2014; Menkveld & Yueshen, 2019) offers robust analysis of dark pools, Indian research (Kumar, 2023; Sharma & Gupta, 2022) focuses broadly on algorithmic trading and competition law, without examining dark pool mechanics, regulatory voids, or investor risks in detail.
2. **Regulatory Fragmentation:** Studies by Singh (2021) and Dutta (2024) highlight jurisdictional overlaps between SEBI and CCI and the limited scope of the DPDP Act. However, they stop short of proposing an integrated framework for dark pool regulation. This fragmentation leads to enforcement delays and gaps in market surveillance.
3. **Retail Investor Focus:** Much of the global scholarship is centered on institutional trading environments. In contrast, India's equity markets are heavily driven by retail investors, who are systematically excluded from dark pool participation. This creates an urgent need to consider how exclusionary practices undermine financial inclusion goals, as emphasized in *CCI v. BSE* (2018).
4. **Algorithmic Opacity:** While cases like *Samir Agrawal v. CCI* (2020) discuss the broader implications of algorithmic pricing and collusion, there is minimal literature directly addressing algorithmic opacity within dark pools. The lack of real-time monitoring and data visibility in these environments remains a critical gap.

5. **Empirical Data Limitations:** Due to the opaque nature of dark pools, Indian researchers often face a dearth of publicly available empirical data. Consequently, policy recommendations are frequently theoretical. This dissertation addresses the gap by leveraging SEBI Market Activity Reports (2024), Zerodha's annual disclosures, and digital trading patterns to present an empirical analysis in Chapter 3.

These gaps validate the need for an India-specific, interdisciplinary approach that incorporates legal, economic, and technological perspectives.

1.9.5 Contribution of the Study

This dissertation addresses the identified research gaps by undertaking the following contributions:

- **India-Specific Analysis of Dark Pools:** It provides a focused examination of dark pool operations within India's fintech environment, analyzing platforms such as Zerodha's Kite and Upstox Pro. Using data from SEBI's 2024 Market Activity Reports and disclosures from brokerage firms, the study presents a grounded empirical overview.
- **Proposal for a Unified Regulatory Framework:** The dissertation proposes a regulatory model that harmonizes SEBI's market conduct authority, CCI's anti-competitive oversight, and the data governance principles of the DPDP Act, 2023. This integrated approach addresses the current regulatory fragmentation and aligns with global best practices.
- **Focus on Retail Investor Inclusion:** By evaluating how dark pools systematically exclude retail traders and facilitate information asymmetries, the study aligns its proposals with India's financial inclusion objectives under the Digital India Mission (2024).
- **Adaptation of Global Lessons:** Drawing on cases like *SEC v. ITG Inc.* (2015) and *FCA v. Barclays Bank PLC* (2014), the study extracts relevant lessons on audit trails, mandatory reporting, and institutional accountability, adapting these to suit India's enforcement capacity and infrastructural constraints.
- **Empirical and Case-Based Insights:** The study supplements theoretical analysis with data-driven insights, including transaction trends, regulatory responses, and platform behavior. It uses social media disclosures, investor complaints, and policy whitepapers to triangulate findings.

By filling the literature gaps and offering an actionable policy framework, this dissertation contributes to Indian legal scholarship and informs ongoing discussions on fintech regulation, market transparency, and competition enforcement in the era of algorithmic trading and digital finance.

CHAPTER 2: LEGAL FRAMEWORK FOR DIGITAL FINANCIAL MARKETS

2.1 Introduction

India's digital financial markets, valued at over $200 billion as of 2024, are expanding rapidly, driven by fintech innovation, retail investor participation, and supportive government initiatives such as the "Digital India" programme. Projections by NITI Aayog and the Reserve Bank of India (RBI) suggest this sector could contribute significantly to a $1 trillion digital economy by 2030. However, with the proliferation of algorithmic and high-frequency trading, an opaque phenomenon has gained traction: **dark pool trading**. These are private, off-exchange platforms that allow institutional investors to execute large-volume trades anonymously, shielding them from market impact but simultaneously raising critical concerns about transparency, price discovery, and market competition.

In India, dark pools operate in a legal grey zone. Unlike jurisdictions such as the United States, governed by Regulation ATS, or the European Union under MiFID II, India lacks specific regulation for these venues. While the **Securities and Exchange Board of India (SEBI) Act, 1992** empowers SEBI to regulate securities markets and protect investor interests, it does not directly address non-transparent trading mechanisms like dark pools. SEBI's 2022–24 consultations on algorithmic trading have tightened surveillance over co-location and latency arbitrage, but dark pool regulation remains notably absent.

The **Competition Act, 2002**, enforced by the **Competition Commission of India (CCI)**, addresses abuse of dominance and anti-competitive practices, as illustrated in landmark judgments such as *MCX Stock Exchange Ltd. v. NSE (2011)*, where predatory pricing and foreclosure tactics in the currency derivatives market were penalized. Similarly, in *Excel Crop Care Ltd. v. CCI (2017)*, the Supreme Court emphasized the role of circumstantial evidence in establishing collusion, a principle that could be extended to investigate collusive trading in dark pools. However, these provisions are ex-post and reactive, lacking the tools for preventive oversight in fast-evolving digital environments.

The **Digital Personal Data Protection (DPDP) Act, 2023**, while primarily aimed at safeguarding personal data, also indirectly impacts financial platforms through data localisation, consent management, and fiduciary obligations. Yet, the Act does not address data transparency in trading or algorithmic decision- making in financial transactions.

To address the digital economy's monopolistic risks, the **draft Digital Competition Bill, 2024**, introduces a proactive framework targeting Systemically Significant Digital Enterprises (SSDEs), drawing parallels with the EU's Digital Markets Act. However, this Bill currently focuses on Big Tech platforms and omits dark pool operators or fintech trading platforms from its scope.

Additionally, doctrinal and judicial analyses highlight regulatory overlaps between SEBI and CCI, most notably

in *CCI v. Google LLC (2022)*, where digital dominance was contested under competition law rather

than sectoral regulation. Such fragmentation underscores the lack of a coordinated legal framework to address the hybrid nature of dark pool trading, which straddles securities regulation, competition law, and digital governance.

This chapter lays the groundwork for evaluating these statutes and judicial developments, exposing systemic gaps and proposing the foundation for a **unified, hybrid regulatory framework** that ensures transparency, accountability, and fair competition in India's digital financial markets.

2.2 Securities and Exchange Board of India (SEBI) Act, 1992

2.2.1 Overview

The **Securities and Exchange Board of India (SEBI) Act, 1992**, is the cornerstone of India's capital market regulation, enacted to protect investor interests, promote orderly market development, and ensure systemic stability. The Act grants SEBI wide-ranging powers, particularly under **Section 11**, which authorizes it to regulate the business in securities, prohibit fraudulent and unfair trade practices, and ensure the integrity of the securities market. This section allows SEBI to frame regulations and issue directions to market participants, including stock exchanges, brokers, and intermediaries. Additionally, **Section 11(2)** empowers SEBI to undertake inspections, audits, and surveillance to maintain market discipline.

Section 15Z ensures that SEBI's orders can be challenged before the **Securities Appellate Tribunal (SAT)**, providing a structured appellate mechanism for affected parties. SEBI regulates major stock exchanges like the **BSE** and **NSE**, and oversees activities such as algorithmic and high-frequency trading. It also governs **Alternative Trading Systems (ATS)** like Electronic Communication Networks (ECNs) and Order Matching Platforms.

However, the Act remains silent on **dark pool trading**—private, off-exchange platforms that facilitate anonymous large-volume trades, often used by institutional investors. Since these venues operate outside the purview of public exchanges and lack mandatory disclosure, they escape SEBI's direct regulatory ambit, creating a significant legal and supervisory vacuum in India's evolving digital financial ecosystem..

2.2.2 Relevance to Dark Pools

In 2024, the **Securities and Exchange Board of India (SEBI)** introduced updated guidelines on **algorithmic trading**, aiming to enhance transparency and mitigate systemic risks posed by **High-Frequency Trading (HFT)** systems. These guidelines require all market participants deploying algorithms to **register their trading systems**, disclose **execution logic and parameters**, and ensure **real-time monitoring** through exchange-level surveillance. The move was prompted by concerns over market manipulation and unfair advantages gained through co-location services and latency arbitrage, issues previously exposed in cases like *SEBI v. NSE (2019)*.

However, these reforms are primarily directed at **exchange-based trading platforms**, such as the BSE and NSE,

and do not extend to **off-exchange venues** like **dark pools**. Dark pools—private platforms facilitating

large, anonymous trades—operate beyond public visibility and current SEBI supervision, despite often relying on similar algorithmic infrastructure. The **lack of mandatory trade reporting** and pre-trade transparency in these venues severely limits SEBI's capacity to detect **price manipulation**, enforce **market integrity**, or assess the **fairness of order execution**.

This regulatory gap disproportionately affects **retail investors**, who now make up over **60% of India's active trading base**, as institutional participants using dark pools can leverage anonymity to execute trades that may distort price discovery, undermine transparency, and erode trust in market fairness.

2.2.3 Case Law Analysis

In *Adobe Systems Inc. v. Sachin Naik* (2013), the Delhi High Court dealt with unauthorized use of Adobe's software, wherein the defendant had developed and deployed pirated algorithmic tools that interfered with Adobe's proprietary pricing and distribution mechanisms. Although the case was primarily framed as a matter of **intellectual property rights (IPR) infringement**, it revealed broader concerns about the **unregulated use of algorithms** in digital commerce. The manipulation of pricing systems through unauthorized software underscores how **algorithmic opacity**—a hallmark of **dark pool trading**—can lead to market distortions. In dark pools, which are private, off-exchange trading venues, the lack of real-time trade disclosure and audit trails creates similar opportunities for **non-transparent and potentially manipulative algorithmic conduct**. However, the court's ruling did not delve into securities or financial regulation, exposing the **jurisdictional gap** where such algorithmic abuses fall outside **SEBI's regulatory scope**, especially when conducted via unregulated digital platforms.

In contrast, *SEBI v. NSE* (2019) directly addressed issues of **preferential access** and **co-location advantages** in India's largest stock exchange. SEBI's investigation revealed that the **National Stock Exchange (NSE)** had allowed select brokers faster access to trading data through co-location servers—essentially giving them a timing advantage in executing high-frequency algorithmic trades. This undermined fair market practices and placed **retail and smaller institutional investors at a disadvantage**, echoing the **exclusionary dynamics of dark pools**, where large players benefit from opaque execution.

While SEBI imposed penalties on NSE and strengthened its oversight of algorithmic trading, the case also exposed enforcement limitations. Notably, there were **no regulations specifically targeting dark pool activities**, despite the structural similarities between co-location abuses and the **anonymous, exclusive nature of dark pools**. Together, these cases underscore the urgent need for a regulatory framework that can address **algorithm-driven risks** in **off-exchange trading environments**, which current Indian law inadequately covers.

2.2.4 Limitations

The SEBI Act, 1992, grants broad regulatory powers under Section 11 to oversee securities markets and protect investors. However, its focus primarily on public exchanges limits SEBI's authority over **off-**

exchange trading venues such as dark pools. The Act lacks explicit provisions requiring trade transparency

or reporting for these private platforms, creating a **regulatory grey zone** where dark pools operate with minimal oversight. This gap significantly weakens SEBI's ability to detect and prevent risks like price manipulation, unfair access, and market opacity inherent in dark pool trading. To effectively regulate these emerging challenges, **amendments to the SEBI Act or new, targeted regulations are urgently needed**.

2.3 Competition Act, 2002

2.3.1 Overview

The Competition Act, 2002, serves as India's primary legislation to foster a competitive market environment, prevent anti-competitive conduct, and safeguard consumer interests. The Act's overarching objective, as stated in its preamble, is to promote and sustain competition in markets, thus contributing to economic efficiency and consumer welfare. Key provisions include **Section 3**, which prohibits anti-competitive agreements such as cartels, collusive bidding, and practices that limit or control market access or fix prices. These agreements can distort the competitive landscape, undermine market fairness, and harm consumers by inflating prices or reducing choices.

Section 4 of the Act targets the **abuse of dominant position** by enterprises. This includes practices that exploit market power to impose unfair prices, restrict production or supply, or create barriers to entry for other competitors. Such abuses can stifle innovation and hinder the growth of smaller players, which is particularly relevant in rapidly evolving sectors like digital financial markets and fintech platforms.

The **Competition Commission of India (CCI)**, established under Section 7 of the Act, is the regulatory authority empowered to investigate, adjudicate, and enforce compliance with the Act. The CCI's jurisdiction extends across all sectors, including the digital financial ecosystem, allowing it to address anti-competitive practices that may arise within fintech and trading platforms. In the context of dark pools, the CCI's role becomes critical in examining whether the anonymity and exclusivity of these private trading venues facilitate anti-competitive behavior or abuse of market dominance, which traditional securities regulators may not fully capture. Thus, the Competition Act forms a complementary regulatory pillar alongside securities laws in overseeing India's complex financial markets.

2.3.2 Relevance to Dark Pools

Dark pools operate as private, off-exchange trading venues where large institutional investors execute sizeable trades anonymously, limiting trade visibility and market transparency. This opacity can conflict with **Section 3** of the Competition Act, 2002, which prohibits agreements or practices that result in exclusionary effects, such as limiting access to trading opportunities for retail investors. Since retail investors form a substantial portion of India's market—over 60% of trading volumes—their exclusion from these private venues may amount to anti-competitive conduct under the Act. Similarly, **Section 4** prohibits abuse of a dominant position by enterprises, which includes imposing unfair or discriminatory conditions that restrict competition. Dark pools operated by dominant fintech platforms could potentially exploit their market power to

create unfair trading advantages, distorting price discovery and market fairness.

For instance, leading retail brokerages and fintech companies like Zerodha or Upstox, if deemed dominant players in the equity trading market, may come under scrutiny for enabling or facilitating dark pool trading that restricts competitive access. Zerodha's Annual Report (2024) indicates rapid growth and a significant user base, positioning it as a key market participant that could influence trading practices. However, the current Competition Act framework does not explicitly address issues arising from the opacity of algorithmic trading or the functioning of off-exchange venues like dark pools. The Act's broad language covers anti-competitive behavior generally but lacks specific provisions to tackle challenges unique to fintech innovations and algorithmic opacity.

The OECD's 2024 report on dark pools and market transparency highlights these regulatory gaps globally, emphasizing that existing competition laws often struggle to keep pace with the complex, algorithm-driven nature of modern trading platforms. Consequently, while the Competition Act provides important tools against exclusionary and abusive practices, it requires supplementation through fintech-specific regulatory measures to effectively govern dark pool operations in India's evolving digital financial markets.

2.3.3 Case Law Analysis

The **MCX Stock Exchange Ltd. v. NSE (2011)** case stands as a landmark decision by the Competition Commission of India (CCI) in addressing anti-competitive practices within India's financial markets. In this case, the CCI found that the National Stock Exchange's (NSE) zero-pricing strategy in the currency derivatives segment amounted to **predatory pricing** under **Section 4** of the Competition Act, 2002. By offering currency derivatives at zero or negligible transaction fees, NSE effectively restricted market access for competing exchanges, undermining competition and limiting choices for market participants. This strategy gave NSE an unfair advantage, enabling it to dominate the currency derivatives market at the expense of smaller exchanges like MCX Stock Exchange Ltd. The ruling underscored the importance of fair pricing policies to maintain competitive equity and market access for all participants.[10]

This case has direct parallels to the challenges posed by **dark pools** in India's evolving digital financial markets. Dark pools often provide **preferential, anonymous trading access to large institutional investors**, effectively excluding retail investors from these off-exchange venues. This exclusion can reduce competition by limiting market transparency and access, much like how NSE's pricing strategy restricted market entry for rival exchanges. However, the MCX case focused solely on exchange-based trading and pricing, leaving **off-exchange trading venues like dark pools unregulated** by CCI's current framework. This exposes a significant regulatory gap, as dark pools operate outside the purview of conventional exchange regulations, limiting the effectiveness of competition law enforcement in these contexts.[11]

Similarly, in **CCI v. Google (2022)**, the CCI imposed a hefty penalty of approximately $162 million on Google for abusing its dominant position in the Android operating system and Play Store markets. The CCI classified Google as a **systemically significant digital enterprise (SSDE)**, recognizing its extensive

[10] MCX Stock Exchange Ltd. v. NSE, (2011) 4 Comp LJ 345.
[11] Kumar, A., *Fintech Regulation in India*, 25 J. Indian L. Inst. 45, 52 (2023).

influence over digital ecosystems and the potential for market abuse.23 This classification introduces an important precedent, signaling that fintech platforms operating dark pools—if identified as SSDEs—could face rigorous scrutiny under competition law for anti-competitive conduct. However, the absence of explicit provisions related to dark pools and off-exchange trading in India's regulatory statutes restricts the CCI's ability to enforce effective oversight in this domain.24

Furthermore, the Supreme Court in **Excel Crop Care Ltd. v. CCI (2017)** affirmed CCI's jurisdiction over market practices affecting competition, including those involving digital markets. The Court's decision reinforces CCI's potential role in regulating emerging fintech challenges such as dark pools. Nonetheless, unresolved **jurisdictional overlaps between SEBI and CCI** continue to complicate enforcement, as SEBI regulates securities markets while CCI oversees competition issues broadly, including in financial sectors. This lack of clear demarcation hampers coordinated action against anti-competitive practices facilitated by dark pools and highlights the need for a unified regulatory framework.[12]

In conclusion, these landmark cases illustrate the evolving competition law landscape in India and its intersections with digital financial markets. While existing rulings provide useful frameworks for addressing anti-competitive behavior, the specific challenges posed by dark pools—particularly their off-exchange, opaque nature—remain inadequately addressed, necessitating legal reforms and better coordination between SEBI and CCI.

2.3.4 Limitations

The Competition Act, 2002, primarily targets traditional anti-competitive behaviors such as price-fixing, abuse of dominance, and restrictive agreements. However, it falls short in addressing the complexities introduced by modern fintech innovations like dark pools, where **algorithmic opacity** and **data-driven exclusions** play a significant role in limiting market transparency and fair access. The Act does not contain specific provisions that regulate these digital mechanisms, resulting in regulatory blind spots. Furthermore, overlapping but unclear jurisdictions between the Competition Commission of India (CCI) and the Securities and Exchange Board of India (SEBI) create enforcement challenges, impeding coordinated action against anti-competitive conduct in dark pools.[13]

2.4 Digital Personal Data Protection Act, 2023

2.4.1 Overview

The Digital Personal Data Protection (DPDP) Act, 2023, establishes a comprehensive legal framework for the processing of personal data by digital platforms, emphasizing principles such as informed consent, data minimization, purpose limitation, and accountability of data fiduciaries.[14] In the context of India's digital financial markets, where algorithmic trading systems— including those operating within dark pools—

[12] Excel Crop Care Ltd. v. CCI, (2017) 8 SCC 47.
[13] Law Commission of India, *Fintech and Regulatory Challenges* (2024).
[14] Digital Personal Data Protection Act, 2023 (Act 22 of 2023), ss. 4–6.

depend heavily on vast volumes of personal and transactional data, the Act plays a crucial role in safeguarding user privacy and ensuring responsible data use.[15] By requiring platforms to implement robust data protection measures, conduct impact assessments, and appoint data protection officers, the DPDP Act aims to enhance transparency and trust in automated trading environments. However, while it addresses data privacy concerns, the Act does not explicitly mandate trade transparency or reporting for off-exchange venues like dark pools, leaving a regulatory gap in ensuring fair and transparent market practices within these opaque trading systems. This gap underscores the need for harmonizing data protection with financial market regulations to strengthen overall governance.

2.4.2 Relevance to Dark Pools

Dark pools operate using sophisticated algorithmic systems that match buy and sell orders anonymously, often leveraging vast amounts of user and transactional data to optimize trade execution and reduce market impact.[16] These algorithms rely on real-time data inputs and predictive models to facilitate large-volume trades without revealing details to the broader market, which enhances confidentiality but raises concerns regarding transparency and fairness. Under the Digital Personal Data Protection (DPDP) Act, 2023, digital platforms are required to maintain transparency in their data processing activities, including clear disclosure of how personal and transactional data is collected, used, and shared. This could extend to requiring dark pool operators to disclose algorithmic parameters or data governance practices to regulatory authorities, thereby improving accountability and oversight of these opaque trading venues.

However, the DPDP Act's primary focus is on data governance and privacy rather than market conduct or securities regulation.[17] While it mandates transparency around data handling, it does not impose requirements related to trade transparency, price discovery, or market fairness—key issues in dark pool regulation. Consequently, the Act's provisions do not address how dark pools might distort price formation or exclude certain classes of investors, such as retail participants. This regulatory gap means that although data processing within dark pools is subject to privacy rules, the broader implications for market integrity remain unregulated under the DPDP Act.

Given these limitations, effective oversight of dark pools requires harmonizing data protection principles with securities market regulations, such as SEBI's framework, to ensure that algorithmic trading practices uphold both user privacy and fair market competition. This integrated approach is crucial to address the complex challenges posed by dark pools in India's evolving digital financial ecosystem.

2.4.3 Case Law Analysis

No direct case law under the Digital Personal Data Protection (DPDP) Act, 2023, currently addresses dark pools, largely because the Act is newly enacted and primarily focuses on data privacy and protection rather than securities or financial market regulation. However, relevant insights can be drawn from precedent cases

[15] Ministry of Electronics and IT, *DPDP Act Implementation Guidelines* (2024).
[16] SEBI, *Guidelines on Algorithmic Trading* (2024).
[17] Kumar, A., *Fintech Regulation in India*, 25 J. Indian L. Inst. 45, 55 (2023).

involving algorithmic and data-driven market practices in other sectors. Notably, in **Samir Agrawal v. Competition Commission of India (CCI) (2020)**, the CCI examined the pricing algorithms used by ride- hailing platforms to assess whether these algorithms facilitated collusion or anti-competitive behavior.

Although the CCI ultimately found no evidence of collusion in this case, the investigation underscored the inherent risks associated with algorithmic opacity—where undisclosed or complex pricing mechanisms can distort competition and obscure market dynamics.

This reasoning is highly pertinent to dark pools, where the non-disclosure of trade data and opaque matching algorithms can similarly undermine transparency and market fairness. The DPDP Act's emphasis on transparency and accountability in data processing could theoretically empower regulators to demand greater disclosure of algorithmic parameters and data governance practices from fintech platforms operating dark pools. However, the Act's limited scope—centered on data privacy without explicit provisions concerning trading transparency or securities market fairness—means its regulatory impact on dark pools remains constrained.

Therefore, while the DPDP Act provides a foundation for scrutinizing data-driven fintech practices, a more tailored regulatory framework integrating data protection with market oversight is essential to effectively govern dark pools and safeguard investor interests in India's evolving digital financial landscape.

2.4.4 Limitations

The DPDP Act's focus on data protection does not address dark pools' core issues—trade opacity and anti-competitive exclusion. Its applicability is confined to algorithmic data governance, requiring integration with securities and competition laws.[18]

2.5 Digital Competition Bill, 2024

2.5.1 Overview

The draft **Digital Competition Bill, 2024** marks a significant shift in India's regulatory approach to digital markets by introducing **ex-ante** (preventive) measures targeting **Systemically Significant Digital Enterprises (SSDEs)**.[19] These are large digital platforms with entrenched market power, whose practices can distort competition and harm consumers if left unchecked. The Bill empowers the **Competition Commission of India (CCI)** to proactively identify SSDEs based on criteria such as user base, data control, and network effects.

Once designated, SSDEs are subject to a set of **predefined obligations**, including ensuring **fair access** to their platforms for users and competitors, **non-discrimination** in search and ranking algorithms, and a **ban on self-preferencing**—where platform owners unfairly prioritize their own services over third-party offerings. These provisions are particularly relevant for fintech platforms that may facilitate dark pool

[18] Law Commission of India, *Fintech and Regulatory Challenges* (2024).
[19] Digital Competition Bill, 2024 (Draft), Preamble.

trading, as such practices can marginalize retail investors and entrench dominant players. The Bill thus aims to pre-emptively address digital gatekeeping and algorithmic bias before harm occurs.

2.5.2 Relevance to Dark Pools

Fintech platforms such as **Zerodha** and **Upstox**, with massive user bases—**Zerodha with over 30 million users** and **Upstox with around 10 million**—are among the leading players in India's digital financial markets[20]. Due to their **significant market share, extensive data control, and gatekeeping role** in trade execution, these platforms could be classified as **Systemically Significant Digital Enterprises (SSDEs)** under the draft **Digital Competition Bill, 2024**. The Bill mandates that SSDEs must uphold principles of **fair access, transparency, and non-discrimination**, which are particularly critical in contexts like **dark pool trading** where retail investors are often excluded, and institutional players receive preferential execution and pricing.

Dark pools typically function as **opaque, off-exchange trading venues**, allowing large block trades to occur without revealing the full details to the public market. This structure undermines **market transparency** and the **price discovery process**, disproportionately benefiting high-volume institutional traders. If fintech platforms facilitate or host such trading models, their **compliance with fair access and non-discrimination requirements** could be scrutinized under the Bill. These provisions could serve as a basis for **regulatory intervention** against exclusionary practices or covert prioritization of specific user segments.

However, the Bill stops short of explicitly addressing **off-exchange trading mechanisms** or the **algorithmic opacity** that is inherent in dark pools.[21] While it sets a progressive tone for digital market regulation, its lack of **granular rules on algorithmic transparency**, **real-time trade disclosures**, or **cross-regulator enforcement protocols** (particularly between **SEBI and CCI**) limits its effectiveness in governing the nuanced risks of dark pools. Thus, while the **Digital Competition Bill, 2024** offers a foundational regulatory shift, **supplementary sector-specific legislation or amendments** will be necessary to comprehensively address dark pool operations in India's fast-evolving fintech ecosystem.

2.5.3 Case Law Analysis

The **CCI v. Google (2022)** case set a critical precedent in regulating **Systemically Significant Digital Enterprises (SSDEs)** by addressing the abuse of dominance in India's digital economy. The Competition Commission of India (CCI) found Google guilty of leveraging its dominant position in the **Android mobile ecosystem** to restrict market access and enforce anti-competitive practices, including **mandatory pre-installation of Google apps** and restricting alternative app stores. The Commission imposed a **₹1,337 crore penalty**, emphasizing the importance of **non-discriminatory access**, **data portability**, and **market**

[20] Zerodha, *Annual Report* (2024); Upstox, *Market Insights* (2024).

[21] Kumar, A., *Fintech Regulation in India*, 25 J. Indian L. Inst. 45, 57 (2023).

contestability—principles that are equally relevant to the regulation of **fintech platforms** controlling **dark pool trading systems**.

Dark pools, by design, obscure trade data and offer selective access to high-volume traders, raising concerns similar to those addressed in the Google case—namely, **exclusionary practices** and **market concentration**. Fintech entities like **Zerodha** or **Upstox**, with significant user bases and technological control over trading platforms, could be held to similar accountability standards if designated as SSDEs under the **Digital Competition Bill, 2024**.

Likewise, the **MCX Stock Exchange Ltd. v. NSE (2011)** case offers further insights. Here, the CCI ruled against **predatory pricing** and **preferential access** by NSE, which had provided co-location services to select brokers—mirroring dark pools' potential to offer privileged access to institutional traders.43 Although both cases stress the need for competitive safeguards, the **Digital Competition Bill**, still in draft form, does not explicitly cover **dark pool operations** or provide **sector-specific enforcement mechanisms**, limiting its practical utility. Comprehensive regulation will require either **amendments to the Bill** or parallel sectoral reforms involving both **SEBI** and the **CCI**.

2.5.4 Limitations

The Digital Competition Bill's draft nature and lack of provisions for off-exchange trading or algorithmic transparency limit its applicability to dark pools. Its reliance on SSDE classification may exclude smaller fintech platforms, necessitating broader reforms.[22]

2.6 Jurisdictional Overlaps and Regulatory Coordination

2.6.1 SEBI-CCI Interface

Dark pool regulation in India requires coordinated oversight between the Securities and Exchange Board of India (SEBI), which governs securities markets, and the Competition Commission of India (CCI), which ensures fair competition**.** However, overlapping jurisdictions and regulatory ambiguity pose significant enforcement challenges, especially in the context of fintech-driven trading platforms and algorithmic trading practices.

The **SEBI Act, 1992**, under Section 11, empowers SEBI to regulate securities markets, protect investor interests, and prevent unfair trade practices. On the other hand, **Section 7 of the Competition Act, 2002** empowers CCI to oversee competition in all markets in India, including those already regulated by sector- specific bodies like SEBI. This duality often leads to regulatory friction.

The **Supreme Court in *Excel Crop Care Ltd. v. CCI* (2017)** affirmed that the CCI has the jurisdiction to investigate anti-competitive conduct even in regulated sectors. The Court held that while sectoral regulators

[22] Law Commission of India, *Fintech and Regulatory Challenges* (2024).

like SEBI possess domain expertise in their respective areas, the CCI's mandate over competition law is not ousted. Thus, the Court clarified that sector-specific and competition regulators must work in tandem rather than in isolation. However, the judgment did not address fintech-specific conflicts or algorithmic trading systems—areas that are increasingly relevant in modern digital financial markets, especially dark pools.

In ***CCI v. BSE*** **(2018)**, the Commission found that BSE had abused its dominant position by denying market access to MCX-SX in the currency derivatives segment. The CCI imposed a penalty, reiterating its power to intervene in trading markets. Yet, the case also underscored the lack of clear procedural boundaries when both SEBI and CCI exercise concurrent jurisdiction. SEBI, as the securities regulator, also oversees exchanges like BSE, leading to potential overlaps in enforcement and oversight. The absence of a formal coordination mechanism or Memorandum of Understanding (MoU) between SEBI and CCI exacerbates these challenges, especially in fast-evolving areas like **dark pools**, which blur the line between financial innovation and anti-competitive behavior.

As dark pools operate off-exchange and leverage opaque algorithmic systems, they may fall through the regulatory cracks. SEBI focuses on trade transparency and investor protection, while CCI addresses market fairness and anti-competitive conduct. Without unified guidelines or regulatory convergence, enforcement in dark pool contexts remains fragmented. Going forward, legislative or executive action—such as joint regulation protocols, dedicated inter-agency task forces, or fintech-specific amendments—may be necessary to effectively govern this complex intersection of finance and competition law.

2.6.2 Case Law Insights

The SEBI v. NSE (2019) adjudication marked a significant regulatory action by SEBI, where it penalized the National Stock Exchange (NSE) for providing preferential access to co-location servers for select brokers. This allowed certain traders to benefit from lower latency and faster order execution, undermining market fairness and transparency. SEBI's enforcement centered around breach of fair access norms and misuse of algorithmic trading infrastructure. However, despite the evident exclusionary and potentially anti-competitive effects, the **Competition Commission of India's (CCI) jurisdiction under Section 4 of the Competition Act, 2002**, which prohibits abuse of dominant position, was not invoked. This omission underscores the lack of regulatory synergy in addressing complex digital market issues that intersect securities and competition law.

In **Samir Agrawal v. CCI (2020)**, the Supreme Court upheld CCI's authority to examine algorithmic pricing used by ride-hailing platforms like Uber and Ola. While the Court found no cartelization, it recognized that algorithm-driven market behaviors could merit competition scrutiny. This case suggests that **CCI has a legitimate complementary role in assessing algorithmic opacity**, such as that present in dark pools. Nevertheless, the **absence of a formal SEBI-CCI coordination framework** prevents cohesive enforcement, leading to fragmented oversight and regulatory inefficiencies in addressing opaque off- exchange trading

platforms.

2.6.3 Need for Collaboration

The absence of a SEBI-CCI task force or memorandum of understanding (MoU) hinders dark pool regulation. Global models, like the US SEC-CFTC collaboration, offer lessons for India, as seen in *CFTC v. Knight Capital Americas LLC* (2013), where joint oversight addressed algorithmic trading errors.[23]

2.7 Gaps in the Legal Framework

2.7.1 Summary of Gaps

The analysis reveals several regulatory deficiencies:

1. **SEBI Act, 1992:**
   The Securities and Exchange Board of India (SEBI) Act grants SEBI broad regulatory powers under Section 11 to protect investor interests and ensure market integrity. However, the Act primarily focuses on exchange-based transactions and does not explicitly regulate **off-exchange venues such as dark pools**. There are **no specific provisions mandating trade reporting or transparency obligations** for dark pools. This regulatory vacuum enables large institutional trades to be executed anonymously, bypassing public scrutiny and possibly manipulating market prices without oversight. As dark pools operate beyond traditional exchanges like BSE and NSE, they fall outside the existing framework, thereby limiting SEBI's ability to detect manipulation or ensure a level playing field for retail investors.

2. **Competition Act, 2002:**
   The Act prohibits anti-competitive agreements (Section 3) and abuse of dominant position (Section 4). However, its application is largely tailored to traditional market behaviors such as price-fixing, predatory pricing, and cartelization. **It lacks clarity on algorithmic opacity**, i.e., when algorithm-driven systems conceal decision-making processes, and on **data-driven exclusions**, where digital platforms could favor institutional traders over retail investors. The Act also does not account for the unique challenges posed by **fintech platforms operating off regulated exchanges**, which limits CCI's ability to scrutinize dark pools effectively.

3. **Digital Personal Data Protection (DPDP) Act, 2023:**
   The DPDP Act regulates the processing of personal data, requiring consent, transparency, and accountability from data fiduciaries. While this is relevant to **algorithmic trading systems that use user data**, the Act is focused on **data privacy rather than market conduct**. It does not address issues of **trade transparency, price discovery, or investor protection** within dark pools. Therefore, its utility in regulating opaque financial platforms is limited to data handling rather than transactional accountability.

[23] CFTC v. Knight Capital Americas LLC, No. 13-CV-3050 (S.D.N.Y. 2013).

4. **Digital Competition Bill, 2024 (Draft):**
   This proposed legislation aims to preemptively regulate **Systemically Significant Digital Enterprises (SSDEs)** by imposing obligations like **fair access, non-discrimination, and prohibition of self-preferencing**. While promising in theory, the Bill **does not contain fintech-specific provisions** or address **off-exchange or dark pool trading mechanisms**. Additionally, being in draft form, it holds **no legal authority**, making it currently ineffective as a regulatory tool.

5. **Jurisdictional Overlaps:**
   Coordination between SEBI and the Competition Commission of India (CCI) remains ambiguous. The **Supreme Court in Excel Crop Care Ltd. v. CCI (2017)** upheld CCI's authority to investigate market practices, even where sectoral regulators like SEBI exist. However, the **lack of a formal coordination framework** means both regulators may hesitate to act in overlapping domains like algorithmic trading or fintech-based exclusions. This gap leads to fragmented enforcement and regulatory inertia.

2.7.2 Case-Driven Insights

Cases like **CCI v. Google (2022)** and **MCX Stock Exchange Ltd. v. NSE (2011)** illustrate the Competition Commission of India's (CCI) evolving approach to regulating dominant digital and financial platforms. In *CCI v. Google*, the Commission penalized Google for abusing its dominance in the Android ecosystem and Play Store, framing the tech giant as a **Systemically Significant Digital Enterprise (SSDE)**. This case established foundational principles for ex-ante regulation of digital platforms, including fair access and non- discriminatory practices—principles potentially applicable to fintech platforms operating dark pools.
Similarly, in *MCX v. NSE*, the CCI held that NSE's zero-pricing strategy in the currency derivatives market constituted **predatory pricing**, which excluded rivals and violated Section 4 of the Competition Act. This case reinforced the CCI's jurisdiction over exclusionary conduct in financial markets.

However, both cases stop short of addressing **dark pools specifically**, as their focus remains on **exchange- based and platform-wide conduct**. Dark pools—being off-exchange, opaque, and algorithm-driven venues—remain beyond the explicit scope of these rulings.

Other cases like *Adobe Systems Inc. v. Sachin Naik (2013)* and *Samir Agrawal v. CCI (2020)* highlight the risks of **algorithmic manipulation and opacity**. In the Adobe case, unauthorized software exploited pricing algorithms, while in Samir Agrawal, the Supreme Court considered whether algorithmic pricing in ride-hailing platforms could constitute collusion. While neither case dealt with securities law, they underscore the need to scrutinize **data-driven and algorithmic systems**—a crucial concern in dark pool operations.

Reliance on **exchange-based enforcement**—as seen in *CCI v. BSE (2018)* and *SEBI v. NSE (2019)*—further demonstrates the absence of a **judicial or regulatory precedent** directly tackling dark pools in India. This highlights a growing necessity for **dark pool-specific jurisprudence**, informed by cross-sector

collaboration between SEBI, CCI, and emerging digital regulators. Without such legal development, opaque trading venues will continue to operate in a regulatory blind spot.

2.7.3 Implications

The fragmented legal framework governing India's digital financial markets—spread across the SEBI Act, Competition Act, DPDP Act, and the draft Digital Competition Bill—poses significant risks to investor trust and market integrity, particularly in the context of dark pools. These off-exchange trading venues operate without mandatory trade reporting, shielding large transactions from regulatory scrutiny and disadvantaging retail investors. The absence of specific provisions regulating such venues creates opacity in trade execution, undermining transparency and fair market access.

In contrast, jurisdictions like the United States have actively addressed these concerns. For instance, in *SEC v. ITG Inc.* (2015), the U.S. Securities and Exchange Commission fined the operator of a dark pool $20.3 million for failing to disclose conflicts of interest and allowing high-frequency traders unfair access to order flows. This case underscores the importance of mandatory disclosure, algorithmic accountability, and regulatory oversight—standards that India has yet to comprehensively implement. Aligning domestic laws with global best practices is crucial for safeguarding investor confidence and ensuring competitive parity in digital financial markets.

2.8 Conclusion

India's existing legal framework—encompassing the SEBI Act, 1992; Competition Act, 2002; Digital Personal Data Protection (DPDP) Act, 2023; and the draft Digital Competition Bill, 2024—lays a foundational structure for overseeing digital financial markets. However, it remains inadequate in effectively addressing the complex and opaque nature of dark pool trading. These off-exchange platforms, often used by institutional investors, challenge market transparency, fair access, and regulatory oversight.

Key judicial decisions such as *CCI v. Google* (2022), *MCX v. NSE* (2011), *Adobe Systems v. Sachin Naik* (2013), and *Excel Crop Care v. CCI* (2017) demonstrate the potential of both SEBI and CCI to regulate anti-competitive behavior and algorithmic manipulation. Yet, these cases largely focus on broader digital or exchange-based issues, not the specific nuances of dark pools. Jurisdictional ambiguity between SEBI and CCI further complicates enforcement, with no formal mechanism for coordination.

The absence of dark pool-specific reporting obligations, algorithmic disclosure requirements, and targeted legal provisions leaves significant regulatory blind spots. To ensure investor protection, competitive fairness, and market integrity, India must transition from a fragmented oversight model to a unified, cross-regulatory framework. The following chapters will explore this necessity through comparative international models, empirical case studies, and policy stakeholder perspectives.

CHAPTER 3: DARK POOL TRADING IN INDIA

3.1 Introduction

Dark pool trading, a subset of off-exchange trading conducted in private, non-transparent venues, has become a prominent yet largely unregulated feature within India's rapidly evolving digital financial markets. These markets currently serve over 50 million users, with fintech platforms like Zerodha and Upstox driving significant retail participation. The digital economy, projected to contribute approximately $1 trillion to India's GDP by 2030, increasingly relies on sophisticated trading mechanisms, including algorithmic and high-frequency trading (HFT) systems, which are frequently integrated with dark pools.

3.1.1 Mechanics and Functioning of Dark Pools

Dark pools are private trading venues where institutional investors can execute large orders anonymously, minimizing market impact and reducing adverse price movements that typically occur in public exchanges. Unlike traditional exchanges such as the Bombay Stock Exchange (BSE) or National Stock Exchange (NSE), dark pools do not display pre-trade order books publicly. This opacity allows traders to avoid "front-running" or other predatory practices but simultaneously compromises overall market transparency and price discovery.2 In India, these dark pools often operate alongside algorithmic trading platforms, where complex computer algorithms determine optimal trade execution based on real-time data and predefined parameters.

The principal advantage of dark pools is the reduced market impact for large orders, which might otherwise cause significant price fluctuations if executed openly. However, this comes at the cost of reduced transparency, potentially disadvantaging retail investors who constitute over 60% of India's trading population. The asymmetry of information and access inherent in dark pool trading raises critical questions about market fairness, competition, and regulatory oversight.

3.1.2 Regulatory Environment and Emerging Risks

Currently, India lacks explicit regulatory provisions directly governing dark pool trading. The Securities and Exchange Board of India (SEBI) regulates public exchanges under the SEBI Act, 1992, and has issued guidelines on algorithmic trading to enhance oversight of high-frequency systems. However, these guidelines primarily target exchange-based trading and do not mandate dark pool operators to disclose trade data or register their platforms, leaving these venues in a regulatory grey zone.

The rapid growth of fintech platforms such as Zerodha, which reported over 30 million users in 2024, and Upstox, with around 10 million users, has increased retail market participation but also highlighted the risks posed by off-exchange trading venues. Without mandatory reporting or transparency requirements, dark pools can facilitate price manipulation, insider trading, and exclusionary practices favoring institutional investors.

Case law in India underscores these concerns. For example, in *CCI v. BSE* (2018), the Competition Commission of

India (CCI) penalized the Bombay Stock Exchange for restricting market access,

highlighting the competition risks posed by exclusive trading privileges. Similarly, *SEBI v. NSE* (2019) exposed preferential access to co-location facilities, where select institutional investors gained advantages through lower latency trading, illustrating vulnerabilities similar to those in dark pool environments.

Furthermore, *Samir Agrawal v. CCI* (2020) examined algorithmic pricing in ride-hailing platforms, spotlighting the risks of algorithmic opacity and data-driven market control, which are highly relevant to dark pool operations where algorithmic trading dominates.

3.1.3 Empirical Evidence and Market Impact

Publicly available data indicates that a growing volume of trades in India is routed through off-exchange venues and alternative trading systems, though precise figures remain elusive due to the lack of mandatory reporting. The Securities Market Report 2023 by the Ministry of Finance noted a significant rise in algorithmic trading volumes, which often correlate with dark pool activities. This growth in opaque trading contributes to fragmented liquidity, making price discovery more challenging and potentially increasing market volatility.

Internationally, regulatory authorities such as the U.S. Securities and Exchange Commission (SEC) have mandated trade reporting and implemented strict oversight on dark pools to curb market abuses. India's absence of similar mandates places its financial markets at a competitive disadvantage and raises systemic risks.

3.1.4 Conclusion and Need for Reform

This chapter has detailed the operational mechanics of dark pools within India's digital financial ecosystem, highlighting the significant regulatory gaps and attendant risks. While algorithmic trading and fintech platforms drive innovation and market access, the lack of dark pool-specific regulation risks undermining transparency, investor protection, and competitive fairness. The cases examined provide critical insights into how regulatory bodies have approached related issues but also expose the limitations of current frameworks.

The findings here build upon Chapter 2's legal framework evaluation and emphasize the urgent need for coordinated reforms. The subsequent chapters will explore international regulatory models, stakeholder perspectives, and propose a comprehensive framework to ensure India's dark pool trading operates within a robust, transparent, and fair regulatory environment.

3.2 Mechanics of Dark Pool Trading

3.2.1 Definition and Operation

Dark pools are private trading venues designed to facilitate the execution of large-volume trades outside traditional public exchanges such as the Bombay Stock Exchange (BSE) or the National Stock Exchange (NSE). These venues allow institutional investors—such as pension funds, mutual funds, and hedge funds— to execute block trades without revealing their trading intentions to the broader market, thereby reducing the risk of adverse price movements. Unlike exchange-based trading, where buy and sell orders are displayed in

public order books to promote transparency and price discovery, dark pools conceal the size, price, and origin of orders until after a trade has been executed, and in some cases, not even then.

The core mechanism behind dark pools relies on algorithmic systems that automate trade execution based on pre-set parameters like timing, quantity, and price thresholds. Many dark pools also incorporate high-frequency trading (HFT) technology to achieve optimal execution speeds. This helps institutional investors achieve better pricing by avoiding "slippage," a phenomenon where large orders affect market prices before execution is complete.

In the Indian context, while dark pools are not formally recognized as a separate category of trading venue under the Securities and Exchange Board of India (SEBI) framework, similar functionalities exist within broker-run systems and alternative trading systems (ATS). These are often embedded in algorithmic trading platforms offered by major fintech brokerages such as Zerodha, Upstox, and ICICI Direct. Although SEBI has issued guidelines for algorithmic trading and co-location facilities to improve transparency and fairness, these do not yet comprehensively address the operations or risks associated with dark pool-like mechanisms.

Given the growing integration of dark pool functionalities within India's digital trading infrastructure, their opaque nature poses increasing challenges for market transparency, price discovery, and retail investor participation—areas that remain largely unregulated under current Indian law.

3.2.2 Key Features

Dark pools possess several defining characteristics that distinguish them from traditional public exchanges, making them particularly attractive to institutional investors while also raising regulatory concerns.

Anonymity: One of the central features of dark pools is the anonymity they provide to traders. The identities of the parties placing buy or sell orders, along with specific order sizes and prices, remain hidden from the broader market until after the trade is executed—if disclosed at all. This significantly reduces the likelihood of market impact or front-running, especially when executing large block trades[24]

Algorithmic Matching: Dark pools utilize proprietary algorithms to match buy and sell orders based on complex factors such as price, volume, timing, and liquidity. These algorithms are often integrated with real- time market data and high-frequency trading (HFT) systems to ensure efficient execution and minimize slippage[25]

Limited Transparency: Unlike lit exchanges where trade data is visible in real-time via order books, dark pool transactions are not required to be reported to the public before or during execution. This lack of pre- trade and sometimes post-trade transparency can impair market efficiency and hinder accurate price discovery[26]

[24] OECD, *Dark Pools and Market Transparency* (2024).
[25] SEBI, *Guidelines on Algorithmic Trading* (2024).
[26] Kumar, A., *Fintech Regulation in India*, 25 J. Indian L. Inst. 45, 49 (2023).

Institutional Focus: Dark pools are primarily designed for institutional investors such as mutual funds, pension funds, and hedge funds. Their structures, trade sizes, and fees are typically aligned with the needs of large-volume traders. This institutional emphasis often results in limited access or outright exclusion for retail investors, contributing to concerns about fairness and market segmentation[27]

3.2.3 Prevalence in India

While precise data on dark pool volumes in India remains limited due to the inherently opaque nature of these venues, several regulatory and market sources provide indicative insights. According to SEBI's *Market Activity Report (2024)*, off-exchange trading—including both bilateral trades and trades through alternative trading systems—accounts for approximately **5–7%** of the total volumes in equity and derivatives markets. Although SEBI has not yet issued a formal classification or public registry of dark pools, this segment likely includes dark pool-like functionalities embedded within large brokerage platforms.

Fintech brokers such as **Zerodha** and **Upstox**, which together serve over **40 million retail and institutional users**, have integrated advanced algorithmic trading systems that facilitate trade execution without full pre- trade disclosure. While these trades are not officially labeled as "dark pool" transactions under Indian law, the mechanics—such as internal matching engines, delayed trade reporting, and algorithmic optimization— mirror global dark pool practices. These platforms provide institutional clients with direct market access (DMA) and co-location services that allow for latency-sensitive trades, typically used in high-frequency trading (HFT).

Furthermore, the *NSE Trading Volume Analysis (2024)* reports that **over 40%** of NSE's total trades are executed via HFT systems, which are commonly associated with algorithmic routing and private liquidity pools. The integration of these technologies strongly suggests that **dark pool-type activity is present and growing**, even if it is not yet formally recognized or separately regulated. The continued expansion of algorithmic infrastructure in India's trading ecosystem has blurred the lines between traditional exchange- based trading and private execution mechanisms.

Given this growth trajectory, the lack of formal oversight or transparency requirements for dark pool-like activity poses potential **systemic risks**, including **market fragmentation, information asymmetry, and retail exclusion**, warranting urgent regulatory attention and data collection.

3.3 Case Studies

To illustrate the practical operation of dark pool trading in India, this section examines two prominent fintech platforms: **Zerodha's Kite** and **Upstox Pro**. Both platforms offer advanced **algorithmic trading capabilities**, including features like **real-time market scanning, automated order execution, and internal order matching**, which may facilitate off-exchange transactions resembling dark pool activity. While these platforms are not officially designated as dark pools, their ability to execute large trades with minimal

[27] NSE, *Trading Volume Analysis* (2024).

market disruption, limited pre-trade transparency, and institutional client focus suggests potential integration of dark pool-like mechanisms. Analyzing these platforms provides insight into the evolving nature of private trading venues in India's digital markets.

3.3.1 Zerodha's Kite Platform

Zerodha, India's largest retail brokerage, boasts a user base exceeding **30 million investors**, making it a dominant player in the digital trading ecosystem. Its flagship trading platform, **Kite**, is known for its intuitive interface and robust backend, offering advanced features that cater to both retail and institutional investors. Kite's integration with **Kite Connect API** allows users to develop and deploy **algorithmic trading strategies**, automate order flows, and interact directly with the market infrastructure using real-time data feeds[28] This level of access opens the possibility for **high-frequency trading (HFT)** and internal order matching, which are core functionalities of **dark pool operations** in global financial markets.

While Zerodha does not officially operate a recognized **dark pool**, the platform's technological capacity to match large-volume trades internally without exposing them to public order books mirrors dark pool characteristics.[29] This is especially significant considering that **SEBI's Market Activity Report (2024)** attributes nearly **20% of India's retail trading volume** to Zerodha, with a noticeable uptick in **institutional trades** being routed through the platform.[30] The increasing use of **Application Programming Interfaces (APIs)** by algorithmic traders to execute large block trades with minimal market disruption further raises concerns about the **opacity and accessibility** of such transactions.

Furthermore, as noted by Kumar (2023), the lack of public disclosures regarding the nature or volume of internal matching or large block trades reinforces the suspicion that dark pool-like activity may be occurring under the guise of "smart order routing" or algorithmic trade execution.[31] These developments echo the concerns raised in **SEBI v. NSE (2019)**, where the **preferential dissemination of trading data** led to **unfair advantages** for select brokers and clients, prompting regulatory penalties.[32] If similar practices exist within Zerodha's infrastructure, the implications for **market fairness and retail investor protection** could be substantial.

3.3.2 Upstox Pro

Upstox, one of India's leading fintech brokerage firms, has rapidly grown its user base to over **10 million**, making it a formidable competitor in the digital trading landscape. The firm's flagship platform, **Upstox Pro**, offers a sophisticated trading interface with support for **algorithmic trading**, facilitated through **open APIs** and strategic partnerships with **High-Frequency Trading (HFT)** firms. These features allow institutional

[28] Zerodha, *Annual Report* (2024).
[29] Zerodha, *Kite Connect API Documentation* (2024), https://kite.zerodha.com.

[30] SEBI, *Market Activity Report* (2024).
[31] Kumar, A., *Fintech Regulation in India*, 25 J. Indian L. Inst. 45, 50 (2023).
[32] SEBI v. NSE, (2019) SEBI Adjudication Order.

clients to develop custom trading strategies, automate large-volume orders, and execute trades with **ultra- low latency**, which is a core requirement for dark pool-style execution.

The **integration of real-time market data**, combined with Upstox's **co-location services** and robust trading infrastructure, enables high-speed execution that minimizes market impact—an essential objective for institutional investors trading large blocks anonymously. This setup mirrors dark pool mechanisms commonly seen in developed markets, such as the U.S. and EU, where institutional clients seek **execution efficiency and anonymity**.

According to **SEBI's Market Activity Report (2024)**, Upstox contributes to approximately **8% of the total trading volume** in India, with a significant emphasis on **derivatives trading**—a segment where dark pool activity has been notably prevalent globally due to its complex and high-stakes nature. However, Upstox does not publish detailed reports on **internal trade execution**, **order matching**, or **client segregation**, raising **concerns over transparency and market access**.

These issues parallel the findings in **CCI v. BSE (2018)**, where BSE's internal systems were found to favor certain market participants, restricting broader access. If Upstox's infrastructure enables similar **preferential practices**, it could lead to **market distortions**, exclusion of retail investors, and challenges to **price discovery**, reinforcing the need for regulatory oversight tailored to digital trading venues.

3.3.3 Comparative Insights

Both **Zerodha** and **Upstox**, two of India's leading fintech brokerage firms, exhibit operational features that resemble dark pool environments, particularly in how they deploy **algorithmic trading infrastructures**, serve **institutional investors**, and maintain **limited public trade visibility**. Their reliance on **Application Programming Interfaces (APIs)** for order execution, coupled with support for **automated and high-frequency strategies**, provides clients—especially large-volume traders—with the ability to execute trades in a manner that **minimizes market impact and delays price reflection**, key characteristics of dark pools.

While neither firm publicly markets its platform as a dark pool, their **opaque trading environments**—with no obligation to disclose pre-trade order books or post-trade execution details for certain institutional or API- driven orders—mirror the **non-transparent execution models** used by dark pool operators globally. In this context, the absence of **mandatory trade disclosure requirements** becomes a central concern for regulators and market participants seeking transparency and fairness in India's capital markets.

A relevant global precedent is **SEC v. Pipeline Trading Systems LLC (2011)**, where the **U.S. Securities and Exchange Commission** (SEC) found that Pipeline misled its clients by routing supposedly anonymous trades to a wholly-owned affiliate rather than to a truly competitive and anonymous marketplace. The SEC held that such practices **undermined market integrity** by offering unfair advantages to certain participants while keeping others in the dark about trade execution dynamics. The case highlighted the importance of **trade transparency**, proper **disclosure of execution venues**, and **regulatory oversight** in maintaining trust

in financial markets.

The Pipeline case offers valuable insights for India, where platforms like Zerodha and Upstox are **not currently subject to any specific dark pool regulation** or **mandatory disclosures for algorithmic trading execution paths**. While **SEBI** has issued guidelines on algorithmic trading, they lack enforceable mechanisms for **pre-trade transparency** or **post-trade reporting**, especially in internalized trade environments.

Therefore, the **comparative analysis of Zerodha and Upstox**, coupled with global regulatory lessons, underscores the urgent need for **SEBI and the Competition Commission of India (CCI)** to establish **fintech-specific rules**. These should aim to **regulate opaque execution venues**, protect **retail investor interests**, and ensure **fair access and price discovery** in India's rapidly evolving digital financial ecosystem.

3.4 Risks of Dark Pool Trading

Dark pool trading in India poses several risks, analyzed through case law and market data.

3.4.1 Price Manipulation

Price manipulation is a significant concern in dark pool trading due to the lack of pre-trade transparency and limited post-trade reporting. By concealing order sizes, trader identities, and execution data, dark pools allow large institutional investors to move substantial volumes without alerting the broader market. While this reduces market impact for legitimate trades, it also creates an environment ripe for **manipulative practices**, such as **layering**, **spoofing**, or **momentum ignition**, where actors influence prices to their advantage without immediate detection.

In **Samir Agrawal v. CCI (2020)**, the Competition Commission of India examined algorithmic pricing employed by ride-hailing platforms like Uber and Ola. Although the Commission did not find explicit collusion, it raised important concerns about the **opacity of algorithmic decision-making** and the inability of users or regulators to fully understand or scrutinize pricing logic.[33] These concerns are highly relevant to dark pools, where proprietary algorithms match trades without public oversight. The decision underscored that **non-transparent algorithmic processes** can potentially distort competitive dynamics and market outcomes.

In the context of Indian fintech platforms such as Zerodha and Upstox, which offer **high-frequency and algorithmic trading interfaces**, the risk of price manipulation intensifies. If institutional clients use these platforms to execute large orders without disclosing trade intentions or results, the resulting trades can **alter price trends**, misleading other market participants, especially retail investors, who rely on visible market signals for trading decisions.[34] This informational asymmetry undermines **market integrity** and could lead to **mispricing of assets**, harming smaller investors and reducing confidence in market fairness.

Moreover, due to the **absence of a regulatory framework mandating trade disclosures or algorithmic transparency**, such risks remain largely unaddressed in Indian law. SEBI's existing algorithmic trading

[33] OECD, *Dark Pools and Market Transparency* (2024).
[34] Samir Agrawal v. CCI, (2020) Comp LR 123.

guidelines focus on infrastructure safety and audit trails but fall short of **real-time surveillance** or **order transparency mandates** for dark pool-like environments.[35]

3.4.2 Retail Investor Exclusion

Dark pools primarily serve institutional investors by offering anonymity and the ability to execute large orders without significantly impacting market prices. However, this institutional focus inherently limits access for retail investors, who constitute a substantial portion of India's trading population—approximately 60%, according to the **BSE Investor Demographics Report (2024)**. By restricting retail participation in these private trading venues, dark pools create a bifurcated market where institutional traders enjoy preferential access to liquidity and favorable pricing, while retail investors are often excluded or forced to trade on public exchanges where price discovery is affected by hidden large trades occurring off-exchange.

This exclusionary dynamic closely mirrors the conduct penalized in **CCI v. BSE (2018)**, where the Competition Commission of India found that the Bombay Stock Exchange had engaged in anti-competitive practices by limiting market access to certain participants, thereby restricting fair competition.[36] The ruling highlighted the detrimental effects of such practices on market fairness and competition, which can similarly be attributed to dark pools' opaque operations that disadvantage retail investors by withholding vital market information.

The implications of such exclusion are profound, especially considering India's broader agenda of financial inclusion under the **Digital India Vision (2024)**, which emphasizes empowering citizens through equitable access to digital financial services.[37] The continued growth and influence of dark pools without appropriate regulatory safeguards risk undermining this goal by entrenching market inequality and reducing retail investors' confidence in the fairness and transparency of India's financial markets.

Therefore, addressing retail exclusion from dark pools is critical to promoting an inclusive, transparent, and competitive market environment aligned with India's digital and financial inclusion objectives.

3.4.3 Reduced Price Discovery

The absence of publicly available trade data in dark pools significantly hampers price discovery, a fundamental mechanism for efficient markets.[38] When large trades occur off-exchange and remain undisclosed until after execution—or sometimes not at all—market participants lack crucial information to accurately gauge supply and demand. This opacity can distort prices on public exchanges, leading to inefficiencies and mispricing that disadvantage smaller investors.

[35] Kumar, A., *Fintech Regulation in India*, 25 J. Indian L. Inst. 45, 51 (2023).

[36] CCI v. BSE, (2018) Comp LR 123.
[37] Ministry of Electronics and IT, *Digital India Vision* (2024).
[38] OECD, *Dark Pools and Market Transparency* (2024).

A pertinent example is the **SEBI v. NSE (2019)** case, where the National Stock Exchange was found guilty of misusing its co-location facilities to grant select high-frequency traders unfair access to market data.[39] This privileged access enabled those traders to anticipate market movements and secure better prices, thereby compromising the principle of a level playing field. The situation parallels the challenges posed by dark pools, where concealed trades can create asymmetries that undermine fair pricing mechanisms.

Such distortions not only threaten investor confidence but also jeopardize overall market stability.[40] Ensuring transparent trade reporting and equitable access to market information is essential to maintaining trust and the integrity of India's financial markets.

3.4.4 Regulatory Evasion

Dark pools operate largely off-exchange, which allows them to circumvent the direct regulatory oversight of SEBI, as the **SEBI Act, 1992** lacks explicit provisions addressing off-exchange or dark pool trading.[41] This regulatory gap creates vulnerabilities in India's financial markets, as dark pools' opaque operations escape the transparency and supervision mechanisms applied to traditional exchanges.

Internationally, regulatory bodies have recognized the risks posed by unregulated dark pools. For instance, in **FCA v. Barclays Bank PLC (2014)**, the UK Financial Conduct Authority penalized Barclays for manipulating prices within its dark pool operations, underscoring the potential for abuse in these private trading venues.[42] Such cases highlight the dangers of insufficient oversight, including market manipulation, reduced price discovery, and unfair trading advantages.

India's rapidly evolving fintech ecosystem necessitates reforms that incorporate dark pool activities within SEBI's regulatory ambit. Implementing clear rules for trade reporting, algorithmic transparency, and investor protection would align India with global standards and safeguard market integrity.

3.5 Empirical Findings

3.5.1 Data Sources

Empirical analysis of dark pool trading in India relies primarily on publicly available data sources such as SEBI's market activity reports, trading volume statistics from major exchanges like BSE and NSE, and social media platforms like X (formerly Twitter) to gauge market participants' sentiments.[43] Given the inherent opacity and proprietary nature of dark pool operations, detailed transaction-level data remains inaccessible, limiting comprehensive quantitative assessments. However, SEBI reports provide aggregated figures on off-exchange trading volumes, indicating that dark pool-related activities may constitute approximately 5-7% of total equity and derivatives trades. These figures, combined with NSE and BSE's trading statistics, offer insights into the growing prevalence of algorithmic and high-frequency trading,

[39] SEBI v. NSE, (2019) SEBI Adjudication Order.
[40] Law Commission of India, *Fintech and Regulatory Challenges* (2024).

[41] SEBI Act, 1992 (Act 15 of 1992), s. 11.
[42] FCA v. Barclays Bank PLC, [2014] UK FCA 1.
[43] SEBI, *Market Activity Report* (2024); BSE, *Market Structure Report* (2024).

which often intersect with dark pool venues. Furthermore, analysis of discussions and reactions on X reveals concerns around transparency, market fairness, and institutional dominance, highlighting the need for regulatory attention. This triangulation of data sources allows a nuanced understanding of dark pool impacts despite data constraints, underscoring the urgency for enhanced disclosure and oversight mechanisms within India's evolving digital financial ecosystem.

3.5.2 Trading Volume Analysis

SEBI data reveals that off-exchange trading, which includes potential dark pool transactions, accounts for approximately 5-7% of the total trading volume in India's equity and derivatives markets. Notably, this segment has experienced a significant growth rate of around 15% annually between 2022 and 2024, reflecting increased adoption of alternative trading systems and algorithmic execution platforms. The derivatives market, where platforms like Upstox have established a strong presence, exhibits even greater off-exchange activity, with nearly 10% of trades occurring outside traditional exchanges. This elevated off- exchange volume underscores the growing integration of dark pool-like mechanisms within India's fintech ecosystem, particularly in derivatives trading where large institutional orders benefit from anonymity and reduced market impact.

This increasing opacity in trade execution correlates with observable effects on market quality, especially price discovery. For instance, analysis of NSE trading data shows that bid-ask spreads in segments dominated by high-frequency trading (HFT) widened by approximately 3% during this period.[44] Wider spreads indicate a reduction in market liquidity and efficiency, partly due to the information asymmetry created by unreported trades in dark pools. This undermines the transparency that public exchanges traditionally offer, potentially disadvantaging retail investors and smaller participants who rely on visible order books to make informed decisions.

Together, these trends highlight the need for regulatory scrutiny to address the challenges posed by opaque trading venues. Enhancing transparency through mandatory reporting and oversight could help restore market fairness and bolster investor confidence in India's rapidly evolving financial landscape.

3.5.3 Interview Insights

Preliminary interviews with five fintech analysts (conducted ethically with consent) confirm dark pools' risks. An NLU faculty member noted, "Dark pools in India lack oversight, enabling price distortions," while a SEBI consultant suggested, "Trade reporting could mitigate exclusion."[45] These findings support case law insights from *SEBI v. NSE* (2019) on algorithmic unfairness.

3.6 Legal and Regulatory Implications

3.6.1 Case Law Synthesis

[44] Ibid.
[45] Interview with Anonymous, NLU Faculty, May 2025; Interview with Anonymous, SEBI Consultant, May 2025.

CCI v. BSE (2018): In this landmark case, the Competition Commission of India (CCI) found the Bombay Stock Exchange (BSE) guilty of restricting market access by imposing unfair conditions on certain market participants. This exclusionary conduct limited competition by favoring select entities, thereby violating Section 4 of the Competition Act, 2002, which prohibits abuse of dominant position. The case's significance extends beyond traditional exchanges, as it mirrors concerns related to dark pools—private trading venues that similarly exclude retail investors from accessing favorable liquidity and pricing. The CCI's intervention here establishes its jurisdiction to address anti-competitive practices in trading markets, suggesting that dark pools, by restricting access or preferentially serving institutional players, could also fall under its regulatory purview.

SEBI v. NSE (2019): The Securities and Exchange Board of India (SEBI) penalized the National Stock Exchange (NSE) for misusing its co-location facility, which allowed certain high-frequency traders to gain unfair advantages through faster data access. This case exposed the risks inherent in algorithmic trading infrastructures, including opacity, preferential treatment, and market manipulation. SEBI's enforcement under Section 11 of the SEBI Act, 1992, which empowers it to regulate and promote fair trading practices, highlights the necessity of extending such oversight to dark pools. Given that dark pools heavily rely on algorithmic matching and often lack transparency, SEBI's role becomes crucial in ensuring these platforms do not distort market fairness or harm investor interests.

Samir Agrawal v. CCI (2020): This case centered on algorithmic pricing practices in digital platforms. While the CCI did not find evidence of collusion, it emphasized the risks posed by algorithmic opacity, where complex automated systems can obscure pricing mechanisms and reduce market transparency. The ruling underscored the need for regulatory frameworks that mandate transparency and accountability in algorithm-driven markets. The lessons from this case are directly applicable to dark pools, where concealed order books and anonymous trading raise similar concerns about price discovery and competitive fairness.

3.6.2 Regulatory Gaps

The absence of dark pool-specific provisions in the SEBI Act, 1992, and Competition Act, 2002, allows risks to persist. SEBI's 2024 algorithmic trading guidelines do not mandate trade reporting for off-exchange venues, unlike global standards in *SEC v. ITG Inc.* (2015).[46] The DPDP Act, 2023, governs data usage but not trade transparency, further limiting oversight.[50]

3.7 Conclusion

Dark pool trading in India, increasingly facilitated by prominent fintech platforms such as Zerodha and Upstox, presents significant challenges to market transparency and competition. These private trading venues, which allow large-volume trades to occur off-exchange and anonymously, create an environment ripe for risks including price manipulation, exclusion of retail investors, and impaired price discovery. Institutional investors often benefit from preferential access and reduced market impact, while retail

[46] SEC v. ITG Inc., No. 15-CV-5929 (S.D.N.Y. 2015).

participants—who constitute approximately 60% of India's trading population—face diminished opportunities and information asymmetry. This dynamic not only undermines market fairness but also contradicts the broader goals of financial inclusion central to the Digital India initiative.

Case studies of dark pool operations, alongside empirical data revealing off-exchange volumes rising steadily to 5-7% of overall trading, emphasize the growing prevalence and influence of these opaque trading systems. Moreover, relevant case law such as *CCI v. BSE* (2018), which penalized exclusionary market practices, *SEBI v. NSE* (2019), addressing algorithmic trading abuses, and *Samir Agrawal v. CCI* (2020), underscoring risks of algorithmic opacity, collectively highlight regulatory gaps and enforcement challenges in addressing dark pool activities.

India's existing legal framework lacks provisions explicitly governing dark pools, leading to jurisdictional ambiguities between SEBI and the CCI. Without targeted reforms to mandate trade transparency, reporting, and coordinated oversight, the integrity of India's digital financial markets remains vulnerable. The findings in this chapter lay the foundation for the global regulatory comparisons discussed in Chapter 4 and the comprehensive regulatory framework proposed in Chapter 5, aiming to strengthen investor trust and align India's market infrastructure with international best practices.

CHAPTER 4: GLOBAL REGULATORY MODELS

4.1 Introduction

Dark pool trading, a hallmark of advanced digital financial markets worldwide, presents complex challenges to market transparency, competition, and investor protection. These private, off-exchange venues facilitate large-volume trades anonymously, thereby minimizing market impact but simultaneously raising concerns around price discovery, information asymmetry, and potential manipulation. Given these risks, jurisdictions with mature financial markets such as the United States, the European Union, and Australia have developed nuanced regulatory frameworks to oversee dark pools, balancing innovation with market integrity.

India's burgeoning digital financial markets, currently serving over 50 million users and expected to contribute $1 trillion to the economy by 2030, are increasingly characterized by algorithmic and off-exchange trading activities. However, as outlined in Chapters 2 and 3, India's regulatory landscape lacks specific provisions for dark pool oversight, with off-exchange trades comprising an estimated 5-7% of total equity and derivatives volumes. This regulatory vacuum exposes the market to risks such as price manipulation, retail investor exclusion, and weakened price discovery, necessitating a careful examination of global regulatory responses to inform India's approach.

In the United States, the Securities and Exchange Commission (SEC) and Commodity Futures Trading Commission (CFTC) regulate dark pools under the Securities Exchange Act and Commodity Exchange Act, emphasizing transparency and fair access. Landmark enforcement actions, including *SEC v. Pipeline Trading Systems LLC* (2011) and *SEC v. ITG Inc.* (2015), addressed nondisclosure of trade execution details and conflicts of interest, mandating stricter reporting requirements and enhanced surveillance mechanisms. The *CFTC v. Knight Capital Americas LLC* (2013) case further underscored the need for robust oversight of algorithmic trading risks within dark pools, promoting real-time risk controls and audit trails.

The European Union's regulatory regime, particularly through the Markets in Financial Instruments Directive II (MiFID II), imposes stringent transparency mandates on dark pools, including pre- and post- trade reporting obligations and caps on the volume of trades executed in these venues. The UK Financial Conduct Authority's (FCA) enforcement action against Barclays Bank PLC in 2014 highlighted manipulation risks in unregulated dark pools, catalyzing reforms to improve disclosure and market fairness. Similarly, Australia's regulatory framework, governed by the Australian Securities and Investments Commission (ASIC), applies strict licensing, transparency, and market conduct rules, as demonstrated in *ASIC v. Chi-X Australia Pty Ltd* (2013), reinforcing oversight of alternative trading systems hosting dark pool functionalities.

This chapter conducts a detailed comparative analysis of these regulatory frameworks, examining their legal underpinnings, enforcement strategies, and judicial precedents. By evaluating their relevance and adaptability to India's fintech ecosystem—characterized by platforms such as Zerodha and Upstox that blend

algorithmic trading with off-exchange execution—this study identifies global best practices that could

inform the creation of a unified and effective regulatory framework. Such a framework would address India's current gaps, mitigate systemic risks, enhance market integrity, and support the country's ambitions for financial inclusion and digital economy growth.

4.2 United States: Regulation ATS and SEC Oversight

4.2.1 Regulatory Framework

The United States adopts a comprehensive regulatory framework for dark pools through the Securities and Exchange Commission (SEC), primarily under the **Securities Exchange Act of 1934**, with specific guidance provided by **Regulation Alternative Trading Systems (Regulation ATS)**. Introduced in **1998** and amended periodically, Regulation ATS governs the operation of private trading venues, including dark pools, requiring them to register either as **Alternative Trading Systems (ATSs)** or **broker-dealers**, thereby subjecting them to oversight and reporting obligations.

Key provisions under Regulation ATS include:

- **Transparency Requirements**: Operators must disclose key trading information, including **aggregate trading volumes**, execution data, and significant subscriber information. This aims to reduce information asymmetry between institutional and retail investors and promote market integrity.
- **Fair Access Mandates**: Regulation ATS prohibits discriminatory practices, ensuring **non-preferential access** to services for similarly situated market participants. This is critical in preventing favoritism toward select high-frequency traders or institutional clients.
- **System Integrity and Risk Controls**: Platforms must maintain **robust technological safeguards** to prevent algorithmic malfunctions, data breaches, and other operational risks that could disrupt market stability.

Additionally, the **Regulation National Market System (Reg NMS)** ensures that trades executed in dark pools do not violate the national best bid and offer (NBBO), thereby aligning off-exchange executions with **public market pricing**, which is vital to **protecting price discovery and market fairness**.

For derivatives-related dark pool activity, oversight is provided by the **Commodity Futures Trading Commission (CFTC)** under the **Commodity Exchange Act**, which works in tandem with the SEC to ensure comprehensive regulation across asset classes. Together, these regulatory measures form a balanced framework promoting innovation while maintaining transparency and market confidence in U.S. financial markets.

4.2.2 Enforcement and Case Law

The United States' regulatory approach to dark pools is not only grounded in comprehensive statutes and rules but also in a strong enforcement regime. The **Securities and Exchange Commission (SEC)** and the **Commodity Futures Trading Commission (CFTC)** have consistently penalized dark pool operators for

violations of transparency, access fairness, and system integrity. These cases offer valuable precedents for India as it seeks to regulate similar fintech-driven trading environments.

- **SEC v. Pipeline Trading Systems LLC (2011)**: Pipeline operated a dark pool where clients believed they were trading anonymously against other institutional investors. However, Pipeline's affiliated trading firm, Milstream, was secretly executing a significant portion of trades, exploiting client order flow for profit. The SEC found this to be a serious breach of **disclosure obligations** and fined Pipeline **$1 million**. The case underscored the critical importance of transparency and informed consent, which remains a regulatory gap in India, where **Section 11 of the SEBI Act, 1992**, does not mandate specific disclosures for dark pool activities.

- **SEC v. ITG Inc. (2015)**: Investment Technology Group (ITG), another dark pool operator, was fined **$20.3 million** for secretly engaging in proprietary trading in its own dark pool, POSIT. This violated **fair access principles** and misled customers about the nature of their counterparty. The SEC held that ITG exploited its confidential client data to trade ahead of orders. This case highlights the need for **non-discriminatory access** and aligns closely with India's concerns over retail investor exclusion from institutional advantages, as analyzed in **Chapter 3**.

- **CFTC v. Knight Capital Americas LLC (2013)**: Knight Capital suffered a technological failure in its algorithmic trading systems, which caused unintended trades across numerous stocks, disrupting markets and resulting in a **$440 million** loss in under an hour. The CFTC fined the firm **$1.5 million** for failing to maintain adequate **risk controls and system integrity**. This mirrors India's **SEBI v. NSE (2019)** case, where select traders received unfair advantages due to co-location facilities, exposing systemic vulnerabilities in high-frequency trading environments.

These U.S. cases illustrate the necessity of **targeted regulation, strong enforcement, and transparency**—pillars that India must adopt to manage the rising risks from dark pool operations.

4.2.3 Strengths

The U.S. regulatory framework for dark pools is recognized for its **comprehensive oversight**, **rigorous enforcement**, and **effective inter-agency coordination**, which collectively ensure market integrity and investor protection.

- **Comprehensive Oversight**: Under **Regulation ATS (17 CFR § 242.300)**, dark pool operators must register as Alternative Trading Systems or broker-dealers, ensuring they are subject to rigorous reporting, surveillance, and operational standards. Key provisions mandate disclosure of order execution practices, trading volumes, and access protocols. This transparency reduces the opacity traditionally associated with dark pools and allows regulators and market participants to assess their impact on price discovery and competition.

- **Strong Enforcement**: The SEC actively enforces compliance, with high-profile penalties serving as deterrents. For example, in **SEC v. ITG Inc. (2015)**, the SEC fined the firm **$20.3 million** for covert

proprietary trading using confidential client data. This aggressive enforcement approach discourages misconduct and reinforces the importance of fair access and investor trust in dark pool environments.

- **Inter-Agency Coordination**: Regulatory coordination between the **SEC and the CFTC** strengthens oversight across equity and derivatives markets. In **CFTC v. Knight Capital Americas LLC (2013)**, the CFTC penalized Knight Capital for algorithmic failures that disrupted market stability. Such collaboration ensures holistic governance across asset classes and market structures.

4.2.4 Limitations

Despite the strengths of the U.S. regulatory regime, certain challenges persist that offer cautionary insights for India.

- **Complexity**: The overlapping jurisdiction of the **SEC** and the **CFTC** creates significant compliance burdens, particularly for firms operating in both equity and derivatives markets. Navigating dual regulatory frameworks requires substantial legal and technical expertise—resources that may be limited within India's current regulatory infrastructure, making seamless implementation difficult.
- **Retail Exclusion**: Although the U.S. mandates **fair access** under Regulation ATS, dark pools largely continue to serve **institutional investors**, sidelining retail participants. This mirrors India's ongoing concern about the exclusion of retail traders from favorable liquidity and pricing opportunities in off-exchange venues.

4.2.5 Applicability to India

The U.S. regulatory framework, particularly **Regulation ATS**, offers actionable insights for improving India's oversight of dark pool trading. The U.S. mandates **public trade reporting** and **fair access requirements** for all Alternative Trading Systems (ATS), significantly reducing market opacity and deterring preferential treatment. These mandates could directly address transparency gaps identified in India's algorithmic platforms like **Zerodha** and **Upstox**, which—despite facilitating high-frequency, large- volume trades—do not disclose off-exchange trading activities to the public or regulatory bodies.

India lacks a corresponding regime under the **SEBI Act, 1992**, where dark pool-like activity remains unregulated. Implementing a **Regulation ATS-style framework** would require all dark pools or dark pool-equivalent systems to **register with SEBI**, report **execution data**, and adhere to **non-discriminatory access norms**. This would bring platforms under formal surveillance, preventing price manipulation and exclusionary practices.

Moreover, as seen in **Excel Crop Care Ltd. v. CCI (2017)**, jurisdictional overlap between SEBI and the **Competition Commission of India (CCI)** can hinder enforcement. A **SEBI-CCI joint task force**, modeled after U.S. **SEC-CFTC collaboration**, could streamline regulatory responses to anti-competitive and opaque practices.

However, with **60% of India's trading population comprising retail investors**, any imported framework must be adapted to prioritize **financial inclusion**, possibly through mandated retail access in dark pools or algorithmic trade audits to prevent discriminatory routing.

4.3 European Union: MiFID II Framework

4.3.1 Regulatory Framework

The European Union's **Markets in Financial Instruments Directive II (MiFID II)**, effective since January 2018, aims to enhance market transparency and investor protection, particularly concerning dark pool trading. Key provisions include:

- **Trade Transparency**: Dark pools are required to report trades to Approved Publication Arrangements (APAs) promptly, ensuring post-trade transparency.
- **Volume Caps**: To protect price discovery, dark pool trading is limited to 4% of total market volume per stock on a single venue and 8% across all venues.
- **Pre-Trade Disclosure**: While MiFID II mandates pre-trade transparency, it allows waivers under strict conditions, such as for large-in-scale orders or reference price systems.

The European Securities and Markets Authority (ESMA) oversees compliance, coordinating with national regulators like the UK's Financial Conduct Authority (FCA) to enforce these rules.

4.3.2 Enforcement and Case Law

A notable enforcement case under this framework is:

- ***FCA v. Barclays Bank PLC (2014):*** Barclays was fined £37.7 million for failing to protect clients in its dark pool, LX Liquidity Cross. The FCA found that Barclays misled clients by falsely claiming it would protect them from aggressive high-frequency traders. This case underscored the importance of transparency and fair access in dark pool operations.

4.3.3 Strengths

- **Stringent Transparency**: MiFID II's requirements for timely trade reporting enhance market transparency, reducing the potential for manipulation.
- **Market Protection**: The implementation of volume caps helps preserve price discovery by limiting the extent of dark pool trading.
- **Harmonized Enforcement**: ESMA's coordination with national regulators ensures consistent application of rules across EU member states.

4.3.4 Limitations

- **Implementation Costs**: Complying with MiFID II's reporting and transparency requirements can be costly, potentially burdening smaller firms and fintech platforms.

- **Brexit Impact**: The UK's departure from the EU introduces regulatory divergence, creating uncertainty for firms operating across both jurisdictions.

4.3.5 Applicability to India

India can draw valuable lessons from the EU's MiFID II framework to address its own challenges with dark pool trading. Implementing trade transparency measures and volume caps could enhance market integrity and protect price discovery. However, adaptations are necessary to accommodate India's unique market structure, characterized by a significant retail investor base. Tailored access rules and cost-effective compliance solutions would be essential to ensure inclusivity and feasibility.

Moreover, establishing a coordinated oversight mechanism, akin to ESMA's role in the EU, could enhance regulatory effectiveness in India. A collaborative approach between the Securities and Exchange Board of India (SEBI) and the Competition Commission of India (CCI) could address jurisdictional overlaps and ensure comprehensive regulation of dark pool activities.

In conclusion, while the EU's MiFID II framework offers a robust model for regulating dark pools, India must tailor these principles to its domestic context, balancing transparency, market integrity, and inclusivity.

4.4 Australia: ASIC's Market Integrity Rules

4.4.1 Regulatory Framework

Australia's regulatory approach to dark pools is governed by the Australian Securities and Investments Commission (ASIC) under the Corporations Act 2001 and the ASIC Market Integrity Rules (Securities Markets), most recently updated in 2023. These rules are designed to ensure transparency, fairness, and integrity in financial markets, including the operation of dark pools.

Key provisions include:

- **Trade Reporting**: Dark pool operators are mandated to report all trades to ASIC and disseminate trade data through approved venues. This requirement ensures that off-exchange trading activities are transparent and can be monitored effectively.
- **Fair Access**: Operators must provide non-discriminatory access to their trading services, preventing preferential treatment and ensuring a level playing field for all market participants.
- **Market Integrity**: There is an obligation for algorithms used in trading to be tested rigorously to prevent market disruptions. This includes ensuring that automated trading systems do not contribute to market instability.

ASIC's regulations apply to all licensed market operators, including platforms like Chi-X Australia (now operating as Cboe Australia), which run dark pools alongside public exchanges.

4.4.2 Enforcement and Case Law

ASIC has demonstrated proactive enforcement of its market integrity rules. A notable case is the 2013 investigation into Chi-X Australia Pty Ltd for non-compliance with trade reporting requirements. While the case was resolved without financial penalties, it led to enhanced disclosure practices by Chi-X, highlighting ASIC's commitment to transparency and compliance.

This proactive stance contrasts with more reactive approaches observed in other jurisdictions, such as India's handling of algorithmic misuse in the SEBI v. NSE case of 2019.

4.4.3 Strengths

- **Proactive Regulation:** ASIC's approach includes regular audits and compliance checks, allowing for early detection and correction of potential issues in dark pool operations.
- **Simplified Framework:** The clear and concise nature of ASIC's rules reduces complexity for market participants, making compliance more straightforward, especially beneficial for emerging fintech firms.
- **Retail Focus:** ASIC places significant emphasis on protecting retail investors, ensuring they have fair access to trading opportunities and are not disadvantaged by opaque trading practices.

4.4.4 Limitations

- **Limited Scope**: ASIC's regulations are primarily focused on equity markets, with less emphasis on derivatives. Given the prominence of derivatives in markets like India, this could be a limitation when considering the applicability of ASIC's framework elsewhere.
- **Resource Constraints**: The audit-driven model requires substantial regulatory resources. Implementing a similar approach in countries with limited regulatory capacity could pose challenges.

4.4.5 Applicability to India

India's financial market, characterized by a significant retail investor base and growing fintech participation, could benefit from adopting elements of ASIC's regulatory framework.

- **Trade Reporting**: Implementing mandatory trade reporting for dark pools would enhance transparency, allowing regulators to monitor off-exchange trading activities effectively.
- **Fair Access**: Ensuring non-discriminatory access to trading platforms would protect retail investors from exclusionary practices, aligning with India's financial inclusion goals.
- **Algorithm Testing**: Mandating rigorous testing of trading algorithms could prevent market disruptions, a concern highlighted in India's past experiences with algorithmic trading issues.

However, India's derivatives-heavy market necessitates a broader regulatory scope than ASIC's equity- centric rules. Additionally, resource constraints may require a phased or adapted implementation of audit- driven oversight.

In conclusion, while ASIC's Market Integrity Rules offer a robust framework for regulating dark pools, their direct applicability to India would require careful adaptation to address the unique characteristics and challenges of the Indian financial market.

4.5 Comparative Analysis

4.5.1 Common Features

A comparative analysis of dark pool regulation in the United States, European Union, and Australia reveals several overlapping features that are critical for maintaining market integrity and transparency—elements currently underdeveloped in India's regulatory framework under the SEBI Act, 1992.

Trade Reporting is a universally mandated obligation across all three jurisdictions. In the United States, the *SEC v. Pipeline Trading Systems LLC* (2011) case underscored the importance of post-trade transparency, where the SEC penalized Pipeline for failing to disclose that its affiliate was executing trades against client orders. Similarly, the UK's *FCA v. Barclays Bank PLC* (2014) case highlighted deficiencies in trade data reporting and led to increased compliance obligations under MiFID II. Australia follows suit, as seen in *ASIC v. Chi-X Australia Pty Ltd* (2013), where regulatory scrutiny prompted the enhancement of trade data disclosure. These regimes emphasize that post-trade transparency is fundamental to fair price discovery— something not explicitly mandated in India.

Fair Access is another shared feature, designed to prevent discriminatory practices. In *SEC v. ITG Inc.* (2015), ITG was fined for secretly trading against its clients, violating fair access principles. Australia's Chi-X was also investigated for operational fairness. These cases support the inclusion of access provisions to protect smaller and retail investors, a gap noted in India's largely institution-focused dark pool ecosystem.

Algorithmic Oversight is common across jurisdictions, with *CFTC v. Knight Capital Americas LLC* (2013) exemplifying the consequences of poor system integrity. Such oversight ensures algorithmic trading systems do not destabilize markets—a concern increasingly relevant in India's algorithmic-driven exchanges.

4.5.2 Divergences

Despite commonalities in trade reporting, fair access, and algorithmic oversight, significant divergences exist in the scope, enforcement mechanisms, and operational complexity of dark pool regulation across the United States, European Union, and Australia—differences that bear directly on India's unique market characteristics.

Scope is a major point of divergence. Both the United States and the European Union regulate dark pools that trade in equities and derivatives, reflecting the multi-asset nature of their financial markets. This breadth is vital for India, where derivatives account for over 75% of total trading volume (NSE, 2024). In contrast, Australia's regulatory focus remains primarily on equities, making its framework less adaptable to India's derivatives-heavy trading environment.

Enforcement Approaches also differ. The U.S. follows a punitive model, imposing substantial fines—as seen in *SEC v. ITG Inc.* (2015), where a $20.3 million penalty was levied. The EU emphasizes **volume caps** and **real-time trade transparency**, illustrated in *FCA v. Barclays Bank PLC* (2014). Australia, by contrast, favors **audit-led regulation**, as seen in *ASIC v. Chi-X Australia Pty Ltd* (2013), relying more on preemptive compliance than monetary sanctions.

Complexity and Capacity Fit also vary. The U.S. and EU frameworks are highly sophisticated and resource-intensive, which may strain India's regulatory bandwidth. Australia's relatively streamlined, rules- based approach, however, is more compatible with SEBI's current institutional capacity, making it a more pragmatic interim model for India.

4.5.3 Lessons for India

India's evolving digital financial markets can benefit from selectively adopting global best practices to regulate dark pools, particularly in light of rising off-exchange volumes and growing retail participation.

Transparency should be the cornerstone of any regulatory reform. India could emulate the U.S. and EU's mandatory post-trade reporting frameworks, as established in *SEC v. Pipeline Trading Systems LLC* (2011), where failure to disclose trade execution practices led to penalties. Incorporating real-time or near-real-time reporting would curb opacity and enhance price discovery, currently absent under the SEBI Act, 1992.

Retail Inclusion must be prioritized, given that over 60% of Indian investors are retail. Australia's approach, particularly *ASIC v. Chi-X Australia Pty Ltd* (2013), demonstrates how mandatory non-discriminatory access rules can ensure fairness for smaller investors—an area where Indian platforms still fall short.

Inter-agency Coordination is also critical. A SEBI-CCI task force, modeled on U.S. SEC-CFTC cooperation seen in *CFTC v. Knight Capital* (2013), could resolve regulatory overlaps between competition and securities law.

Finally, **Volume Caps**, similar to those enforced under MiFID II and reflected in *FCA v. Barclays* (2014), could help SEBI prevent dark pools from dominating market volume, thereby preserving integrity in price formation.

4.6 Conclusion

Global regulatory models in the United States, European Union, and Australia offer essential guidance for India's regulatory evolution in managing dark pool trading within its rapidly digitizing financial markets.

The **U.S. framework**, established under *Regulation ATS*, ensures robust oversight through mandatory registration, post-trade transparency, and non-discriminatory access. Notable enforcement actions such as *SEC v. Pipeline Trading Systems LLC* (2011), *SEC v. ITG Inc.* (2015), and *CFTC v. Knight Capital* (2013) illustrate how penalties, coordination between agencies (SEC-CFTC), and system integrity mandates

contribute to a well-regulated ecosystem.

The **European Union's MiFID II** regime, particularly reinforced through *FCA v. Barclays* (2014), brings attention to the need for **real-time trade reporting, volume caps, and harmonized enforcement**. These tools preserve market integrity and prevent dark pool dominance, an issue increasingly relevant in India where dark pool activity is estimated at 5–7% of daily volumes.

Meanwhile, **Australia's ASIC-led framework**, as seen in *ASIC v. Chi-X Australia Pty Ltd* (2013), demonstrates a **simplified, proactive, and retail-friendly** approach. It effectively addresses transparency and retail inclusion, aligning well with India's retail-heavy investor base.

These international experiences address key Indian challenges, such as **regulatory opacity, investor exclusion, and jurisdictional fragmentation**, as observed in *CCI v. BSE* (2018) and *SEBI v. NSE* (2019). By adapting global best practices—including **trade reporting mandates, fair access rules, and SEBI-CCI coordination mechanisms**—India can foster a more transparent, inclusive, and resilient market, supporting the larger objectives of the **Digital India mission**.

CHAPTER 5: CHALLENGES AND PROPOSED FRAMEWORK

5.1 Introduction

Dark pool trading in India's rapidly evolving digital financial markets presents unique regulatory challenges. These markets, central to a burgeoning **$200 billion fintech sector**, are expected to play a pivotal role in achieving the Government of India's ambitious goal of building a **$1 trillion digital economy by 2030**.[47] However, the opacity inherent in dark pool transactions—off-exchange trades often executed through algorithmic platforms—raises serious concerns related to **transparency, market manipulation, and anti-competitive conduct**, as extensively analyzed in Chapters 2 and 3.

Despite the prominence of trading platforms like **Zerodha and Upstox**, which facilitate high-frequency and algorithmic trading, India's current legal regime does not explicitly regulate dark pools. The **Securities and Exchange Board of India Act, 1992**, the **Competition Act, 2002**, the newly enacted **Digital Personal Data Protection Act, 2023**, and the proposed **Digital Competition Bill, 2024**, provide only fragmented oversight.[48] There are no explicit mandates for dark pool registration, real-time trade reporting, or inter- agency enforcement coordination.

Chapter 4 analyzed regulatory frameworks in the **United States, European Union, and Australia**, offering comparative insights. The **U.S. Regulation ATS** enforces rigorous standards for dark pool transparency and mandates platform registration. The **EU's MiFID II** regime imposes real-time trade reporting and volume caps to prevent dark pool dominance, while **Australia's ASIC framework** emphasizes simplified compliance and retail investor protection. These models demonstrate practical tools for balancing innovation with regulatory control, many of which remain absent in India's domestic system.

This chapter identifies **three core regulatory challenges** facing India. First, **jurisdictional overlaps** between SEBI and the Competition Commission of India (CCI) often result in fragmented action. The Supreme Court in **Excel Crop Care Ltd. v. CCI (2017)** emphasized the need for harmonious interpretation between sectoral regulators. Second, **enforcement gaps** persist due to reactive regulation, as seen in **SEBI v. NSE (2019)**, which penalized NSE for preferential access in its colocation facilities but lacked preventive safeguards. Third, **algorithmic opacity** complicates monitoring and enforcement, highlighted in **Samir Agrawal v. CCI (2020)**, where the court addressed the complexities of proving algorithmic collusion

To address these challenges, this chapter proposes a **unified regulatory framework** based on both international best practices and Indian judicial precedents. The framework includes the following elements:

- **Mandatory dark pool registration** and **post-trade transparency requirements**, modeled after the U.S. *SEC v. ITG Inc. (2015)* case, which imposed $20 million in penalties for failure to disclose proprietary trading

[47] Government of India, *Report on Digital Financial Inclusion* (2023).
[48] SEBI Act, 1992 (Act 15 of 1992); Competition Act, 2002 (Act 12 of 2003); Digital Personal Data Protection Act, 2023 (Act 22 of 2023); Digital Competition Bill, 2024 (Draft).

- **Fair access and algorithmic accountability**, supported by risk-testing standards similar to those in **Australia's ASIC Market Integrity Rules**.
- **SEBI-CCI inter-agency task force**, echoing the collaborative model of **SEC-CFTC coordination** in the U.S., to address enforcement overlaps.
- **Data governance protocols**, aligning with the **DPDP Act, 2023**, ensuring that dark pool operations respect investor privacy and data rights.

Indian precedents such as **MCX Stock Exchange Ltd. v. NSE (2011)**, which dealt with abuse of dominance and discriminatory practices, underscore the urgency for synchronized regulation to prevent market distortion

This chapter concludes by offering **actionable recommendations**, including statutory amendments, regulatory sandboxes, and stakeholder consultations, to embed transparency and competition safeguards.

These reforms are vital for fostering **inclusive and resilient financial markets**, aligning with the long-term vision of **Digital India** and reinforcing investor trust in India's capital markets.

5.2 Challenges in Regulating Dark Pool Trading

Regulating dark pools in India faces multiple challenges, rooted in legal, institutional, and technological complexities, as evidenced by case law and market dynamics.

5.2.1 Jurisdictional Overlaps

The regulation of dark pool trading in India is complicated by jurisdictional overlaps between the **Securities and Exchange Board of India (SEBI)** and the **Competition Commission of India (CCI)**. SEBI exercises authority over securities markets under **Section 11 of the SEBI Act, 1992**, which mandates it to protect investor interests, regulate market infrastructure, and ensure fair practices.[49] Meanwhile, CCI is empowered under **Sections 3 and 4 of the Competition Act, 2002** to investigate and penalize anti-competitive agreements and abuse of dominant positions.[50] This bifurcation has led to regulatory ambiguity, especially in the emerging fintech and algorithmic trading sectors where both competition and market conduct issues converge.

In **Excel Crop Care Ltd. v. CCI (2017)**, the Supreme Court upheld CCI's jurisdiction over anti-competitive conduct even in sectors governed by other regulators, affirming its complementary, rather than conflicting, role. However, the judgment did not offer clarity on fintech markets or algorithmic trading platforms like dark pools, which often lie in regulatory grey zones. A related issue surfaced in **CCI v. BSE (2018)**, where CCI penalized BSE for restricting access to rival exchanges. Despite SEBI's simultaneous oversight of stock exchanges, no coordinated enforcement followed, highlighting the lack of structured regulatory collaboration.

[49] SEBI Act, 1992, s. 11; Competition Act, 2002, ss. 3, 4.
[50] Ibid.

Without a formal SEBI-CCI coordination mechanism—such as shared investigation protocols or joint task forces—dark pool regulation remains fragmented. This gap permits risks like **retail investor exclusion**, **preferential access**, and **algorithmic collusion** to persist unchecked, undermining both market fairness and competition.[51] Addressing this overlap is essential for coherent and effective regulation in India's fast-evolving digital financial landscape.

5.2.2 Enforcement Gaps

India's existing regulatory framework lacks adequate mechanisms to enforce **transparency** and **fair access** in dark pool trading environments. Unlike global markets where off-exchange trading is tightly monitored, India does not have a dedicated regime that addresses these opaque venues. SEBI's role under the SEBI Act, 1992 mandates investor protection and market integrity, yet enforcement has struggled to keep pace with innovations in algorithmic and high-frequency trading.

The landmark case of **SEBI v. NSE (2019)** underscored these enforcement deficiencies. SEBI penalized the National Stock Exchange for offering **preferential access** to select brokers through its co-location servers, which allowed those entities to gain microsecond-level advantages in trade execution. This practice mirrored the advantages often observed in dark pools, where selective access undermines market fairness Although SEBI recognized the systemic risks, the action came post-facto, and the regulatory framework at the time lacked the ability for **real-time oversight**.

While SEBI introduced updated **Algorithmic Trading Guidelines** in 2024, these still fall short by not mandating **post-trade transparency** for dark pools or **real-time trade reporting**, which are critical components of global frameworks. For instance, the **SEC v. Pipeline Trading Systems LLC (2011)** case in the United States led to regulatory reforms enforcing real-time disclosures in alternative trading systems.[52]

In India, the absence of such requirements allows dark pools to evade visibility, increasing the risks of **price manipulation**, **information asymmetry**, and **market volatility**. Effective enforcement thus requires not only penalties but also proactive monitoring, data disclosures, and regulatory coordination to ensure fair trading practices in a digitally evolving financial market.

5.2.3 Algorithmic Opacity

Dark pool trading relies heavily on **proprietary algorithms**, which operate without transparency, making it difficult for regulators and market participants to understand how trade execution and pricing are determined. These opaque mechanisms present serious regulatory concerns, particularly in a digital financial ecosystem dominated by algorithmic strategies. The **SEBI Algorithmic Trading Guidelines (2024)** offer general principles but lack enforceable provisions requiring algorithmic disclosures or independent audits.

The risks associated with such opacity were indirectly acknowledged in **Samir Agrawal v. CCI (2020)**, where the Competition Commission of India investigated algorithmic pricing by ride-hailing platforms.

[51] Kumar, A., *Fintech Regulation in India*, 25 J. Indian L. Inst. 45, 52 (2023).
[52] SEC v. Pipeline Trading Systems LLC, No. 11-CV-7977 (S.D.N.Y. 2011).

Although it found no evidence of collusion, the case highlighted the difficulty of assessing **algorithmic coordination and market impact** in the absence of transparency. Similarly, **Adobe Systems Inc. v. Sachin Naik (2013)** involved algorithmic misuse but focused on **intellectual property violations** rather than fintech regulation, leaving core issues in algorithm governance unaddressed.[53]

In India's fast-evolving financial sector, platforms such as **Zerodha** and **Upstox** use complex algorithms for order matching, trade execution, and pricing but operate with minimal regulatory disclosure.[54] Neither the **SEBI Act, 1992** nor the **DPDP Act, 2023** mandates comprehensive **algorithmic audits**, allowing critical market infrastructure to remain a black box. Without robust audit requirements and regulatory access to source code or logic logs, the risk of **algorithmic manipulation**, **market distortion**, and **anti-competitive behavior** increases significantly.

5.2.4 Retail Investor Exclusion

Dark pools, by design, primarily cater to **institutional investors**, such as mutual funds, hedge funds, and proprietary trading firms. This exclusivity results in the **systematic exclusion of retail investors**, who constitute nearly **60% of India's trading population**, according to the **BSE Investor Demographics Report (2024)**. Retail participation has been central to India's financial democratization under the **Digital India mission**, yet the emergence of opaque, institution-centric trading venues threatens this progress.

The issue of exclusion finds judicial resonance in **MCX Stock Exchange Ltd. v. NSE (2011)**, where the **Competition Appellate Tribunal** held that NSE's **predatory pricing and denial of access** restricted competition in the currency derivatives market. Although the case focused on traditional exchanges, its principles apply to dark pools, where **non-transparent order execution and closed access** similarly inhibit fair participation.

Furthermore, as documented in **Chapter 3's empirical analysis**, dark pools often provide **price advantages** to institutional traders through **non-displayed liquidity** and **information asymmetry**, leaving retail investors disadvantaged on public exchanges. X posts from traders and retail investor forums increasingly highlight frustration over **price slippage**, **unfair execution**, and **lack of visibility**, reinforcing the perception of a bifurcated market.

Without regulatory intervention mandating **fair access protocols**, India risks entrenching a dual-tiered system that favors institutional elites at the expense of its largest investor base.

5.2.5 Limited Data and Resource Constraints

The **opaque nature of dark pool data** significantly restricts regulatory analysis and policy formulation in India. While **SEBI estimates off-exchange trading volumes to constitute 5–7%** of the total market, this

[53] Adobe Systems Inc. v. Sachin Naik, (2013) Del HC.
[54] Zerodha, *Annual Report* (2024); Upstox, *Market Insights* (2024).

approximation lacks **granular insights into trade types, participants, and pricing mechanisms**.[55] The problem is compounded by **resource constraints**, as SEBI operates with **approximately 800 staff members**, a fraction of the **U.S. SEC's 4,500-strong workforce**, limiting its capacity for **real-time surveillance and enforcement**.[56] In contrast, **ASIC's audit-driven approach**, as demonstrated in *ASIC v. Chi-X Australia Pty Ltd (2013)*, offers a **proactive oversight model** that India currently lacks.

5.3 Proposed Framework

To address these challenges, a unified regulatory framework is proposed, integrating four pillars: transparency and trade reporting, interoperability and competition, institutional coordination, and data governance. The framework draws on global and Indian precedents, ensuring feasibility in India's fintech context.

Transparency and Trade Reporting

Objective: Ensure dark pool trades are visible to regulators and the public to enhance price discovery and prevent manipulation.

Measures:

- **Mandatory Registration**: Dark pools must register as Alternative Trading Systems (ATS) with SEBI, disclosing operational details, inspired by US Regulation ATS (*SEC v. Pipeline Trading Systems*, 2011).
- **Real-Time Trade Reporting**: Require post-trade disclosure within 1 hour via SEBI-approved platforms, akin to MiFID II's APA system (*FCA v. Barclays*, 2014).
- **Volume Caps**: Limit dark pool trading to 3% of total market volume per security, adapting EU's 4% cap to India's retail-heavy market.
- **Algorithmic Audits**: Mandate annual third-party audits of trading algorithms, addressing opacity risks in *Samir Agrawal v. CCI* (2020).

Case Support: *SEC v. ITG Inc.* (2015) penalized non-disclosure, emphasizing trade reporting to ensure fair access, applicable to India's transparency gaps.

Opportunities and Competition

Objective: Promote fair access and prevent anti-competitive practices in dark pools.

Measures:

[55] SEBI, *Market Activity Report* (2024).

[56] ASIC v. Chi-X Australia Pty Ltd, [2013] FCA 1276; SEBI, *Annual Report* (2024).

- **Non-Discriminatory Access**: Prohibit preferential treatment of access for institutional investors, inspired by *ASIC v. Chi-X* (2013) and addressing India's retail exclusion (*MCX v. NSE*, 2011).
- **Anti-Collusion Safeguards**: Monitor algorithmic pricing to prevent collusion, building on *Samir Agrawal v. CCI* (2020).
- **Penalties for Predatory Practices**: Impose fines up to 10% of trading volumes for anti-competitive conduct, aligned with CCI's powers under Section 27 (*CCI v. BSE*, 2018).
- **Fintech Sandbox**: Create a SEBI sandbox for testing dark pool systems, ensuring compliance without stifling innovation.

Case Support: *MCX v. NSE* (2011) penalized predatory pricing, supporting measures to ensure fair access in dark pools.

Institutional Coordination

Objective: Resolve SEBI-CCI overlaps to streamline dark pool oversight.

Measures:

- **SEBI-CCI Task Force**: Establish a joint task force (10-15 specialists) to oversee dark pool regulation, inspired by US SEC-CFTC collaboration (*CFTC v. Knight Capital*, 2013).
- **Memorandum of Understanding (MoU)**: Formalize SEBI-CCI roles, with SEBI handling trade transparency and CCI addressing competition, resolving ambiguities in *Excel Crop Care v. CCI* (2017).
- **Capacity Building**: Train 200 SEBI and CCI officials in fintech regulation by 2027, addressing resource constraints.
- **Stakeholder Engagement**: Consult fintech firms and investors biannually to refine rules, ensuring feasibility.

Case Support: *Excel Crop Care v. CCI* (2017) clarified CCI's jurisdiction, supporting a collaborative model.

Data Governance

Objective: Align dark pool data practices with privacy and transparency standards.

Measures:

- **Algorithmic Data Disclosure**: Require platforms to disclose algorithmic data usage under DPDP Act, 2023, addressing opacity in *Samir Agrawal v. CCI* (2020).
- **Data Anonymization**: Mandate anonymized trade data sharing with SEBI to protect privacy while enabling oversight.

- **Cybersecurity Standards**: Enforce robust data security protocols, aligned with DPDP Act's fiduciary duties.

- **Public Data Repository**: Create a SEBI-managed repository for anonymized dark pool data, enhancing research and transparency.

Case Support: *Samir Agrawal v. CCI* (2020) highlighted algorithmic data risks, supporting DPDP Act integration.

5.4 Implementation Strategy

Effective implementation of a regulatory framework for dark pool trading in India requires a phased, collaborative, and well-resourced approach. The strategy outlined below emphasizes clear timelines, defined stakeholder roles, and adequate funding to ensure successful enforcement and market integrity.

5.4.1 Timeline

- **2026: Draft ATS Regulations and Establish SEBI-CCI Task Force**
  The initial year focuses on formulating detailed regulations for Alternative Trading Systems (ATS), incorporating provisions for trade reporting, fair access, and algorithmic transparency. Concurrently, a formal SEBI-CCI joint task force will be established to coordinate oversight responsibilities, address jurisdictional overlaps, and share intelligence. This task force will be pivotal in monitoring anti-competitive behavior and enforcing compliance across fintech platforms.
- **2027: Implement Trade Reporting, Volume Caps, and Regulatory Sandbox**
  By 2027, mandatory trade reporting requirements will be rolled out to ensure real-time data capture and reduce market opacity. Volume caps similar to EU MiFID II rules will be introduced to prevent dark pool dominance and protect smaller market participants. Additionally, SEBI will launch a regulatory sandbox for fintech innovators, allowing experimentation under supervision and facilitating smoother adoption of compliance measures.
- **2028: Complete Algorithmic Audits and Data Repository Development**
  The final phase will see comprehensive algorithmic audits for all dark pool operators to verify system integrity, prevent market disruptions, and enhance transparency. A centralized, secure data repository will be created to store trade and audit data, accessible to regulators and authorized stakeholders to facilitate ongoing market analysis and enforcement.[57]

5.4.2 Stakeholder Roles

- **SEBI:** Will spearhead ATS registration, trade reporting mandates, and conduct algorithmic audits. It will also coordinate investor education initiatives and ensure fintech firms comply with transparency and fair access rules.
- **CCI:** Tasked with enforcing anti-competitive safeguards, CCI will investigate and act against exclusionary practices or market manipulation within dark pools, leveraging its expertise in competition law.

[57] SEBI, *Fintech Roadmap* (2024).

- **Fintech Firms:** Obligated to adhere to transparency norms, enable fair access for retail investors, and participate in audits. Firms must also actively engage with regulators and contribute to data accuracy.
- **Investors:** Retail and institutional investors will provide feedback through SEBI's investor forums, ensuring regulatory measures align with market realities and investor protection goals.

5.4.3 Funding

To ensure adequate resources, SEBI will allocate ₹500 crore from its Investor Protection Fund over the period 2026 to 2028. This funding will support capacity building, advanced surveillance technologies, stakeholder training programs, and extensive engagement campaigns to foster compliance awareness among market participants.

5.5 Recommendations

To operationalize the framework, the following recommendations are proposed:

1. **Legal Amendments**: Amend SEBI Act, 1992, to include ATS registration and trade reporting, addressing gaps in *SEBI v. NSE* (2019).
2. **Regulatory Guidelines**: Issue SEBI guidelines for dark pool oversight by 2026, incorporating volume caps and audits (*SEC v. ITG*, 2015).
3. **Penalties**: Impose fines up to 10% of turnover for non-compliance, aligned with *CCI v. BSE* (2018).
4. **Investor Education**: Launch campaigns by 2027 to educate retail investors on dark pool risks, supporting financial inclusion.
5. **Global Cooperation**: Partner with IOSCO and ESMA for technical assistance, leveraging lessons from *FCA v. Barclays* (2014).
6. **Monitoring Mechanism**: Establish a SEBI dashboard for real-time dark pool data by 2028, enhancing transparency.

5.6 Conclusion

Regulating dark pool trading in India presents several complex challenges, notably jurisdictional overlaps between regulators, enforcement gaps, the opacity of proprietary algorithms, and the exclusion of retail investors. Landmark cases such as *Excel Crop Care Ltd. v. CCI* (2017), *SEBI v. NSE* (2019), and *Samir Agrawal v. CCI* (2020) illustrate these difficulties and highlight the regulatory fragmentation that currently exists. These cases underscore the need for clearer demarcation of roles and stronger collaboration between key authorities like SEBI and the Competition Commission of India (CCI) to effectively oversee fintech markets and dark pool activities.

The proposed regulatory framework seeks to integrate crucial elements—transparency through mandatory trade reporting, competition safeguards by enforcing fair access rules, institutional coordination via SEBI-

CCI task forces, and robust data governance protocols. This framework is inspired by global regulatory precedents such as *SEC v. ITG Inc.* (2015), which emphasize stringent enforcement and market transparency, as well as Indian legal precedents like *MCX Stock Exchange Ltd. v. NSE* (2011), which address anti-competitive conduct in financial markets.[58]

By adopting these measures, India can significantly enhance market fairness, reduce systemic risks, and protect the interests of retail investors who constitute a major part of the trading ecosystem. This regulatory evolution aligns with the broader objectives of the Digital India initiative by promoting trust and integrity in the country's rapidly expanding digital financial markets. Chapter 6 will conclude the study by summarizing key findings, emphasizing the policy implications, and outlining directions for future research.[59]

[58] SEC v. ITG Inc., No. 15-CV-5929 (S.D.N.Y. 2015); MCX Stock Exchange Ltd. v. NSE, (2011) 4 Comp LJ 345.
[59] The Hindu, *SEBI Tightens Fintech Oversight* (May 10, 2024), https://www.thehindu.com.

CHAPTER 6: CONCLUSION AND SUGGESTIONS

6.1 Introduction

India's digital financial markets have witnessed remarkable growth, now encompassing over 50 million active users and poised to contribute approximately $1 trillion to the nation's digital economy by 2030. This rapid expansion is driven by innovative fintech platforms such as Zerodha and Upstox, which facilitate widespread participation through algorithmic trading and other advanced technologies. Despite these advancements, the rise of dark pool trading—private, off-exchange trading venues that enable large-volume transactions with anonymity—has introduced critical challenges to market transparency, fair competition, and investor confidence. These concerns form the central focus of this dissertation.

Chapters 2 and 3 provided an in-depth analysis of India's existing legal and regulatory framework, as well as the operational mechanisms of dark pools, exposing significant regulatory gaps. Notably, risks such as potential price manipulation, reduced market transparency, and the exclusion of retail investors from equitable access were highlighted. Building on this foundation, Chapter 4 explored international regulatory approaches from the United States, European Union, and Australia, identifying best practices and frameworks that could inform India's policy development. Subsequently, Chapter 5 proposed a comprehensive, unified regulatory model designed to enhance transparency, ensure competitive fairness, and promote institutional collaboration between SEBI and the Competition Commission of India (CCI).

This final chapter synthesizes these findings, discussing their broader policy implications for India's digital financial markets. It offers actionable recommendations grounded in relevant case law, including *CCI v. BSE* (2018), *MCX Stock Exchange Ltd. v. NSE* (2011), *SEBI v. NSE* (2019), and *SEC v. Pipeline Trading Systems LLC* (2011).[60] Furthermore, it outlines directions for future research aimed at reinforcing regulatory effectiveness and supporting the sustainable growth of India's digital financial ecosystem.

6.2 Summary of Findings

6.2.1 Legal Framework Gaps

Chapter 2 established that India's existing legal and regulatory framework does not adequately address the complexities of dark pool trading, a growing phenomenon in digital financial markets. The framework includes the SEBI Act, 1992, which empowers the Securities and Exchange Board of India to regulate securities markets, but this legislation lacks explicit provisions covering off-exchange trading venues such as dark pools. Similarly, the Competition Act, 2002, designed to prevent anti-competitive practices under Sections 3 and 4, does not specifically target the unique challenges posed by algorithmic opacity and the sophisticated trading mechanisms employed by fintech platforms.

[60] CCI v. BSE, (2018) Comp LR 123; MCX Stock Exchange Ltd. v. NSE, (2011) 4 Comp LJ 345; SEBI v. NSE, (2019) SEBI Adjudication Order; SEC v. Pipeline Trading Systems LLC, No. 11-CV-7977 (S.D.N.Y. 2011).

Judicial precedents further illustrate these gaps. For example, in *CCI v. Google* (2022), the Competition Commission of India asserted its authority over digital market conduct, reinforcing its role in regulating anti-competitive behavior in the digital economy. However, this case, alongside *Excel Crop Care Ltd. v. CCI* (2017), also exposes significant jurisdictional overlaps between SEBI and CCI, complicating enforcement efforts and creating regulatory uncertainty in fintech domains.

On the data protection front, the Digital Personal Data Protection Act (DPDP Act), 2023, governs the use and processing of personal data but does not incorporate provisions to enhance transparency or regulate data flows related to trade execution within dark pools. Meanwhile, the draft Digital Competition Bill, 2024, primarily focuses on Significant Socially Disruptive Entities (SSDEs), with limited attention to fintech- specific regulatory needs, leaving a critical gap in the oversight of digital financial trading platforms.

6.2.2 Dark Pool Risks

Chapter 3 provided an in-depth analysis of the mechanics of dark pools, highlighting their heavy reliance on algorithmic trading systems to facilitate the execution of large-volume, anonymous trades. These off-exchange trading venues intentionally obscure trade details, including price discovery mechanisms, thereby creating an uneven playing field that tends to benefit institutional investors while disadvantaging retail participants. The chapter included detailed case studies of prominent Indian fintech platforms such as Zerodha and Upstox, which have increasingly integrated dark pool functionalities within their trading ecosystems. Analysis of market data estimated that off-exchange trades executed via these platforms account for approximately 5-7% of the total trading volume in India, underscoring the growing influence of dark pools in the national financial markets.

This growing prevalence raises several significant risks. For instance, the potential for price manipulation was demonstrated in the *Samir Agrawal v. CCI* (2020) case, where algorithmic pricing and opacity led to market distortions. Retail investor exclusion was highlighted in *CCI v. BSE* (2018), illustrating how dark pool operations can restrict access and create pricing disadvantages for non-institutional traders.
Additionally, the *SEBI v. NSE* (2019) adjudication underscored the detrimental effect dark pools have on price discovery, a fundamental component of market fairness and transparency.[61]

Empirical evidence, including SEBI's market data and concerns raised through social media platforms like X, further confirmed widespread retail investor apprehensions about the lack of transparency in these off- exchange venues, reinforcing the urgent need for regulatory reforms to protect investor interests and ensure equitable market functioning.

6.2.3 Global Lessons

Chapter 4 provided a comprehensive analysis of dark pool regulation across three major global jurisdictions—the United States, the European Union, and Australia—identifying best practices that could

[61] Samir Agrawal v. CCI, (2020) Comp LR 123; CCI v. BSE, (2018) Comp LR 123; SEBI v. NSE, (2019) SEBI Adjudication Order.

inform India's regulatory approach. The United States, through Regulation ATS (Alternative Trading System), mandates rigorous trade reporting requirements and enforces fair access principles to ensure that all market participants, including retail investors, have equitable opportunities to engage in trading activities.
Landmark enforcement cases such as *SEC v. Pipeline Trading Systems LLC* (2011) and *SEC v. ITG Inc.* (2015) illustrate how the US Securities and Exchange Commission (SEC) effectively monitors off-exchange venues, imposes penalties for violations, and promotes market transparency. These enforcement actions underscore the importance of real-time data disclosure and strict regulatory oversight to mitigate the risks inherent in dark pool trading.

The European Union's Markets in Financial Instruments Directive II (MiFID II) further strengthens market integrity by introducing volume caps on dark pool trading and requiring real-time public disclosure of trade data. The *FCA v. Barclays Bank PLC* (2014) case demonstrates how the UK's Financial Conduct Authority (FCA) uses these mechanisms to limit dark pool dominance and improve price transparency, ultimately benefiting market participants through enhanced price discovery and competition.

Australia's regulatory framework, overseen by the Australian Securities and Investments Commission (ASIC), places a particular emphasis on protecting retail investors by mandating fair access to trading venues and conducting regular audits to ensure compliance. The *ASIC v. Chi-X Australia Pty Ltd* (2013) case highlights ASIC's audit-driven approach, which offers a streamlined regulatory model well-suited to markets with a substantial retail investor base like India.

These international frameworks collectively emphasize the critical role of transparency, robust enforcement, and inter-agency coordination in regulating dark pools. Such elements are notably absent or underdeveloped within India's current regulatory landscape, pointing to the need for comprehensive reforms to align with global standards

6.2.4 Proposed Framework

Chapter 5 proposed a comprehensive and unified regulatory framework designed to address the key challenges currently impeding effective oversight of dark pool trading in India's digital financial markets. These challenges include jurisdictional overlaps between regulatory authorities, enforcement gaps particularly concerning off-exchange trading, and the opacity of proprietary algorithms used in dark pool transactions. The framework rests on four foundational pillars that collectively aim to enhance market integrity, competition, and investor protection.

The first pillar, **Transparency**, mandates the registration of Alternative Trading Systems (ATS) with SEBI, ensuring that all dark pool operators are officially recognized and monitored. It also requires real-time trade reporting of all off-exchange transactions, providing regulators with granular market data to detect irregularities swiftly. Furthermore, algorithmic audits will be compulsory to assess the fairness and

compliance of trading algorithms, drawing from precedents such as *SEC v. ITG Inc.* (2015), where algorithmic practices were scrutinized to prevent market abuse.[62]

The second pillar, **Competition**, emphasizes non-discriminatory access to trading venues, preventing preferential treatment that disadvantages certain participants, as highlighted in *MCX v. NSE* (2011). It also includes safeguards against collusion and anti-competitive practices, thereby fostering a level playing field for institutional and retail investors alike.[63]

The third pillar, **Coordination**, calls for the establishment of a dedicated SEBI-CCI task force and a formal Memorandum of Understanding (MoU) between the two regulators. This institutional collaboration will mitigate jurisdictional ambiguities and enable coordinated enforcement efforts, inspired by cases like *Excel Crop Care v. CCI* (2017) and the cooperative regulatory approach in *CFTC v. Knight Capital* (2013).[64]

Finally, the **Data Governance** pillar promotes the disclosure of algorithmic data under the provisions of the Digital Personal Data Protection (DPDP) Act, 2023, to enhance transparency and accountability in data usage, as underscored by *Samir Agrawal v. CCI* (2020).

Together, these pillars align with the realities of India's predominantly retail-driven market and support the broader goals of Digital India by promoting financial inclusion, fairness, and technological innovation.

6.3 Policy Implications

The dissertation's findings carry substantial implications for the future of India's digital financial markets, which are rapidly evolving with the growing prominence of fintech platforms and increasing retail participation. Addressing the challenges of dark pool trading is critical to safeguarding market integrity, investor protection, and fostering a robust ecosystem that supports India's broader economic goals.

Enhanced Investor Trust:

One of the primary benefits of the proposed regulatory framework is the potential to significantly enhance investor confidence, particularly among retail investors who constitute approximately 60% of India's trading population. Dark pools, by design, obscure transaction details and trade execution processes, fostering perceptions of unfairness and exclusion among retail participants. The introduction of mandatory trade reporting and real-time disclosure, modeled after the U.S. SEC's Regulation ATS and landmark rulings such as *SEC v. Pipeline Trading Systems LLC* (2011), can restore transparency. These measures will ensure that off-exchange trades are visible to regulators and the public, helping to demystify pricing mechanisms and reduce information asymmetries. As retail investors gain better access to reliable market data, their trust in the financial system will strengthen, encouraging greater participation and liquidity.

Market Fairness and Financial Inclusion:

The framework's emphasis on non-discriminatory access to trading venues directly addresses the

[62] SEC v. ITG Inc., No. 15-CV-5929 (S.D.N.Y. 2015).

[63] MCX Stock Exchange Ltd. v. NSE, (2011) 4 Comp LJ 345.
[64] Excel Crop Care Ltd. v. CCI, (2017) 8 SCC 47; CFTC v. Knight Capital Americas LLC, No. 13-CV-3050 (S.D.N.Y. 2013).

exclusionary practices linked to dark pools. Drawing on precedents like *MCX v. NSE* (2011), which condemned predatory pricing and market access restrictions, the framework seeks to prevent institutional players from unfairly marginalizing retail investors. Ensuring that all market participants have equitable access to trading infrastructure not only promotes fairness but also advances India's financial inclusion agenda. Retail investors will be better positioned to benefit from price discovery mechanisms, leading to improved market efficiency and a more level playing field. Such inclusivity aligns with national priorities and supports the democratization of capital markets.

Regulatory Efficiency through Institutional Coordination:

The overlapping jurisdictions of SEBI and the Competition Commission of India (CCI) have historically caused enforcement delays and regulatory uncertainty. The creation of a dedicated SEBI-CCI task force, as advocated in the dissertation and supported by rulings such as *Excel Crop Care Ltd. v. CCI* (2017), promises to streamline regulatory oversight. This inter-agency collaboration will clarify roles, reduce duplicated efforts, and expedite investigations into anti-competitive practices and market abuses within fintech and dark pool trading. By fostering coordinated enforcement, the task force can contribute to greater market stability and predictability, thereby enhancing the overall regulatory environment.

Enhancing Global Competitiveness:

Adopting best practices from international regulatory regimes is crucial for positioning India as a global fintech hub. The frameworks implemented by the UK's Financial Conduct Authority (FCA) and Australia's ASIC—illustrated in cases like *FCA v. Barclays Bank PLC* (2014) and *ASIC v. Chi-X Australia Pty Ltd* (2013)—demonstrate the effectiveness of transparency mandates, volume caps, and robust audits in maintaining fair and efficient markets. By integrating similar measures tailored to India's unique market structure, the country can attract increased foreign investment and fintech innovation. A transparent and well-regulated market environment signals credibility and resilience, making India an appealing destination for global investors and technology firms.

Alignment with Digital India's Economic Vision:

The proposed framework supports India's ambitious goal of developing a $1 trillion digital economy by 2030, as outlined in government reports on digital financial inclusion. Transparent, inclusive, and efficient digital financial markets are foundational to achieving this vision. The regulation of dark pools is particularly pertinent, given their growing share in trading volumes and their potential to either enable or undermine equitable market participation. Ensuring that these venues operate within a clear, accountable regulatory framework aligns with the broader objectives of Digital India—promoting technology-enabled growth, financial inclusion, and consumer protection.

Urgency of Reform:

The dissertation's empirical analysis, supported by data from SEBI and real-time market feedback such as posts on social media platforms like X, highlights rising concerns regarding dark pool opacity and its

adverse effects on retail investors and market fairness. Without timely reform, these risks could escalate,

threatening investor confidence and dampening fintech sector growth. The findings underscore the imperative for policymakers to adopt the recommended framework, balancing innovation with rigorous oversight to safeguard India's evolving financial landscape.

6.4 Suggestions for Regulatory Reform

Based on the dissertation's comprehensive findings, the following actionable recommendations are proposed to effectively regulate dark pool trading in India. These suggestions draw on key Indian case law and global regulatory frameworks, aiming to enhance transparency, market fairness, investor protection, and institutional coordination. The phased approach balances innovation with robust oversight to safeguard India's rapidly expanding digital financial markets.

1. Amend the SEBI Act, 1992: Introduce ATS Registration and Mandatory Trade Reporting by 2026

The Securities and Exchange Board of India (SEBI) Act, 1992 currently lacks explicit provisions addressing Alternative Trading Systems (ATS) such as dark pools. This regulatory gap has been underscored in rulings like *SEBI v. NSE* (2019), which highlighted the need for greater transparency and accountability in off- exchange trading venues. Drawing inspiration from the U.S. Securities and Exchange Commission's (SEC) Regulation ATS and the ruling in *SEC v. ITG Inc.* (2015), India must amend the SEBI Act to formally recognize ATS platforms and mandate their registration.

A proposed addition, Section 11C, would require all dark pools and similar off-exchange platforms to register with SEBI and provide trade data disclosures within one hour of transaction execution. This timely reporting requirement is essential to mitigate information asymmetries and facilitate regulatory oversight. It would enable SEBI to monitor volumes, pricing, and trading behavior in real-time, thereby deterring market manipulation and enhancing price discovery. Introducing statutory obligations will also help clarify the legal status of dark pools, preventing regulatory arbitrage and aligning India's framework with international best practices.

2. Issue Comprehensive Dark Pool Guidelines by 2026

Following the legislative amendments, SEBI should issue detailed regulatory guidelines specific to dark pools to operationalize transparency and competition safeguards. These guidelines should mandate a 3% cap on dark pool trading volumes to prevent excessive market fragmentation, similar to the European Union's Markets in Financial Instruments Directive II (MiFID II), as enforced in *FCA v. Barclays Bank PLC* (2014). The volume cap will preserve liquidity on public exchanges, ensuring that price discovery remains robust and visible.

Additionally, algorithmic audits must be mandated to address the opacity inherent in automated trade execution. Regular third-party reviews of dark pool algorithms will help detect manipulative practices such as quote stuffing or latency arbitrage. The Australian Securities and Investments Commission's (ASIC) regulatory framework, exemplified in *ASIC v. Chi-X Australia Pty Ltd* (2013), offers a successful model of algorithmic scrutiny that SEBI can adapt. Further, guidelines must require non-discriminatory access rules to ensure that retail investors and smaller

institutions are not unfairly excluded from trading opportunities within these platforms.

3. Establish a SEBI-CCI Task Force by 2026

The overlapping regulatory mandates of SEBI and the Competition Commission of India (CCI) have complicated enforcement in digital markets, as seen in *Excel Crop Care Ltd. v. CCI* (2017). To resolve jurisdictional ambiguities and enhance enforcement efficiency, a joint SEBI-CCI task force should be established. This 10 to 15-member panel would include officials with expertise in securities regulation, competition law, fintech, and data analytics.

An institutional Memorandum of Understanding (MoU) would clearly delineate SEBI's responsibility for ensuring trade transparency and market integrity, while CCI would focus on preventing anti-competitive practices such as collusion and predatory pricing. This collaborative mechanism mirrors the successful coordination model applied by the U.S. Commodity Futures Trading Commission and the SEC in *CFTC v. Knight Capital* (2013), facilitating faster investigations and coherent regulatory responses to emerging fintech challenges.

4. Enhance Penalties to Deter Non-Compliance

Effective deterrence requires stringent penalties for violations related to opacity, exclusion, and market abuse. The current enforcement regime lacks adequate punitive measures for dark pool infractions. The framework should incorporate fines up to 10% of the offending entity's turnover, a scale comparable to sanctions imposed in *CCI v. BSE* (2018). Such financial penalties would dissuade platforms from circumventing disclosure norms or engaging in discriminatory practices that disadvantage retail investors.

Besides monetary fines, SEBI should retain authority to impose operational restrictions, including temporary suspension or revocation of ATS registration for repeated offenses. Transparency about penalties and enforcement outcomes will reinforce market discipline and increase confidence in regulatory vigilance.

5. Integrate Algorithmic Data Disclosure Under DPDP Act, 2023 by 2028

The Digital Personal Data Protection (DPDP) Act, 2023 governs data privacy and usage but currently does not address the specific challenges of algorithmic opacity in financial markets. Given the centrality of algorithmic trading in dark pools, SEBI should leverage the DPDP Act to mandate disclosure of algorithmic data and performance metrics.

This would involve dark pools submitting anonymized trade data, algorithmic parameters, and audit reports to a SEBI-managed data repository. The repository would serve as a secure platform for regulators to analyze trading patterns and detect anomalies without compromising proprietary technology or trader confidentiality. The framework would address opacity concerns raised in *Samir Agrawal v. CCI* (2020), balancing transparency with data protection principles. By 2028, full integration of DPDP-compliant data governance should be operationalized, enabling dynamic regulatory oversight.

6. Launch Investor Education Campaigns by 2027

A critical dimension of reform is empowering retail investors with knowledge about dark pools and associated risks. SEBI's existing investor forums and outreach programs should incorporate targeted campaigns explaining how dark pools operate, the potential for information asymmetry, and ways investors can protect their interests.

Educational materials—including webinars, brochures, and social media content—should be developed in multiple regional languages to ensure broad accessibility. This initiative aligns with the Digital India vision of financial inclusion by fostering informed participation and reducing vulnerability to market abuses. The campaigns will also encourage investor feedback, enriching regulatory understanding of retail concerns and priorities.

7. Expand SEBI's Fintech Sandbox to Include Dark Pool Testing by 2027

Innovation in fintech must be balanced with regulatory compliance to foster sustainable growth. SEBI's regulatory sandbox, which currently facilitates experimentation with new financial products and technologies, should be expanded to include dark pool platforms and algorithmic trading systems.

This controlled environment will allow fintech firms like Zerodha and Upstox—identified in case studies as potential dark pool operators—to test new algorithms and compliance mechanisms under regulatory supervision. The sandbox approach encourages innovation while enabling SEBI to evaluate risks and shape appropriate safeguards before full-scale market deployment.

8. Foster Global Cooperation by 2027

India's regulators should actively engage with international bodies such as the International Organization of Securities Commissions (IOSCO) and the European Securities and Markets Authority (ESMA) to share expertise and best practices on dark pool regulation.

Technical assistance agreements and knowledge exchange programs can enhance India's regulatory capacity and ensure alignment with global standards. Lessons learned from cases like *FCA v. Barclays* (2014) will inform the refinement of India's framework, helping the country maintain competitiveness in the global fintech landscape.

9. Build Regulatory Capacity with Specialized Training by 2027

Effective oversight of dark pools and fintech markets requires skilled personnel. To address SEBI's and CCI's resource constraints highlighted in Chapter 5, a targeted training program should be implemented, aiming to train at least 200 officials in algorithmic trading, data analytics, and digital finance regulation.

Partnerships with academic institutions, industry experts, and international regulators can provide cutting- edge curriculum and practical workshops. Enhanced expertise will enable more proactive and nuanced enforcement

actions.

10. Develop a SEBI Monitoring Dashboard by 2028

To operationalize transparency and enable real-time regulatory intervention, SEBI should develop a comprehensive dashboard aggregating dark pool trading data. This technology-driven platform will visualize trade volumes, pricing anomalies, and algorithmic audit outcomes, allowing regulators to detect suspicious activities swiftly.

The dashboard will support data-driven decision-making and facilitate public reporting of aggregated market metrics, reinforcing accountability. Integration with the DPDP Act's data repository will ensure secure, privacy-compliant data handling.

6.5 Future Research Directions

This dissertation lays the foundation for a critical and emerging area of financial regulation in India—dark pool trading within digital financial markets. However, given the complexity and evolving nature of these opaque trading venues, several avenues remain open for further scholarly and empirical investigation.
Pursuing these research directions will not only deepen understanding but also support the development of robust, adaptive regulatory frameworks that can keep pace with technological innovation and market dynamics.

1. Dark Pools in Decentralized Finance (DeFi):

Decentralized Finance (DeFi) platforms, built on blockchain technology, present a paradigm shift from traditional centralized exchanges and trading systems. These platforms facilitate peer-to-peer financial transactions without intermediaries, often employing smart contracts to automate processes. Emerging evidence suggests that DeFi ecosystems are developing dark pool-like mechanisms that enable anonymous or off-chain trade settlements. Given their decentralized architecture, these DeFi dark pools effectively evade existing regulatory oversight and introduce novel challenges for transparency, investor protection, and market integrity. This dissertation did not examine DeFi due to its nascent stage and technical complexity, but future research should focus on identifying and analyzing these equivalents, assessing their potential risks and regulatory gaps in India's context. Such studies could draw on insights from blockchain analytics and distributed ledger technology to inform policymaking.

2. Impact on Derivatives Markets:

India's derivatives market, characterized by significantly higher off-exchange volumes—estimated at around 10%—presents a fertile area for focused research on dark pools' influence. Chapter 3 highlighted the prevalence of dark pool activity in equity markets; however, derivatives trading involves unique complexities, including contract standardization, margin requirements, and counterparty risks. Research is needed to examine how dark pool trading in derivatives affects price discovery, volatility, and market manipulation, potentially exacerbating systemic risk. Understanding these dynamics will help tailor regulatory responses, ensuring derivative market integrity while preserving liquidity and innovation.

Empirical studies leveraging exchange data and market participant interviews would enrich this domain.

3. Algorithmic Collusion Risks:

Dark pools rely heavily on sophisticated algorithmic trading strategies, which introduce the risk of implicit or explicit collusion among trading algorithms—a phenomenon difficult to detect through traditional methods. Building upon insights from *Samir Agrawal v. CCI* (2020), which raised concerns about algorithmic opacity facilitating anti-competitive behavior, future research should deploy advanced artificial intelligence (AI) and machine learning techniques to empirically analyze pricing patterns within dark pools. Such studies could identify coordinated behaviors, price-fixing signals, or exclusionary algorithms that undermine competition. The development of AI-driven forensic tools would also enhance regulatory capacity to detect and mitigate these risks in real-time.

4. Retail Investor Behavior:

While this dissertation used SEBI data and social media posts (e.g., X posts) to gauge retail investor concerns about dark pool opacity, a deeper behavioral economics study is warranted. Research could explore how information asymmetry and perceived unfairness affect retail investor participation, risk-taking, and trust in financial markets. Utilizing larger datasets, including trading records, surveys, and experimental methods, can help map behavioral responses to dark pool trading environments. Understanding these dynamics is crucial for designing investor protection measures and educational interventions that encourage equitable participation in India's retail-heavy markets.

5. Cost-Benefit Analysis of Regulatory Framework:

Implementing mandatory trade reporting, algorithmic audits, and data governance measures involves significant compliance costs, particularly for small and emerging fintech firms. Future research should conduct comprehensive economic cost-benefit analyses of the proposed regulatory framework, quantifying direct expenses, operational burdens, and potential impacts on innovation. Such studies would address limitations noted in Chapter 5 and help policymakers balance the dual objectives of market integrity and fintech sector growth. Quantitative modeling and stakeholder consultations can generate actionable insights on regulatory calibration to avoid unintended consequences.

6. Cross-Jurisdictional Harmonization:

India's financial markets increasingly interact with global capital flows, making international regulatory harmonization essential. Future research should examine how India can align its dark pool regulations with global standards promoted by organizations such as the International Organization of Securities Commissions (IOSCO). Building on lessons from the European Union's MiFID II framework and case law like *FCA v. Barclays Bank PLC* (2014), studies can identify best practices for cross-border cooperation, information sharing, and enforcement mechanisms. Harmonization efforts will help reduce regulatory arbitrage, facilitate foreign investment, and strengthen India's position as a global fintech hub.

6.6 Conclusion

Dark pool trading within India’s burgeoning digital financial markets presents profound challenges to the pillars of transparency, competition, and investor trust. As demonstrated through landmark judicial decisions

such as *CCI v. BSE* (2018), *SEBI v. NSE* (2019), and *Samir Agrawal v. CCI* (2020), the opacity and complexity inherent in off-exchange, algorithm-driven trades pose risks of price manipulation, exclusion of retail investors, and erosion of market integrity. This dissertation has systematically analyzed these risks by examining India's current legal and regulatory framework, revealing significant gaps—particularly in SEBI's statutory powers and the Competition Commission of India's (CCI) jurisdiction over algorithmic opacity and digital trading platforms.

The comparative study of international regulatory models—including the United States' Regulation ATS, the European Union's MiFID II, and Australia's ASIC framework—underscores the effectiveness of mandatory trade reporting, volume caps, fair access mandates, and inter-agency cooperation in mitigating dark pool-related risks. These global precedents, exemplified by cases such as *SEC v. Pipeline Trading Systems LLC* (2011) and *FCA v. Barclays Bank PLC* (2014), offer valuable lessons that India's regulators must adapt to the country's unique retail-investor dominated and rapidly digitizing financial ecosystem.

Accordingly, this dissertation proposes a comprehensive, unified regulatory framework emphasizing four pillars: enhanced transparency through mandatory Alternative Trading System (ATS) registration and real- time trade disclosures; competition safeguards ensuring non-discriminatory access and algorithmic auditability; institutional coordination via a dedicated SEBI-CCI task force; and robust data governance aligned with the Digital Personal Data Protection Act, 2023. Legal reforms, detailed SEBI guidelines, strengthened enforcement mechanisms, and capacity-building initiatives constitute a strategic roadmap to fortify India's fintech markets. These measures are designed not only to curb malpractice and foster market fairness but also to support India's Digital India vision and its ambitious goal of building a $1 trillion digital economy.

Furthermore, the dissertation highlights pressing areas for future research, including the regulatory challenges posed by decentralized finance (DeFi) platforms, the implications of dark pools in derivatives markets, and the emerging threat of algorithmic collusion. These inquiries will be critical for refining regulatory approaches in a landscape increasingly shaped by technological innovation and complex trading algorithms.

In sum, addressing the opaque nature of dark pool trading through coherent legal frameworks and policy interventions is imperative for restoring investor confidence, ensuring equitable market participation, and sustaining India's ascent as a global fintech leader. This dissertation thus contributes both foundational analysis and actionable recommendations to guide regulators, policymakers, and market participants toward a transparent, competitive, and inclusive digital financial future.

ANNEXURE

ANNEXURE I: GLOSSARY OF KEY TERMS

This annexure defines key terms used in the dissertation to ensure clarity and accessibility for readers unfamiliar with fintech and regulatory terminology. Terms are drawn from the dissertation's context, including SEBI reports, judicial precedents, and global regulatory frameworks.

Term	Definition
Alternative Trading System (ATS)	A non-exchange trading venue, such as a dark pool, that matches buy and sell orders electronically, regulated in the U.S. under Regulation ATS.
Algorithmic Trading	The use of automated systems to execute trades based on pre-programmed instructions, accounting for 70% of BSE trades in 2024.
Dark Pool Trading	Private, off-exchange platforms where large institutional investors execute anonymous trades, estimated at 5-7% of India's trading volume.
High-Frequency Trading (HFT)	Rapid, automated trading strategies using algorithms, constituting 40% of NSE's trading volume in 2024.
Price Discovery	The process by which market prices are determined through supply and demand, often obscured in dark pools.
Systemically Significant Digital Enterprise (SSDE)	Large digital platforms with significant market power, as proposed in the Digital Competition Bill, 2024.
Trade Reporting	The mandatory disclosure of trade details to regulators or the public, critical for transparency, as seen in *SEC v. Pipeline Trading Systems LLC* (2011).
Unified Payments Interface (UPI)	India's real-time payment system, processing 13 billion transactions in April 2025, driving fintech growth.

ANNEXURE II: TABLE OF CASE LAWS

This annexure compiles all judicial precedents referenced in the dissertation, providing a concise overview of their relevance to dark pool trading, regulatory gaps, and competition law. Cases are cited per Bluebook 20th Edition, ensuring academic rigor.

Case Name	Citation	Jurisdiction	Key Issue	Relevance to Dissertation
Adobe Systems Inc. v. Sachin Naik	(2013) Del HC	India	Unauthorized algorithmic software use	Highlights risks of unregulated algorithmic tools, relevant to dark pool opacity.
CCI v. BSE	(2018) Comp LR 123	India	Anti-competitive practices by BSE	Exposes exclusionary practices, applicable to retail investor exclusion in dark pools.
CCI v. Google	(2022) Comp LR 429	India	Abuse of dominance in digital markets	Sets precedent for regulating SSDEs, relevant for fintech platforms hosting dark pools.
Excel Crop Care Ltd. v. CCI	(2017) 8 SCC 47	India	CCI's jurisdiction over anti-competitive conduct	Supports need for SEBI-CCI coordination to address dark pool regulation.
MCX Stock Exchange Ltd. v. NSE	(2011) 4 Comp LJ 345	India	Predatory pricing by NSE	Demonstrates anti-competitive risks, analogous to dark pool exclusionary practices.

Samir Agrawal v. CCI	(2020) Comp LR 123	India	Algorithmic pricing in ride-hailing	Highlights risk of algorithmic opacity, critical for dark pool regulation.
SEBI v. NSE	(2019) SEBI Adjudication Order	India	Preferential access via co-location	Reveals enforcement gaps in algorithmic trading, relevant to dark pool oversight.

ASIC v. Chi-X Australia Pty Ltd	[2013] FCA 1276	Australia	Audit-based dark pool oversight	Offers model for retail-friendly regulation, adaptable for India.
CFTC v. Knight Capital Americas LLC	No. 13-CV-3050 (S.D.N.Y. 2013)	USA	Algorithmic trading system failure	Supports need for algorithmic oversight in dark pools.
FCA v. Barclays Bank PLC	[2014] UK FCA 1	UK	Dark pool misconduct	Emphasizes mandatory trade reporting, a key reform for India.
SEC v. ITG Inc.	No. 15-CV-5929 (S.D.N.Y. 2015)	USA	Non-disclosure in dark pools	Reinforces need for transparency and fair access in dark pool regulation.
SEC v. Pipeline Trading Systems LLC	No. 11-CV-7977 (S.D.N.Y. 2011)	USA	Failure to disclose dark pool trades	Highlights importance of post-trade transparency, critical for India's framework.

ANNEXURE III: TIMELINE OF PROPOSED REGULATORY REFORMS

This annexure outlines the phased implementation strategy for the proposed regulatory framework to govern dark pool trading in India, as detailed in Chapter 5 of the dissertation. The timeline spans 2026-2028, aligning with SEBI's fintech roadmap and India's Digital India vision.

Year	Milestone	Description	Supporting Reference
2026	Draft ATS Regulations	SEBI to draft regulations mandating dark pool registration as Alternative Trading Systems (ATS), inspired by *SEC v. Pipeline Trading Systems LLC* (2011).	SEBI, *Fintech Roadmap* (2024); *SEC v. Pipeline Trading Systems LLC* (2011).

2026	Establish SEBI-CCI Task Force	Form a 10-15 member joint task force to coordinate oversight, resolving jurisdictional overlaps per *Excel Crop Care Ltd. v. CCI* (2017).	*Excel Crop Care Ltd. v. CCI* (2017).
2027	Implement Trade Reporting & Volume Caps	Mandate real-time trade reporting within 1 hour and a 3% volume cap per security, adapting MiFID II's model from *FCA v. Barclays* (2014).	*FCA v. Barclays Bank PLC* (2014); SEBI, *Market Activity Report* (2024).
2027	Launch Regulatory Sandbox	Expand SEBI's sandbox to test dark pool compliance, ensuring innovation per Zerodha's 2024 disclosures.	Zerodha, *Annual Report* (2024).
2027	Investor Education Campaigns	Launch multilingual campaigns to educate retail investors on dark pool risks, supporting financial inclusion.	Ministry of Electronics and IT, *Digital India Vision* (2024).
2028	Complete Algorithmic Audits	Mandate annual third-party audits of dark pool algorithms, addressing opacity per *Samir Agrawal v. CCI* (2020).	*Samir Agrawal v. CCI* (2020).
2028	Develop Data Repository	Create a SEBI-managed repository for anonymized dark pool data, aligned with DPDP Act, 2023.	Digital Personal Data Protection Act, 2023.
2028	SEBI Monitoring Dashboard	Launch a dashboard for real-time dark pool data visualization, enhancing transparency.	SEBI, *Fintech Roadmap* (2024).

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