Social Media and Financial Stability Opportunity or Threat?

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ABSTRACT

The advent of new forms of media and the expansion of communication technologies has transformed how we live and conduct business. The rapid expansion of social media and communication technologies has revolutionised how we conduct business and connect with others. This paper explores the impact of social media on financial stability, examining its opportunities and potential risks. The paper aims to assist the Central Bank of Trinidad and Tobago in understanding the risks posed by social media to financial stability and proposes the development of a framework to monitor its impact on financial stability. The study conducts impact analysis, examining how social media is a channel of communication which can lead to financial instability through misinformation, market manipulation, and herd behaviour. It also highlights the opportunities for regulators to use social media for sentiment analysis and crisis communication. Policy recommendations for regulators include including developing risk management frameworks and proactive social media monitoring.

Keywords: social media, financial stability, bank runs, viral, fake news, financial risks, finfluencers, investor sentiment, fintech

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Executive Summary

Social media is a change agent. The growth of virtual platforms and their influence has unsettled traditional financial stability dynamics. Research into the relationship between modern media and financial stability has proven that the rapid sharing of information on social media amplifies risks and can potentially cause bank runs. Social media can play a major role in propagating rumours and misinformation, which could erode depositor confidence and trigger a cascade of withdrawals. Findings also suggest that social signals contain valuable information that can be used to predict market trends and anticipate investor sentiment. Therefore, regulators and financial institutions can benefit from regularly monitoring social media platforms to understand market sentiment and identify trends. This is particularly useful for central banks when carrying out financial system surveillance to identify potential shocks and system stressors.

The role that social media played in recent financial developments, such as the Silicon Valley Bank collapse of 2023, has highlighted its potential role as an amplifier in financial crises. The analysis in this paper illustrates that the moment a viral event threatens financial stability, is when unresolved speculation generates enough fear and panic that it causes reactions in the physical world. As online information encourages market participants to make financial decisions, virtual influence can transcend into reality. This can impact the market by causing surges in buying or selling activity that could strain market liquidity and lead to rapid price fluctuations. Banks may face excessive withdrawals, stock prices may experience dramatic swings, bond yields may shift unexpectedly, currency values may fluctuate, and commodity prices may become highly volatile. These sudden movements can have a cascading effect throughout the financial ecosystem.

The financial sector's heightened sensitivity to external stimuli, coupled with the speed and reach of social media, creates a feedback loop that can destabilise financial markets rapidly. Through the spread of viral misinformation and the amplification of herd behaviour, social media can increase market, liquidity, credit, and operational risks. Understanding the interplay between FinTech applications, market interconnectedness, and investor sentiment is essential for developing effective strategies to mitigate the amplification of risks. Regulators such as central banks should also embrace the various opportunities that social media may offer. This paper identifies three key ways in which regulators can use social media to help fulfil their mandates in a digital age:

Facilitate Sentiment Analysis; Expand Reach and Relevance; and as a Controlled Crisis Communication Tool.

The following recommendations are proposed to help financial institutions and regulators enhance their resilience and maintain stability in the face of the unique challenges posed by social media:

- Develop robust risk management and resolution frameworks to monitor, assess, and respond to the rapid dissemination of misinformation. This can aid in preparedness, prevention, response and resolution stages. There is also rational and scope for the inclusion of social media monitoring in crisis simulation exercises, to anticipate potential challenges before they escalate.
- Invest in technology such as advanced data analytics, artificial intelligence, and machine learning methods to assist with the identification of new risks and improve reaction times.
- Train a cross-functional team, or a targeted communications staff grouping, in handling social media-driven events appropriately and efficiently. Programmes should include understanding social media dynamics, recognising potential threats, and responding appropriately.
- Enhance transparency and communication to foster open lines of communication with all stakeholders. This involves being transparent about the institution's social media monitoring practices and strategies for managing and mitigating risks as well as seeking feedback from, and addressing the concerns of customers, investors, regulators, and the general public. In the event of a potential crisis, timely and clear communication is essential to maintaining confidence and preventing panic.

1.0 Introduction

Trinidad and Tobago's financial sector is large and has systemic regional importance. Therefore, system-wide oversight and macroprudential policy are critical. One of the high impact risks identified in Trinidad and Tobago's 2020 Financial Sector Assessment Program (FSAP) Report was that of a domestic confidence shock. In the report, the International Monetary Fund (IMF) explained that a sudden loss of confidence in the domestic financial system (potentially prompted by a sovereign debt crisis or run on investment funds) could trigger a market sell-off, with negative effects on investment funds and spillovers to the banking sector (IMF 2020).

A strong economic system depends on a stable financial environment and the financial system's ability to (among other things) (i) assess, price, allocate, and manage financial risks and (ii) to maintain its ability to perform these key functions—even when affected by external shocks (Schinasi 2004). In turn, financial risks, external shocks and the financial system are directly impacted by access to timely, accurate and reliable information. The advent of new forms of media and the expansion of communication technologies have brought an evolution in information sources. Traditional media is now sharing space with modern alternatives like social media, which all have the potential to influence confidence in the financial system.

McQuail and Deuze (2020) defines traditional media as, "institutions that are dedicated to producing and distribution information and cultural products to a large audience usually using print or broadcast technologies." Traditional media refers to a "one-to-many" communication model where content is created by organizations[1] and broadcasted to a large audience. Social media platforms operate on a "many-to-many" communication model where users produce and consume content. They are interactive platforms where dialogues are facilitated with user-generated content and real-time feedback. Kaplan and Haenlein (2010) define social media as "a group of internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange if user-generated content". The key differences between traditional media and social media are in their structure (professionally produced content vs user-generated content), communication models (broadcast vs interactive dialogue) and audience engagement (passive audience vs immediate interactive audience) (Kaplan and Haenlein 2010).

[1] Organizations such as newspapers, television and radio.

As more people turn to the internet for financial information, the relationship between media and financial stability is becoming more complex (Sun 2023). People use financial applications, execute online investments using computers and smartphones, and rely on websites to obtain financial information. The internet, smartphones, and social media allow consumers to access news immediately and from anywhere in the world. It's easier than ever to instantly express opinions about businesses and industries, which speeds up the flow of information between geographical areas.

Social media channels have provided financial institutions with an avenue for direct two-way communication with existing and potential clients. This has created opportunities for financial institutions to expand their client base but it also allows for the spread of misinformation, which can cause bigger financial risks. Negative social media sentiment alongside technology-enabled applications and programs, was pivotal in the collapse of three US banks in March 2023, as they allowed clients to transfer deposits online quickly. These decisions were based largely on unfavourable social media reports[2].

This paper explores the impact of social media on financial stability, examining its opportunities and potential risks in the case of Trinidad and Tobago. The rest of this paper proceeds as follows: Section 2.0 presents other theoretical studies on the topic. Section 3.0 illustrates the evolution and adoption of social media and its role in influencing financial decisions over time. In Section 4.0, the authors develop a transmission mechanism to trace the avenues through which a social media posts can create instability within the financial system and highlight opportunities and threats to financial stability. Section 5.0 concludes and makes recommendations for policy and further work.

2.0 Literature Review

Information sharing has become nearly instantaneous since the emergence of social media, which has altered traditional market efficiency dynamics. The Efficient Markets Hypothesis (EMH) is an investment theory developed by Eugene Fama (1970), which postulates that a stock price will react immediately to any information relating to it. Therefore, as information sources evolve, so too

[2] "*Lenders are taking action, rethinking social media's role as a potential risk rather than marketing tool, after tweets questioning SVB's financial health prompted nervous customers to pull $1 million per second from their accounts before the bank failed on March 10, 2023*." (Anand 2023)

must our understanding of how these new sources impact market movements. Investigations into the relationship between financial stability and social media are relatively new. One of the earliest works was (Iyer and Puri 2008) which was characterised social networks as channels through which depositor behaviour spreads. Their work highlighted the interconnectedness of individuals within social networks and their impact on decision-making in times of financial stress.

Later, Hu and Tripathi (2016) attempted to compare the effect of opinions expressed via social media and news media platforms on market movements in Australia. They found that the impact of social media was more significant than the impact of traditional media on stock performance. Their paper explained They that social media sentiments, specifically on stock discussion forums, can predict future stock returns at the individual firm level. Instead of only focusing on experts' recommendations, retail investors increasingly turn to fellow investors when looking for investment recommendations. The research also highlighted that social media sentiments often do not replicate information produced on traditional news media platforms. Social media was viewed as providing more market-relevant and genuine information in regulated markets such as the Australian market. Through sentiment analysis on online discussion forums and news media articles, they found that social media sentiment was more significantly related to market movements than sentiment from news media (Hu and Tripathi 2016).

In finance, businesses and investors use macroeconomic, microeconomic and financial data to manage risk, make policy decisions, and generate profits. In particular, data makes it possible to conduct more in-depth market analyses and improves the monitoring and evaluation of events that may impact an individual's or firm's financial decisions. Data also plays a crucial role in maintaining financial system stability. As the EMH suggests, information impacts stock prices and the stock market, and there is considerable evidence linking stock market stability to the financial system's stability (Sun 2023).

Sun (2023) found that media affects financial stability from the banking and financial market channels. The banking sector also serves as a major conduit through which instability may be transmitted to other sectors of the economy. This can happen by the disruption of the interbank lending market and payments system, reduction in credit availability, and deposit freezing. Bank failures directly affect market concentration, which in turn affects the financial system as a whole (Sun 2023).

Cookson et. al (2023) demonstrated that the rapid sharing of information on social media amplifies risks. Their study looked at the ways in which social media could spread information that intensify depositor anxiety and lead to bank runs. By examining data from the social media site Twitter and past bank run episodes, they showed that social media plays a major role in propagating rumours and misinformation, which can erode depositor confidence and trigger a cascade of withdrawals. To lessen the negative effects of false information on financial stability, the study emphasized the need for regulators and financial institutions to monitor social media platforms regularly. It also highlighted the significance of encouraging open communication and establishing depositor confidence (Cookson et al. 2023).

This result was echoed in Cookson et al. (2024) when the authors explored how social media activity could serve as a predictive indicator of investor behaviour and market movements. Using data from Twitter[3], Seeking Alpha[4] and StockTwits[5], the authors examined social media post sentiment and the correlation between social signals and market movements. The authors found that certain patterns in social media activity, such as spikes in tweet volume or shifts in sentiment, were associated with subsequent changes in stock prices and trading volumes. Furthermore, the study highlighted the potential for using social media data as a complementary information source for financial analysis and decision-making. By incorporating social signals into predictive models, investors and analysts may gain insights into market dynamics and identify opportunities for investment or risk management (Cookson, et al. 2024).

Gam et al. (2023) found that social media activity, as measured by Twitter discussions, significantly impacts bank fragility. Specifically, the negative sentiments expressed in tweets about banks is associated with increased fragility, as indicated by factors such as stock market volatility, credit default swap spreads, and bank risk measures. The study also emphasised how social media can amplify bank fragility, especially during financial stress or uncertainty. Recent technology changes in banking, such as digital banking, have also been linked to destabilising bank deposits (Cookson et al. 2023). FinTech innovations have enabled customers to transfer funds with little to

[3] In July 2023, Twitter was renamed to "X". https://twitter.com/

[4] Seeking Alpha is a crowd-sourced content service, established in 2004, that allows investors to share their own stock research and insights on financial markets. The platform, and is the world's largest investing community, with over 6.5 million active readers. https://seekingalpha.com/

[5] StockTwits is a social media platform designed for sharing ideas between investors, traders, and entrepreneurs, established in 2009. StockTwits allows users to gather and share real-time information about stocks and other financial topics. https://stocktwits.com/

no delay. Regulators such as the Federal Reserve and the Banque de France have raised concerns that this may have amplified and accelerated recent bank runs in the US and Europe. This includes the ability of depositors to withdraw funds rapidly online, as well as the potential for doubts surrounding individual firms snowballing on social media platforms. (Whittall 2023)

The use of social media as a communication tool by financial regulatory institutions such as central banks has also increased significantly in the past ten years. A Central Banking article reported that in 2019 several central banks were joining Instagram to reach younger audiences (Shen 2019). Central banks have found that communication with the public is important to help guide inflation expectations and keep central banks accountable to the public. While many central banks now consider social media an essential element in their communication toolkit, traditional channels, such as websites, remain important, (Central Banking 2023). Connecting with the younger generation is an important and strategic marketing tool for financial institutions. As younger generations begin to save and invest, social media's impact on the financial markets is only expected to grow.

In considering the influence of media on financial stability, Sun (2023) investigated the ways that different media, such as social media and traditional news sources, affect investor behaviour, market dynamics, and regulatory reactions. Through the examination of case studies and empirical data, the researcher investigated how the media shapes market mood, spreads financial information, and increases market volatility. This study focused on how understanding the relationship between media and financial markets can improve investor confidence, regulatory supervision, and market efficiency. To protect financial stability, it emphasised the necessity of cooperation between policymakers, market players, and media outlets in advancing financial reporting quality, accuracy, and transparency.

In the Trinidad and Tobago case, Dhanessar and Mitchell (2021) analysed the impact of central bank communication on macroeconomic activity. They found that communication coming out of the Central Bank of Trinidad and Tobago (the Bank) regarding its monetary policy tool had a greater impact on particular segments of the market. While the response of private sector credit was muted, the response of business credit was pronounced. This suggests that the business community monitors the Bank’s communication closely because changes to monetary policy directly impact interest rates which can influence a business's ability and willingness to borrow (Dhanessar and Mitchell 2021).

The aggregation of information from many sources on social media makes it a stronger coordinated device in the context of bank runs. The failure of Washington Mutual in 2008 was the largest bank failure in US history and the bank run lasted eight months, while the bank run on the Silicon Valley Bank (SVB) in 2023, which resulted in the second largest US bank failure, lasted two days. The failure of SVB was the consequence of the quickest bank run in US history (Dosumu et al. 2023) caused by interactions on social media among large uninsured depositors, which has led bankers to consider social media as a threat and not just a marketing tool (Gam et al. 2023).

Cookson et al. (2023) found that banks in the top percentile of pre-run Twitter exposure, suffered a larger loss in stock market value during the SVB run. Social media also made their balance sheet risks, related to uninsured deposit outflow, more sensitive during the run. Gam, Liu and Xu (2023) demonstrated that social media affects deposit flow and, consequently, bank stability through a network of panic and fundamental runs.

3.0 Stylised Facts

The lines between virtual interactions and real-world reactions are being blurred by the growing influence of social media. Social media has evolved from simple messaging apps into a modern digital landscape, sometimes referred to as the 'creator economy'[6]. During the pandemic, online social networking sites gained popularity among businesses and individuals as a source of information, entertainment and to stay connected. Kemp (2024) estimates that there are currently 14 social media platforms with at least half a billion monthly active users (MAUs), and many more with more than 100 million MAUs.

This growth has facilitated an unprecedented pass through of cultural, socio-political, economic and financial consequences from virtual spaces to ordinary life. Content sharing platforms encourage self-expression and facilitate community building, but offer little by way of oversight and regulation over the information being shared. Therefore, understanding the dynamics of these digital platforms can help policymakers better prepare for its potential impact. This section

[6] The Creator Economy is the digital economic landscape where creators leverage digital platforms to earn income by producing content that promotes products and services directly to their audience. (Savage n.d.)

provides data on the growth of social media, highlights some real-world financial incidents and contextualises Trinidad and Tobago's preparedness.

3.1 The Growth of Social Media

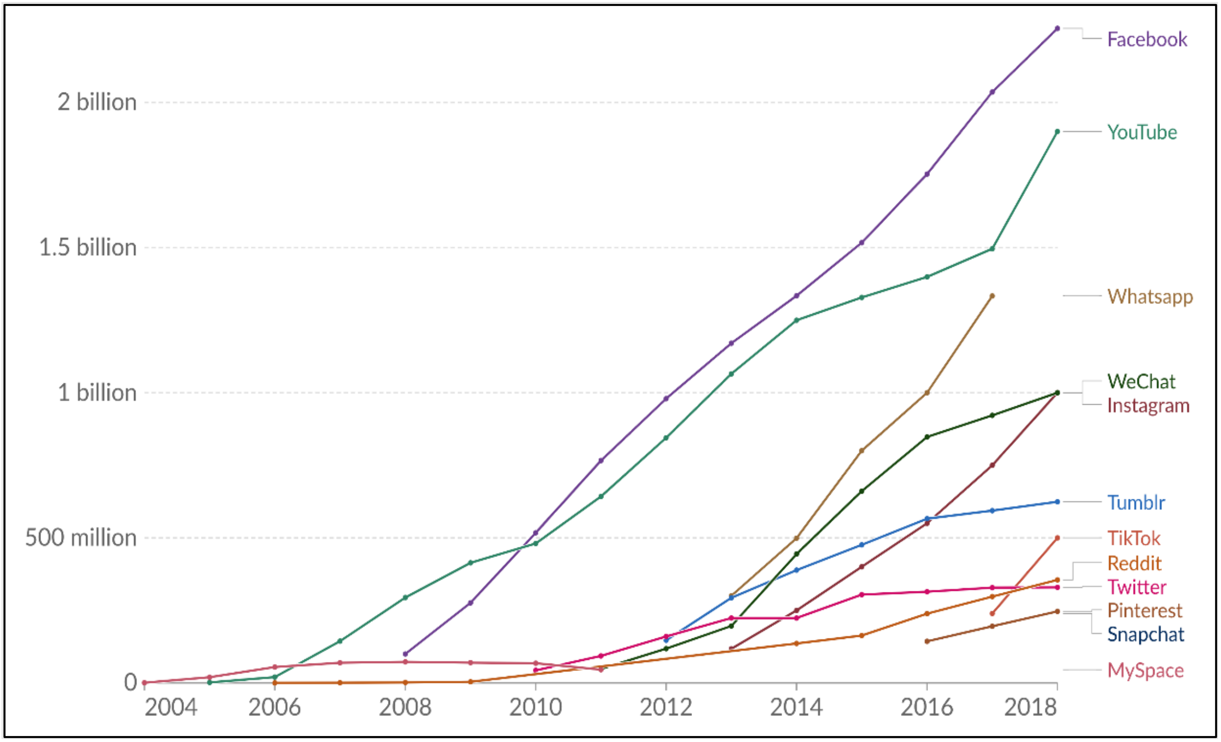
Since the advent of social media in the early 2000s, digital platforms and their user bases have grown exponentially. While some platforms have lost relevance, others have risen to take their place and ballooned in popularity, penetration and global impact. Data from digital data specialists, Kepios, estimates that as at January 2024 there were over 5 billion active social media identities[7]. This equates to approximately 62.3 per cent of the world's population and represents a 2.6 per cent growth from 2023 estimates (Kemp, Digital 2024: Global Overview Report 2024).

Ortiz-Ospina (2019) illustrated the rapid adoption of social platforms from 2004 to 2018 and how it has changed the way humans interact and socialise (**Figure 1**), (Ortiz-Ospina 2019). Facebook was the first social network to surpass one billion registered users and currently holds the mantel as the most used social media platform globally. Data from Statista put the total number of monthly active Facebook users at 3.05 billion (Statista 2024). This represents approximately 37 per cent of the world's population.

The use of social media has also been on the rise domestically. According to DataReportal, in January 2024 there was an estimated 833.0 thousand active social media user identities in Trinidad and Tobago. With a total population of 1.54 million, that represents 54.2 per cent of the population, (Kemp, Digital 2024: Trinidad and Tobago 2024). Data published in the advertising resources of Meta and ByteDance also indicate that in early 2024 total domestic users per platform amounted to: 833.0 thousand users on TikTok, 784.2 thousand users on Facebook and 684.5 thousand users on Instagram (digital insights)[8]. Domestic penetration on Linkedin and X (formerly Twitter) were lower, totalling approximately 560.0 thousand and 180.0 thousand respectively.

[7] It is important to note, however, that each social media profile may not represent a unique identity (person's may have multiple profiles per social media platform)
[8] The sum of users across platforms may not always match the total number of active social media users because persons can create profiles across many different platforms and may also have multiple profiles per social media platform.

Figure 1
Growth in Social Media Platforms 2004 - 2018



Source: Our World in Data (Ortiz-Ospina 2019)

3.2 Social Media and Financial Stability

One of social media's defining characteristics is that it facilitates user-generated content. This has shifted the power dynamic between companies and consumers, particularly in marketing, since consumers are now able to provide real-time feedback and opinions about a brand, products or services. According to a global survey by Statista, as of January 2023, Facebook was the platform most used among marketers, with 89 per cent of global marketers using Facebook to promote their businesses (Statista 2024) . While businesses seek to portray their products and services in a positive light, a company may not always be in control of the narrative surrounding its brand.

The growth in viral content allows one person's perspective, whether corroborated or not, to be viewed by millions and thus potentially influence prospective clients. Unfortunately, the more provocative or polarising a message, the higher its engagement. Sales, brand reputations and stock prices are now susceptible to cycles of 'negative virality'. The financial sector has not been spared from this fate. **Table 1** outlines eight (8) scenarios in which social media either caused or exacerbated the effects of financial crises.

In response, central banks and regulatory bodies faced with these challenges, were forced to adjust traditional processes to prevent collapse. Social media's role in financial crises have:

- Questioned the effectiveness of traditional market regulation in the age of social media.
- Highlighted the need for better risk management practices among financial institutions.
- Prompted regulatory changes to address the risks posed by high-frequency trading.
- Hastened the cycle of intervention necessary to stabilise markets and reassure investors and restore confidence in the banking system.
- Led to calls for stricter regulation of the crypto industry.
- Necessitated more robust monitoring of social media's impact on these markets.

Short-form content has also helped to demystify financial topics such as budgeting, investing, debt and financial management. Easy access to uncomplicated information on financial services allows formerly underserved parts of the population, to get involved in financial and capital markets. While this can improve financial literacy and encourage healthy financial practices, there are also increased dangers. The opportunities for fraud are amplified when unregulated persons or groups disseminate misinformation or promote unsanctioned financial products. The rise of the 'finfluencer'[9] has also increased the risks associated with online fraud.

Bhat and Eckrich (2024) identify two significant risks associated with financial advice on social media: quality of advice and lack of disclosure (Bhat and Eckrich 2024) . Information verification is not a priority on many digital platforms. Without sources and credentials, it is difficult to verify advice received online. There may also be conflicts of interests when finfluencers endorse products or services for which they are paid to promote. As Matsuyama and Wood (2022) explain, traditional financial services are governed by laws intended to protect consumers. However, finfluencers may be unaware of, or unmotivated to operate within these legal boundaries. In response to this, financial regulators in the Asia Pacific region have begun including digital tools and platforms in their financial regulations and guidelines (Matsuyama and Wood 2022). Regulators must undertake a more active role in the digital space to protect consumers.

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[9] 'Finfluencers' are digital influencers who provide financial advice to their online community.

Table 1
Financial Crises and the Role of Social Media

Event	Role of Social Media	Impact
Flash Crash (May 2010)	- Major US indices unexpectedly fell (1,000 points) due to algorithmic trading; recovering minutes later. - Social media reports led to panic and worsened stock sell-offs.	- Exposed vulnerabilities in the market, particularly the interplay between high-frequency trading and the spread of information on social media, leading to significant market disruptions.
Cyprus Bank Bailout Crisis (March 2013)	- The Cypriot government announced a bailout plan that included a levy on bank deposits. - Political and economic opinions posted about the intended bailout plan on social media caused bank runs. - The news spread rapidly on social media, leading to widespread panic among depositors.	- Panic led to long queues for withdrawals at ATMs. - Exacerbated the liquidity crisis for Cypriot banks. - The event demonstrated how quickly financial panic can spread through social media, especially when trust in financial institutions is already fragile.
GameStop (GME) Short Squeeze (January 2021)	- Retail investors on the Reddit forum organised a buying spree of GME stock.	- Resulted in a short squeeze. - Increased market volatility. - Significant losses for hedge funds shorting the stock. - The price of GME rose from under US$20 to over US$400 in days.
Silicon Valley Bank (SVB) Collapse (March 2023)	- SVB experienced a sudden collapse in March 2023. - Panic spread through social media and messaging platforms prompting rapid customer withdrawals.	- Led to concerns about the stability of other regional banks. - Raised questions about the spread of panic and the vulnerability of banks to shifts in depositor behaviour.
Bank Runs on Regional Banks (March-April 2023)	- Following the collapse of SVB, fear and uncertainty spread among depositors in other US banks.	- Severe liquidity issues. - Regulators took control of institutions. - Underscored the power of social media in triggering financial instability, particularly among smaller banks.
Credit Suisse Crisis (March 2023)	- Credit Suisse's largest shareholder, the Saudi National Bank, announced it would not provide further financial support. - News spread on social media, leading to negative sentiment and stock dumping. - Triggered a sharp drop in stock prices and fuelled solvency concerns.	- Swiss government coordinated a merger with the Universal Bank of Switzerland (UBS) to prevent collapse. - Raised broader concerns about the health of the global banking sector. - Highlighted the impact of social media-driven market sentiment on major financial institutions.
Cryptocurrency Price Swings (2021 - 2023)	- Social media endorsements or criticisms of cryptocurrencies led to volatility and significant losses for investors - A 2021 tweet from Elon Musk, led to a sharp decline in Bitcoin's value. - the collapse of the Terra/Luna stablecoin ecosystem and the bankruptcy of major crypto exchanges like FTX, were exacerbated by social media.	- Caused concerns about the potential for contagion into traditional financial markets. - The role of social media in driving speculative behaviour in crypto markets raised concerns among regulators.

3.3 'Finfluence' in Trinidad and Tobago

The responsibility for maintaining Trinidad and Tobago's financial sector health is mainly vested with four (4) entities. The Central Bank of Trinidad and Tobago (CBTT), the Trinidad and Tobago Securities and Exchange Commission (TTSEC), the Financial Intelligence Unit of Trinidad and Tobago (FIUTT) and the Deposit Insurance Corporation (DIC). A key aspect of the CBTT's mandate is maintaining a stable financial system that protects depositors, policyholders and pension plans from undue risk and loss. The TTSEC provides protection to investors and promotes development and growth of the local capital market. The FIU implements anti-money laundering and combating the financing of terrorism (AML/CFT) policies. The DIC protects depositors against the potential loss of their deposits should a member financial institution fail.

The Central Bank Act, the Securities Act, the Insurance Act of 2018, and the Financial Institutions Act of 2008 grant these entities powers to carry out their mandates. Financial Institutions must adhere to rules, while regulators must also follow all legal obligations. The regulatory environment now faces additional difficulties as a result of the growing popularity of information sharing online. Customers are more susceptible to fraud carried out via social networking sites. Although digital creators are not specifically targeted by financial laws, their actions can nonetheless be subject to current regulations. For example, someone endorsing financial items or giving financial advice online without the required authorisations may be in breach of the Securities Act or Insurance Act.

The rise in social media dependence, especially for news and information gathering, highlights the need for regulatory bodies to establish a strong social media presence. **Table 2** depicts the relative social media influence of Trinidad and Tobago's four financial regulators. The metric of 'relative influence' compares an organisation's follower count (as at August 2024) to the total domestic users of that particular platform (as at January 2024). It should be noted that this cannot prove the actual influence a page has on a population, nor is it intended to represent the company's overall relevance. However, the metric is being used as a rough proxy of an organisation's reach, to gauge its possible impact when disseminating information from its social media page.

Table 2
Relative Influence of Regulators on Instagram (as at August 2024)

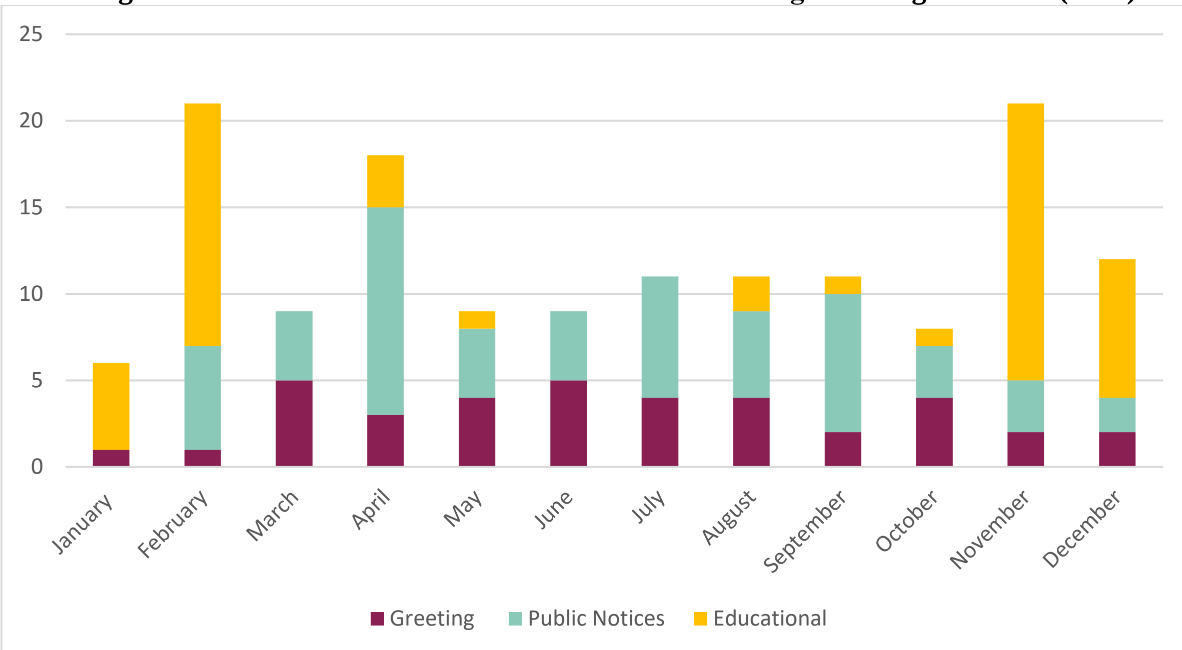
Organization	Facebook				Instagram			
	Date Joined	Verified Profile	Followers	Relative Influence	Date Joined	Verified Profile	Followers	Relative Influence
CBTT	Aug 2019	X	15,897	2.03	Feb 2021	X	4,126	0.60
TTSEC	June 2012	X	10,751	1.37	June 2019	X	3,205	0.47
DIC	February 2020	X	1,817	0.23	March 2021	X	499	0.07
FIU TT	Mar 2021	X	798	0.10				

Sources: Author Generated. Facebook, Instagram, DataReportal

The data shows that on Facebook, CBTT has the largest following of the regulators. As at August 2024, its 15,897 followers represented 2.03 per cent of total Facebook users in Trinidad and Tobago. On Instagram, CBTT's reach was significantly lower, accounting for only 0.60 per cent of total users. Another important variable that can enhance an organisation credibility is 'account verification'. Verified accounts are viewed as more trustworthy and may be particularly beneficial to regulators needing to establish a credible online presence. Business verification on both platforms confirms whether a business is a legal entity and demonstrates that the page is run by authorised representative of the business.

Figure 2 presents a monthly breakdown of CBTT's Instagram posts for 2023. Posts were placed into three broad categories: Greetings, Public Notices and Educational. 'Greetings' refer to posts dedicated to commemorating holidays or national and international celebrations. 'Public Notices' refer to announcements or advertisements for bank-related activities, promotions, webinars and publications. The 'Education' category refers to any post that assists the public's understanding of the Bank's mandate, operations and/or policy pronouncements. In 2023, the largest proportion of the Bank's posts fell in the Public Notices category (40 per cent). Educational posts, were the second largest category, accounting for 35 per cent of total. The Bank placed heavy emphasis on educating the public on the new suite of banknotes in a series called "Know Your Money". This series represented 96 per cent of all Educational posts in 2023. The remaining 25 per cent of posts were greetings.

Figure 2
Categorization of The Central Bank of Trinidad and Tobago's Instagram Posts (2023)



Source: Instagram

4.0 Transmission and Impact Analysis

According to the World Bank, financial stability is paramount for economic growth (World Bank 2014). The relationship between growth and financial stability came to the forefront during the 2008 Global Financial Crisis, after which, macro-prudential approaches to financial stability grew in importance. One of the most common components of financial stability is the need to ensure a system's resilience to shocks. Central banks perform surveillance to identify potential shocks and system stressors. The potential role of social media as an amplifier during financial crises has been gaining attention and could be a worthwhile consideration for financial regulators as they carry out their mandates.

The threat lies in the potential for social media posts to negatively impact the actions of financial market participants. Through an investigation of the institutions and markets that comprise the financial system, this section explores how social media posts can amplify systemic risks. The section will also consider the opportunities that exist for mitigating the spread of negative information through countering actions by regulators.

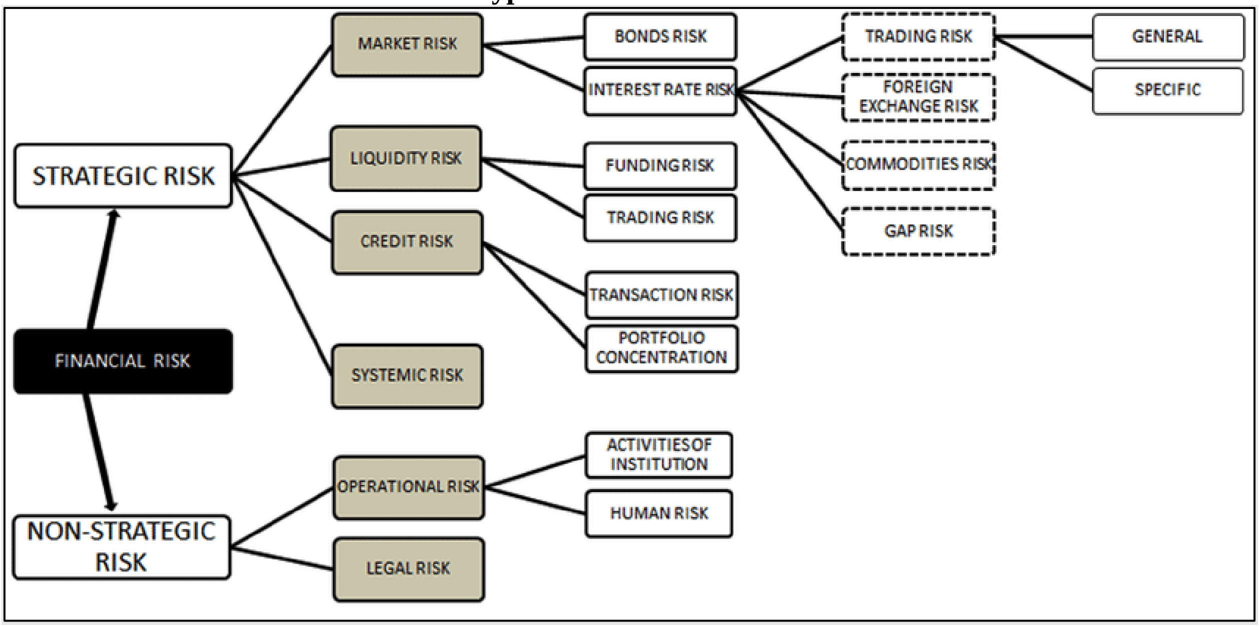
4.1 Social Media and Financial Risks

Transmontano and Neto (2016) broadly categorises financial risks as either strategic risk or non-strategic risk (**Figure 3**). Strategic financial risks are those that can impact the long-term financial strategy and goals of an organisation. These include market risks, liquidity risks, credit risks and systemic risks. These risks are often influenced by external factors and can have significant implications for a company's overall direction. Non-strategic risks are more tactical and operational in nature, such as operational and legal risks. These risks are internal and controllable with standard financial procedures. Non-strategic risk management ensures that day-to-day financial operations run smoothly, whereas strategic risk management aims to match financial risks with the organisation's long-term objectives (Chen 2019).

According to Nidhiri and Saxena (2019), market risk, credit risk, liquidity risk, and operational risk are the four main avenues through which social media threatens financial stability. Market risk is the risk of loss due to factors that affect the overall market, such as fluctuations in stock prices, bond prices, and foreign exchange rates. Social media can significantly amplify market risk by spreading information that affects investor sentiment and market perceptions. When a company does not fulfil financial commitments to its counterparties, credit risk develops. It includes a number of elements, such as exposure at default (the entire value at risk in the event of default), loss given default (the amount of damage a lender suffers if a borrower defaults), and probability of default (the likelihood that a borrower would default) (Nidhiri and Saxena 2019).

Liquidity risk is the risk that an investment cannot be quickly turned into cash without suffering a large loss in value. Social media can trigger liquidity risk by causing sudden and massive movements in buying or selling. Operational risk encompasses a wide range of potential disruptions to an organization's normal functioning, including failures in internal processes, human errors, system failures, or external events such as natural disasters or cyberattacks. Viral content can cause systems to become overloaded with traffic, leading to technical malfunctions. If staff members respond improperly to information from social media, internal procedures may break down (Nidhiri and Saxena 2019).

Figure 3
Types of Financial Risks



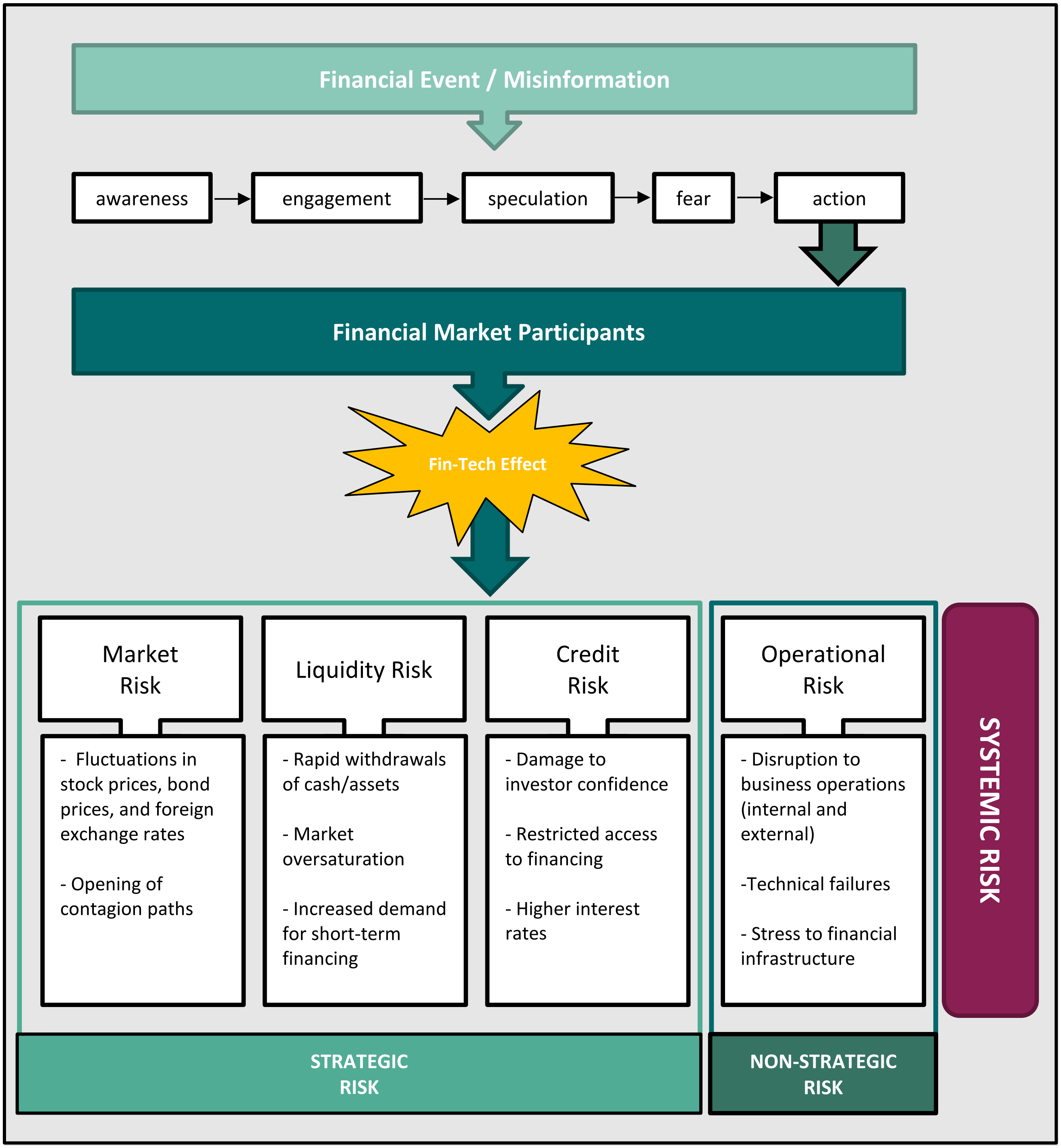
Source: (Transmontano and Neto 2016)

4.2 Transmission Mechanism

News shared on social media networks aren't often verified, making it an unreliable source of information. While this information can be harmless and may often go unnoticed, there are instances when provocative and polarising viewpoints illicit strong responses, leading to viral episodes. Rascoff (2023) suggests that 'virality' depends on the presence of two components: emotional connection and prolonged engagement (Rascoff 2023). **Figure 4** illustrates that the moment a viral event becomes a threat to financial stability is when unresolved speculation leads to enough fear and panic that it causes real world reactions. As soon as financial market participants are worried enough to act, risks are triggered, and the system is in danger.

Sudden and widespread actions can impact the market by causing surges in buying or selling activity that strain market liquidity and leads to rapid price fluctuations. These fluctuations can in turn affect various parts of the financial system. Banks may face excessive withdrawals, stock prices may experience dramatic swings, bond yields could shift unexpectedly, currency values may fluctuate, and commodity prices may become highly volatile. These sudden movements can have a cascading effect throughout the financial ecosystem. Now, Let us consider how crises triggered or amplified by social media, can be transmitted through the financial sector, causing the various forms of financial risk.

Figure 4
Transmission Channels of Viral Misinformation through the Financial System



Source: Created by authors

Market Risk

Social media can significantly amplify market risk by spreading information that affects investor sentiment, market volatility and systemic risk. Market sentiment often reflects investor attitude, and this is impacted by many factors including news, economic statistics, and social media. A viral social media post has the power to change consumer opinion by disseminating false information to a large audience very quickly. In a similar vein, posts can cause abrupt and substantial purchasing or selling pressure, resulting in increased market volatility. For instance, raising doubt about a company's financial standing can trigger a quick sell-off of shares, resulting in a decline in the stock price. These impacts may not be limited to national borders or asset classes. The global nature of social media allows for influence on other interconnected systems and can create swings in currency values. These sudden shifts could cause market instability and significant losses for investors and institutions.

Credit Risks

Credit risk rises when a borrower's ability to repay a loan falters. A negative narrative about a company's financial situation could erode trust among investors and creditors, creating refinancing risk. Negative sentiment can impact credit markets and the perception of risk attached to specific asset classes or borrowers. Additionally, a corporation may prioritize short-term liquidity above long-term obligations if it experiences a quick loss of investor confidence, which would increase the risk of default on outstanding debt. In some cases, if borrowers feel that the market's response to a viral post will make refinancing or debt servicing unfeasible in the future, they may default early.

Contagion in credit markets can occur if the information shared suggests that a major financial institution or corporation is at risk of default. This can lead to broader concerns about the creditworthiness of related entities, sectors, or even entire markets. The interconnected nature of modern financial markets means that negative virality can set off a domino effect that raises credit risk throughout a financial system. This is especially true for financial institutions that are systemically significant (SIFIs).

Liquidity Risks

Online content that questions a bank’s financial soundness can incite fear and lead to capital flow movements. Customers' withdrawals put an almost immediate strain on the bank's liquidity. The rise in digital financial services, such as online banking, exacerbates this threat due to ease of access. Digital bank runs are faster than traditional bank runs and can worsen market liquidity crises and increase systemic risk. Bank’s may have to look for emergency funding or sell assets at a loss, both of which increase the risk to its liquidity. Sudden purchases or sales of holdings that occur in large quantities may also be a source of the liquidity risk. Systemic liquidity risks may also arise. This allows the threat to spread across institutions and markets via contagion, if the loss of trust affects other institutions. The market for short-term loans between banks, known as interbank lending, may be impacted by the spread of liquidity risk. A freeze in the interbank market and an increase in systemic liquidity risk might result from news that erodes trust in one bank, which could discourage lending by other banks.

Operational Risks

The rapid and extensive reach of social media can greatly impact operational risks, depending on how organizations and regulators respond. Operational risk of a business could be greatly impacted by its capacity to sway public opinion, interfere with internal procedures, enable fraud, manipulate markets, and draw cybersecurity threats. Systemic operational risk can occur if a social media post reveals a fault in software that is widely used, causing operational interruptions across firms dependant on the program. If a post exposes a deemed weakness in an organisation's IT systems, hackers may take advantage of the weakness and cause ransomware attacks, data breaches, or system failures. Viral articles that generate large volumes of traffic to an organisation’s website or online platforms can cause system overloads, leading to downtime or degraded performance, which in turn can disrupt the organisation’s ability to serve customers, resulting in further operational and reputational damage. A viral post's reputational damage can cause operational disruptions including a sharp decline in revenue, an increase in customer service requests, or even legal issues. An organisation's capacity to efficiently carry out regular operations may be impacted if resources must be diverted to handle the crisis.

These four risks can be further amplified if FinTech applications are introduced. FinTech applications, such as algorithmic trading platforms, robo-advisors, and blockchain technologies, facilitate rapid information processing and rapid transaction execution. While these technologies offer efficiency and precision, they may also contribute to the rapid spread of both accurate and misleading information across the market, (Sun 2023) and (Cookson et al. 2023). For instance, an algorithmic trading platform might be programmed to react to certain keywords or sentiment shifts in social media posts. If a misleading piece of information begins to trend, these algorithms can trigger a cascade of automated trades based on erroneous data, thereby exacerbating market volatility. Similarly, robo-advisors, which provide automated, algorithm-driven financial planning services, might adjust the investment strategies for a large number of users simultaneously in response to social media-driven market sentiment, further amplifying the impact.

The interconnectedness of financial institutions must also be considered. Contemporary financial markets are highly integrated; institutions are linked through complex networks of transactions, investments, and risk-sharing arrangements. This interconnectedness means that the actions of one institution can quickly affect others, creating a ripple effect throughout the market. For example, if a major bank adjusts its investment portfolio in response to a viral social media post, other financial institutions that are connected with that bank could be impacted. This chain reaction can lead to significant market movements, increased volatility, and liquidity issues.

In such a sensitive environment, where investor sentiment is highly reactive to external cues, the amplification effect of social media becomes particularly pronounced. Market participants, driven by fear of missing out or panic selling, may react hastily to trending information without thorough verification. This collective behaviour can lead to market overreactions, where prices of assets swing dramatically within short periods. The heightened sensitivity to external stimuli, coupled with the speed and reach of social media, creates a feedback loop that can destabilise financial markets rapidly.

Therefore, understanding the interplay between FinTech applications, market interconnectedness, and investor sentiment is essential for developing effective strategies to mitigate the amplification of risks. Policymakers and financial regulators must consider these dynamics to enhance market resilience and protect against potential systematic crises triggered by social media-induced volatility. Recognising these risks and their implications is fundamental to ensuring financial stability.

4.3 Threats and Opportunities: A Central Bank Perspective

While social media can pose challenges to regulators, it may similarly present unique opportunities to improve market efficiency and transparency. This section highlights the main threats central banks should monitor and some opportunities that can be leveraged to stay ahead of potential storms.

4.3.1 Threats

Social media threatens financial stability by causing panic, influencing market sentiment and amplifying financial risk. Whether, corroborated or not, information can spread quickly and have an instant impact on market dynamics and investor behaviour. As such, the two components of virality that central banks must monitor closely is (i) the spread of viral misinformation and (ii) the amplification of herd behaviour.

As seen in the 2013 Cyprus banking crisis, social media fuelled rumours about the country's economic collapse triggered bank runs. While in the case of the SVB failure, factual information fuelled a virtual bank run. In both instances, the widely disseminated news that a bank was in trouble resulted in abrupt loss of deposits. This put pressure on the bank's liquidity, even if its core operations remain healthy, and may then push it into a true crisis. If left unaddressed for too long central banks may find it challenging to reverse the impact of the spread of false information.

Social media can amplify the collective behaviour of investors, leading to herd behaviour. Individuals may feel pressured to acquire, or sell, an asset if they observe others in their network doing the same. This is born out of a concern that they may either lose money or miss out on profits. Social media algorithms track engagement to push like content to users, thus creating feedback loops that reinforce opinions and behaviours. Positive feedback (e.g. everyone is buying) can drive asset prices higher, while negative feedback (e.g. everyone is selling) can cause sharp declines. These loops can lead to significant overreactions in financial markets, creating bubbles or crashes. Herd behaviour can increase market volatility, making it harder for central banks to implement monetary policy. For example, if social media-driven speculation causes a sudden surge in asset prices, it could complicate efforts to control inflation or stabilize markets, as was seen by GameStop Short Squeeze (January 2021).

4.3.2 Opportunities

Despite the associated threats, social media is a very effective instrument for communication and information sharing. Lessons coming out of past crises (discussed in Section 3.2) can help central banks develop appropriate crises preparedness and prevention plans. Though predicting social media's amplifying influence during shocks may be difficult, preparing for the potential fallout doesn't have to be. Coming out of the analyses in this paper we deduced three key ways in which regulators can use social media to help fulfil their mandates in a digital age: Sentiment Analysis, Expanding Reach and Relevance; and as a Controlled Crisis Communication Tool.

Self-generated content provides an opportunity for real time economic surveillance and sentiment analysis. Having a close eye on views, sentiments and customer feedback can help central banks identify early warning signs of discontent, stress or other concerns. This is already being implemented internationally. As part of its compliance monitoring, the Central Bank of Ireland uses third party suppliers to monitor online platforms to identify online trends regarding financial services and products. Whether concerns are about the operations of a particular institution, new financial products gaining popularity or confusion over the policy measures, the information can aid in monitoring activities carried out by multi-stakeholder groups such as Trinidad and Tobago's Financial Stability Committee. In so doing, a regulatory body of financial institutions can step in when needed to share credible information geared toward bringing clarity to, or tempering budding issues before they escalate.

In addition to financial stability matters, part of The Bank's mandate is ensuring that policies are transparent and inspire confidence. Developing a strong brand identity via social media channels can aid in securing consumer confidence and trust. While the online presence of prudential institutions, such as central banks, should not aim to achieve virality, these platforms can help establish the institution as a trustworthy source of timely, accurate and helpful information. The general public should feel confident in seeking out the perspective of the central bank in financial matters and when faced with conflicting or questionable information. This type of trust can be built by maintaining a consistent online presence that prioritizes clear, easy to understand information that is relevant to the lives of citizens. Historically, central bank communications were targeted to academics and experts. However, there has been growing involvement of non-experts in financial matters as well as a more diverse audience accessing central bank communications. This presents a unique opportunity for regulatory bodies to take advantage of their expertise to demystify economic terms, topics and policies.

Social media can also be an invaluable communication tool for central banks in times of financial crisis, as it allows information to be disseminated in real-time, directly to the public. It has the potential to assist central bank to improve public expectations, preserve financial stability, and improve transparency, in times of uncertainty. Misinformation and panic can often spread over social media faster than traditional crisis management tools can respond. Therefore, in these circumstances it may be advantageous to utilise the same channels to address the issue. In times of crisis, and in the absence of confirmation from person's in authority, it can be easy for the general public to feed into fear and panic. Central banks can limit the spread of misinformation by providing factual counter information from credible sources. This type of intervention should steer clear of directly attacking individuals or institutions but instead, focus on dispelling rumours, disseminating information that clearly articulates the truth and reassures the population of any plans to address potential issues. In a 2021 analysis of European Central Bank (ECB)-related tweets, it was found that ECB communication triggered a moderation of views and more factual discussions (Ehrmann and Wabitsch 2021). Incorporating social media communications can support and enhance the effectiveness of a central bank's crisis management communication as it will reduce uncertainty and misinformation. However, the effectiveness of this avenue depends on how successful the institution has been in establishing themselves as a trustworthy, credible source of financial information.

5.0 Conclusion and Recommendations

The purpose of this research was to provide insights on ways in which social media could generate a risk to, or present opportunities for, financial stability. Social media is a change agent. The growth of virtual platforms and their influence has unsettled traditional financial stability dynamics. The speed at which news spreads through social networks has implications for market efficiency and the interpretation of financial information. Research into the relationship between modern media and financial stability suggests that social signals contain valuable information that can be used to predict market trends and anticipate investor sentiment.

Social media has at least three features that make it a powerful coordination mechanism, (Cookson et al. 2023); (i) its speed of communication is much more rapid than through personal connections; (ii) publicly available information can be transmitted well beyond close personal connections to a much wider audience and (iii) information can be contributed by anyone, and thus, social media can reflect information from many sources. Naturally, these features work together to promote faster and more extensive idea collaboration. Influencers and, in particular, '*finfluencers*' represent a new intermediary between financial institutions and consumers. Their influence on market sentiment and its potential (when negative or inflammatory) for triggering panic, are factors central banks must be cognizant about.

Through market, liquidity, credit, and operations risks, user-generated content has the potential to trigger financial instability. Faced with this knowledge, financial regulators must reassess traditional crisis management tools to improve their preparedness, prevention, response and resolution processes. This becomes even more evident when interconnectedness is considered. Social media's global reach means that what might start as a localised financial issue can quickly escalate into a global crisis, amplifying systemic risks across borders and markets. This contagion effect can spread across the banking sector, particularly if the rumours involve larger, systemically important institutions.

Organizations like the Bank, TTSEC, FIU TT and DIC can now harness the power of digital technology to monitor social media trends, enhance transparency in financial markets, and foster better communication between themselves and market participants. Through these efforts, the financial system can better withstand the challenges posed by the rapid dissemination of information in the digital age.

5.1 Recommendations

The following recommendations are designed to help regulators enhance their resilience and maintain stability in the face of the unique challenges posed by social media. Institutions can protect their operations and regulators can help maintain the overall stability of the financial system by taking proactive measures to mitigate the threats posed by social media.

- Develop Robust Risk Management Frameworks: Financial regulators should incorporate the unique challenges posed by social media into their risk management frameworks. Crisis management and resolution frameworks can integrate strategies for monitoring, assessing, and responding to the rapid dissemination of information and potential misinformation. Integrating social media risk assessment into an institutions' broader risk management strategy, will ensure that potential threats are identified early and mitigated effectively (Spezzati 2024) and (Stefanoski and Sahin 2023) .

- Improve Regulators Crisis Preparedness and Response: There is rational and scope for the inclusion of social media as a risk to financial stability in the Central Bank's Crisis Management Framework. The inter-agency Financial Stability Committee could consider the effects of social media as it explores financial crisis simulation exercises to aid in preparedness, prevention, response and resolution stages. This type of proactive risk management can help institutions prepare for a range of possible outcomes and maintain stability in the face of rapidly evolving social media dynamics.
- Invest in Technology: In order to stay ahead of the social media threats, institutions need to invest in cutting-edge technology that allows for monitoring and analysing trends across social media platforms in real-time. Advanced data analytics, artificial intelligence, and machine learning methods can assist with the identification of new risks, such as coordinated attempts to manipulate the market or the dissemination of false information. The implementation of these technologies would enable institutions to react promptly and efficiently, thereby mitigating possible negative impacts on the financial markets.
- Train Staff: Investing in training programmes for dedicated staff that will equip them with the skills and knowledge to handle social media-driven events appropriately and efficiently is crucial. Training programmes should include understanding the dynamics of social media platforms, recognising potential threats, and responding appropriately. Communication strategies that focus on teaching staff how to manage information dissemination during a crisis, is crucial to assist in preventing the spread of misinformation. By building a knowledgeable and responsive communications team, institutions can enhance their resilience to social media-related challenges.
- Enhance Transparency and Communication: Establishing and preserving trust with stakeholders is essential, particularly when dealing with social media-driven risks. Institutions should foster open lines of communication with all stakeholders, including customers, investors, regulators, and the general public. This involves being transparent

about the institution's social media monitoring practices, as well as its strategies for managing and mitigating risks. In the event of a potential crisis, timely and clear communication is essential to maintaining confidence and preventing panic, (Gruyter 2023). Institutions should also engage with stakeholders proactively, seeking feedback and addressing concerns before they escalate into more significant issues.

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