

Global Crisis Management in the Banking Sector: The Role of Central Banks in Emergency Liquidity Assistance

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Abstract: This study discusses the Emergency Liquidity Assistance ELA as a central means of ensuring financial stability and overcoming systemic risks during periods of economic distress. By providing a parallel interpretation of the emergency liquidity contribution frameworks implemented by major central banks around the world—including the GCC, MENA, Eurozone, Federal Reserve, Australia (RBA), , and the United States. The paper aims to identify the greatest variations and actions in liquidity support techniques as well as its operational frameworks, eligibility criteria, risk mitigation strategies, and governance rules that underpin emergency liquidity contribution decisions. The focus is on the necessity of providing liquidity during the appropriate and planned period, specifically by reducing financial distress and stabilizing unstable banking institutions. In addition, the study discusses the broader economic implications of emergency liquidity contributions, focusing on how these same measures affect investor credibility, interbank borrowing dynamics, and overall market ease. By combining case studies, empirical data, and information, the statement provides excellent insights into the impact and challenges of emergency liquidity contributions across multiple economic contexts. The findings provide practical recommendations for academics, policymakers, and bankers to improve and strengthen emergency liquidity contributions frameworks and enhance the adaptability and resilience of global financial systems. Finally, the statement attempts to contribute to the current conversation about crisis management and its function through economic stability in a highly interconnected financial landscape.

Keywords: ELA, Central Banks, Liquidity Crisis, Moral Hazard, Crisis Management, Policy Frameworks.

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Introduction

The global financial landscape has witnessed many instances where emergency liquidity contributions have played a central role in maintaining financial stability and economic health. During times of financial stress, the function of central banks becomes even more essential, particularly in the banking sector, as they try their best to overcome systemic error and reduce the risk of larger economic distress. Naturally, central banks use a variety of methods within the framework of emergency liquidity contributions to reduce the expected bank failures and maintain market credibility.

The main purpose of the emergency liquidity contributions technique is to provide temporary financial support to solvent banks that are facing liquidity difficulties during the short term. Emergency liquidity contributions are primarily initiated by affected banks and are also led by central banks to protect internal financial institutions from adverse liquidity conditions and reduce reputational risks. The operational monitoring and control of the emergency liquidity contributions framework continues under the leadership of central banks, which ensures clear interaction with local banks regarding the use and access.

This research attempts to explain the strategies used by central banks across the world in providing emergency liquidity contributions to the banking sector. It looks forward discovering

the techniques that central banks have established to resolve times of financial distress in the banking industry. In addition, this research attempts to focus on the variations in the formulation and implementation of emergency liquidity contributions policies and decisions across various economic contexts.

In order to achieve this, the research will address the following key questions:

- How Central banks design and implement ELA policies and provisions?
- What are the key differences in ELA frameworks across different economies (GCC, MENA Region, ECB etc.)?
- What lessons can be learnt from past financial crisis?
- How do central banks' balance between providing ELA and minimizing moral hazard in the banking sector?
- What mechanisms are used to monitor and evaluate the effectiveness of ELA in stabilizing the banking sector?
- What role does ELA play in restoring public and investor confidence during financial crises?
- How has the role of ELA evolved over time in response to global financial crises?
- What are the long-term economic consequences of repeated reliance on ELA by the banking sector?

- How do digital currencies and emerging financial technologies impact the design and delivery of ELA?

By addressing these questions, this paper will explore how ELA frameworks have evolved in response to financial crisis and how central banks can optimize their strategies to manage future challenges and enhance financial stability in the banking sector in this evolving global economy.

The paper is organized as follows: section two briefly presents some previous studies which highlights and assesses the ELA provisions during the financial crisis. Section three presents the methodology that the authors used to prove the main reason behind this study where it analyzes the research findings along with the discussion. The conclusion is covered in section four.

Literature Review

While the provision of credit through the standing Liquidity Facility (SLF) is a routine activity that aims at facilitating the smooth settlement of the payments system, Emergency Lending Assistance (ELA) is an extraordinary measure extended to institutions that are deemed solvent, but are experiencing serious and prolonged liquidity challenges (**Bank of Canada, 2024**). There are several numbers of literatures that assess the ELA provisions in the banking sector around the world during the financial distresses periods.

Central banks as a lender of last resort provides ELA. Traditionally, ELA has been utilized as a tool to offer temporary liquidity to a solvent firm experiencing continued liquidity issues. In other words, ELA serves to support the recovery of distressed financial institutions, and this function remains a key aspect of its purpose (**Bank of Canada, 2015**).

ELA was very important tool during the financial crises. The 2008 major global financial crises marked a pivotal moment for central banks worldwide, promoting a reassessment and restructuring of their ELA frameworks. In response to the widespread liquidity shortages, central banks such as the Federal Reserve bank, ECB, and Bank of England have significantly expanded their ELA provisions. For instance, following the collapse of Lehman Brothers on 15 September 2008, the financial crisis, which had been brewing since the summer of 2007, escalated rapidly. Financial institutions faced amounting pressure as they struggled to secure adequate liquidity in the markets. During this period, HBOS and Royal Bank of Scotland (RBS) were among the first to seek liquidity from the Bank of England (the Bank), which subsequently provided large scale of emergency liquidity assistance (ELA) to stabilize these institutions (**Ian Plenderleith, 2012**). Moreover; in response to the deepening crisis in the fall 2008, the Federal Reserve and other central banks took a decisive action by not only establishing new emergency liquidity facilities, but also aggressively cutting policy interest rates to near zero and implemented other measures aimed at easing the financial conditions and stabilizing the global economy (**Kohn, 2010**).

The studies on ELA also addresses several key aspects, such as ELA role in crisis management, the conditions under which ELA is granted, its implications on monetary policy, and its effect on moral hazard. Key Literature such as those by Bindseil (2013) notes that ELA must be provided in a flexible and confidential manner to avoid any financial markets' breakdown. Moreover; collateral plays a vital role in the central banks' frameworks especially in the context of Emergency Liquidity Assistance

(ELA), where typically high-quality assets are required to be used as collateral for ELA facility. The literature emphasizes on the importance of central banks to have clear guidelines on the ELA collaterals' types and haircuts applied to make sure that the provision of liquidity does not encourage excessive risk-taking by banks and better serves central banks' objectives of monetary policy and financial stability (**Bindseil, 2013**). In contrast, According to scholars like Cordella and Yeyati (2003), lacking the transparency and providing unrestricted liquidity support from central banks may encourage moral hazard and riskier behavior among banks (**Cordella, 2003**). Going forward, many literatures continue to explore how ELA frameworks can be developed and enhanced in order to improve financial stability and economic health without encouraging excessive risk-taking by the banks.

Kostika (2022) stated that the impact of ELA on bank lending in eleven-euro area countries during the financial crisis as the crisis unfolded, ELA performed a substantial function in a number of countries. However, a quantitative measure of the impact of ELA is lacking in the literature. We measure a structural example of bank lending allocation, which contains the amount of ELA received by each bank, allowing us to investigate the apparent impact of ELA on lending. Our example fits within the features available in the first example used in the literature. We then interpret and perform a VAR analysis, which allows us to determine the impact of ELA on internal and total returns. Finally, we explore the effects of interbank scaling, showing that ELA created effective expansionary effects for additional banks.

Regarded (**McDowell, 2019**) he stated that swap agreements between central banks have been rapidly growing among emerging market economies since 2008. More than 80 such agreements have been ratified in recent years. The proliferation of such agreements has helped create a new liquidity model worth \$1 trillion by 2015. What explains the rapid emergence of such agreements? What are the economic and political implications of the liquidity network for the global monetary system and the global financial system? Here I explain two main outcomes of the global financial crisis and its aftermath that have prompted central banks in emerging and developing markets to attempt to ratify swap agreements: Global capital flows are unlikely to produce much of a shift in the global monetary system. However, they are helping to change the global financial system by creating high liquidity paths for emerging and developing markets that are needed in the regulatory context.

(**Xanthoulis, 2019**) discusses the provision of emergency financial support to credit institutions under the umbrella of the European Banking Union. The availability of emergency liquidity can be considered an integral part of the two pillars of the European Banking Union, namely the unified supervision technique and the unified settlement technique. 2 The first provides for the construction of a joint supervision method for credit institutions. The second provides for the coordinated liquidation of credit institutions.

Nakaso (2017) stated that during the global financial crisis of 2007–2009, central banks in many countries provided extraordinary amounts of liquidity assistance to deal with major systemic financial crises. They also had to find new ways to participate by providing liquidity assistance to globally active institutions. The lessons from this experience remain relevant today. On this basis, the Financial Services Authority commissioned a series of actions led by Hiroshi Nakasu (Bank of Japan) to identify areas where central banks continue to face

collective difficulties in dealing with liquidity crises, particularly in cross-border systems. These difficulties relate to three issues in particular: access to liquidity for globally active financial intermediaries, clarity of liquidity, and access to liquidity for the market. The following statement summarizes the outcomes of the series into a set of rules. The overall objective is that we need to be prepared during stable times so that we can provide liquidity effectively during turbulent times. Within these contexts, central banks need to consider how their respective national frameworks may be affected by liquidity in cross-border contexts. They also need to engage with a wide range of additional policy organizations, including supervisory and coordinating organizations and processing governments. We hope that the Statement will help facilitate this work and contribute by committing to preparing central banks as best they can for future crises.

Moe (2012) stated that the availability of global liquidity is characterized by a high degree of continual fluctuation. The recent financial crisis has provided a lifeline, with major tightening in key supply markets prompting central banks to use extraordinary monetary policy to overcome systemic collapse. Bagehot's recommendation to "lend freely at great cost for great commitments" has been deployed to the greatest extent possible to meet the liquidity needs of troubled financial markets. As central banks' borrowing authority levels change, it is legitimate to ask, how easy should the availability of central bank money be? Even when a central bank is able to generate ample liquidity, there should be some limits to its support of the financial sector. Traditionally, the error of using fiat money was simple, with the self-imposed requirement that central bank loans should be backed entirely by gold or otherwise guaranteed. But since the onset of the crisis, we have seen that limitation ease to accommodate the need for market support. My suggestion is that there should be a greater limit, and that we should carefully create guidelines and policies that can reduce the demand for liquidity support from central banks during future crises. In that paper, the recent spread of central bank liquidity support through the crisis is outlined, before discussing the policies of last resort lending and last resort market producers and the accepted principle behind them. It then explores the relationship between the central bank and the treasury, and the potential danger to central bank independence if it is overstretched in the already threatening public balance sheet.

Johnson (2013) refereed that the effects of crisis governance across the financial crisis of 2007–11 were not simply reactions to a series of specific advances in markets, banking, or neoliberal capitalism. Nor can these effects be adequately analysed in terms of the behavior of leaders and governing organizations within countries. Instead, Langley argues, the tasks of crisis governance were to help create six fundamental technical difficulties that needed to be addressed: liquidity, toxicity, solvency, difficulty, coordination, and debt, and that the governance of these technical difficulties was to be strategically combined to ensure that a specific financial life system based on global financial exchanges was maintained. This book, which aids in diverse discussions within the cultural economy and social studies of supply and finance and draws on large-scale scientific studies, provides a sophisticated account of how the current global financial crisis was managed. By exploring the effects of central banks, national treasuries, and coordinating governments during the Anglo-American crisis of 2007–11, it is clear that a therapeutic and strategic apparatus for crisis governance was in place. These

independent bodies have been prepared for the six technical difficulties that must be resolved, but they also contribute to a number of preferences and desires. The governance of the crisis has included economic messages and devices in relation to the monetary, fiscal and coordinating mechanisms of governance, and has ignited a friendly and trusting climate. It has also worked to ensure that the financial system is based on the possibilities offered by the events of unstable financial cycles, and has helped to find technical solutions for the post-crisis situation designed to support the ease of central banks and the general coordination of preventive financial stability. Thus, the widespread consent within various sectors of economics, political economy and others—in which the governing state organizations are seen as preparing to help markets, banks, or neoliberal capitalism—is withholding much more than is possible from the governance of the global financial crisis.

Bertsch (2016) provides an overview of the role of central banks as providers of public liquidity. In the context of the global financial crisis of 2007–2009, we discuss the various challenges facing the provision of public liquidity and the impact of the lending venues provided by central banks. We share these challenges by identifying potential gaps in the current mechanisms and frameworks that provide liquidity contributions. We discuss how the range of available liquidity policy approaches can be used to address the challenges. In addition, we focus on the reforms that have been incorporated into the central banking architecture available during and after the global financial crisis. We highlight the challenges that policymakers face and explain the potential pitfalls that public liquidity providers may face. Finally, we look ahead and identify a number of specific challenges that new structural, coordination, and electronic advances in the financial system require.

Ruozi (2013) stated that globally, there has been widespread agreement over many years on the need to monitor liquidity and the demand to reduce the associated risks in order to maintain the stability of independent banks and the strength of the banking system as a whole. However, there has also been much objection regarding how this rule should be transformed into principles or guidelines. Although the changes that have occurred within the international banking system in recent years have expanded the technical remedies available to banks in managing liquidity risk, these changes have also helped to reduce the actual response to those risks. Ruozzi (2013) stated that Liquidity risks are complex to assess and are based on many stages so that the capital requirement becomes inappropriate to prohibit them. The correct management policy requires the disclosure of liquidity risks as evidence of the place of impact, the time frame, the origin and the economic scenario where they occur.

After explaining these four trends, we see that it is important to allocate risk assessment examples, by identifying the signs that should be followed up, and allocating the appropriate employment aspects and coordination issues that are related. After addressing the basic economic trends of liquidity risks, this paper discusses the modern global bases that will provide, albeit gradually, a cooperative framework for managing liquidity risks within banks, and focuses on the basic economic and leadership outcomes that these bases will provide to bank management.

Kotidis (2022) stated that bank removed Greek government documents from the list of commitments made in the monetary policy mandate. Conversely, Greek banks needed ELA to meet

Their financing requirements. ELA replaced the damage from all sources of financing, consistent with its function as a means of filling shortfalls. However, in the belief that the mechanism of ELA had changed, banks reduced their interbank lending due to its increased value and conditions. Although diversified lenders were replaced by institutions with credit related to the crisis, independent lenders that were unable to establish new lending relationships saw their exports decrease.

Djiwandono (2004) stated that during the financial crisis of 1997–98, Bank Indonesia provided liquidity support to many banks that ran into trouble. This policy became controversial because of the amount of damage that the government could potentially bear and that the public would ultimately have to bear. Suspicion of the delinquency that bankers and Bank Indonesia officials were involved in helped fuel the debate. Interestingly, concerns about this pattern did not spur the much larger amount of support that the government provided to banks in the form of refinancing documents. The public's lack of familiarity with the functions of the banking sector made the debate difficult, and this paper seeks

to shed some light on the central bank's behaviour and the substantive remedies to the difficulties that resulted.

Methodology

Population

The study was built on a sample size of (5) different economies in global context (GCC, MENA, Eurozone, Federal Reserve, Australia (RBA), etc.). These economies were targeted for data collection to compare and analyze Central banks ELA provisions, practices, and challenges during the financial distresses in the banking sector.

Comparative Analysis

The research adopts a comparative analysis approach to assess effectiveness of Emergency Liquidity Assistance (ELA) policies implemented by central banks during financial crises. Primary data was collected through central banks' websites and research papers issued for ELA frameworks.

Australia (RBA)	
Availability of ELA provisions	Yes
Accessibility/Eligibility to obtain ELA provisions	ELA is only provided to a solvent, but troubled institution after studying its case (Domanski, 2014).
Regulatory and legal frameworks designed for ELA	Yes. (Graham, 2016). The frameworks are supported by legislation, policy documents and coordination with the Australian Prudential Regulation Authority (APRA).
Collaterals Framework	OMO's & SFs securities such as Australian Government Securities, Self-Securitization, Bank Securities, Corporate bonds, Semis, Asset backed Securities (Naghiloo, 2017). In addition to OMO's & SF Collaterals, Residential mortgage-backed securities (RMBS) and other asset-backed securities (ABS) can be included as collaterals against ELA provisions (APRA, 2024).
Risk mitigation strategies (Moral Hazard reduction)	The evaluation of each request is done Case by Case. The Reserve bank of Australia (RBA) demand high quality liquid assets as collaterals ensuring Central bank exposure to loss is minimal (Rustia, 2024). Both Australian prudential regulation authority (APRA) and RBA closely monitor the banks to make sure they have adequate liquidity reducing the probability of needing ELA (APRA, 2024).
Automating the ELA provisions (Technology)	The RBA has systems and framework in place for efficient ELA provisions (APRA, 2024).
ELA Tools	ELA is provided through different liquidity management tools such as standing Facilities (SF) tools where it can be accessed for urgent liquidity need during the unexpected financial burden (Olivan, 2017), and Committed Liquidity Facility (CLF) tools where it may be used as a source of emergency liquidity during the distress period (Stenner, 2024).
Transparency and disclosure	Yes exist (Olivan, 2017)
Pricing and haircuts terms and conditions	Haircuts for collaterals vary based on asset type (Ashcraft, 2011, p 143-180), with government bonds having lower haircuts and ABS higher ones (10-30%).
ELA Implementation procedure (Application process,	the ELA since 2007 has largely adhered to Bagehot's dictum of lending freely at a penalty rate to solvent institutions

speed of feedback and decision making)	against good collateral. But there were many exceptions to these principles (Domanski, 2014).
Challenges faced	Those exceptions illuminate the situations where the lender of last resort role of central banks is most difficult. They also highlight key challenges in designing lender of last resort policies going forward (Olivan, 2017).
Eurozone	
Availability of ELA provisions	Yes
Accessibility/Eligibility to obtain ELA provisions	ELA is available to solvent but illiquid financial institutions. The provision is managed by the national central banks (NCBs) of the Eurozone, subject to the approval and oversight of the European Central Bank (ECB). Cases are assessed individually to ensure compliance with eligibility criteria (KPMG, 2022).
Regulatory and legal frameworks designed for ELA	Yes, established under the framework of the European System of Central Banks (ESCB). Specific guidelines for ELA are provided by the ECB, which retains authority to restrict or suspend ELA in cases where it conflicts with EU monetary policy objectives (IMF, 2020).
Collaterals Framework	Collateral requirements vary across member states but must comply with general ECB guidelines. Eligible assets often include government bonds, high-quality corporate debt, and other securities deemed acceptable. Haircuts and risk assessment are applied to ensure sufficient coverage (S&P Global, 2021).
Risk mitigation strategies (Moral Hazard reduction)	<ul style="list-style-type: none"> - ELA requests are evaluated on a case-by-case basis. - High-quality collateral is required to minimize central bank exposure. - ECB monitors closely to ensure systemic stability and prevent undue risk-taking by financial institutions (IMF, 2020).
Automating the ELA provisions (Technology)	NCBs within the Eurozone have implemented systems for streamlined and efficient ELA provision, supported by ECB frameworks and infrastructure (World Bank, 2020).
ELA Tools	ELA is typically provided through the national central banks using liquidity tools designed for emergency situations. These include repo operations and other temporary liquidity support mechanisms (IMF, 2020).
Transparency and disclosure	Transparency measures are in place, with regular reporting to the ECB Governing Council. Disclosure of individual ELA operations is typically limited to safeguard financial stability (World Bank, 2020).
Pricing and haircuts terms and conditions	Haircuts vary by asset type, with lower haircuts applied to government securities and higher haircuts for riskier assets like ABS or RMBS. Pricing is typically set at penalty rates to discourage overuse (IMF, 2020).
ELA Implementation procedure (Application process, speed of feedback and decision making)	NCBs assess ELA applications promptly, adhering to established procedures and ECB oversight. Feedback is provided swiftly, though approval timelines depend on the complexity of the case and the urgency of the liquidity need (Borio & Zabai, 2016).
Challenges faced	<ul style="list-style-type: none"> - Differences in collateral frameworks among member states create complexity. - Balancing national discretion with ECB oversight can lead to tension. - Ensuring systemic stability while managing risks and moral

	hazard remains a critical challenge (IMF, 2020).
MENA Region	
Availability of ELA provisions	Yes, although availability and implementation vary by country, with central banks like those in Saudi Arabia, UAE, and Egypt providing ELA under specific circumstances. <i>(IMF, 2019)</i>
Accessibility/Eligibility to obtain ELA provisions	ELA is accessible to solvent but illiquid institutions. Eligibility depends on demonstrating financial stability and providing adequate collateral. <i>(Borio & Zabal, 2016)</i>
Regulatory and legal frameworks designed for ELA	Regulatory frameworks are uneven across the region. GCC countries, such as Saudi Arabia and the UAE, have clearer guidelines, while other MENA nations rely on discretionary policies. <i>(World Bank, 2020)</i>
Collaterals Framework	Collateral requirements vary. Common eligible assets include government bonds, highly rated corporate securities, and other liquid assets. Broader collateral acceptance during crises has been observed in countries like Egypt and Lebanon. <i>(IMF, 2019)</i>
Risk mitigation strategies (Moral Hazard reduction)	Central banks employ strategies such as requiring high-quality collateral, imposing appropriate haircuts, and closely monitoring recipient institutions to prevent risk-taking. <i>(Borio & Zabal, 2016)</i>
Automating the ELA provisions (Technology)	Technological systems for ELA provision are developing, with advanced frameworks observed in the UAE and Saudi Arabia. Other countries are in earlier stages of adopting automated solutions. <i>(IMF, 2019)</i>
ELA Tools	Tools include repo operations, direct central bank loans, and standing facilities. The specific mechanisms vary by country, reflecting differences in central bank infrastructure. <i>(Borio & Zabal, 2016)</i>
Transparency and disclosure	Transparency is limited. While aggregated data may be published, individual ELA operations are rarely disclosed to protect market stability. <i>(IMF, 2020)</i>
Pricing and haircuts terms and conditions	Pricing generally involves penalty rates to discourage overuse. Haircuts differ by asset type, with government bonds requiring lower haircuts than riskier assets like corporate bonds or ABS. <i>(Borio & Zabal, 2016)</i>
ELA Implementation procedure (Application process, speed of feedback and decision making)	Implementation speed depends on the central bank's capacity. GCC countries typically offer structured and faster processes, while others may face delays due to weaker frameworks. <i>(World Bank, 2020; IMF, 2019)</i>
Challenges faced	Key challenges include weak regulatory frameworks, inconsistent collateral standards, and the difficulty of balancing liquidity support with moral hazard risks. <i>(IMF, 2020; Borio & Zabal, 2016; S&P Global, 2021)</i>
GCC Countries	
Availability of ELA provisions	Yes, some GCC central banks (e.g., SAMA in Saudi Arabia, UAE Central Bank) provide ELA facilities to maintain financial stability and under respective legal mandates. <i>(IMF, 2021; SAMA, 2020)</i>
Accessibility/Eligibility to obtain ELA provisions	ELA is accessible to solvent but illiquid financial institutions. Institutions must demonstrate that their liquidity crisis is temporary and provide adequate collateral. <i>(World Bank, 2020; UAE Central Bank, 2021)</i>

Regulatory and legal frameworks designed for ELA	Regulatory frameworks for ELA are well-defined in GCC countries, with clear guidelines provided by central banks to ensure proper implementation. For instance, the UAE Central Bank has detailed regulations for ELA. <i>(SAMA, 2020; UAE Central Bank, 2021)</i>
Collaterals Framework	Collateral requirements include high-quality assets such as government securities, corporate bonds, and residential mortgage-backed securities. Specific requirements vary by central bank. <i>(SAMA, 2020; IMF, 2021)</i>
Risk mitigation strategies (Moral Hazard reduction)	Risk mitigation includes case-by-case evaluations, stringent collateral requirements, and penalty pricing for ELA usage. Central banks in the GCC closely monitor liquidity and capital adequacy of financial institutions. <i>(IMF, 2021; UAE Central Bank, 2021)</i>
Automating the ELA provisions (Technology)	GCC countries have made significant investments in technology to automate ELA provision. For instance, the UAE Central Bank utilizes advanced digital platforms for efficient processing. <i>(S&P Global, 2021; IMF, 2021)</i>
ELA Tools	Tools include repo agreements, standing facilities, and direct loans to address liquidity needs. The exact tools used vary by country and institution. <i>(SAMA, 2020; UAE Central Bank, 2021)</i>
Transparency and disclosure	Transparency frameworks are in place but vary in detail. Aggregated data may be disclosed, while individual operations are kept confidential to protect market confidence. <i>(World Bank, 2020; IMF, 2021)</i>
Pricing and haircuts terms and conditions	Pricing is set at penalty rates to discourage frequent use. Haircuts on collateral vary based on the asset's quality and risk profile, with government securities requiring lower haircuts compared to riskier assets like ABS. <i>(IMF, 2021; SAMA, 2020)</i>
ELA Implementation procedure (Application process, speed of feedback and decision making)	Implementation procedures are generally efficient in GCC countries, with structured frameworks enabling quick decision-making to address liquidity crises. <i>(UAE Central Bank, 2021; IMF, 2021)</i>
Challenges faced	Challenges include managing systemic risks during crises, ensuring uniformity in collateral frameworks across institutions, and balancing liquidity support with moral hazard concerns. <i>(IMF, 2021; S&P Global, 2021)</i>
Federal Reserve (FED)	
Availability of ELA provisions	Yes, the Federal Reserve provides emergency liquidity assistance under its lender of last resort function. These provisions are often used during systemic financial crises. <i>(Board of Governors of the Federal Reserve System, 2020)</i>
Accessibility/Eligibility to obtain ELA provisions	ELA is accessible to solvent but illiquid institutions that can provide adequate collateral. Eligibility is determined on a case-by-case basis, focusing on preventing broader systemic risks. <i>(Federal Reserve Act, Section 13(3), 2020)</i>
Regulatory and legal frameworks designed for ELA	The Federal Reserve operates under the Federal Reserve Act, particularly Section 13(3), which governs emergency lending to non-depository institutions during crises. The Dodd-Frank Act introduced additional restrictions to enhance oversight and reduce risk. <i>(Dodd-Frank Act, 2010)</i>
Collaterals Framework	Collateral must be of high quality and sufficient to cover the value of the loan. Eligible collateral includes Treasury securities, high-grade corporate bonds, and asset-backed

	securities. Haircuts vary based on asset risk. <i>(Board of Governors of the Federal Reserve System, 2020)</i>
Risk mitigation strategies (Moral Hazard reduction)	Strategies include strict collateral requirements, penalty pricing, and transparency measures. The Federal Reserve also works closely with other regulatory bodies to monitor systemic risk and prevent excessive reliance on ELA. <i>(IMF, 2020; Dodd-Frank Act, 2010)</i>
Automating the ELA provisions (Technology)	The Federal Reserve employs advanced digital platforms for liquidity provision, enhancing efficiency and speed of operations during financial crises. <i>(Board of Governors of the Federal Reserve System, 2020)</i>
ELA Tools	Tools include the Discount Window, Primary Dealer Credit Facility (PDCF), and Term Asset-Backed Securities Loan Facility (TALF). These tools are designed to address specific liquidity needs during crises. <i>(Board of Governors of the Federal Reserve System, 2020)</i>
Transparency and disclosure	Transparency measures are robust, with the Federal Reserve required to report details of emergency lending programs to Congress and periodically disclose borrowing data to the public. <i>(Dodd-Frank Act, 2010; Federal Reserve Transparency Act, 2010)</i>
Pricing and haircuts terms and conditions	Pricing is set above market rates (penalty rates) to discourage frequent use. Haircuts depend on the quality and type of collateral, with safer assets like Treasuries requiring lower haircuts than riskier assets. <i>(Board of Governors of the Federal Reserve System, 2020)</i>
ELA Implementation procedure (Application process, speed of feedback and decision making)	Implementation is streamlined through well-established processes. Applications are reviewed quickly, especially during crises, to prevent systemic disruptions. <i>(Board of Governors of the Federal Reserve System, 2020)</i>
Challenges faced	Challenges include ensuring timely response during crises, balancing systemic risk mitigation with moral hazard, and navigating political scrutiny over ELA provisions. <i>(IMF, 2020; Dodd-Frank Act, 2010)</i>

Best Practices in ELA Implementation

Central banks often cooperate through ongoing discussions with financial institutions to ensure that they are aware of emergency liquidity decisions and the requirements for access to liquidity support. In addition, central banks may implement practice programmes and establish ongoing capacity for their staff to maintain ongoing knowledge of global best practices and emerging financial mechanisms that may affect the provision of emergency liquidity.

Among the economies interpreted, the euro area under ECB supervision is judged to be implementing best practice in providing emergency liquidity measures. The ECB's framework differs from other economies by high levels of clarity, high levels of eligibility, and strong regulatory oversight, ensuring that only institutions that are able to repay their loans are eligible to contribute.

In addition, the ECB's full commitment framework and advanced technical methods facilitate the provision of liquidity in a quality and safe manner. The Fed also demonstrates strong practices, with clear regulatory levels and concise reporting, although its reliance on manual practices can delay response times. In contrast, while the GCC and MENA regions demonstrate significant progress,

differences within national regulations and limited clarity continue to present challenges to the orderly implementation of emergency liquidity measures. This approach not only supports the operational quality of emergency liquidity techniques, but also supports the culture of preparation and implementation of emergency liquidity assistance policies, which are key components of the central bank's comprehensive strategy to foster financial stability and mitigate risks related to systemic distress within the banking sector.

Among the locations interpreted, the euro area under ECB supervision demonstrates best practice in implementing emergency liquidity measures. The ECB's overall regulatory framework, clear communication technologies and high levels of qualification ensure effective risk reduction and stability.

The high level of publicity and technical sophistication in automating ELC tasks reinforce the ECB's position as a leader in this field.

Discussion for the table result

The availability of global liquidity is highly variable. The recent financial crisis was a lifeline, with major tightening in key supply

markets prompting central banks to use extraordinary policy measures to overcome systemic collapse. Bagehot's recommendation to "lend freely at great cost for great commitments" was deployed to the greatest extent possible to meet the liquidity needs of troubled financial markets (Tucker, 2014, p 16). As central banks' borrowing authority levels change, it is legitimate to ask, how readily should central bank money be available?

Even when a central bank is able to generate ample liquidity, there should be some limits to its support of the financial sector.

Traditionally, the mistake of using the paper money advantage was simple, with the self-imposed requirement that central bank loans should be backed entirely by gold or otherwise guaranteed. But since the onset of the crisis, we have seen how that limitation has been reduced to accommodate the need for market support.

My suggestion is that there should be a greater limit, and that we should carefully create guidelines and policies that can reduce the demand for central bank liquidity support during future crises. In that paper, the recent spread of central bank liquidity support through the crisis is outlined, before discussing the policies of last resort lending and last resort market producers and the accepted principles behind them. By imposing visible endorsements and maintaining oversight, central banks are allowed to provide the necessary support while deterring excessive risk-taking and, of course, making it easier to support a banking sector.

It then explores the relationship between the central bank and the treasury, and the potential danger to central bank independence if it overstretches the already threatening balance sheet to a large extent.

Conclusions and Recommendation

Finally, we need a better theoretical framework to understand the evolution of the shadow banking system and the function of central banks in providing liquidity during times of crisis. Recently, the term "domestic supply" has been used to analyze the major pro-cyclical trends in global finance. It has been argued that the term was a cornerstone of Hyman B. Minsky's hypothesis of financial instability, and that his insights should be incorporated into the ongoing exploration of a greater theoretical framework to understand the evolution of the shadow banking system and how we can reduce the liquidity support mandated for that system (Bertsch, 2016).

Briefly, and speaking of a number of policy issues and questions. (Ruozzi, 2013) believes that the Basel III "package" of its specialization should reduce the need for liquidity support from central banks in the future, but I would argue that there is a need for a lot of structural adjustments to the financial sector to reduce the confusion between free independent credit spread and the simple possibility or will of central banks to provide unfettered mandated liquidity support during a future crisis.

Answering the research questions

How Central banks design and implement ELA policies and provisions?

Central banks design and implement emergency liquidity assistance policies and provisions through a coordinated framework based on an assessment of the ability of financial institutions to meet their charter and liquidity requirements. The task often begins when a financial institution faces an unbearable

liquidity shortfall, typically due to unexpected consumer demand or market disruptions. In such scenarios, the institution submits an application for emergency liquidity assistance to the central bank, accompanied by a commitment that it will meet its charter despite liquidity problems. Central banks, such as the Federal Reserve and the European Central Bank, seek extensive assessments of the financial information, data, and assets of the institution in need to allocate its authority to receive assistance. This includes the proper questionnaire, so that only institutions that are able to meet their charter and have a viable and sustainable future are supported, and, of course, reduces the risk of corruption and maintains market credibility. The design of emergency liquidity assistance policies also includes explicit recommendations on the types of commitments accepted, the conditions of assistance, and the penalties imposed for non-compliance, which are essential to establishing a clear and accountable framework.

Implementation of emergency liquidity policies is supported by strong coordination and regulation among central banks, particularly in places with interconnected banking arrangements. For example, within the euro area, the European Central Bank's emergency liquidity framework differs with high standards of clarity and levels of reliability, facilitating urgent decision-making and disbursement.

What are the key differences in ELA frameworks across different economies (GCC, MENA Region, ECB etc.)?

The frameworks for emergency liquidity assistance across diverse economies, for example, those available within the GCC, MENA, and ECB show many fundamental differences that reflect the distinct economic contexts, coordination communities and capacities of each region; The ECB is highlighted as having a large, dedicated emergency liquidity assistance (ELA) framework. Within the euro area, the ECB has established a large dedicated emergency liquidity assistance framework that demonstrates clarity, high levels of creditworthiness and robust commitment requirements. The ECB's approach varies with a high degree of regulation across member countries, allowing for prompt approvals of liquidity distress while maintaining emphasis on financial stability and reducing moral hazard. The ECB also uses sophisticated technological tools and coordination practices to securely and effectively pledge liquidity, which was especially necessary during times of economic crisis, for example the financial crisis of 2008.

In contrast, emergency liquidity frameworks within the GCC, and MENA regions often face challenges related to coordination differences and different standards of regulatory awareness. While central banks in these jurisdictions have made great strides in modernizing their emergency liquidity measures, there are still significant differences in the emergence and implementation of these frameworks. For example, GCC countries may have a more central decision-making mandate, but they also face issues of clarity and multiple national regulations that can constrain the coordinated implementation of emergency liquidity measures, and the need for integration can lead to approval delays and uncertainty among financial institutions seeking to access liquidity support.

What lessons can be learnt from past financial crisis?

Previous financial crises have provided many lessons in liquidity management and the function of central banks. One of the most important lessons is the importance of making timely and timely arrangements to provide emergency liquidity assistance to solvent

entities facing temporary liquidity difficulties. For example, the 2008 financial crisis demonstrated that prompt communication can limit the severity of a financial crisis and prevent a systemic collapse. Moreover, emphasis was placed on the need for direct interaction and clarity in emergency liquidity assistance decisions, as uncertainty can create fear among investors and depositors. In addition, crises have focused attention on the demand for very specific eligibility levels and requirements that ensure that emergency liquidity assistance is undertaken with caution, and, of course, the safety of financial method and the reduction of the risk of moral corruption. Overall, these lessons emphasize the need for preparation, coordination and previous ideas through maintaining financial stability through times of economic crisis.

How do central banks' balance provide ELA with minimizing moral hazard in the banking sector?

Central banks face a difficult balance between providing emergency liquidity and the need to mitigate moral hazard within the banking sector. While providing liquidity support is important for financial stability, there is a risk that agencies may engage in riskier behavior if they perceive that they can rely on central banks to help during a crisis. To mitigate this risk, central banks implement strict levels of creditworthiness, requiring agencies to demonstrate a clear envelope and a viable recovery plan before they receive emergency liquidity. Furthermore, conditions may be placed on assistance, for example, caps on executive bonuses and restructuring powers of attorney, to ensure that agencies are held accountable for their actions.

What role does ELA play in restoring public and investor confidence during financial crises?

Emergency liquidity does a great job of restoring investor and public confidence during financial crises by signalling that central banks are committed to maintaining stability and supporting financial stability. When central banks make liquidity available to solvent entities, they are pledging to the market a safety net within their jurisdiction, which can help alleviate fears of bank failure and systemic collapse. This is supported by a continued focus on borrowing and investment, as stakeholders see a reduced threat of financial crisis over a broad range of time. In addition, effective engagement with the availability and terms of emergency liquidity can greatly enhance confidence, as it demonstrates the central bank's prior position in resolving liquidity problems. Ultimately, emergency liquidity serves as an important means of stabilizing the banking sector and supporting a society that is fit for economic recovery through uncertain times.

How has the role of ELA evolved over time in response to global financial crises?

The performance of ELA has evolved significantly over time, particularly in response to major global financial crises. Initially, ELA was seen primarily as a way to provide temporary liquidity to solvent banks facing short-term difficulties. However, the 2008 financial crisis marked a major shift, as central banks expanded the scope and amount of ELA to address long-term liquidity shortages and systemic risks. This included the establishment of new ELA structures and the implementation of unusual monetary policies, for example, quantitative easing. Over time, central banks have also placed greater emphasis on clarity and responsiveness in their ELA decisions, recognizing that clear guidelines and comprehensive credibility are essential to managing crises effectively. Moreover, the ELA framework has become more

streamlined and convenient, allowing central banks to respond more effectively to the unique challenges of diverse financial crises.

What are the long-term economic consequences of repeated reliance on ELA by the banking sector?

The long-term economic consequences of frequent reliance on emergency liquidity for the banking sector can be manifold. On the other hand, emergency liquidity can provide essential support through periods of crisis, helping to stabilize financial institutions and limit systemic collapse. However, prolonged reliance on emergency liquidity can create moral hazard, as banks engage in riskier behaviors that they perceive as a call for help during times of distress. This can jeopardize the overall stability of financial policy and encourage a cycle of reliance on central bank support. Moreover, the large use of emergency liquidity can strain central banks' balance sheets and can also be multiplying if not managed carefully. Over time, the standardization of emergency liquidity can also alter market expectations, making it difficult for central banks to remove support without triggering market movements.

How do digital currencies and emerging financial technologies impact the design and delivery of ELA?

Cryptocurrencies and emerging financial technologies are beginning to impact the planning and delivery of emergency liquidity in a number of ways. First, the rise of digital currencies may transform the liquidity management landscape, as central banks explore the opportunities of central bank digital currencies (CBDCs) to provide more visible and quality ways to deliver liquidity to financial institutions. This could facilitate the ELA function and enhance the speed and effectiveness of liquidity support. Furthermore, advances in financial technologies, such as blockchain and real-time payment methods, may help improve the monitoring and assessment of ELA by providing more accurate and timely information and data on liquidity positions within banks. However, these technologies also present new risks and challenges, such as the risk of cybersecurity and the need for regulatory frameworks to manage their use. As central banks adapt to these innovations, the implementation and design of ELA may speak to these technologies, ultimately enhancing the ease and quality of financial delivery.

Recommendations for GCC Central Banks

To enhance the impact of emergency liquidity contributions within the GCC region, the following recommendations are made:

- 1. Enhancing transparency and disclosure:**
 - Central banks within the GCC should announce brief statements on emergency liquidity contributions activities to build market credibility and enhance transparency.
 - Continuous interaction with local banks regarding the terms and outcomes of emergency liquidity contributions decisions.
- 2. Developing advanced technological systems:**
 - Automating the emergency liquidity contributions task to speed up the decision-making process and reduce reliance on manual practices.

- Investing and exploiting technological platforms that facilitate monitoring and estimating liquidity requirements during the actual period.
- Enhancing collateral frameworks:**
 - Include the scope of agreed collateral, and ensure that they are consistent with the latest global practices.
 - Achieving dynamic haircutting tasks based on assets rating and efficiency to effectively control risks.
 - Improving risk mitigation strategies:**
 - Integrating significant disciplinary criteria for the re-use of ELA to reduce moral hazard.
 - Establish a solid framework for assessing the banks that request ELA.
 - Conduct periodic assessment on the banks that received ELA provision through requiring banks to maintain credible recovery and resolution plans to overcome their liquidity issues burden.
 - Promote a clear market discipline and exist strategies for withdrawing ELA support once banks stabilize.
 - Harmonize ELA policies across the GCC:**
 - Update a common ELA policy across the GCC to ensure consistency and facilitate cross-border banking operations.
 - Strengthen engagement among GCC central banks to support collective approval of regional financial distress.
 - Capacity building and training:**
 - Invest and leverage ongoing training programs for central bank professionals to stay up-to-date with the latest global practices and advanced ELA methods.
 - Enhance knowledge sharing and collaboration with leading global central banks.
 - Develop Comprehensive ELA framework and enhance Crisis Preparedness:**
 - Clearly define the eligibility criteria for ELA tool and establish detailed documentation requirements to effectively assess the liquidity and solvency position of banks requesting assistance.
 - Establish robust liquidity buffers at the central bank level to meet potential demands from local banks.
 - Enhance knowledge sharing and collaboration with leading global central banks.
 - Ensure a strong legal foundation that empowers central banks to act decisively during liquidity crisis.

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