

Walter Bagehot and Lombard Street (1873):
A 150-Year Retrospective Vannes (France), 29 June – 1 July 2023

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Bagehot and the Stabilization Function of Central Banks

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Abstract

Bagehot is concentrated in "Lombard Street". A Description of the Money Market" (1873) on the interactions of creditors and debtors in the light of a still incomplete theory of the monetary economy. It analyzes the inherent interdependencies of the asymmetric creditor-debtor obligations whose DNA is mutual trust. The Bank of England's task is to formulate its actions, which has already been applied so vigorously and courageously in crisis, in generally understandable principles and to communicate this to the public in a binding manner. This forward-looking accountability would not only help prevent further financial turmoil, but also bolster their credibility.

Current research confirms that central banks bear the responsibility for this stabilization function towards the public by using different tools of monetary policy. Central banks could stabilize financing conditions and expectations in the event of exogenous or endogenous shocks and they need to show their ability to perform.

Bagehot's description of the situation of the Bank of England (BoE) as an international financial center in the 19th century provides an excellent starting point for my research question and for a more systematic analysis of the resilient conditions of global financial markets in the 21st century.

In the hierarchy of internationally traded currencies, the US dollar has been at the top for over 75 years. The function of the Fed as an international lender of last resort (ILOR) should *not* be understood episodically. The need for US dollar liquidity rewards the highly integrated and liquid financial market in the USA. The US dollar swaps used globally as emergency liquidity, e.g., in 2001, 2007-2008 and in the context of the 'dash for cash' in 2020, are therefore to be understood as elementary indicators of the necessity and effectiveness of the USA in its function as ILOR.

Key words: International Macroeconomics and Finance, History of Economic Thoughts, Federal Reserve, European Central Bank, Central Bank Swaps

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1 Introduction

In his book *LOMBARD STREET*, published in 1873, Walter Bagehot formulates a perspective on the functional conditions of central banks in a finance-based economies. He clearly explains their theoretical implications, in which trust and expectations of creditors and debtors play a constitutive role. He points out that the Bank of England, in its decisions and actions recognizes and partially practices this constitutive functional condition as a stabilizing institution but has thus far failed to present a transparent and responsible position to the public.

The essay proceeds by elaborating the turning point of *Lombard Street* in section 2. It analyzes the inherent interdependencies of a financed based economy describing the asymmetric creditor-debtor obligations, whose DNA is mutual trust. These asymmetric structures are fragile. Their disruption has far-reaching implications for trade, production, and the economy. Bagehot points out the dangers of contagion and bank run defines obligations for the Bank of England that go beyond stabilizing the domestic financial market.

Section 3 continues by exploring Bagehot's arguments for justifying the Bank of England's new responsibility for providing liquidity to the banking system. Bagehot does not interpret the role of the Bank of England as a neutral observer of market activity but rather justifies the stabilizing function of the central bank as systemically relevant. Bagehot discusses the dysfunctionality of Peel's Act, which is manifested precisely in the fact that it was not applied in the prevailing crisis. The need for central bank liquidity and risk management during the global financial crisis is discussed using the example of the Federal Reserve.

Section 4 combines Bagehot's analysis with the modern view of central banking. As an example, the responses of the European Central Bank in the Covid-19 pandemic are introduced. This section also reviews the arguments used by Bagehot to call for a fundamental redefinition of the Bank of England's accountability and governance. The government has bestowed privileges and powers on this central bank that the Bank of England appears to interpret as private privileges. Bagehot asks them to live up to their responsibilities and to communicate their politics unequivocally. Otherwise, it should renounce the privileges granted to it and refrain from any intervention in market conditions.

Section 5 discusses arguments from modern central bank research whose paradigmatic roots are anchored in Bagehot's analysis. Although *Lombard Street* does not provide an explicit analysis of a central bank's role as an international lender of last resort, it emphasizes the Bank of England's international responsibility because of its importance in international payments as a "foreign clearinghouse". As a result, the Bank of England has new obligations to foreign investors. With financial innovation and international capital movements, the central bank must acknowledge new responsibilities to the rest of the world.

2. The Turning Point made by Bagehot

„The main point on which one system of credit differs from another is, ‘soundness’ “(Bagehot, 1873, Ch. II, 69f)

The “Bagehot Rule” remains a famous reference in the context of central bank theory and policy literature to this day (Bernanke 2015, Goodhart 1999).² Central banks and central bankers regularly invoke the “Bagehot Rule” to avert risks or imminent risks of a liquidity crisis in the banking sector (Carré and LeLoup 2020).

Although Bagehot stresses that he has no intention of interfering in the economists' debate, his conclusions are based on his correct analysis of a finance-based economy. His book *Lombard Street* implies a shift in perspective, as Bagehot derives his argument from his theory-laden observations of the causes of the various financial crises of his time and before. As Mervyn King (2010) pointed out:

„Walter Bagehot was a brilliant observer and writer on contemporary economic and financial matters. In his remarkable book *Lombard Street*, Bagehot brought together his own observations with the analysis of earlier thinkers such as Henry Thornton to provide a critique of central banking as practiced by the Bank of England and a manifesto for how central banks could handle financial crises in future by acting as a lender of last resort. The present financial crisis dwarfs any of those witnessed by Bagehot. What lessons can we draw from recent and current experience to update Bagehot’s vision of finance and central banking “(King 2010, 1)

At the time, Bagehot was writing this book, the financial ties were being reinforced through innovative forms of financing and debt contracts, which in turn created new financial asymmetries between creditors and debtors. The result was greater uncertainty about the fulfillment of these promises to pay. In essence, Bagehot describes how the market for trading in promises to pay has developed and what contractual problems are associated with it.

2.1. On Confidence in Debtor-Creditor Relations

“Credit is a power which may grow but cannot be constructed.”
(Bagehot, 1873, Ch. II, 69)

Bagehot takes creditor-debtor relations as the fundamental starting point of his analysis. He outlines the unique characteristics of a creditor-debtor interaction, pointing to the inherent fragility of trust. He draws attention to the various aspects of asymmetry systematically inherent in this game. To name just a few of these asymmetries, there is time, power, capacity to act, information and responsibility of the debtor or the creditor.

“The main point on which one system of credit differs from another is ‘soundness.’ Credit means that a certain confidence is given, and a certain trust reposed. Is that trust justified? And is that confidence wise? These are the cardinal questions. To put it more simply—credit is a set of

² I refer in this essay only to the various chapters of *Lombard Street*, published in 1873.

promises to pay; will those promises to be kept? Especially in banking, where the 'liabilities' or promises to pay, are so large, and the time at which to pay them, if exacted, is so short, an instant capacity to meet engagements is the cardinal excellence" (Ch. II, 22).

Let us look at some characteristics of the creditor: Bagehot describes the creditor as an asset owner who is willing to lend money. His potential risk preference involves voluntarily accepting the uncertainty that the claim may never be recovered. In this asymmetrical relationship, the creditor attempts to determine not only the price (interest rate), but also the size (volume) of the loan. Furthermore, he determines the amount of the repayment installments and term of the debt contract.

This brings us to the function of the debtor in this interaction. The investor becomes the debtor by his motive and willingness to start his production or investment with the help of credit or to continue an existing investment by renewing the loan. The motive of the borrower also plays a role, i.e., whether the new debt should be used for equity financing or for existing debt financing (leverage motive). Investors' motivation for debt restructuring depends on future profit expectations and market developments. Within the framework of these financing options, Bagehot clearly addresses the interplay of the individual's goals and the market conditions for achieving them.

The emergence of information that the debtor could become insolvent jeopardizes the existence of the creditor. If further negative perceptions are added, the credibility in the success of such a constitutive contractual relationship can be damaged. Perceived unconventional events 'that are talked about' or questions that suddenly take center stage, such as "is my creditworthiness as good as it used to be or is it worse?" indicate the perception of routine disruptions that can trigger panic (ibid., Ch. II, 49) "And every day, as a panic grows, this floating suspicion becomes both more intense and more diffused; it attacks more persons; and attacks them all more virulently than at first". (ibid.) These waves of assumptions about the suspected events lead to a perception of a threat to one's own liquidity as a debtor or creditor. Consequently, financiers or merchants prefer to accumulate money, hence liquidity. "(T)he most obvious way to preserve it is to hoard it—to get in as much as you can, and to let nothing go out which you can help. But every banker knows that this is not the way to diminish discredit" (Ch. II, 48).

A panic that originates in the banking system is not a problem for the bank alone. Merchants, companies, craftsmen, etc. can only pay their bills if others also meet their obligations. Bagehot clearly points out this danger of contagion because of the interdependence of debtor and creditor as a financial asymmetry. Bagehot accurately describes the dynamics of a panic: Any suspicion of a liquidity shortage must be immediately dispelled by proving that a counterparty is not illiquid. The bank, for its part, is fogged by the wave of uncertainty and mistrust and tries to save itself by inaction or by waiting. This retreat, however, becomes a trap. In markets, every economic activity is individually and at the

same time functionally grounded in financial interdependence. In this turbulent phase, it is therefore essential to prove that the alleged lack of liquidity is not true, according to Bagehot:

“Every banker knows that if he has to prove that he is worthy of credit, however good may be his arguments, in fact his credit is gone. (...) Credit is a power which may grow but cannot be constructed.”(Ch. II, 69)

More attention should also be paid to the time factor as it plays a major role in the success of commercial transactions. First, production time must be used effectively. Second, the producer must be able to realize the schedule of his production without information constraints and with a probable certainty (Ch. VI, 124). If there are disruptions in the market process and the payment promise cannot be fulfilled, it is possible to extend the payment date.

In contrast to money, time cannot be saved, but only used sensibly and an extension of the payment period would make sense. Bagehot also addresses this prolongation, although he points out the associated implications. Even though an extension has not yet been specified, it already points to the existing problems in fulfilling the contract. Therefore, Bagehot doubts that this could slow down a wave of panic. In difficult times, the less efficient dealers will come under pressure due to the existing asymmetry. This could mean that they must pledge their securities at a comparatively lower price than would be the case in normal times to remain liquid. However, this ‘fire sale’ of assets increases panic and disrupts the functioning of the money market (Ch. II, 50).³

In economic literature, a variety of reasons are discussed that can trigger panic in economic relationships. It is not always a definite event at a specific space-time point, but rather narratives based on rudimentary knowledge or rather inaccurate reports of events supposed to have taken place, which are nonetheless identified as an event (Shiller 2021). Inductive conclusions result in general statements that are associated with a claim to truth.

2.2. Drafting a Finance-Based Economy

Bagehot goes beyond the paradigmatic thinking of his time. He unequivocally addresses the need for trust in the functionality of this contractual obligation for the finance-based economy. Regarding the functions of money, the literature distinguishes between a unit of account, a store of value and a means of payment (Borio 2019, Haldane 2009). The history of finance-based economies documents that the loss of confidence led to widespread distortions in economic activity (Schularick 2006).

³ Bagehot does not use this term, but it accurately describes the macroeconomic effects of the fall in the value of assets as a result of panic behaviour, e.g. panic selling of assets. The term plays an important role in explaining the global financial crisis; see the analysis by Brunnermeier et al. (2009).

The function of the means of payment can only succeed if a medium is used that has general acceptance. Money functions as money because the role of the central bank has been accepted by society according to its credibility. Constitutive legislation and a functioning state that guarantees compliance with the law are undoubtedly among the necessary contexts for the success of general acceptance. "Money relations are trilateral. (It) (...) involves a third party of those authorities that may legitimately produce money" (Ingham 2000, 23).

The acceptance of a means of payment, which ultimately assumes the function of fulfilling the contract, makes it possible to standardize settlement processes. The role of trust becomes particularly clear when the means of payment is irredeemable (in gold, silver, commodities). In a paper system, however, the issuer merely undertakes to settle the debt by issuing an equivalent amount of promissory bills. "In what form the best paper currency can be supplied to a country is a question of economic theory with which I do not meddle here. I am only narrating unquestionable history, not dealing with an argument where every step is disputed" (Bagehot Ch. III, 84).

Bagehot recognized that trading in the new financial instruments involves a promise to pay at a later point in time. This creates time asymmetry between debtor and creditors and increases the perception of uncertainty, which in turn requires a solid trust in the business and its agents. He was certainly not a pioneer in this regard at the time he was preparing and publishing *Lombard Street* (Le Maux et al. 2012).

According to the discourses at his time Bagehot resumes: "We are still living in the debris of that controversy, for, as I have so often said, people can hardly think of the structure of Lombard Street, except with reference to the paper currency and to the Act of 1844, which regulates it now." (Ch. III, 85). Since any mistrust can lead to disruptions, Bagehot sees it as the Bank of England's task to ensure that a promise to pay can be kept.

„In consequence all our credit system depends on the Bank of England for its security. On the wisdom of the directors of that one Joint Stock Company, it depends whether England shall be solvent or insolvent. This may seem too strong, but it is not. All banks depend on the Bank of England, and all merchants depend on some banker. If a merchant has 10,000 Pound at his bankers, and wants to pay it to some one in Germany, he will not be able to pay it unless his banker can pay him, and the banker will not be able to pay if the Bank of England should be in difficulties and cannot produce his 'reserve'" (Bagehot Ch. II, 34).

What is noteworthy about this quote is that Bagehot places the term "reserve" in quotation marks. Because this term takes on a different, new meaning in the context of its analysis. Reserve does not refer to a given and unchangeable stock of liquidity, for example in the sense of a stabilization fund. Reserve as a term to be determined now implies the ability to provide liquidity. The elasticity requirement is incompatible with the premises of the rigid money supply rule. He emphasizes the need for elasticity of bank reserves. This is one of the reasons why his book *Lombard Street* is still highly regarded today, as it conclusively presents the basic principles of a functioning banking economy.

“But fortunately or unfortunately, no one has any fear about the Bank of England. The English world at least believes that it will not, almost that it cannot, fail. Three times since 1844 the Banking Department has received assistance and would have failed without it. In 1825, the entire concern almost suspended payment; in 1797, it actually did so. But still there is a faith in the Bank, contrary to experience, and despising evidence.

No doubt in every one of these years the condition of the Bank, divided or undivided, was in a certain sense most sound; it could ultimately have paid all its creditors all it owed, and returned to its shareholders all their own capital” (Ch. II, 39).

Ensuring the elasticity of liquidity provision during these times of crisis referred to in the quote has helped the Bank of England to have more stable credibility. This credibility must now be consolidated through intelligent governance.

2.3. Modern View on Central Banking

Bagehot examines the principles of finance-based macroeconomics in the modern understanding. This is even more remarkable as the Bank of England had a different constitution at the time and the focus on gold played an important role in the public debate (Chapter VII, 198f.). He explains the dysfunctionality of the Peel Law, which is expressed precisely in the fact that it was not applied during the crisis. “In fact, in none of those years could the Banking Department of the Bank of England have survived if the law had not been broken” (Ch. II, 28-29). The Bank of England's task is to formulate its behavior, which has already been applied so vigorously and courageously in crisis, in generally understandable principles and to communicate this to the public in a binding manner. The public has a right to know how the Bank of England behaves. This forward-looking accountability would not only help prevent further financial turmoil, but also bolster their credibility.

As historical studies of the emergence of modern central banks documents, there existed many different institutional precursors for central banks in today's 21st century. As early as the 15th century, the regional sovereigns, city councils or financiers, or governments in the larger trading centers commissioned large money or credit houses to stabilize payment transactions and credit relationships. General rules were developed, tried out and many attempts were made to make them binding for the financial sector.⁴

Bindseil (2019) outlines that the stabilization functions and risk management long preceded the formal establishment of central banks, e.g., in Barcelona, Genova, Naples, Venice, Amsterdam, Hamburg, Stockholm. Even before the Bank of England was founded, so-called clearing houses were set up to monitor and carry out payment transactions in the city-states so that trade and production

⁴ Details about the many banking crises in the USA since the 17th century and the attempt to master these financial crises by founding a central bank are described by Bernanke (2015, 44f.).

could progress. These institutions had the task of smoothly carrying out payment transactions, especially in foreign trade. They were regionally based financial institutions that are judged to be solid and whose sole task was to regulate these financial relationships for the purpose of trade and perform a proto-central bank function on behalf of the city government or regional government. Bagehot states:

“The money of these banks, which was better than the general currency of the country, necessarily carried a premium, which was greater or less, according as the currency was believed to have degraded more or less below the standard of the state” (Ch. III, 79f.).

Bagehot likewise mentions the founding of financial institutions whose purpose was to equalize the standard of value of a circulating medium and 'state' money. “The agio of the bank of Hamburg, for example, which is said to be commonly about fourteen per cent, is the supposed difference between the good standard money of the state, and the dipt, worn, and diminished currency poured into it from all the neighbouring states” (Ch. III, 81).

For some, Bagehot's investigations are placed in the context of the gold standard. Thus, his recommendations are interpreted as *irrelevant* to modern central bank practice. This type of reception is unacceptable. To replace his view within this narrowed horizon of the gold standard and fixed exchange rate system fails to recognize that he also addresses the fundamental conflict between internal and external price stability in an open economy.

The financial intermediaries, credit houses and banks operating in this phase were not subject to any general rules and could trigger financial turbulence in the event of abrupt price changes, simply because central banks were committed to external stabilization as a priority. This was the starting point for Bagehot's analytical counterproposal, to free the central banks from these restrictions so that they could develop more flexible responses to both internal and external adjustment measures. He formulated the operational guidelines for the central banks' stabilization function, including their active interest rate management.

International capital flows are the key feature of open economies. In an endogenous shock situation such as the global financial crisis (GFC) or an exogenous shock (Covid-19), it would be completely pointless to refer to the "Bagehot rule" of a gold standard (cf. Carré and Le Loup 2020). Bagehot's *responsibility statement* addressed to a central bank's governance arose from his examining the capital inflow and outflow according to the central bank's interest rate decision see (Ch. II, 46, 62).

The gold standard is often referred in literature as the 'classic phase' of financial stability. Accordingly, the primacy of external stabilization by central banks led to an era of relatively stable prices and financial conditions.⁵ It is also claimed that there was no implicit or explicit rule of

⁵ Another criterion is the convertibility postulate, see Bordo (1984), Giovannini (1986). "Indeed, central banks acted in the international and domestic capital markets, sometimes borrowing or borrowing directly from each other (Bloomfield 1959) in order to mitigate or smooth out the effects of gold flows on domestic money supplies". (McKinnon 1993, 9)

neutralizing gold inflows and outflows. Importantly, this period of relative price stability was not a period of simultaneous financial stability (Borio 2019).

Wolters and Tullio (2004) agree that central banks had no problem sterilizing gold inflows to build up “excess reserves”. They show in an econometric study that the so-called hidden automatism was ultimately based on the *very visible and active interventions* of the central banks and therefore on interest rate differentials. Thus, the contrast between external (exchange rate or gold points) and internal stabilization (price level) has not been refuted. Nevertheless, they argue that in this classic phase there was a need to announce and implement liquidity injections and that the central banks managed them successfully at the time.

With surprising clarity, Bagehot discusses that international capital movements occur because of interest rate differentials between currency areas. Therefore, in the event of a capital outflow, there is only one rule of action or responsibility for the Bank of England: it must raise its interest rate and reverse this capital outflow.

"The Bank of England requires the steady use of an effectual instrument. That instrument is the elevation of the rate of interest. If the interest of money be raised, it is proved by experience that money does come to Lombard Street, and theory shows that it ought to come. To fully explain the matter, I must go deep into the theory of the exchanges, but the general notion is plain enough. Loanable capital, like every other commodity, comes where there is most to be made of it. Continental bankers and others instantly send great sums here, as soon as the rate of interest shows that it can be done profitably" (Ch. II, 45-46).

Bagehot criticized that the Bank lacked the routines to effectively counteract an appreciation in the exchange rate (ibid.). He unmistakably addresses the conflict that results from a disruption in the domestic credit system and possibly prompts capital outflows and for this reason triggers a loss of confidence in the functioning of the domestic money market. This interdependence raises the question of what the Bank of England should do here: "The two maladies - an external drain and internal - often attack the money market at once. What then ought to be done?" (Ch., II, 47).

It would be completely counterproductive to respond to the now increasing need for liquidity with a strategy of hoarding liquidity. The outflow of capital is based on a disruption in the domestic money market and therefore requires an immediate provision of liquidity. That's common banking wisdom. In his description, he focuses on the innovative forms of financing, how they work and risks, including trust and the stabilization of expectations. Innovative forms of financing such as securitization, i.e., the creation of tradable loan receivables, forward transactions, prolongation or rescheduling of existing loan receivables, have found their way into the money market. Basic forms of various equity financing, i.e., bonds, were developed or further developed, e.g., industrial bonds, redeemable bonds, bearer bonds and government bonds (Borio 2019). It was recognized early on that coins or

paper certificates with a guarantee of being covered (gold, silver, raw materials, signature of the sovereign) were not appropriate for the aspiring industrial capitalism.

In his analysis of the operating conditions of a money economy, Bagehot transforms the paradigmatic limitations of the classical quantity theory into an adequate strategy for central banks in a finance-based economy. In the classic view, the meaning of money is described with “liquidity, speed, circulation” as a mechanistic connection. The “mechanics” are used by both banking theorists and currency theorists, albeit in reverse. This debate is based on controversial concepts of money and the money supply, which is related to the question of the endogeneity or exogeneity of the money supply and laid the foundation for the discussion about “rules versus discretion” that emerged at the beginning of the 20th century (cf. Issing 2007).⁶

Goodhart and Jensen (2015) explain the essence of the controversy between the "Currency School" and "Banking School". From their point of view, the Banking School apologists focus on the coherence of liabilities and receivables to avoid a 'mismatch' and thus a bank run. A financial intermediary is only successful in the game if the quality of its assets, i.e., term, risk equal to that of its liabilities.⁷ The most important element of Bagehot's new policy strategy for central banks involves the emergency Response based on a policy of “good securities quickly, freely, and readily”.

„Theory suggests, and experience proves, that in a panic the holders of the ultimate Bank reserve (whether one bank or many) should lend to all that bring good securities quickly, freely, and readily. By that policy they allay a panic; by every other policy they intensify it. The public have a right to know whether the Bank of England—the holders of our ultimate bank reserve acknowledge this duty and are ready to perform it. But this is now very uncertain”. (Ch. VII 173)

By far, the most important point here is that Bagehot presents this strategy as indispensable and necessary because of the inherent financially mismatched debtor-creditor relations. He stresses the consequences of the Bank of England inactions, as it stands idly by as the looming and palpable situation of dwindling confidence in creditor-debtor relationships emerges:

"Any idea that money is not available or that it cannot be had at any price only triggers the alarm for panic and increases the panic into madness" (Ch. II, 57).

Recent research into the meaning and implications of the often cited “Bagehot rule” is justified by the fact that the previous reading of this basic rule is controversial (Madigan 2009, Sarkar and Shrader 2010). It is worth to reread this key message again in full length. Bagehot addresses his key

⁶ Freixas et al. explain the concept of the LoLR with the concept of 'discretionary' monetary policy (2000, 64f.).

⁷ Goodhart and Jensen (2015, 12) refer to Bagehot “If the available money bears a good proportion to the possible claims, the bank is a good and secure bank” April 1861 edition of *The Economist*, in the article on ‘How to read Joint Stock bank accounts’, (April 6, pp 366/7), *ibid.* To assess a bank's ability to guarantee maturity transformation, it is inappropriate to postulate a "technical or theoretical rule" that claims to be generally binding. Rather, it depends on the assessment of the interdependent business activities of the bank in question”.

demand to central bank in times of declining trust in the creditor-debtor-relations on all levels of the economy:

“And with the Bank of England, as with other Banks in the same case, these advances, if they are to be made at all, should be made so as if possible, to obtain the object for which they are made. The end is to stay the panic; and the advances should, if possible, stay the panic. And for this purpose there are two rules:—First. That these loans should only be made at a very high rate of interest. This will operate as a heavy fine on unreasonable timidity and will prevent the greatest number of applications by persons who do not require it.

The rate should be raised early in the panic, so that the fine may be paid early; that no one may borrow out of idle precaution without paying well for it; that the Banking reserve may be protected as far as possible:—Secondly. That at this rate these advances should be made on all good banking securities, and as largely as the public ask for them. The reason is plain. The object is to stay alarm, and nothing therefore should be done to cause alarm. But the way to cause an alarm is to refuse someone who has good security to offer.

The news of this will spread in an instant through all the money markets at a moment of terror; no one can say exactly who carries it, but in half an hour, it will be carried on all sides, and will intensify the terror everywhere. No advances indeed need be made by which the Bank will ultimately lose. The amount of bad business in commercial countries is an infinitesimally small fraction of the whole business.

That in a panic the bank, or banks, holding the ultimate reserve should refuse bad bills or bad securities will not make the panic really worse; (...)” (Bagehot, Ch. VII, 197-198).

Let's take a closer look at this quote. It is questioned whether he addressed the advice to the Bank of England to provide liquidity only against good collateral. Interpretations in modern central bank literature vary greatly in this regard (Bernanke 2015, Bindseil et al. 2009, Le Maux 2021, 2022).

Bagehot made no precise distinction between 'good' and 'bad' collateral because he understood that in a panic there was no time for such a review. Like an acute fire and conflagration, the question of whether the water or extinguishing agent is suitable for extinguishing the fire is not relevant. Similarly, King (2010) emphasizes that the call to differentiate between good and bad, especially in a situation of panic, can hardly be implemented - neither for a bank nor for a central bank. Bagehot pointed out that simply asking a debtor about 'good' collateral increases distrust in his ability to pay (e.g., Ch. VII, 164, 197-198). King confirms this view because the assessment of credibility of a bank in a situation of emerging mistrust is hardly verifiable. Here time matters very much. "That means the distinction between illiquidity and solvency can be difficult in practice - the difference in timing might be just a few days. If a crisis is in fact one of insolvency, brought on by excessive leverage and risk, then central bank liquidity provision cannot provide the answer" (King 2010, 4). Bernanke (2009, 2015) as well does not distinguish between 'good' and 'bad' securities in times of acute central bank action. Depending on the course and intensity of a panic, the financial positions of creditors and debtors will also change immediately (Cecchetti and Disyatat 2020).

Carré and LeLoup (2020) examined central bank speeches in the period 1999-2007 to determine whether and to what extent the "Bagehot rule" was mentioned (884f.). Apparently, considering

different paradigms, the "Bagehot rule" is assigned different meanings. They propose a different reading of the Bagehot Rule that includes seven different dimensions (ibid., 888). Many refer only to the first dimension ("lend freely"). Others reduce the central bank's responsibility to the second dimension ("lend against penalty rate") (ibid., 889f., 894f.). Carré and LeLoup (2020) conclude that the "Bagehot rule" is recited in central bank speeches in a paradigmatic, sometimes political way, hence central banks and central bankers clearly assign very different meanings to the "Bagehot rule".

3. The Governance of the Bank of England

Bagehot's analysis of the need for the central bank's stabilization function in a finance-based economy is a consequence of the paradigmatic assumptions he outlined. A well-functioning creditor-debtor relationship requires the guarantee of the stability of monetary functions and financial backstop from a central bank. Bagehot does not interpret the Bank of England's role as a spectator or neutral observer of what is happening in the market.

The Bank of England has been endowed with privileges by the government and is obligated by the government to invest money in the money market (Ch. IV, 12). Since the bank has a monopoly on the issuance of banknotes, it is an unfair player in the money market as it is more privileged than other players (see Ch. II, 41ff.). Bagehot urged the Bank of England, which had been the government's official bank since 1694, to be transparent about its accountability and responsibility.

The Bank of England was perceived as a potential disruptive force by market participants because of its ambivalent behavior toward rapidly changing market conditions (Goodfriend 2012). Bagehot's critique of the Peel's Acts of 1844 precisely contains this contradiction: these privileges imperatively dictate their responsibility, i.e., their accountability, transparency, and communication to society (see Ch. II). The Bank of England must act and make decisions in the public interest. Either it assumes this responsibility as a central bank, e.g., to stabilize creditor-debtor relations, or it acts as a "normal" market participant. Otherwise, it causes disruptions.

The central bank should, according to the modern understanding of central banking, play a responsible and transparent role as a market participant and communicate to the public in advance how it will act. Context-sensitive explanation of potential decisions is elementary in this regard. In addition, central banks must clearly communicate their own expectations about short- and medium-term economic developments, thereby effectively contributing to the public's expectations by forward guidance. The goal of central bank communication is to achieve the greatest possible convergence between the public's expectations and the central bank's own expectations. This coherence can only be the result of continuous and successful dialog (Bernanke 2004a, b, Blinder and Goodhart 2001).

3.1. The Central Bank as a Financial Stabilizer

Bagehot provides analytical insights into the practiced interactions of English land banks, trading, and credit houses, which are concerned with the stabilization of their financial situation.

Bagehot clearly defines the main characteristic of a bank: its assets are usually long-term income, while its liabilities tend to be short-term in nature. This temporal mismatch between liquid assets and maturing liabilities is where the danger of a bank run lies. This can imply both an insolvency crisis and an illiquidity crisis. The task of a bank is to transform maturities. (cf. Ch. II) Their short-term assets include the deposits of other financial houses or banks, as well as short positions of traders, merchants, or sovereigns. Bagehot's conclusion at many points in *Lombard Street* work is unequivocal: it is that the functioning of the creditor-debtor relationship requires a financial backstop from a central authority. Bagehot formulates advice which does not imply a recourse to any mechanistic adaptation as postulated by the theory of quantity. "The success of the Bank of England on this occasion was owing to its complete adoption of right principles. The Bank adopted these principles very late; but when it adopted them it adopted them completely" (Ch. VII, 202). He quotes of the Bank member Jeremiah Harman in the Lords' Committee in 1832:

„'We lent it' said Mr. Harman, on behalf of the Bank of England, 'by every possible means and in modes we had never adopted before; we took in stock on security, we purchased Exchequer bills, we made advances on Exchequer bills, we not only discounted outright, but we made advances on the deposit of bills of exchange to an immense amount, in short, by every possible means consistent with the safety of the Bank, and we were not on some occasions overnice. Seeing the dreadful state in which the public were, we rendered every assistance in our power.' After a day or two of this treatment, the entire panic subsided, and the 'City' was quite calm" (Ch. II, 51-52).

Bagehot's commentary on Harman's statement is famous among reviewers. Bindseil et al. suggests interpreting this quote of Harman in the light of two principles of central bank operations: its liquidity management and its risk management (2009, 399f.). Harman himself distinguishes between liquidity management and risk management by differentiating between secured lending and direct purchase of securities, i.e., between different risks. The 'advances' are paid directly and for the deposit of bills of exchange. Despite this emphasis on these quite different risks and their implications, Harman does not explicitly refer to a 'penalty rate' or a 'high interest rate'. He explains: This liquidity support is unique and innovative "in a way that has never been seen before". The Bank of England is actively intervening to ward off the threat of illiquidity.

Bagehot apparently also finds indicators for the demand for a "high interest rate" (Bindseil et al., Goodhart 1999, 341, Le Maux 2012). The different interpretations as to whether penalty interest can be deduced from the Harman quote or implies an impulse for Bagehot to develop it as a restriction for unjustified credit demand on the part of the banks are not up for discussion here (cf. Bindseil et al.

2009, 400, Bernanke 2015, 144-148, 410f.). To be brief: Harman does not charge a "high rate of interest" (Bernanke 2009, Ceccetti and Disyatat 2010). Addressing penalty interest to debtors who are already threatened with illiquidity is counterintuitive and economically unfeasible (King 2010). The emphasize for a 'penalty interest rate' was not intended to avert moral hazard, nor to cut off borrowers from the supply of liquidity.⁸

This Harman quote is the reference for the basis of modern central banks. Unlike the often-recited Bagehot rule in today's research, 'lend freely', 'against good collateral', at a 'penalty rate' (Goodhart 1999, 341) this is irrelevant to the central banker Harman. The calculation of various penalty interest rates for risky or creditworthy debtors has no relevance in a crisis when action is required to be carried out. It should be noted that Harman directly links liquidity management to the Bank of England's self-interest and risk management, i.e., "consistent with the safety of the Bank." With reference to the Harman quote, this risk management seems to play a dominant role (Goodfriend 2011). Bagehot relativizes the search for the precise criteria for distinguishing between 'good' and 'bad' securities. With the perspective placed on self-interest and the central bank's own risk management, Bagehot can justify his request to the Bank of England to explicate its governance (cf. Ch. VII, 202 f.).

The action of liquidity supply differentiated by the bank director, Harman, includes the purchase of treasury bills and the provision of liquidity against collateral. He emphasizes that he has reacted to the liquidity problem "with all means", including the injection of liquidity *without* security.

Bindseil et al. (2009, 399f.) explains that risk management was important to Bagehot in addition to immediate liquidity management.

"(...) These advances should be made on all good banking securities, and as largely as the public ask for them (...). No advances indeed need be made by which the Bank will ultimately lose. The amount of bad business in commercial countries is an infinitesimally small fraction of the whole business. That in a panic the bank, or banks, holding the ultimate reserve should refuse bad bills or bad securities will not make the panic really worse" (Bagehot, Ch. VII, 197-198).

The central bank acted responsibly according to the adequate principles, 'borrowed money by any means and in a way that we had never used before' (...) 'in short, by any means compatible with the security of the bank' (Ch. VII, 202). Bagehot emphasizes that this has gained credibility for the Bank of England (Ch. VI, 142, 148, 157). Credibility is not an immutable characteristic of a bank or a creditor-debtor relation. Inevitable credibility depends on how other market players perceive and assess the institution in question in terms of its economic performance and capability to develop in the future. At

⁸ Le Maux (2021, 16f) argues, Bagehot uses "high interest", which is intended to control the market behavior of money market participants. It is by no means a recommendation for central bankers to act. This 'penalty rate' is known to be one of the three to seven elements assigned to the Bagehot rule by central bankers' speeches (cf. empirical study by Carré and Le Loup (2020)).

the same time, he criticizes that this intervention to secure the creditor-debtor relation was implemented far too late.⁹

“A panic, in a word, is a species of neuralgia, and according to the rules of science you must not starve it. The holders of the cash reserve must be ready not only to keep it for their own liabilities, but to advance it most freely for the liabilities of others. They must lend to merchants, to minor bankers, to ‘this man and that man’ when-ever the security is good. In wild periods of alarm, one failure makes many, and the best way to prevent the derivative failures is to arrest the primary failure which causes them.” (Ch. II, 51)

It is important to understand and stop panic in its infancy. „Banking is a very peculiar business, and it depends so much upon credit that the least blast of suspicion is sufficient to sweep away, as it were, the harvest of a whole year” (Ch. VII, 164). If a suspicion of insolvency circulating becomes reliable information, the increasing liquidity requirements of a bank's depositors will immediately lead to the dreaded event. As the panic progresses, this differentiation can no longer be reliably realized.¹⁰

The empirical study on the measures taken by the Federal Reserve Bank in the context of overcoming the GFC 2007-2009 confirms the relevance of this perspective. The Federal Reserve Bank changed its liquidity provision management in a context-sensitive manner, depending on the further course of this endogenous crisis. Coping with this crisis demonstrates the effective cooperation between the Treasury and the Central Bank, as a coalition of the willing. The minutes of Congress and the Open Market Committee (FOMC) of the Federal Reserve Bank also show that this cooperation should prove to be a systemic necessity as the crisis unfolded (cf. Carré and Le Maux 2020a,b). During this crisis, previously unnoticed new vulnerabilities of non-banks were identified and reassessed in terms of their systemic risk (Sarkar and Shrader 2010). It became apparent that non-bank financial institutions and companies were more involved in this crisis than previously assumed (cf. Alvarez et al. 2020, 113-143, Madigan 2009).¹¹ This required an adjustment of the legal options for the Federal Reserve Bank in coordination with Congress (see Alvarez et al. 2020, 144-170). Bagehot's responsibility doctrine was addressed to other institutions than banks (Goodhart and Jensen 2015).

It is important to note that the Federal Reserve Bank and the Treasury Department cooperated constructively in the decision *not* to place the Lehman Brothers investment bank under the Bagehot protection umbrella:

⁹ „And for the complete and courageous adoption of this policy at the last moment the directors of the Bank of England at that time deserve great praise, for the subject was then less understood even than it is now; but the directors of the Bank deserve also severe censure, for previously choosing a contrary policy; for being reluctant to adopt the new one; and for at last adopting, it only at the request of, and upon a joint responsibility with, the Executive Government” Bagehot (Ch. VII, 202).

¹⁰ Flannery (1996) for the well-known adverse-selection-problem in current research; Allen and Gale (2000) On financial contagion; Freixas et al. (2000) on interbank interaction and systemic risk; Cecchetti and Disyatat (2010) on liquidity provision independently of 'good' or 'bad' securities.

¹¹ “Had Bagehot been a member of the Federal Reserve Board, he most certainly would have approved such action” (Madigan 2009, 8).

“Our whole strategy was based on finding a buyer,’ Tim said. It was a question of practicability as much as legality. (...) We were staring into the abyss. I pressed Tim for an alternative solution, but he had none. ‘All we can do,’ Tim said, in a classic Geithner-ism, ‘is put foam on the runway’. The phrase itself conveyed what we all knew: Lehman’s collapse, like the crash landing of a jumbo jet, would be an epic disaster, and, while we should do whatever we could, there wasn’t much we could do.” (Bernanke 2015, 268).

In the context of discussions on the AIG bailout in 2008, Congressman Barney Frank asked Ben Bernanke, "Do you have \$80 billion?" Bernanke's response - "Well, we have \$800 billion."¹²

This answer was an indication of the fundamentally unlimited power of a functioning central bank. Frank's question referred to the then-obscure but now-famous Section 13(3) of the Federal Reserve Act, which gave the Fed virtually unlimited lending powers in "unusual and urgent circumstances." This power was to be restricted with the Dodd-Frank Act of 2010.¹³ Much more crucial was the Federal Reserve's risk assessment, for which it was accountable to Congress. It continuously adapted its instruments and measures during the GFC and successively expanded the group of eligible institutions. Madigan (2009) specifies the group of non-banks that were included in the Federal Reserve Bank's various liquidity programs during the GFC (according to the Bagehot doctrine "'to lend to 'this man and that man'").

Bernanke provides a chronology and explains the different steps and responses during 2007 to 2009 (ibid., 2015). It also includes the differentiated forms and conditions of the swap lines with the European Central Bank (Bahaj and Reis 2020, 2022, cf. Carré and Le Maux 2020, 2022a, b). This aspect of the swaps line is taken up again in section 5.

3.2. Breaking the Path Dependency – Bank of England needs to Communicate and Inform the Public

Bagehot provides a variety of analytical accounts of the practical interactions of England’s land banks, and financial intermediaries. It is important for the Bank of England to strengthen its credibility by clearly defining its own role and function in interaction with developments in trade, the economy, and even international relations, rather than narrowing its room for maneuver by referring to artificial rules.¹⁴ “But the number of our attainable bank notes is not, like American ‘greenbacks’ dependent on the will of the State; it is limited by the provisions of the Act of 1844’ That Act ‘separates the Bank of England into two halves” (Ch. II, 23, 38).¹⁵

¹² See Haldane (2010) "The 100 billion Dollar Question".

¹³ See Blinder et al. (2017) with reference to Wessels (2009, 197-198).

¹⁴ Le Maux (2021) examines Bagehot’s comments on the functionality of the Pseel system and his proposals for more adequate instruments, e.g. the accumulation of large reserves, interest rate control and the provision of liquidity in times of panic.

¹⁵ Bagehot specifies his considerations in Ch. VII, 162 ff.

From his point of view the Bank of England is caught in routines that show no way out of the question of what role and function it intends to play in society in the future. The insufficient commitment concerning their self-determination and self-responsibility implies an unforgivable procrastination at a time when the thriving trade and industry await these reliable messages from their central bank. Nonetheless, he states, “But still there is a faith in the Bank, contrary to experience, and despising evidence. No doubt in every one of these years the condition of the Bank, divided or undivided, was in a certain sense most sound; it could ultimately have paid all its creditors all it owed, and returned to its shareholders all their own capital” (Ch. II, 39). In other words, the commitment to the Peel’s system or a fixed rule is ultimately just a symbolic gesture and not credible.

“The public has the right to know whether the Bank of England – the holders our ultimate bank reserve – acknowledge this duty, and are ready to perform it” (Ch. VII, 21). In a panic situation caused by a liquidity problem with the threat of insolvency in entire areas of the economy, a central bank that is not willing to recognize or accept the responsibility of thwarting this panic with its effective instruments, does not deserve the designation central bank. To the extent that the Bank publicly commits to a regulation which it does not consider relevant in the event of a crisis, it remains untrustworthy. Yet the Bank has failed to convey this responsibility for the banking system to the public. As an example, Bagehot cites Mr. Hankey’s comments:

“Mr. Hankey leaves us in doubt altogether as to what will be the policy of the Bank of England in the next panic, and as to what amount of aid the public may then expect from it. His words are too vague. No one can tell what a ‘fair share’ means; still less can we tell what other people at some future time will say it means.” (Ch. VII 173)

The Bank appears to regard its decision-making process as its own private affair - overlooking the fact that it has a public mission. Market participants need to know where they stand with this central bank and how its repertoire of measures will be prepared for the next crisis. Bagehot’s considerations are examples of how much persuasion it took to direct the Bank of England back to its core functions. Another example is John Maynard Keynes’ criticism of the indecisiveness and lack of transparency of the Bank of England fifty years later in the Macmillan Committee (cf. Muchlinski 2022a).

Section 4 Central Bank Responses to Exogenous Shocks

Central banks are “repositories of knowledge and experience, which they communicate to society as a whole” (King 2004, 6).

The central bank’s responsibility for financial stability is based on the functional requirement of a stable credit and banking system for monetary transmission. The consensus in modern central bank literature is worth noting here: a well-functioning system also requires confidence that it will ensure price and financial stability.

“They are simply two ways of ensuring trust in the monetary system. Inflation, deflation, and price volatility induce instability in the value of money – and its close cousin, debt – in terms of goods and services, undermining its means-of-payment (and store-of-value). Financial instability effectively undermines it through the threat and materialization of default, which can bring the payments system to a halt when bank deposits are involved. Price and financial instability amount to broken promises “(Borio 2019, 11).

While the GFC of 2007-2009 is analyzed as an endogenous crisis in literature, the Covid-19 pandemic is an exogenous crisis. The GFC was triggered endogenously by the gaming of financial intermediaries based on regulatory arbitrage. Activities that they would not accept were transferred to other territories where no sanctioning rules exist or, better still, can be elegantly circumvented (Fischer 2016). As a result of a radical liberalization – the battle cry of policy of the 1980 and 1990 years – the financial sector was able to develop financial products or instruments, whose inscrutability for even insiders had matured into a unique selling point - until the moment when the music stopped (Blinder 2013). While the government was abruptly confronted with the consequences of its longstanding preference for deregulation, the GFC made clear to central banks the limits of their previously favored 'Great Moderation' (Borio 2011, Muchlinski 2014, White 2012).

As early as the first quarter of 2020, the central banks announced comprehensive liquidity programs that were successively adjusted during the pandemic, including differentiated risk management. This literature documents the measures taken by the Federal Reserve Bank and the European Central Bank (ECB) since spring 2020 to support resilient structures in the economy and financial interactions (see McCauley and Schenk 2020, Bahaj and Reis 2018 2022).

In their function as lenders of last resort, central banks can use innovative instruments to reduce endogenous and exogenous risks. This makes it possible to reduce the price of risks, which prevents abrupt and volatile restructuring of the financial portfolio. They guarantee an effective backstop for the functionality of the monetary transmission process (Lane 2022). In doing so, they also initiate learning processes among the agents in the various markets and contribute to a more resilient pattern of resilience and the formation of expectations on the part of the actors (Brunnermeier 2021).

The following sections deal with the responses of the central banks to this pandemic, in particular the reaction of the European Central Bank (ECB).

4.1. Avoiding Financial Fragmentation in the Euro Area - Responses of the European Central Bank

Financial markets react more directly than goods markets, for which there are various theoretical explanations. The markets for corporate bonds and government bonds, and equity markets represent future expectations, i.e., confidence in the solvency of companies and the government. The volatility of stock markets in the Covid 19 pandemic highlighted that stock price movements are driven by

large industries or sectors, e.g., technology and the digital economy, while SMEs and especially the service sector are hardly represented (Brunnermeier 2021).

When the suspicion of a trans-regional pandemic was confirmed in February 2020 and uncertainty of this exogenous shock steadily increased, the capital markets in the euro area, the financial markets in the U.S., and the global financial markets went into a downward spiral of negative earnings expectations. The U.S. S&P 500 index lost a third of its value in the first quarter of 2020, and the Euro Stoxx fell 37%. The bond market also reacted to the current situation, where investment grade and high yield bond yields in the euro area exceeded the highs reached during the sovereign debt crisis in 2012 (Zaghini 2021, 5). Asset owners shifted their portfolios into higher-quality and safer investments. Government bond yields act as a signal for the pricing of other assets. Since government bonds are considered almost risk-free, they were preferred. As a result, government bond yields fell around the world in March 2020. As the pandemic worsened and government measures were announced, investor demand for cash surged. Keynes explains the high liquidity preference with "(t)he possession of actual money lulls our disquietude" (1937, 115).¹⁶ This asset market perspective is justified with "theory of liquidity preference" and the interest declaration from the creditor's waiver of holding money.¹⁷

The rising liquidity preference led to enormous selling pressure on government bonds. The former flight to quality immediately turned into a global flight to liquidity, also known as "dash-for-cash" (Barone et al. 2022, 3). Now government bonds are sold and put enormous pressure on this market for government bonds. This has been evident in almost all advanced economies, where there has been a rise in bond yields and rapid deterioration in the functioning of the market itself (ibid.).

In the USA, the enormous pressure to sell US government bonds (Treasury Bills or T-Bills) led to the market almost collapsing. The T-Bills are usually executed relatively quickly via the balance sheets of the special traders who, as market makers, temporarily hold these bonds. However, the unexpectedly high selling pressure could no longer be realized. The Federal Reserve Bank intervened immediately, substituted the dealers' market-making function, and bought up their own government bonds (cf. Brunnermeier 2021, Ch. 9). In this respect, the Federal Reserve Bank expanded its function as the lender of last resort to include this market-maker function (Milstein and Wessels 2023).

The exogenous shock, combined with an unprecedented lack of knowledge about the causes of this pandemic, put all central banks and governments under immediate pressure to act. The immediate task of the ECB was to ensure the functioning of the capital market in the European currency area. In contrast to the highly integrated financial market in the USA, the euro area is characterized by a lending business dominated by banks, referred to as the "overbanking system"

¹⁶ "The amount (measured in terms of itself) which they are willing to pay for the potential convenience or security given by this power of disposal (...) we shall call its liquidity-premium /" Keynes (1936, C.W., VII, 226).

¹⁷ In the determination of the money functions and the interest rate, Keynes and the Stockholm School develop the foundations of the asset market theory beyond natural law constructions (Muchlinski 1996).

(Merler and Pisani-Ferry 2012, Draghi 2017). The lack of a capital market union, an unfinished banking union, a missing fiscal union, and thus credible fiscal backstop increased the pressure on the ECB to do everything possible to prevent a liquidity bottleneck and disruption of the monetary transmission process. Shifts within the markets for the various government bonds of the member states were observed in the euro zone. Consequently, the ECB's emergency program PEPP was designed to flexibly develop context-sensitive responses (Schnabel 2022). The ECB transformed its successfully tested action because of the GFC into an immediate and more effective pattern of action in the Covid-19 pandemic.¹⁸ Following the announcement of the PEPP by the ECB on March 18th, 2020, financing conditions improved significantly.¹⁹ The ECB explains:

“It is also clear that this situation hampers the transmission of the monetary policy impulses and adds severe downside risks to the relevant inflation outlook. Against this background, the PEPP is a measure which is proportionate to counter the serious risks to price stability, the monetary policy transmission mechanism, and the economic outlook in the euro area, which are posed by the outbreak and escalating diffusion of COVID-19.”²⁰

Another step was the Governing Council's decision on April 7 and April 22, 2020, to temporarily downgrade the collateral of the securities to be deposited. This is reminiscent of Bagehot's consideration that in times of panic it is primarily important to communicate unambiguous decisions to the banking system and that there is hardly any time to systematically differentiate between 'good' and 'bad' collateral. Philip Lane documents, prior to the announcement of the PEPP, how average government bond yields relative to the benchmark overnight index swap (OIS) yield curve rose significantly in the first half of March 2020 but fell sharply with the announcement of the PEPP (Lane 2020b).²¹

The medium-term effects of the PEPP measures are not reported here. Briefly mentioned the immediate effects are: Current analyzes confirm the effectiveness of the ECB's interventions, e.g. in the government bond market, within two days, Italian government bond yields fell significantly (78 basis points (Bp)), Spanish government bond yields by 11 Bp, while German and French yields of the Government bonds rose, at 10 and 24 Bp respectively (cf. Corradin et al. 2021, p. 7).

It was especially important to achieve the mandated inflation target and to respond quickly to the risk of deflation with effective instruments. Lane (2022) points out that a deflationary trend was considered in the various scenarios for the course of the pandemic up to the end of 2022. As other ECB documents make clear, the aspect of inflation was inherently linked to the financial stabilization

¹⁸ ECB Documents <https://www.ecb.europa.eu/mopo/implement/app/html/index.en.html>

¹⁹ European Central Bank (2020b) Press Release March 2020

https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.pr200318_1~3949d6f266.en.html

²⁰ Decision (EU 2020/440 of the ECB of 24. March 2020) on a temporary Pandemic Emergency Purchase Programme, L 91/2, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020D0440>

²¹ Blog by Lane 2020b, see Chart 4: 10-Year Euro Area GDP-weighted sovereign yield.

<https://www.ecb.europa.eu/press/blog/date/2020/html/ecb.blog200605~0ee256bcc9.en.html>

measures from the ECB's point of view. At December 2020 meeting, the ECB specified that it would significantly increase the volume of the PEPP considering the deteriorating economic prospects in the euro area and worldwide. "(T)he Governing Council decided to increase the envelope of the pandemic emergency purchase programme by €500 billion to a total of €1,850 billion. (...). In any case, the Governing Council will conduct net purchases until it judges that the coronavirus crisis phase is over."²²

The PEPP should fulfill the task of market stabilization through its flexibility in terms of time, substance, and cross-border, especially given the high level of uncertainty associated with the impact of the pandemic on the various asset markets and the individual countries of the euro area. The ECB sought to do this by lowering the yields of eligible bonds and indirectly lowering the yields of other securities, such as non-eligible bonds, through the portfolio rebalancing channel.

The ECB decided on further measures and immediately announced these to the public: First, a new longer-term refinancing operation TLTRO III was extended by a further 12 months and three additional facilities were added. Second, the three key interest rates remained unchanged. Third, the ECB announced the expansion of the number of counterparties with the aim of supporting the banking system in continuing the current credit conditions unchanged. Due to their potential for illiquidity and insolvency, banks tend to reduce their supply of credit or ration their borrowers - and this had to be avoided. Flannery formulated the contracting problems resulting from the asymmetry of the creditor-debtor relationship in banking markets and interbank markets 120 years after Lombard Street. In private credit markets, he argues, lenders are often unable to differentiate between the risk and credit-worthiness of other borrowers. As a result of the high level of uncertainty, the adequate differentiation criteria are then missing, which leads to a "winner's curse".

Lastly the ECB explained that it would continue its asset purchases (APP) at a monthly pace of EUR 20 billion. Consequently, the ECB stated that all assets are eligible under its unconventional program. This should avoid the risk of financial fragmentation in the euro area and disruptions to the monetary policy transmission process. This interest rate spread is considered a stress indicator, i.e., an indicator of a loss of confidence or an increased risk perception. After all, the ECB had already gained extensive experience with the risk-averse lending behavior of commercial banks and the risk of a credit crunch in the years 2010-2014. The ECB formulated and communicated its strategy more clearly and aggressively than ever before. More fundamentally, the ECB designed the PEPP to be flexible. While the purchases made under the PEPP corresponded to the capital key of the national central banks, they were handled flexibly in terms of allocation to individual countries.²³

²² <https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.mp201210~8c2778b843.en.html>

²³ Decision (EU) 2020/440 of the European Central Bank of 24 March 2020 on a temporary pandemic emergency purchase programme (ECB/2020/17), <http://data.europa.eu/eli/dec/2020/440/oj>

Should credit spreads increase particularly in certain countries, this change would made possible to buy bonds in these countries in a targeted manner and thus reduce the credit spread. "In addition, the PEPP intervention might have lowered self-reinforcing tail risks, reducing the market price of risk, and might thus have increased debt sustainability in vulnerable countries" (Corradin et al. 2021, 7-8).

Why is it important to look at the danger of financial fragmentation? The threatening financial fragmentation of the government bonds of the 19 member states and the avoidance of speculation against the European currency area are in the foreground, as Schnabel analyzes in her paper (2022). In retrospect: The so-called "government debt crisis" from 2011 to 2013 was reflected in a significant distortion of the yield spreads on 10-year government bonds in various member countries.

"Public debt is in aggregate not higher in the euro area than in the U.S. or Japan. It reflects the fact that the central bank in those countries could act and has acted as a backstop for government funding. (...) This is an important reason why markets spared their fiscal authorities the loss of confidence that constrained many euro area governments' market access" (Draghi 2014, 8).

Draghi pointed to the fundamental institutional differences between the eurozone and US financial markets. The Federal Reserve and the US government will always be able to provide currency and fiscal backstop. According to further empirical research, the reason was not the over-indebtedness of the member states of the European Monetary Union, but the lack of a fiscal safeguard for the monetary union (Draghi 2014). Rigid fiscal rules increased the amount of bureaucracy and were reflected in growth losses in some countries. Schularick (2021) calls them "expansive austerity policy". Praet (2017) elaborates: "As governments needed to consolidate their fiscal positions, monetary policy's unprecedented task was to support aggregate demand." Europe suffered more than the USA in the aftermath of the GFC (see Celi et al. 2020). The consequences were catastrophic for the economic recovery of the monetary union.

This so-called 'euro sovereign debt crisis' illustrated the need for an institutional deepening of the European Area (Benassy-Quéré et al. 2019). In contrast to the USA, member states cannot prove their solvency in their own currency. If the scope for action is restricted due to the rigid fiscal rules (e.g., 'Fiscal Compact' or 'debt brake') or due to the distrust of international creditors in the solvency of a member state, the doom loop threatens the monetary Union (cf. Alogoskoufis and Langfield 2019).

It was with the President's unequivocal speech on July 26, 2012, stating the ECB "is ready to do whatever it takes (...)", that the international financial markets understood these intentions to act as a strategy for further actions. The president's speech supports the process of reconstitution of confidence, in which the liquidity preference motive became less important and led to a decreasing divergence of the overnight interest rate (interbank market).

“(…) We think the Euro is irreversible. And it’s not an empty word now, because I preceded saying exactly what actions have been made, are being made to make it irreversible.” (…)
“Within our mandate, the ECB is ready to do whatever it takes to preserve the Euro. And believe me, it will be enough”, Draghi, London 26 July 2012.²⁴

With its communicated, transparent, and immediate responses to the high level of uncertainty during the pandemic in 2020, the ECB succeeded in improving corporate financing conditions and preventing a bank run. This signaling effect was effectively understood. The very announcement of the program led to an anchoring of the expectation that with the ECB's entry into the market with great purchasing power, investors would be induced to buy eligible and possibly ineligible bonds, thus contributing to liquidity improvement (cf. Schnabel 2021). This ability is also recognized by the successful communication of the ECB in this extraordinary situation. Market players perceived the central bank's immediate and decisive action as a stabilizing anchor for their confidence and expectation formation. Empirical studies clearly show this connection (Blinder et al. 2022).

The PEPP announcement and its implementation throughout 2020 illustrate the central bank's responsibility principle emphasized by Bagehot. Trust is the result of long-term and fruitful collaboration between audiences made up of heterogeneous market players. To put it more precisely, the central bank has been successful in communicating its expectations to the public in a coherent manner and in achieving a high level of coherence in expectations. A prerequisite for this is a high degree of common understanding of the situation. There is extensive literature confirming that, by communicating well and engaging with citizens, central banks can increase understanding and knowledge and achieve acceptance and transparency for their actions and decisions (Haldane 2017, Kohn 2018, Muchlinski 2011, 2022a). Research underlines that the immediate materialization of the announced liquidity programs resulted in a noticeable improvement in the financing conditions of banks and companies. The next section briefly discusses the intensive cooperation between the state and the central bank.

4.2. New Kinds of Cooperation between Government and Central Bank

"Institutions contribute to stability in times of uncertainty and help anchor expectations" (Praet 2019, 3).

Lombard Street is a book about the new finance-based interdependencies of an emerging industrial nation where functional tasks and functions need to be redefined and restructured. Above all, it must be understood that the actors, e.g., the state or government and the central bank, institutions and experts from business, industry, management, technology, etc. must come to a new

²⁴ The speech of Draghi 2012 <https://www.youtube.com/watch?v=hMBI50FXDps>

form of cooperation. Bagehot addresses these issues when he calls on the Bank of England to show itself worthy of its government-endowed powers and take responsibility accordingly. Otherwise, it should renounce the privileges granted to it and refrain from any intervention in market relations.

As explained in 4.2. Bagehot addresses the function of the state or the government as an active designer in the definition and regulation of innovative forms of payment – a trading with the promise to pay. In the course of this development, the state is obviously gradually expanding its competencies. For Bagehot, the reason is obvious: in the event of disruptions, legal regulations and frameworks are important, since a creditor or owner must assume comprehensive liability. The fact that he also addresses the role of the state in connection with finance-based stabilization is often overlooked. This succeeds when the central bank achieves its credibility by fulfilling its mandate of price stability. Both the regulatory institutions (government, state) and the central banks assume the function of ensuring a functioning monetary system that meets the needs of the agents in the economies.

It was practiced and analyzed within the framework of the GFC and will be the focus of future analysis to assess the ability of this cooperation to act. Finally, the two most recent crises have encouraged many economists to question and reframe traditional and entrenched understandings of the roles of government and central banks – a paradigmatic reversal that Bagehot also considered important (cf. Bagehot Ch. II, Borio 2019).

In the COVID-19 pandemic, a committed cooperation of monetary policy measures and government aid programs was practiced in both the industrialized and the emerging economies, the dimensions of which were previously unimaginable as the data from the OECD and the IMF shows. This cooperation aimed to reduce the negative consequences of the spiral of lockdown, unemployment, loss of production and income and, to a large extent, to cushion demand and supply shocks and insolvencies in the goods and financial markets (Altavilla et al. 2020). At the same time, this material aid by governments also helped to stabilize confidence against the background of the abruptly changing contexts.

In favor of strategic cooperation, governments are less self-correcting than markets due to their political cycle, while market actors tend to ignore the consequences of their individual decisions for the economy. White (2012) calls this “the unintended consequences”. Markets can develop new solutions based on decentralized knowledge skills, but the market and the state have distinct but effective abilities to deal with shocks and crises. The finance-based market economy implies economic interactions between the actors, whose motives could not be more different. Nevertheless, this action is based on a common anchor, specifically on the ability and confidence in being successful and not being able to be. Modern literature analyzes central banks as partners in the strategic cooperation between market and state (Bernanke 2015b, Blinder 2013, Alvarez et al. 2020). As independent

institutions, they can stabilize funding conditions and create confidence to ward off contagion in global markets. They intervened using distinct methods, e.g., with swap lines.

In the case of the European Monetary Union, the ECB could expect from July 2020 that the quasi-fiscal measures decided at the EU level, the European Recovery Program and the financing of the SURE bonds would also contribute to reducing uncertainty.²⁵ „The goals of our recovery can be summarized in three words: first convergence, second resilience and transformation“, President European Council Charles Michel on 10 July 2020.²⁶

In addition, studies, e.g., by Horn et al. 2020, show that creating new solutions is part of the EU's wealth of experience and successful tradition. They analyze that it was a central characteristic of the states of Europe (“the European community”) since the 1970s to develop their cooperation further with innovative instruments, e.g., it successfully issued the first Community bond in 1976 to financially cushion the negative consequences of the oil price shock. Since its introduction, the European states have been able to continuously launch additional bonds, followed in the 1980s. The authors conclude: “The necessary institutional arrangements were often set up flexibly and quickly” (ibid, 3).

In October 2020 the EU Commission (EC) issued bonds on international capital markets on behalf of the EU. The new loan program – SURE – contains a ceiling of EUR 100 billion based Recovery Program.²⁷ These EU Social Bonds were well acknowledged by international capital markets as were indicated by negative yields. Its over-subscription is a signal of high credibility of the EU shows the great interest of investors in these social bonds.²⁸

In July and September 2021, the ECB defined the interaction of monetary and fiscal policy as an integral part of its new strategy (cf. Altavilla et al. 2020, ECB 2021). In a modern, differentiated understanding of the cooperation between fiscal and monetary authorities, this applies to central banks as well as governments and political decision-makers (cf. Keynes 1931, 1941, Muchlinski 2022b).

5. The International Lender of Last Resort

Although Lombard Street does not provide an analysis of a central bank's international lender-of-last-resort function, Bagehot does highlight this international responsibility of the Bank of England. Foreign investors draw commercial bills, make deposits, and payments in London and articulate with

²⁵ https://commission.europa.eu/strategy-and-policy/eu-budget/eu-borrower-investor-relations/nextgenerationeu_en

²⁶ https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en

²⁷ Council Regulation (EU) 2020/672 of 19 May 2020 on the establishment of a European instrument for temporary support to mitigate unemployment risks in an emergency (SURE) following the COVID-19 outbreak <https://eur-lex.europa.eu/eli/reg/2020/672/oj>

²⁸ The EU as a borrower – investor's relations https://commission.europa.eu/strategy-and-policy/eu-budget/eu-borrower-investor-relations/sure_en

their decision a high preference for London where stock exchange transactions are also increasingly concentrated. Due to the importance of London for international payment transactions as a "clearing house for foreign countries", the Bank of England has new obligations towards foreign investors. Investing in London reflects confidence that expectations of positive returns will be met (cf. Bagehot Ch. II, 33).

These international aspects are important to today's decision-making and central bank actions. Central bank liquidity and risk management includes swap agreements that provide liquidity to other central banks, primarily in foreign currency, particularly US currency. The maxim for action is not recourse to perfectly defined premises, but the practical necessity of preventing a panic or a bank run and preserving the financial system. The interpretation by some recipients that Bagehot's analysis is relevant only to the period of a gold standard is belied by the liquidity management and risk management practices of modern central banks.

As discussed in section 2, trust is not always granted, and can be shaken regardless of an actual event. Bagehot refers to the panic of 1866, which resulted in a sudden outflow of capital. "After the panic of 1866, especially after the suspension of Peel's Act (which many foreigners confound with a suspension of cash payments), a large amount of foreign money was withdrawn from London" (Ch. II, 33-34).

5.1. The US Dollar Swaps in Times of Financial Pressure

While swaps were still referred to as crisis interventions before 2008, today they are an integral part of the established toolbox of a responsible central bank (Carré and Le Maux 2020). Central bank swap agreements provide a form of liquidity protection for the central banks primarily concerned with ensuring payment obligations in US currency. The term swap-agreement is an umbrella term for linear or reciprocal lines of credit between central banks. The borrowing central bank (e.g., ECB) bears the costs and risks for this transaction, i.e., for the transaction of the foreign currency (US dollar) to the commercial banks in its own jurisdiction, while there are no costs for the lending central bank (Federal Reserve Bank).

The swaps are based on a bilateral contractual agreement whereby the lending central bank receives another's currency in exchange for its own, which is pledged as collateral. Here, e.g., central bank 1 and central bank 2 undertake to repay the transaction and the borrowed currency plus a price for this action, i.e., an agreed interest rate, on an agreed date. Strictly speaking, such a currency swap implies monetary and financial interdependence between these participating central banks as creditor and debtor. In repo swap lines, the creditor central bank requires collateral in return to ensure repayment of the funds by the central bank borrowing because it wants to hedge against the fluctuations in

the value of the collateral and applies a “haircut” to the value of the collateral posted by its counterparties. This practice reflects the application of haircuts to regular monetary policy operations (cf. Brunnermeier et al. 2009).

In recent years, research has shown a great deal of interest in these swap lines, being used extensively in times of financial turmoil and high uncertainty. Bahaj and Reis (2022) estimate the network in 2020 at about 170 bilateral swap lines, contributing to a multiple of international capital movements. “They can generate official cross-border capital flows in excess of the resources of the IMF” (ibid, 1655). Growing research documents that the US is only involved as a creditor, despite the increasing number of global swap networks (ibid.). This is an indication of the resilience of the US dollar. The use of swap lines in the GFC has gained an important place in literature.²⁹ European banks and cross-border capital flows were a major systemic factor in the subprime crisis because they were heavily involved in subprime securities (Borio 2014, 15f.). Swap lines were used e.g., with European banks in the wake of the GFC (Bernanke et al. 2009, Sakar and Schrader 2010).³⁰ Their high exposure to US dollar assets brought the European banking system to the brink of insolvency. Lane analyzes it as the “most dramatic turnaround matter” ever (Lane 2012, 8).

Borio et al. (2014) explain why most of this engagement in US dollar remains opaque: “Capital first flows out of the US and then flows back in. In this way, the cross-border flows generated by the European banks net out and are not reflected as imbalances in the current account.” (ibid. 16)

The European Central Bank entered swaps with the Federal Reserve Bank because much of the European banking system's financial relationships were denominated in US dollars. (Bahaj and Reis 2018).³¹ The ECB would not have been able to fulfill its function as lender of last resort without these swap transactions (McCauley and Schenk 2020).

Why was their need for US dollars so great? “The role of the US dollar as the currency that underpins the global banking system is undiminished.” (Borio et al. 2014, 18) It caused turmoil in the international financial and foreign exchange markets due to a rush to money market funds.³² These are providers of dollar funding to non-US banks, which in turn weighed on overall bank funding (Bernanke 2015, BIS 2014, Ceccetti 2014).

The high US dollar demand at that time has led to a temporary shortage of dollars (McGuire and von Peters 2012). This US dollar shortage has nevertheless strengthened this function of solvency and confidence in the US dollar and documents the ability of the United States, the Federal Reserve Bank, and the Treasury Department to respond decisively to crises with countermeasures.

²⁹ To name just a few, Carré and Le Maux (2020, 2022a,b), Eichengreen et al. (2018), Gourinchas et al. (2019)

³⁰ Further information are available at https://www.ecb.europa.eu/mopo/implement/omo/pdf/EUR-USD_tender_procedure.pdf?1e47c84c4ac17c543f58acb3e0e4dcd7

³¹ McGuire and von Peters (2012) estimated the maturity mismatch of European Banks during GFC.

³² Allan and Gale (2000) analyze patterns of behavior of interbank and contagion.

In 2013, it was stated that the existing limited swaps will now be transferred into open-ended liquidity injections with these central banks (Bahaj and Reis 2022, 1655). This involves providing liquidity not only in the US currency, but also in these five other currencies, based on the respective bilateral contractual agreements.³³

With the spread of the Covid-19 pandemic in March 2020 and market disruptions, the Fed revived dollar swap lines with central banks, most notably through a Dollar repo facility for foreign and international monetary authorities (Aldasoro et al. 2020). In addition, the ECB agreed to further swap lines with the Federal Reserve Bank to prevent the European Bank's potential problems in US dollar refinancing from ending in a severe financing crisis, as was the case in the GFC 2008-2009. Once again, in this Covid-19 episode the US swap lines act as a systemic financial backstop for potential bottlenecks or defaults by European banks. The ECB explicates the purpose: "It thus ensures that the real economy is shielded from strained conditions in US dollar funding markets and avoids possible instability waves from the domestic to the international market" (Panetta and Schnabel 2020, 2).³⁴ On March 23, 2023, the ECB announced further coordination for the provision of US dollars in order to be able to provide this liquidity to the European banking system immediately when required.³⁵

5.2. The Safe Asset Argument

Eisenbach et al. (2023) explains the term 'safe asset' with 'high liquidity'. Based on the highest liquidity premium categories, the US dollar is number one worldwide. In its function as a means of payment, i.e., as the ultimate medium for fulfilling contracts, it occupies the top spot and represents the highest level of trust among global investors. International investors appreciate the high liquidity of the Dollar. This preference is also defined as a non-pecuniary return on expediency, i.e., as their "convenience yield" (cf. Georgiadis et al. 2021b, 17-19).

In times of financial uncertainty and turbulence, the demand for US Treasury bonds from both US and non-US investors increases (Krishnamurthy and K. Milbradt (2016). This phenomenon is analyzed as "flight to safety" (Brunnermeier 2021). International capital movements generate highly volatile and vulnerable financing relationships, in the context of which, the US performs the role of global investment banker. International debt markets, primarily the US Treasury bond market, act as the control center for financial stability.

³³ ECB introduces standing swap lines with other central banks in 2013.

<https://www.ecb.europa.eu/press/pr/date/2013/html/pr131031.en.html>

³⁴ "The ECB's Governing Council assesses incoming requests for liquidity lines on a case-by-case basis. Some ECB swap agreements are standing agreements with no end date, although the parties are able to terminate them at any time. Other arrangements have a predefined end date but can be prolonged by mutual agreement."
https://www.ecb.europa.eu/mopo/implement/liquidity_lines/html/index.en.html

³⁵ ECB: https://www.ecb.europa.eu/press/pr/date/2023/html/ecb.pr230319_1~8d62af24ac.en.html

The US has the ability and the will to stabilize the key functions of its currency and thus ensure confidence in them. This is the reason for the US Dollar's resilience. The key currency function of the US dollar is also characterized by its resilient stability.

The US recognizes its privileges to be the global reserve currency: in 2023 around 58% to 60% (IMF 2023). A decrease in global reserve formation in US dollars does not mean a change in that currency's asset characteristic, as Bernanke explained (2015, 4). The asset property of the US dollar is not its reserve function because this function can be substituted at will. "Overall, the dollar standard appears to provide a global public good. (...) These debates are more about symbolism than substance. In purely economic terms, the universal usage of English, say, is far more valuable to the United States than the broad use of the dollar." (ibid, 2015, 41)

How does the US manage to stabilize confidence in its currency? These are not new questions. However, any answer seems tentative as new events cause this question to be asked anew and possibly differently (Miranda-Agrippina et al. 2019). However, it is necessary to assess the dominance of the US dollar from a capital account perspective (Borio and Disyatat 2011).

„The literature tends to ignore the fact that the current account and the capital account are jointly determined, and that the causality may run from the capital account to the current account, rather than vice versa“ (Debelle and Galati 2007).

The high capital imports into the USA are an expression of the high asset quality of the US dollar (Borio 2019). The Bureau of Economic Research data regularly confirms this proposition, capital inflows into the US are many times higher than exports.³⁶

"While there is much to argue with Triffin and those who invoke his predicament, there is nothing to dispute about the dilemmas posed by a national currency used worldwide as a store of value, unit of account and means of payment." (Bordo & McCauley, 2018, 30)

One elementary consideration is that international financial relations needed to be anchored in a 'safe haven' (Eisenbach et al. 2023, Georgiadis et al. 2021, 14). Since the abandonment of the Bretton Woods Agreement, the USA has operated internationally as a global bank (Gourinchas and Rey 2007). Due to the high inflow of capital, the banking function of the USA is emphasized in literature, with the highly integrated financial sector playing an important role. The USA generates this by investing part of its capital imports in the currency areas of the rest of the world in significantly more profitable assets or in direct investments, while as a debtor they must pay lower interest rates in their own currency. As a debtor in its own currency, the US has the privilege of devaluing its currency as well as devaluing

³⁶ BEA reports on International Investment Position of the United States, BEA 23–11, <https://www.bea.gov/news/2023/us-international-investment-position-4th-quarter-and-year-2022>

its debt. This results in a positive interest margin, hence the characteristic of a banking function. The United States does not act as a borrower on the international stage (cf. Spahn 2009). These functions of key currency and reserve currency imply benefits to the United States but also risks.

” In any case, it is hard to get excited about the US net liability position if it is still generating net investment income. US trade deficits might make political mischief, might be economically harmful, but they are not (yet) turning into a vicious cycle with debt service adding to debt”. (Bordo and McCauley, 2018, 18)

Finally, the resilience and strength of the US currency also manifests itself in the ability to arrange dollar swaps with other central banks and thus ensure the international availability of the US currency. McCauley justifies the stability of its credibility with the fact that the USA actively and successfully hedges the wealth function of its currency, and that the US dollar enjoys competitive advantages as a result which in turn manifested the international lender of last resort.

“Even on its home turf, the US Treasury faces competition in the supply of safe assets. In particular, both GSEs and banks compete for investment of official foreign exchange reserves. The safety of these obligations depends in the first instance on the quality of the GSEs’ and banks’ assets and in the second instance on their capital bases. Bank depositors also know that banks have access to Federal Reserve liquidity and that small depositors provide stable funding owing to deposit insurance. Ultimately, however, the US Treasury backs these obligations.” (McCauley 2019, 4)

He describes the successful competition to issue US dollars between the Federal Reserve, the national (government mandated) and international institutions authorized to issue US dollar bonds (ibid, 12). McCauley analyzes how the USA manages to bring its currency into a superior position and hence stabilize it in the competition among issuers of US dollar bonds. He examines the tools used by the US Treasury Department to do this. He exposes that the Federal Reserve Bank, as well as the US Treasury and Government, are willing and able to secure these important currency privileges. The fiscal backstop is the decisive influencing factor and ultimately justifies the ILOR of the US dollar.

I would like to add that the successful cooperation between the government and the central bank, as well as the mandated financial institutions, manifest the lender of last resort and guarantee the “safe asset”.

6. Conclusion

Bagehot proposes that the Bank of England analyzes, recognizes, and understand the financial interdependencies at all levels of the economy, trade, industry, manufacturing, and banking and develop a systemic response to prevent further crises of this kind. He derives the mandatory functional constitution of the Bank of England as a lender of last resort from the disruptions, possible at any time, in the interactions between creditors and debtor. The Bank of England did not explain to the public

what the consequences of the suspension of the Peel's Bank Act would be. With its lack of transparency, it contributed to great uncertainty and disruption in financial transactions. The emphasis on the sensitivity of such confidence is at the heart of Lombard Street and serves as a rationale for the central bank's stabilizing role.

Using examples and metaphors, Bagehot describes that a loss of credibility can lead to a disruption in creditor-debtor relationships, regardless of whether the trigger is based on verified information. On the contrary, the triggers for a perception of imminent illiquidity of the debtor can have their starting point in the rather incomplete notifications about suspected disruptions in commercial relations. "A panic grows by what it feeds on". (ibid., Ch. II, 51) It is a hallmark of this book Lombard Street that Bagehot repeatedly points to these interdependent structures of the finance-based economy.

Central bank responsibility for financial stability is founded on the functional requirement of a stable credit and banking system for money transmission and price stability. Bagehot's also emphasizes the importance of international aspects which are relevant to the decision-making and actions of central banks. Central bank liquidity and risk management includes swap agreements that provide liquidity to other central banks, primarily in foreign currency, particularly US currency. "Practice has been ahead of theory, as central banks have set up multiple swap lines worth trillions of dollars, which already receive significant attention in discussions of the global financial architecture, of the role of the IMF, or of monetary policy coordination across borders." (Bahaj and Reis 2022, 1655)

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