



Supporting African Sovereigns and private investors by contributing to a liquidity strategy on par with international standards

Repo literature, bibliography and FAQ

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1. Repo Markets – Literature Review

Emerging and developing countries are facing severe setbacks on their development trajectories because of the Covid-19 pandemic. Encumbered by ballooning debts, growing risks of default and limited ability to inject desperately needed liquidity into their economies, a solution to this crisis cannot rest on business-as-usual short-term measures supported by limited development financing. Emerging and developing regions need new, transformative mechanisms to better integrate into the global financial architecture and support innovative perennial financial innovations. There is a need for a new global financial framework with an enhanced role for the IMF's Special Drawing Rights (SDRs) at the centre, which can transform SDRs into a true global foreign reserve asset that can be leveraged in times of crisis. SDRs can be used to unlock a myriad of financial innovations, including an emerging markets repo facility to lower the liquidity premium on sovereign bonds offered by market access countries and incentivize green and sustainability-linked investments, much like the European Stability Mechanism.

A. The Repo Market: A Solution for Emerging Market Debt

Today, almost all developed market issuers benefit from extensive and well-functioning repo markets which enhance liquidity and attractiveness of sovereign debt, and other financial assets and contribute to lowering borrowing costs. Repo markets play a key role in facilitating the flow of cash and securities around the financial system. A well-functioning repo market also supports liquidity in other markets, thus contributing to the efficient allocation of capital in the real economy (BIS, 2017). Developed economies have long reaped the benefits of repo facilities. Repo markets exist for the sovereign debt of all developed nations, they enhance its liquidity, attractiveness and therefore its affordability. The US repo market, for example, is approximately \$4.5 trillion in size, and the US treasury debt on the market stands at \$16 trillion (US Securities and Exchange Commission, October 2020). Thus, the US repo market is equivalent to roughly 28% of that number. The International Capital Market Association (ICMA) estimates that the European repo market as of 2018 is about EUR 7 trillion in terms of outstanding repo contracts (ICMA).



Unlike developed countries, emerging market issuers of hard currency debt currently experience higher borrowing costs than warranted notably because of the lack of well-functioning repo markets to help compress liquidity premia. Empirical evidence shows that some of the challenges besetting emerging market debt is largely attributable to the illiquidity of both their sovereign and corporate bond markets and the existence of significant liquidity premia embedded in their bond returns. (Hund and Lesmond, 2006; Bekaert, Harvey and Lundblad, 2007) A repo facility for emerging markets could enhance the borrowing ability of countries and companies most in need of capital with a scalable, triparty solution which will help attract custodians, secured funding investors and other market infrastructure players, thereby increasing demand for emerging market debt. A repo initiative can facilitate a trade execution process that leads to more competition among traders and improve the information flow to market participants which should lower spreads and increase liquidity.

B. Characteristics and Structure

A repurchase agreement, known as a repo, is the sale of financial assets coupled with a promise to repurchase the same assets later (Saguato, 2016; Nath 2015, Adrian et. al 2012). At the basic level, the repo is a loan secured by collateral (Mullin 2020) which concept goes back to ancient Greece and takes a variety of different forms. In its contemporary form, the repo market has similar economic characteristics to secured loans and bank deposits and is one of the main sources of liquidity for the financial system (Saguato, 2016). There are two broad classes of repos, distinguished by the way they are settled: bilateral and tri-party (Adrian et al, 2012). In a bilateral repo each counterparty (and its custodian bank) is responsible for the clearing and settlement of the trade. More specifically, the transfer of the collateral to the creditor occurs simultaneously with the transfer of the cash to the borrower. Hence, the creditor must have back-office capabilities to receive, track, value, and account for the securities. The tri-party repo market is named as such given the role played by clearing agents in facilitating the settlement between each counterparty. It emerged following the need for a repo mechanism that was both safe and operationally inexpensive for both creditors and borrowers in the early 1980s. (Garbage 2006, Sollinger, 1994)



The bilateral repo market grew rapidly in the US between the 1970s and 1980 due to a process called "disintermediation," which triggered the channeling of money directly to the repo market because of rising short-term interest rates caused by acceleration of inflationary in the late 1970s (Mullin 2020). A series of dealer collapses in the early 1980s led to an important shift in the treatment of accrued interest on repo securities and prompted an equally important change in the application of federal bankruptcy laws to repos resulting in the enactment of the Government Securities Act of 1986. Additional dealer failures in 1984 and 1985 accelerated the growth of the new form of repo, tri-party repo. (Garbade, 2006; Sollinger, 1994).

Garbade 2006 argues that the tri-party repo resolves the conflict inherent in conventional repos by ensuring that both borrowers and creditors are insulated from credit risk simultaneously. It protects the creditor by taking margin from a borrower and lodging repo securities with a third-party clearing agent or bank that has explicitly agreed to hold the securities for the benefit of the creditor. The tri-party repo also protects the borrower because the third-party agent retains possession of the repo securities during the term of the repo, so the borrower can recover the securities promptly upon tender of the repurchase price. (Garbade, 2006; Mullin, 2020) In addition to its credit risk characteristics, the tri-party repo market also reduces dealer financing costs and the costs of delivering repo securities.

During the financial crisis, as discussed by Papadia and Välimäki (2018), the unsecured Eurozone money market shrank by EUR 327 billion, forcing the European Central Bank (ECB) to provide emergency liquidity assistance in the form of exceptional lending in order to prevent a crash of the financial system and avert an economic crisis. In that period the ECB disbursed EUR 115 billion in emergency lending, but growth in the repo market contributed almost double or EUR 212 billion, without which, the burden on the ECB would have been much greater (Papadia and Välimäki, 2018). In the US, the 2007-2009 financial crisis revealed how heavily reliant financial institutions have been on the securities financing market and on short-term financing contracts and specifically the repo market to raise liquidity (Saguato 2017; Gorton 2012). Gorton (2010) argues that when the repo, being a critical source of funding, dried up and financial institutions ran out of liquidity, the markets panicked and the financial crisis ensued leading to the collapse of investment firms among which Bear Stearns and Lehman Brothers.

C. Liquidity Theory and its Implications for Emerging Markets

The repo market is pivotal to the efficient working of almost all financial markets. Its importance reflects the wide range and fundamental nature of repo's applications which: i) provide an efficient source of short-term funding; ii) provide a more resilient money market; iii) hedge primary debt issuance; iv) allow more efficient employment of capital; v) enhance price discovery; v) act as catalyst for liquidity in secondary markets. (ICMA, Adrian et. al, 2012)

Liquidity is the oxygen of financial markets and can be provided in different ways (Saguato 2017). Liquidity of an asset refers to the ability of investors to trade significant amount of the asset, quickly, at low cost, and without major price allowances (Hartius and Sitorus, 2015; Harris, 2003; Brennan et al., 2012). As an important attribute of financial instruments, liquidity influences investor's decisions, which are largely based on holding period, returns, trading and transaction costs. In both developed and developing countries, illiquid assets and assets with high transaction costs trade at low prices relative to their expected cash flows, that is, average liquidity is priced (Amihud and Mendelson, 1986; Brennan and Subrahmanyam, 1996; Datar et al., 1998; Chordia et al., 2001b). As the implication of this notion, less liquid assets are more costly to trade and need to provide higher gross returns compared to more liquid assets (Datar et al., 1998). Similarly, Hartius and Sitorus (2015) show that the higher market liquidity (measured as trading volume, turnover ratio, and turnover volatility), the higher stock index return in developing countries.

The literature on liquidity and credit risk in emerging debt markets similarly points that liquidity risk is an important component of the yield spread for both corporate and sovereign bonds. For example, Hund and Lesmond, 2006 show that liquidity is a significant and economically important component of the yield spread on emerging market bonds. Liquidity alone explains as much as 25% of the cross-sectional variation in emerging market corporate bond yield spreads, and 22% in sovereign yield spreads. They use measures of liquidity (including the bid-ask spread and the percentage of zero returns, and the limited dependent variable estimate of Lesmond, Ogden, and Trzcinka (1999)) and a data set of emerging market bonds spanning sixteen countries and eight years, to demonstrate the importance of modeling liquidity as a component of yield spreads.

Their results show that liquidity is highly significant in explaining cross-sectional variation in yield levels and changes across categories, for both corporate and sovereign issuers. They further argue that liquidity risk appears to dominate credit risk in explaining cross-sectional variations in yield spreads for both corporate and sovereign debt instruments across all the emerging markets examined.

Bekaert, Harvey and Lundblad (2007) also examine the impact of liquidity on expected returns in emerging markets and find that it significantly predicts future returns. Their model differentiates between integrated and segmented countries and time periods. Their empirical results suggest that local market liquidity is an important driver of expected returns in emerging markets, and that the liberalization process has not fully eliminated its impact.

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3. Frequently Asked Questions on Repo

Published by the International Capital Market Association (ICMA) in February 2013 and amended in January 2019.

Understanding repo and the repo market

1. What is a repo?

Repo is a generic name for both repurchase transactions and buy/sell-backs.¹

In a repo, one party sells an asset (usually fixed-income securities) to another party at one price and commits to repurchase the same or another part of the same asset from the second party at a different price at a future date or (in the case of an open repo) on demand.² If the seller defaults during the life of the repo, the buyer (as the new owner) can sell the asset to a third party to offset his loss. The asset therefore acts as collateral and mitigates the credit risk that the buyer has on the seller. Although an asset is sold outright at the start of a repo, the commitment of the seller to buy back the asset in the future means that the buyer has only temporary use of that asset, while the seller has only temporary use of the cash proceeds of the initial sale. Thus, although repo is structured legally as a sale and repurchase of securities, it behaves economically like a collateralised or secured deposit (and the principal use of repo is in fact the secured borrowing and lending of cash).

The difference between the price paid by the buyer at the start of a repo and the price he receives at the end is his return on the cash that he is effectively lending to the seller. In repurchase transactions, and now usually in the case of buy/sell-backs, this return is quoted as a percentage per annum rate and is called the repo rate. Although not legally correct, the return itself is usually referred to as repo interest.

An example of a repo is illustrated below.



¹ Repos are sometimes known as 'sale-and-repurchase agreements' or just 'repurchase agreements'. In some markets, the name 'repo' can be taken to imply repurchase transactions only and not buy/sell-backs. Repurchase transactions are also known as 'classic repo'. Under EU regulation --- along with securities lending, commodities lending and margin lending --- repurchase transactions and buy/sell-backs are types of 'securities financing transaction' (SFT).

² In the Global Master Repurchase Agreement (GMRA), the same or similar assets are described as 'Equivalent Securities'. 'Equivalent' means assets that are economically but not necessarily legally identical (the same issue of securities with the same ISIN or, if the issue is divided into classes or tranches, the same class or tranche, but not the same part of that issue, class or tranche).

The buyer in a repo is often described as doing a reverse repo (ie buying, then selling).

A repo not only mitigates the buyer's credit risk. Provided the asset being used as collateral is liquid, the buyer should be able to refinance himself at any time during the life of a repo by selling or reposing the assets to a third party (he would, of course, subsequently have to buy the same or a similar asset back in order to return it to his repo counterparty at the end of the repo). This right of use (often called re-use) mitigates the liquidity risk that the buyer takes by lending to the seller. Because lending through a repo exposes the buyer to lower credit and liquidity risks, repo rates should be lower than unsecured money market rates.

There is a definition of repo in the EU's Securities Financing Transactions Regulation (SFTR) but this is incorrect and should not be used other than for the purpose of reporting under the SFTR. Article 5 of the SFTR defines a repurchase transaction as a transfer of 'securities or commodities or guaranteed rights relating to title to securities or commodities where that guarantee is issued by a recognised exchange which holds the rights to the securities or commodities and the agreement does not allow a counterparty to transfer or pledge a particular security or commodity to more than one counterparty at one time'. In reality, there are no repos against guaranteed rights and true repos do not use pledges. In addition, SFTR incorrectly defines a buy/sell-back

2. What does repo do?

Repo performs four basic functions which are fundamental to the efficient working of many other financial markets.

1/ One party can invest cash secured against the asset provided as collateral --- **safe investment**.

2/ The counterparty can borrow cash in order to finance a long position in an asset, in an amount and at a repo rate that reflect, among other things, the collateral provided to the lender --- **cheap borrowing**.³

3/ One party can earn a return by lending out an asset that is in demand in the market, in exchange for cheap cash, which can be used for funding or reinvested for profit --- **yield enhancement** for securities investors.

4/ The counterparty can borrow an asset in order to sell and establish a short position or to deliver in order to settle a sale that has already been agreed --- **short-selling and short-covering**.⁴

For lenders of cash (repo buyers), repo offers a safe investment because:

- The buyer receives collateral to hedge his credit risk on the seller. Moreover, in a repo, title to the collateral is sold to the buyer, which should mean that, unlike pledged collateral, it can be liquidated in the event of the seller's insolvency without interference from an insolvency court. In other words, repo provides 'bankruptcy-remote' collateral, which reduces the credit risk of a cash investor more than a traditional secured loan.
- The buyer can diversify his credit exposure by taking collateral issued by a third party whose credit risk is uncorrelated with the credit risk of the seller.
- Collateralisation through transfer of title can reduce, not only the credit risk arising from lending, but also the liquidity risk. Where a buyer is given liquid collateral, he can meet any unforeseen need for liquidity during the life of the repo by selling the collateral to a third party, either through another repo or an outright sale (he would, of course, subsequently have to buy the collateral back in order to be able to return it to his repo counterparty at the end of the repo).

3 A 'long position' in an asset is created by buying the asset outright. The holder benefits from price rises, the accrual or payment of income on the asset and any other benefits of ownership.

4 A 'short position' in an asset is created by borrowing the asset and selling it outright. The holder will have to buy back the asset in due course in order to return it to the asset lender. This means he will benefit from a fall in the price of the asset between selling and buying it back, but will lose the income accruing or being paid in the interim and any other benefits of ownership.

For borrowers of cash (repo sellers), repo offers a cheap and potentially more plentiful source of funding because the collateral they provide to the lenders (repo buyers) reduces the risks to the latter and does so in a more legally certain way than collateralisation by pledging.

For lenders of securities (repo sellers), repo offers a means of generating incremental income, on their investment portfolio, as in the securities lending market.

For borrowers of securities (repo buyers), repo offers an alternative or supplement to the securities lending market, particularly for fixed-income securities.

3. What is the role of repo in the financial markets?

The repo market is pivotal to the efficient working of almost all financial markets. Its importance reflects the wide range and fundamental nature of repo's applications:

Providing an efficient source of short-term funding. By being able to offer deposits secured by legal title to high-quality liquid assets (HQLAs) and diversification to include lenders other than commercial banks, repo is able to mobilise cheaper and deeper funding for financial intermediaries, in particular, securities dealers. And by reducing the degree of dependence on commercial banks, access to short-term funding is made easier and more reliable. Cheaper and easier funding helps to lower the cost of financial services provided by intermediaries to investors and issuers. Institutional investors also use repo, to meet temporary liquidity requirements without having to liquidate strategic long-term investments. Since the introduction of the Basel regulatory requirement to clear standardised OTC derivatives across central counterparties (CCPs) and the related imposition of margin on uncleared OTC derivatives, the repo market has become an important source of cash for non-banks to provide as variation margin to CCPs.

Providing a more resilient money market. The resilience of the repo market helps to mitigate systemic risk. Repo is a more stable source of short-term wholesale funding than unsecured deposits, because collateral in the form of HQLA (overwhelmingly the most common type) and secured by the transfer of legal title hedges both the credit and liquidity risks of lenders.



This means lenders are more willing to offer longer-term funding and, as recognised in the Basel Liquidity Coverage Ratio (LCR), are less likely to refuse to roll-over lending, even in a stressed market. For example, although the repo market was not immune to the disruption triggered by the default of Lehman Brothers in 2008, it did not suffer a seizure and has been essential in avoiding total and unsustainable dependence on central bank liquidity.⁵ The stability of repo funding is reinforced by the wide range of lenders who are willing to lend in the wholesale money market on a suitably secured basis. Diversification creates a market which is deeper and naturally more resilient. Repo also mitigates systemic risk by allowing traders and investors who need liquidity in a stressed market to convert assets temporarily into cash in a way that is less disruptive than outright sales. Outright sales would depress the price of collateral securities and crystallize any unrealised losses on the holdings being liquidated or on hedges that have to be unwound when holdings are sold. Falling prices and mounting losses could amplify market stress and fuel the self-reinforcing dynamics of a crisis.

Providing a secure and flexible home for short-term investment. The capacity of repo collateralised by HQLA to mitigate credit and liquidity risks is particularly valued by risk-averse money market investors seeking a secure and liquid investment for their working capital or other cash balances. Such investors include large non-financial corporates, money market mutual funds and other non-bank financial institutions (NBFIs), asset managers (including pension funds and insurance companies), the treasuries of financial market infrastructures such as CCPs and central securities depositories (CSDs), and official agencies such as sovereign wealth funds, foreign exchange reserve managers and debt management offices (DMOs). Repo allows these investors to reduce their exposure to commercial banks and diversify counterparty credit risk by shifting cash out of bank deposit accounts. Repo is also the most secure short-term asset available to many such investors, given that they are often ineligible for deposit protection schemes because of the size of their deposits and that most do not have access to risk-free deposit accounts at central banks.

⁵ Papadia & Välimäki point out that, between 2008 and 2011, the unsecured eurozone money market shrank by EUR 327 billion, forcing the ECB into exceptional emergency lending in order to prevent a seizure of the financial system and serious damage to the real economy. In fact, the ECB lent EUR 115 billion. But growth in the repo market contributed another EUR 212 billion, without which, the burden on the ECB would have been dramatically greater.

While treasury bills could provide an alternative risk-free investment to repo, in most countries, the supply of treasury bills is oversubscribed by investors who hold these bills to maturity. This makes the secondary market narrow and forces investors to compete in the crowded primary market, which (like most money market securities) offers only a few tenors, whereas repo offers a full range of maturity dates without broken date penalties or premiums.

Facilitating central bank operations. Repo is a widely-used instrument for central bank open market operations. Its collateralised nature reduces the credit risk of the central bank. And it allows the use of wider range of assets than outright purchases, which are limited to short-term securities with maturities similar to the horizon of most money market operations. The repo market is a ready-made collateral market which enables central banks to implement monetary policy more efficiently under normal market conditions and to act more swiftly as lenders of last resort during periods of market stress. Central bank repo can feed seamlessly into the interdealer repo market through which liquidity can be efficiently redistributed to banks and non-banks. Moreover, a liquid repo market is a source of near risk-free interest rates which can provide the central bank with a sensitive gauge of monetary and macro-economic conditions and, in the form of a repo rate index, a meaningful operational target for open market operations.

Financing leveraged investors and covering short investors. Institutional investors such as alternative investment funds (hedge funds) borrow cash in the repo market to fund leveraged investment strategies on a cost-efficient basis and also borrow securities to allow them to take short positions. These funds play an important role in feeding market liquidity and driving price discovery through trading and arbitrage, and their ability to borrow securities to sell short is important in helping to stop asset price bubbles from developing. Repo is also used as a source of leverage by many traditional investment firms, especially liability-driven pension fund managers, who need to borrow to fund purchases of government bonds to hedge the long-term exposure of pension liabilities to interest rate and inflation risks. Such investors also borrow securities in the repo market to sell short in order to hedge their investment portfolios against temporary adverse movements in securities prices. And repo allows investors to buy and finance purchases of foreign securities in the same currency, avoiding exchange rate risk and facilitating the cross-border diversification of investment portfolios.



Hedging primary debt issuance. In the primary debt market, repo allows dealers to fund their bids at bond auctions and their underwriting positions in syndicated bond issues at reasonable cost, thereby providing cheaper and less risky access to the capital markets for issuers, both governments and corporates. Primary dealers and other underwriters also rely on the repo market to hedge the interest rate risk on a long position in a new issue while it is in the process of distribution to investors by taking an off-setting short position in an existing issue with similar risk. For example, a new 5-year government bond issue can be hedged with a short position in the current 5-year government bond and a new 5-year corporate bond issue can be hedged with a short position in the 5-year government bond in the same currency.⁶ The delivery of securities to settle the short position is covered by borrowing in the repo market. Without hedging, bond issuance would be riskier for primary dealers and other underwriters and therefore more uncertain and expensive for issuers.

Supporting corporate bond investors. Investors in corporate bonds often seek to neutralize their exposure to general interest rate movements in order to target just the credit risk of these securities in the form of the credit spread. This can be done by taking a short position in the benchmark government bond with the closest duration to the corporate bond (investors are said to 'spread corporate bonds against government bonds'). The delivery of the benchmark government bond to settle the short hedge position is covered by borrowing in the repo market.

Ensuring liquidity in the secondary debt market. Liquidity in the secondary market for securities depends upon market-makers being willing to offer 'immediacy' or 'urgency' to investors by continuously quoting prices at which they are committed to trade on demand. To be able to quote immediately-executable selling prices, a market-maker may hold inventory which allows him to sell to investors on demand in the knowledge that he will be able to make good delivery. The market-maker has to finance inventory and also hedge any material interest rate risk on that inventory. Only repo can provide cost-effective funding for market-makers, given the scale of their financing requirements, the thin margins on market-making and the fact that most securities dealers have relatively low credit ratings due to their leverage.

⁶ An alternative hedge for a long position in a new issue would be a short position in a related derivative instrument, such as a bond future or interest rate swap, but the derivative will ultimately have to be hedged by someone else borrowing the underlying security in the repo market.



Hedging the interest rate risk on inventory means taking an off-setting short position in another security with a similar duration, which means borrowing the other security in the repo market.⁷ On the other hand, if an investor wishes to buy an issue which a market-maker does not hold in inventory, and the market-maker cannot or does not wish to source that sale by immediately purchasing the security from someone else in the market, the market-maker's ability to sell and be confident of being able to make good delivery will depend on being able to borrow that issue in the repo market until such time as he is able or willing to purchase. The liquidity provided by market-makers reduces risk for investors by allowing them to buy on demand, which in turn reduces the cost of borrowing for issuers. The alternative would be for the market-maker to hold a larger inventory or to fund his inventory in the unsecured market (assuming unsecured funding was actually available) or both. Or market-making would have to be constrained to a rigid matched-book style of activity (only buying when there is a seller and vice versa). All these alternatives would raise the cost of market-making, damaging secondary market liquidity and making portfolio management by investors riskier and more onerous, which would make debt securities a less attractive investment and raise the cost of debt financing to issuers. Several debt management agencies recognise the importance of repo to market-makers by offering special facilities from which market-makers can borrow whenever the available market supply is inadequate.

To be able to quote immediately-executable buying prices, a market-maker needs to be able to buy a security from an investor, even if he is unable or unwilling to sell that security immediately to another investor or dealer. To do this, the market-maker has to take the security onto his trading book and both fund the long position and hedge any material interest rate risk until such time as he is able or willing to sell the security. Funding means borrowing cash by repoing out the security. Hedging means taking an off-setting short position in another security which has a similar duration, which means borrowing the other security in the repo market.

⁷ Market-makers in corporate and other credit bonds also hedge the credit risk on any long positions that they accumulate. This can be done, subject to various degrees of basis risk, by: (1) shorting a security from the same issuer but issued in another part of the capital structure (eg senior against subordinated tranches); (2) shorting a security from a similar issuer with the same seniority; (3) selling protection through a single-name credit default swap (CDS) written on the same issuer and for the same seniority; or (4) selling protection through a CDS written on an index that is a reasonable proxy to the issuer of the security being hedged. The use of a CDS ultimately has to be hedged by someone else going short of the underlying security or index and covering that short position by borrowing in the repo market.

The importance of repo to secondary market liquidity is recognised in the regulatory definition of HQLA under the LCR, which includes the existence of an active and resilient repo market.

Fostering price discovery. The repo market fosters price discovery by facilitating primary market activity but, most crucially, by feeding liquidity in the secondary market, which fosters trading and arbitrage. At a technical level, repo rates are a key component of the cost of carry of long and short positions in securities, and thus of the forward prices that measure the relative value of a security. Repo itself can be used to arbitrage inconsistent valuations between securities from the same issuer of similar maturity and thereby generate an accurate yield curve. In addition, repo links the money and capital markets, creating a continuous yield curve. Accurate and complete yield curves are essential for the correct pricing of other financial instruments and thus the efficient allocation of capital by financial markets.

Hedging and pricing derivatives. The use of repo to efficiently fund long positions in securities and cover short positions is fundamental to the hedging and pricing of derivatives, given that securities are the ultimate hedge for their own derivatives (eg a position paying fixed rate in an interest rate swap can be hedged by a long position in a bond of the same maturity financed by a repo of the same tenor as the swap's floating rate). Derivatives are essential tools of risk management for both financial intermediaries and end-users of the financial markets. An active repo market is therefore a prerequisite for liquid markets in derivative instruments. Attempts to establish new derivatives markets, exchange-traded or over-the-counter (OTC), have foundered where there have been no active repo markets to facilitate basis trading, hedging, arbitrage and pricing.

Preventing settlement failures. The repo market plays a critical role in maintaining the confidence of investors in the securities market by helping to ensure that the securities which they purchase are delivered on time. Where an intermediary has sold securities to one party which it has purchased from another, but the inward delivery fails to arrive on time, the intermediary can borrow those securities in the repo market to ensure that it can make timely delivery to the first party until such time as the second party delivers or an alternative purchase can be made from a third party.



Without the ability to borrow securities, delivery failures might propagate through the market, leading to disorderly conditions, which could interrupt trading and damage investor confidence. Widespread failure to deliver can also make yields more volatile, and create large and persistent distortions in the yield curve, which would deter investors from participation in the market and discourage issuers by confusing price discovery. The role of repo in stemming delivery failures is enhanced by its ability to attract new supply into the market to meet increased borrowing demand by means of changes in repo rates. Thus, intermediaries seeking to borrow a security that is in demand offer cheaper cash by reducing the repo rate on that security in order to incentivize holders of the security to repo it out. The reinvestment of the cheap cash will directly improve the overall portfolio return to investors (an improvement called yield enhancement). Investors lending securities also reap an indirect benefit. By helping to keep supply and demand in balance, they will support the longer-term efficiency and liquidity of the market in the securities which they hold, making it easier and cheaper for them to sell when the time comes. Delivery failures in Europe in actively-traded securities are generally rare and short-lived but can occur for a variety of reasons, including operational problems within firms and structural inefficiency in cross-border settlement (a persistent problem in Europe). In addition, bouts of market illiquidity can lead to involuntary delivery failures by market-makers. Given that they are obliged or committed to quote immediately-executable prices to investors, they have to sell even if they do not hold a security in their inventory. If they cannot immediately buy that security in the market or borrow it from the repo market, they would be forced to fail on delivery. Frequent settlement fails could lead to buy-ins being exercised against market-makers, the cost of which might cause them to cease providing liquidity to the market.⁸

Permitting faster settlement times. The role of repo as a means of borrowing securities has been, and will continue to be, crucial in allowing settlement periods to be shortened in order to reduce systemic risk in securities settlement systems. While faster settlement reduces systemic risk, it leaves less time for delivery problems to be corrected and therefore requires an efficient source of securities borrowing to overcome delivery failures. This is provided by the repo market. The settlement period for most securities transactions in the EU changed from T+3 to T+2 in October 2014.

⁸ A 'buy-in' is a process whereby a buyer of a security that has not been delivered by the seller, appoints an agent to buy in the security on his behalf or buys in directly from the market. Any cost over and above the original purchase price is charged to the failing seller.

Preventing market ‘squeezes’. By allowing the borrowing of securities, repo helps to prevent individual institutions ‘squeezing’ the market in a particular security issue by cornering supply and thereby creating or exacerbating temporary imbalances between supply and demand. Squeezes can lead to settlement failures and disorderly markets.

Allowing more efficient collateral management.

Trading in the repo market is key to the valuation and management of collateral, and therefore to its efficient mobilisation and allocation. Where a firm’s investment or trading portfolio does not include the types of securities required as collateral (for example, HQLAs or CCP-eligible collateral), it can exchange the securities it does hold for those that it needs by using a repo to lend what it has and a reverse repo to borrow what it needs, with the opposite cashflows largely offsetting each other (this is a collateral swap performing collateral transformation). Collateral management is becoming ever more important. Traditional demand for collateral -- for use in payments and settlement systems, in derivatives exchanges and in securities financing transactions (SFTs) --- is being increased by the wider use of SFTs and regulatory requirements to hold larger liquidity reserves and to either centrally-clear or collateralise OTC derivatives. At the same time, quantitative easing by central banks has reduced the supply of HQLA currently available to the market, while loss of confidence in some sovereign debt has created uncertainty over future aggregate supply. The trading of collateral is particularly useful to investors such as pension funds and insurance companies, as it allows them to acquire securities eligible to use as collateral against the derivatives positions hedging their investment risk, while keeping their investment portfolios as close as possible to the optimum asset allocation and asset-liability management position.

Allowing more efficient employment of capital. The global economic impact of the increasing regulatory risk capital charges which have been introduced since the 1980s has been accommodated by the more efficient use of capital through a shift from unsecured to secured financing.

4. How big is the repo market?

There are large repo markets in the US and Europe (including the eurozone, UK, Denmark and Poland). There is also a large repo market in Japan, although the form it has traditionally taken (gentan) is strictly-speaking a type of securities lending transaction.



The top 20 markets include Argentina, Australia, Canada, India, Mexico, New Zealand, Russia, Singapore, South Africa, South Korea, Sri Lanka, Switzerland, Taiwan, Thailand and Turkey. The remainder of the world's repo markets are in perhaps another 30-40 countries with reasonably active markets (excluding central bank repo). There are also markets in what are incorrectly called repo, notably in China. These actually trade secured loans rather than true (title transfer) repos.

The ICMA's semi-annual survey of the European repo market in June 2018 produced a figure of about EUR 7 trillion in terms of outstanding repo contracts for the survey sample (which includes the most active participants in the European repo market but is not comprehensive). At about the same time as the ICMA survey, the Federal Reserve Bank of New York reported that the outstanding repo business of its primary dealers (who may account for as much as 80-90% of the US market) as almost USD 4 trillion. The global market, although it has contracted since 2007, may be over EUR 15 trillion in outstanding size and turnover about EUR 3 trillion per day.

The results of the ICMA's semi-annual survey of the European repo market, which has been conducted since 2001 and is the most authoritative source of regional repo market data, are published on the ICMA website.