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The Market for Safe Assets

Agathe Blanchard, Clara Léonard and Léonore Raguideau-Hannotin

- The holding of so-called "safe" assets, and the market for these securities more broadly, play a key role in maintaining financial stability. Yet there is no consensus as to how these assets are defined because the "safety" of a security depends on a number of different characteristics such as its stability, counter-cyclicality and liquidity, how transparently it is valued, and how solid its fundamentals are. The relative importance of these aspects varies according to investor preferences and financial-market conditions.

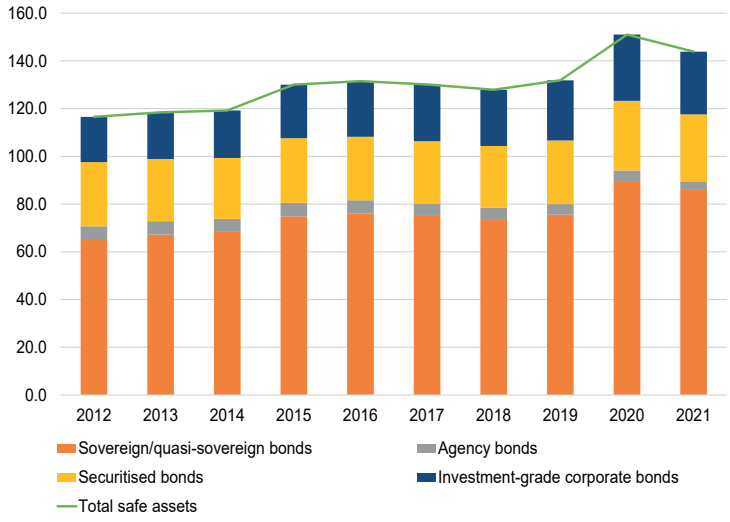
- By examining how different asset classes perform against different safety criteria, it is possible to identify a universe of assets that can be considered "safe", and to analyse developments in the market for these assets over the past two decades.

- The supply of safe assets grew sharply in the 2010s, owing in part to sovereign bond issues. However, these assets became less readily available as central banks, especially in Europe, embarked on bond-buying programmes as part of a broader package of unconventional monetary policy measures. Despite increased supply, safe assets remained hard to come by throughout this period, as demand surged in both Europe and the United States, owing largely to the introduction of tighter prudential requirements in the wake of the 2008 financial crisis.

- Globally, the market imbalance caused by these opposing forces has been partly redressed since the COVID-19 crisis of 2020, owing in large part to sovereign debt issues intended to fund pandemic support packages, which have had the effect of bringing the supply of safe assets into closer alignment with demand.

- Looking ahead, the market could be affected by a number of major structural trends. Factors that could impact supply include the reshaping of the safe assets landscape amid the green transition, debt sustainability issues, rating downgrades and reform of the international monetary system. Meanwhile, demand could be influenced by developments such as the roll-back of unconventional monetary policy measures and changes to regulatory standards, especially those relating to non-bank financial institutions (NBFIs).

Supply of safe assets by class
(% of GDP of OECD countries)



Source: Bloomberg, FISMA, national debt management offices, ECB, World Bank, DG Trésor calculations.

How to read this chart: Sovereign bonds (including Treasury bills) encompass those issued by the United States, the United Kingdom, Japan and the euro area. Quasi-sovereign bonds refer to United States municipal bonds. Securitised bonds comprise United States asset-backed securities and mortgage-backed securities, as well as euro area covered bonds. Corporate bonds refer to debt issued by financial businesses (Bloomberg data). The figures include debt held by central banks.

1. Defining safe assets: A multifactorial and dynamic approach

1.1 Desirable characteristics of a safe asset

The holding of some types of assets acts as a safeguard against certain financial risks. These so-called "safe" assets provide a store of value for economic agents, serve as collateral in financial transactions and fulfil prudential requirements designed to strengthen financial stability. As such, they play a key role in the global financial system.[1]

However, there is no precise, commonly accepted definition of what constitutes a safe asset, since an asset needs to meet a number of different criteria in order to be considered "safe":[2, 3]

- Counter-cyclicality: The asset's value remains stable or even increases in times of economic downturn.
- Liquidity: The asset should be highly liquid, which means that buying or selling it has no major impact on its price.
- Economic criteria: The asset must be backed by solid economic, political and institutional fundamentals and, therefore, exhibit a very low default risk. In theory, agency credit ratings and the resulting regulatory classification should enable investors to identify safe assets at no additional information cost.
- Financial and operational criteria: Ideally, the asset should exhibit little volatility, be readily available to investors (i.e. investors can actually hold the asset), have limited exposure to market and exchange-rate risk, and be structured in a straightforward way such that its value is transparent.

Given the sheer number of criteria an asset needs to meet in order to be considered safe, some economists have argued that only certain types of government securities (sovereign, agency and municipal bonds of advanced economies) meet the threshold.[4] Some have proposed an even more restrictive approach, reserving the "safe asset" label for United States bonds only.[5] Others, meanwhile, take the view that some private securities can also be considered safe.[6] These include securitised bonds guaranteed by United States government agencies, such as mortgage-backed securities (MBSs) and asset-backed securities (ABSs) more generally; covered bonds; and investment-grade corporate bonds.[7]

1.2 Assessing the "safety" of an asset: A brief overview

Since there are so many factors at play, not every investor will look for the same characteristics in a safe asset: a given investor's preferred habitat (i.e. asset universe that best fits their risk and return profile) will likely lead them to prize certain criteria above others.[8]

In order to assess the quality of the current supply of safe assets, we opted to measure the characteristics of an asset against four criteria: counter-cyclicality, liquidity, credit quality and volatility (see Box 1). This granular approach offers a way to classify safe assets and to rank them according to their safety in times of turbulence. This classification supplements agency ratings, which do not necessarily reflect all the financial characteristics of an asset, and whose reliability has at times been called into question (as was the case during the subprime mortgage crisis, for example).

(1) Faubert V. and Sode A. (2013), "Raréfaction des actifs « sans risque » : estimations et perspectives", *Trésor-Éco,* No. 117.
(2) Golec P. and Perotti E. (2017), "Safe assets: a review", *ECB Working Paper Series*, No. 2035.
(3) Krishnamurthy A. and Vissing-Jorgensen A. (2012), "The Aggregate Demand for Treasury Debt", *Journal of Political Economy,* vol. 120, No. 2, pp. 233-267.
(4) Gourinchas PO. and Jeanne O. (2012), "Global safe assets", *BIS Working Papers,* No. 399.
(5) He Z., Krishnamurthy A. and Milbradt K. (2016), "What makes US government bonds safe assets?", *American Economic Review,* vol. 106, No. 5, pp. 519-523.
(6) Gorton G., Lewellen S. and Metrick A. (2012), "The safe-asset share", *American Economic Review*, vol. 102, No. 3.
(7) For the purposes of this report, fiat money and private-sector quasi-money were not viewed as eligible for consideration as safe assets. The same applies to very-short-term private debt, such as that issued by banks, which is very much akin to fiat money. Moreover, the analysis presented here is limited to financial assets. Other non-financial assets that are often considered safe (such as gold), as well as central bank currency reserves, are excluded from the scope. Short-term debt issued by the financial sector is addressed in a separate study, which examines the crowding-out of private debt by government supply (Krishnamurthy A. and Vissing-Jorgensen A. (2015), "The impact of Treasury supply on financial sector lending and stability", *Journal of Financial Economics*, vol. 118, Issue 3.
(8) Greenwood R. and Vayanos D. (2010), "Price pressure in the government bond market", *American Economic Review*, vol. 100, No. 2, pp. 585-590.

Box 1: Safe asset classification method

The first step in the process was to determine the types of assets that can be considered for inclusion in the classification. Based on a literature review and investor and regulatory practices, we restricted the scope to the following asset classes: sovereign bonds issued by major advanced economies (France, Germany, Italy, Japan, Spain, the United Kingdom and the United States), and long-term debt issued in the United States (agency bonds, agency MBSs, ABSs, municipal bonds and investment-grade corporate bonds) and in Europe (corporate bonds and covered bonds), based on total return. In both cases, the related indices were used for classification purposes. Bonds issued by international and European organisations, and by government agencies outside the United States, were excluded from the scope because the market lacked depth.

Next, we assessed the safety of these assets against four quantitative criteria:

1. Counter-cyclicality: For this criterion, we looked at how often an asset performed positively during periods of acute financial stress, expressed as a percentage. For the purposes of this study, a period of acute financial stress is a period between two dates (three days or more apart) when the Chicago Board Options Exchange Volatility Index (VIX Index),[a] a commonly used measure of uncertainty, exceeded 90% of its observed value between 2012 and 2022. We identified 28 such periods. In order to calculate an asset's performance during each period, we used the date on which the VIX Index reached its peak. An asset was considered "safe" if it performed positively in more than 50% of these periods of acute financial stress.
2. Liquidity: This criterion is based on European prudential requirements for banks and on the concept of high-quality liquid assets (HQLAs). Level 1 assets, i.e. those exhibiting the highest liquidity and credit quality e.g. sovereign bonds issued by countries such as France and the United States), were considered "safe". Conversely, level 2A and 2B assets (such as corporate bonds) were downrated because they are less liquid in nature.
3. Credit quality: For this criterion, we used the Eurosystem Credit Assessment Framework, a harmonised rating scale based on the ratings assigned by reputable agencies (DBRS Morningstar, Fitch Ratings, Moody's and Standard & Poor's). Assets rated at level 1 on this harmonised scale (i.e. those exhibiting the lowest degree of risk) at end-2022 were considered "safe".
4. Volatility: We calculated the actual annualised volatility of each asset according to daily performance over a moving one-week period, relative to the average observed between 2012 and 2022. Assets exhibiting volatility of less than 5% – a threshold reflecting a balanced risk-return profile – were considered "safe".

The results of this classification exercise were robust, including when different time periods or indices were used.

a. The VIX Index measures the market's expectation of volatility based on the S&P 500 Index, which tracks the stock performance of 500 of the largest companies listed on stock exchanges in the United States. Similarly, the VSTOXX Index measures expected volatility in Europe, based on the EURO STOXX 50 Index. Although there was an 80% correlation between the two indices over the period covered by this study, the VIX Index was chosen because it is more commonly used in the literature to measure uncertainty. See, for example, Bloom N. (2009), "The Impact of Uncertainty Shocks", *Econometrica*, vol. 77, No. 3, pp. 623-685.

Table 1: Classification of safe assets by criterion

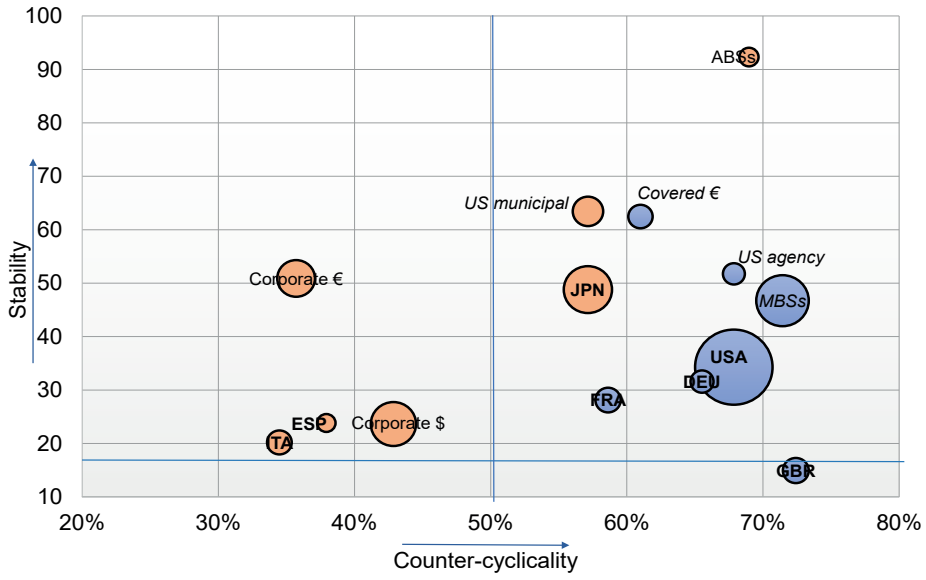
	Counter-cyclicality (positive performance in periods of acute financial stress, %)	Liquidity (end-2022)	Credit quality (end-2022)	Historical volatility (weekly average)	Outstanding total (end-2021, $bn)
Sovereign debt					
United States	68%	1	1	2.9%	26,634
Germany	66%	1	1	3.2%	2,304
France	59%	1	1	3.6%	2,811
Italy	34%	1	3	5.0%	2,644
Spain	38%	1	3	4.2%	1,476
Japan	57%	1	2	2.0%	10,277
United Kingdom	72%	1	1	6.7%	2,926
Investment-grade corporate bonds (in $)	43%	2B	2	4.2%	9,055
ABSs (United States)	69%	2B	2	1.1%	1,585
Agency bonds (United States)	68%	2A	1	1.9%	2,087
MBSs (United States)	71%	2A	1	2.1%	12,202
Municipal bonds (United States)	57%	2A	2	1.6%	4,050
Investment-grade corporate bonds (in €)	36%	2B	2	2.0%	6,262
Covered bonds (in €)	61%	2A	1	1.6%	2,565

Source: DG Trésor calculations, ECB, Bloomberg data. Outstanding totals are not weighted by free float.

How to read this table: This table represents the performance of different asset classes across the four criteria of safety, as calculated using the method detailed in Box 1. The green highlighting indicates that the asset is "safe" according to the criteria and thresholds defined in Box 1.

As Table 1 and Figure 1 demonstrate, there is no redundancy between the selected criteria, which effectively differentiate between potentially safe assets according to their characteristics. For instance, although all sovereign and government-guaranteed assets included in the scope of this exercise satisfy the liquidity criterion, not all of these same assets meet the criteria for counter-cyclicality, credit quality or volatility.

Figure 1: The safe assets landscape



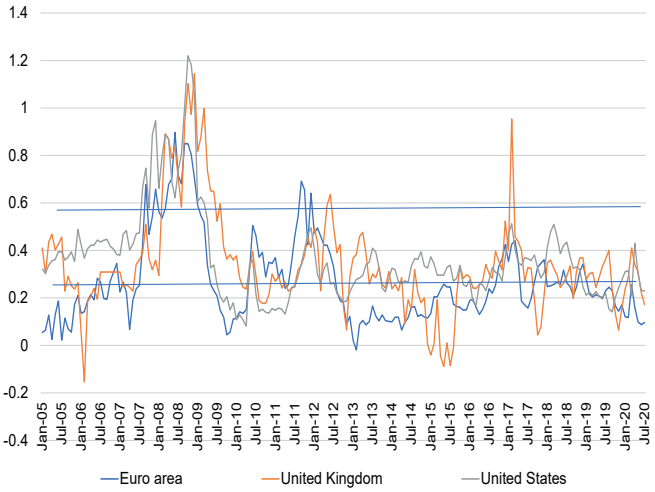
Source: DG Trésor calculations, Bloomberg data.

How to read this figure: The size of each coloured circle reflects the outstanding total in $bn. Securities with the best credit-quality rating (level 1) appear in blue, while those with a lower rating (level 2 or 3) appear in orange. Sovereign bonds are those where the circle contains only the ISO3 country code. Higher-liquidity assets are labelled in bold, while lower-liquidity assets are labelled in italics. The stability axis represents the inverse of volatility (with a threshold of 1/5 = 20%). The blue lines represent the counter-cyclicality and volatility thresholds selected for this study. In terms of the volatility of bond indices, investors can use derivatives to hedge against exchange-rate risk (a risk that increases with average debt maturity). This approach, for instance, makes UK-issued debt less volatile than would otherwise be the case.

Importantly, the "safety" of an asset is not a fixed quantity: it can vary according to the time period under consideration and to an investor's confidence in that asset, which itself depends on the prevailing economic conditions. Thus, even assets exhibiting a high degree of safety can be affected by a major shock, or if they are particularly exposed to a certain type of crisis. During an extreme shock, market participants whose liquidity preferences change suddenly may choose to sell these assets, as was the case with the offloading of US Treasuries in the early days of the COVID-19 crisis in March 2020.

While the above classification of major asset classes provides a useful starting point, examining the convenience yields for these assets adds an extra layer of nuance to the analysis. The convenience yield is a dynamic measure of the overall characteristics that make an asset safe. It is estimated individually for each asset based on its market price and is traditionally defined as the implied value that investors assign to that asset's safety and liquidity attributes.[9] As Figure 2 shows, short-term convenience yields for sovereign bonds (Germany, United Kingdom and United States) appear to follow two distinct patterns: a "steady" pattern, where yields oscillate between 20 and 40 bps, and a "crisis" pattern, where values spike in times of financial crisis (the Global Financial Crisis, the European sovereign debt crisis of 2010-2011, and Brexit in 2016).

Figure 2: Time-series of convenience yield estimates for different sovereign bonds (in percentage points)



Source: Diamond W. and Van Tassel, P. (2022), "Risk-Free Rates and Convenience Yields Around the World", Federal Reserve Bank of New York Staff Report, No. 1032.

2. Changes in the supply of safe assets since 2008: A mixed picture

2.1 The total stock of sovereign and government-guaranteed bonds outstanding grew sharply, with widening heterogeneity, especially in terms of credit ratings

The total stock of outstanding assets[10] exhibiting at least one characteristic of safety grew by more than $27 trillion between 2012 and 2021, with varying trends according to each criterion. The main driver of this growth was an increase in sovereign bonds outstanding (up more than $18.5 trillion over the same period). The United States led the way with an additional $11.5 trillion in sovereign debt issues, with the euro area and the United Kingdom together accounting for close to $4.2 trillion. Half of this increase in sovereign bond issues can be attributed to the COVID-19 crisis, as governments looked to raise funds for pandemic support packages.

Focusing specifically on the United States, the total stock of municipal debt remained largely unchanged between 2012 and 2021 (up $100 billion), while agency bonds outstanding fell slightly (down $700 billion). Overall, the sharp rise in United States-issued sovereign and government-backed assets led to an increase in the total stock of assets considered "safe", across the four criteria, over the period in question.[11]

European and Japanese sovereign debt issues also helped to increase the supply of assets exhibiting more counter-cyclicality and less volatility than European corporate debt. These securities are less consistent in terms of their performance across the four criteria of safety: some sovereign bonds exhibit higher short-term volatility than their peers (Italy and the United Kingdom), while others have a lower credit quality (Italy, Japan and Spain), with the ratings of these sovereign issuers downgraded or put on negative watch during the period. However, these assets possess other characteristics that appeal to investors, especially in terms of liquidity.

(9) Krishnamurthy A. and Vissing-Jorgensen A. (2012), *op. cit.*
(10) Including debt held by central banks.
(11) Past debt-ceiling crises did not cast doubt on the safety of United States sovereign bonds across any of the four criteria. In particular, these episodes had no structural impact on the volatility or liquidity of these assets over the period in question.

2.2 The total stock of corporate bonds outstanding also grew, albeit less sharply, under the effect of specific dynamics between asset classes

Between 2012 and 2021, the total stock of investment-grade corporate bonds outstanding (rated AAA to BBB-) increased by more than $6 trillion, helping to expand the supply of assets meeting at least one of the criteria for safety. This trend was driven primarily by United States corporate bond issues (up close to $5 trillion over the period) and, to a lesser extent, by European issues (up $900 billion).

The Federal Reserve's asset-purchase programme also had an indirect, but significant effect on the total stock of corporate bonds outstanding. Falling US Treasury yields were another contributing,[12] as investors turned away from sovereign bonds and towards corporate debt. Turning to Europe, the growth in corporate debt could be attributed to companies choosing to issue bonds rather than borrow from banks, which tightened their lending criteria in order to comply with stricter banking regulations.[13] Despite this volume growth, the overall safety of high-quality corporate bonds declined over the period, with a sharp rise in the proportion of issuers rated BBB (the lowest quality of bonds that enjoy investment-grade status). In OECD countries, the share of companies rated AAA/AA in investment-grade issuance fell from 20% in 2008 to less than 10% in 2019, while the share of issuers rated BBB jumped from close to 30% in 2008 to 51% in 2019.[14]

The stock of securitised bonds grew by close to $3.3 trillion between 2012 and 2021, helping to bolster the supply of counter-cyclical assets. A key driver of this trend was an increase in United States MBSs, the majority of which are now guaranteed by government-sponsored enterprises (GSEs) Fannie Mae and Freddie Mac[15] following the introduction of tighter regulation in the wake of the subprime mortgage crisis. Other contributing factors included the buoyant United States real estate market and the fact that the Federal Reserve bought a significant volume of these securities as part of its asset-purchase programme.

3. Changes in demand for safe assets since 2008

3.1 Regulatory developments have bolstered demand for high-credit-quality assets

Demand for safe assets has been bolstered by two major regulatory developments: the gradual tightening of prudential requirements for banks and insurance companies following the 2008 crisis, and the collateralisation of derivative transactions under new market regulations (see Box 2). Another factor driving this additional demand, coming mostly from banks, has been a surge in traditional demand for assets that can be used as collateral in central bank refinancing operations[16] and in secured lending/borrowing in money markets.[17]

Demand for safe assets has therefore been influenced by two trends. The first is an increase in the volume of high-quality liquid assets held by banks and insurance companies in the euro area (up 10% and 5% respectively between March 2020 and March 2021) and in the United States (up 7 percentage points as a share of bank assets). The second is an increase in the pledging of high-quality assets as collateral in secured lending/borrowing operations: in the United States, this trend began in 2019, with an additional $200 billion pledged, reaching an additional $500 billion at the peak of the COVID-19 crisis.

(12) Giambona E., Matta R., Peydro JL and Wang Y. (2020), "Quantitative Easing, Investment, and Safe Assets: The Corporate-Bond Lending Channel".
(13) Carre T., Coeln X., de Warren G., Khater M., Moutel A. and Villani E. (2022), "Bond Market Borrowing by Non-Financial Corporations", *Trésor-Éco*, No. 313.
(14) Çelik S., Demirtaş G. and Isaksson M. (2020), "Corporate Bond Market Trends, Emerging Risks and Monetary Policy", *OECD Capital Market Series*.
(15) At end-2021, 93% of the total stock of Residential MBSs outstanding had been issued by these two GSEs (source: Financial Stability Oversight Council, U.S. Department of the Treasury).
(16) The assets that commercial banks can use as collateral in Eurosystem refinancing operations are governed by a two-part framework (permanent and temporary), which influences the credit quality of eligible assets and, therefore, demand for safe assets.
(17) In Europe, since 2012, the pledging of assets as collateral has evolved in line with demand for longer-term refinancing operations and targeted longer-term refinancing operations. However, the rapid expansion of the repo market (from €2 trillion outstanding at end-2016 to €3.3 trillion outstanding at end-2020) has created strong demand for collateral-eligible sovereign assets (which are used in 85% of transactions).

Additionally, the amount of collateral pledged with Eurosystem central banks rose sharply during the COVID-19 crisis, increasing from €1.5 trillion in Q4 2019 to close to €3 trillion in Q1 2021. However, there is nothing to suggest that this trend led to pressure on the availability of ultra-safe assets. This can be explained by two reasons. First, banks already held these securities in their portfolios.[18] And second, the easing of Eurosystem collateral eligibility criteria in April 2020 affected supply (by lowering credit-quality requirements for eligible assets), as well as demand and convenience yields.

Box 2: The influence of prudential regulation on demand for safe assets in the euro area in the 2010s[a]

The volume of HQLAs held by banks has been on the rise since 2015, partly as a consequence of two developments: the revisions to the Basel III banking regulations, and the entry into force of the liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR). Under the Basel III framework, assets are classified according to their quality.[b] However, this classification is flexible enough that banks can exercise a certain degree of judgement as to the balance between the safety of the assets they hold and their equity ratios. Following the entry into force of the LCR, the total stock of HQLAs outstanding held by euro area banks stood at €1.8 trillion in Q3 2017. This figure remained largely unchanged through to Q4 2019.

The entry into force of the Solvency II prudential regime for the European insurance sector in 2016 is considered to have boosted demand for safe assets. Although the new rules expanded the types of assets these companies can invest in, they also made the capital charges associated with asset portfolios dependent on market risk (with the notable exception of European sovereign bonds, which are considered risk-free). This new framework has therefore further entrenched insurers' pre-existing bias in favour of investing in assets that are safe and liquid – and, by definition, that require limited equity capital – rather than in capital-intensive assets such as equities. As of mid-2022, sovereign bonds thus represented close to one-quarter of insurance companies' asset portfolios.

Last but not least, the European Market Infrastructures Regulation (EMIR) – which regulates the derivatives market and entered into force in 2012 – has lifted demand for collateral-eligible safe assets in two ways: by tightening requirements around the clearing of standardised derivative transactions, and by introducing new margin requirements for over-the-counter (OTC) transactions. As of Q3 2017, these regulatory changes are believed to have bolstered euro area demand by an additional €700 billion.

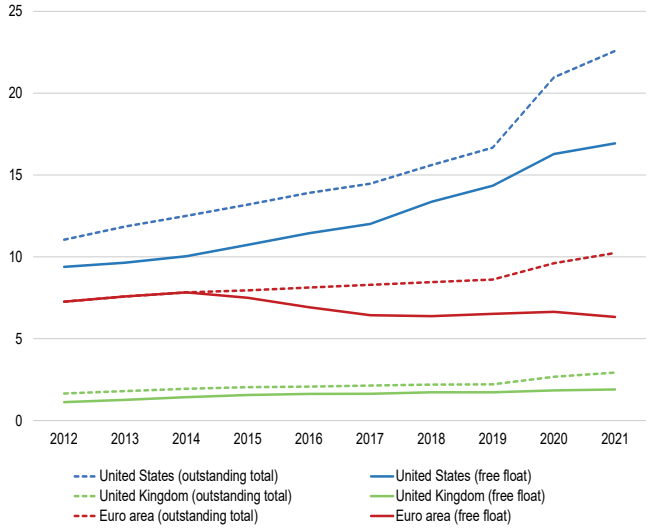
a. ECB *Securities Holdings Statistics*, and Grandia R., Hänling P., Lo Russo M. and Åberg P. (2019), "Availability of high-quality liquid assets and monetary policy operations: an analysis for the euro area", *ECB Occasional Paper Series*, No. 218, ECB.
b. Sovereign debt securities are classified at level 1.

(18) Source: Brueckner B., Lez P. and Nguyen B. (2022), "La stratégie de collatéral de politique monétaire à l'épreuve de la crise Covid-19", *Le Bulletin de la Banque de France* 241/2.

3.2 Quantitative easing programmes drove strong demand for safe assets

Quantitative easing programmes prompted a surge in demand for safe assets – especially sovereign bonds and agency MBSs – among central banks. All other things being equal, this higher demand reduced the volume of safe assets readily available to other economic agents. This so-called "free float"[19] represents sovereign bonds that can be held by private investors, i.e. those that are held neither by the national central bank (as part of its quantitative easing programme) nor by foreign central banks (as currency reserves).[20] This decline in the free float was most obvious in the euro area, where the volume of sovereign debt securities available to the private sector fell during the period in question despite an overall increase in the outstanding total (see Figure 3). In the United States, meanwhile, half of the increase in the total stock of sovereign bonds outstanding was absorbed through quantitative easing.

Figure 3: Sovereign bonds: outstanding and free float totals ($bn)



Source: DG Trésor calculations, FISMA, national debt management offices, ECB.

Outstanding totals are year-end figures.

How to read this figure: For the United States and the United Kingdom, the free-float totals (solid curves) followed similar trends as the outstanding totals (dotted curves) through to 2020. For the euro area, the two curves diverged in 2014, with the free-float total trending downwards when compared with the outstanding total.

4. A shortage of safe assets before the COVID-19 crisis

Pre-COVID-19, sovereign-type securities were in short supply in the safe assets market. However, this situation eased in the aftermath of the crisis as the supply of these assets outstripped demand.[21] Yet behind these global trends lie significant disparities between monetary zones, with the easing of the shortage being more certain in the United States than in the euro area.

The imbalance in the safe assets market widened substantially between 2012 and 2019, largely as a consequence of both accessibility issues and diminished substitutability between assets. As central banks pursued quantitative easing, they absorbed a large share of the total stock of sovereign bonds outstanding, limiting the availability of assets considered "safe" across all four criteria. At the same time, it became less easy to substitute assets meeting at least one criterion for safety for others, since some assets – such as investment-grade corporate bonds – were only "safe" according to one or two criteria. This situation had the effect of pushing up the convenience yields for certain safe-asset classes (e.g. German corporate bonds).

A shortage of safe assets has various observed and potential macroeconomic implications. First, it contributed to driving down neutral interest rates, i.e. the rates at which macroeconomic stability is maintained[22] – although it was not the only cause of this development.[23] Second, if the real interest rate for safe assets cannot fall to the extent necessary to balance the market for these assets, such a shortage can lead to a "safety trap",[24] where households hoard money

(19) Coeuré B. (2018), "The persistence and signalling power of central bank asset purchase programmes", speech at the US Monetary policy Forum, New York City.
(20) It is possible to adopt a more restrictive definition by also removing from the "free float" those assets held by long-term investors (pension funds and insurance companies), which retain them through to maturity.
(21) Faubert V. and Sode A. (2013), *op. cit*.
(22) Del Negro M., Giannoni M., Giannone D. and Tambalotti A. (2017), "Safety, liquidity, and the natural rate of interest", *Brookings Papers on Economic Activity.* Thiago F. and Shousha S. (2021), "Supply of Sovereign Safe Assets and Global Interest Rates", *International Finance Discussion Papers*, No. 1315, Washington: Board of Governors of the Federal Reserve System.
(23) The fall in neutral interest rates may also have been caused by factors associated with so-called "secular stagnation", such as a protracted period of weak growth and low productivity.
(24) Caballero R. J. and Farhi E. (2017), "The safety trap", *Review of Economic Studies*, vol. 85, No. 1, pp. 223-274.

and put off spending decisions, and where the high cost of financing causes companies issuing safe assets to under-invest. In turn, this situation can lead to the long-term contraction of demand below the potential output level. In such a scenario, unconventional monetary policy measures – which have the effect of increasing the risk premium on other assets – would prove ineffective at counteracting the recessionary effects of the shortage of safe assets, with the potential for such effects to become permanent. Third, a shortage of collateral-eligible safe assets could trigger credit rationing[25] or, in the event of widespread substitution for less-safe assets, even indirectly undermine financial stability.[26]

5. A constantly shifting balance

5.1 The safe assets landscape: A distorted picture

With inflation rising since Q2 2021 and the economic picture deteriorating, there is a strong possibility that monetary policy tightening could result in some assets being downgraded, which would reduce the overall supply of safe assets. Since increasing financing costs are only partially offset by the inflation-induced reduction in the value of debt interest, significant tightening of monetary policy or risk repricing could undermine the sustainability of both sovereign and corporate debt.

Conversely, quantitative tightening programmes – such as those initiated by the Federal Reserve in June 2022 and the ECB in March 2023 – involve central banks trimming their balance sheets by offloading the assets purchased under earlier periods of quantitative easing. Such a move steadily releases safe assets onto the market, making them more readily available to other economic agents. However, these balance-sheet-reduction programmes also have the effect of tightening financing conditions on the financial markets because they impact the quantity of liquidity available to commercial banks, which may decide to restrict their lending. This kind of development can have implications for certain safe asset markets, as was the case with US sovereign bonds in 2019.[27] The financial regulations brought in after the 2008 crisis, which introduced stricter balance-sheet requirements for banks, could also continue to reduce liquidity in some safe asset markets.[28]

5.2 New safe assets could emerge

On the supply side, the green transition could lead to the reclassification of some assets previously considered safe. This might happen, for instance, if there are changes to the prudential regime for certain asset classes, if agencies review the fundamentals on which they base their ratings, or if central banks revise their collateral policy.

Meanwhile, the NextGenerationEU recovery plan, which was launched in 2020 and is funded by common debt issuance, could lay the groundwork for a new European safe asset. Under the plan, the European Commission issues bonds, at different maturities, on behalf of the European Union (EU). These assets are intended to exhibit liquidity all along the maturity curve. However, although these bonds are rated AAA for credit quality because they are implicitly guaranteed by the highest-rated Member States through the EU budget, they do not yet meet all the criteria necessary to be considered safe, falling short in terms of both liquidity (since the recovery plan is temporary) and counter-cyclicality.

5.3 Regulatory developments will weigh on demand

In theory, the ongoing Solvency II review could stabilise, or even slightly reduce, demand for safe assets among insurance companies if the rules that apply to long-term equity holdings are simplified as expected. Specifically, the revised Directive could

(25) Gorton G. and Ordoñez G. (2014), "Collateral crises", *American Economic Review*, vol. 104, No. 2, pp. 343-378.
(26) Gorton G. and Ordoñez G. (2022), "The supply and demand for safe assets", *Journal of Monetary Economics*, vol. 125, pp. 132-147.
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introduce lower capital charges for such holdings, provided that insurance companies satisfy holding-period and other requirements.

In the medium to long terms, concentration in the clearing house sector could help to realise economies of scale in the management of securities collateral, which in turn would reduce demand for safe assets.[29] However, the clearing of derivative transactions in the EU, which was still a marginal practice at end-2021, could become widespread in the aftermath of Brexit. In the shorter term, this could push up demand for collateral and, therefore, for safe assets.

In recent years, the share of financial assets outstanding held by NBFIs has increased sharply, from 42% in 2008 to 49.2% at end-2021 (representing total holdings of $240 trillion). This development is a source of growing consternation among regulators, which have repeatedly called for tighter regulation of the sector. The liquidity crises that hit money market funds in March 2020 and United Kingdom pension funds in September 2022 have also revived discussions about the introduction of liquidity management tools, and have even prompted calls for macroprudential measures,[30] which could bolster demand for high-quality safe assets.

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Dorothée Rouzet

Editor in chief:
Jean-Luc Schneider
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tresor-eco@dgtresor.gouv.fr

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