

Keynote Speech

DEBT AS MONEY: IMPLICATIONS FOR FINANCIAL STABILITY

Jean-Pierre Landau

We live in a period when the economic and political discourse is dominated by debt. The financial crisis was caused by an accumulation of debt. The current regime of low growth is frequently attributed to some debt overhang and the unwinding of a 'debt super cycle'. Debt fuels anxiety and erodes confidence. Debt also amplifies existing concerns on fairness and income distribution. Political compromises on fiscal adjustments become more difficult to reach and, overall, the willingness to repay debts diminishes as the amounts accumulate.

It is easy to forget, in such an environment, the role that public debt plays in developed financial systems. Government bonds are backed by the power to tax and, therefore, are uniquely placed to park and transfer wealth from one period (or one generation) to another. They fulfill an essential function as the ultimate riskless asset. In addition, the debt markets of advanced economies are the most liquid in the world and, for the short end of the curve, treasury bills act as very close substitutes to money. Only some government bonds of advanced economies jointly possess these two characteristics: safety and liquidity.

The safety and liquidity attributes of sovereign debt are increasingly emphasized in academic and market literature. In parallel, a policy debate on the debt regimes is developing, with many policymakers promoting state contingent – easy to restructure – debt. Those two debates are disconnected from each other. Although this is not infrequent, it may lead to difficulties down the road. The purpose of this paper is to try and connect

the two debates, illustrate the tradeoffs, and draw some preliminary conclusions regarding the policy implications.

The functions of public debt

The primary function of sovereign debt is to help financing the government. Public budgets are not always in a balance, nor should they be. It makes sense to let the budget fluctuate with the economic cycle as part of the so-called automatic stabilizer effect. This introduces a cyclical element into the dynamics of public debt, which, in principle, ultimately cancels out. Debt may also exhibit an increasing trend beyond the cycle. This may be virtuous, if debt efficiently serves as tool for inter-generational transfer. Debt may also increase as a result of shocks, as happened in most advanced economies following the financial crisis. Debt to GDP ratios have risen significantly, fueling concerns about debt sustainability.

It is also important to look at public debt from the point of view of its holders. Public debt in most advanced economies is perceived as liquid and safe - a concept that will be further refined later. As such, it can serve both as a medium of exchange and a store of value. It plays a crucial role in the financial system in helping to provide and allocate liquidity, thereby eliminating financial frictions.

Public debt underpins and supports a great number of transactions between financial intermediaries. Short-term debt is almost a perfect substitute to cash and banks' reserves held by the central bank. Both short and long-term public debt serve as collaterals in money markets (repos) and derivatives transactions. A repo is a 'debt on debt'. Public debt 'is vital to the functioning of the financial system, analogous to the function of money in the real economy' (Coeuré). Because it is essential to transactions between financial intermediaries, the need – and demand – for public debt structurally grows as financial intermediation shifts from banks to the non-bank sector.

Safe public debt also serves as a reliable store of value. By holding public debt, economic agents can protect themselves against economic and financial shocks. Debt allows to safely transfer value across periods and generations. It also eliminates financial frictions linked to liquidity. Agents are liquidity-constrained to the extent that they cannot pledge their future

income in order to obtain money at the present time. Public debt alleviates this constraint: ‘increased government borrowing can benefit [them], insofar as they effectively receive a highly liquid asset, government debt, in exchange for giving the government an increased claim on their future income [...] A higher public debt, insofar as it implies a higher proportion of liquid assets in private sector wealth, increases the flexibility of the private sector in responding to variations in both income and spending opportunities, and so can increase economic efficiency.’ (Woodford)

So, inside and outside the financial system, public debt carries two main attributes of money: its ability to serve as a medium of exchange and a store of value. There is an element of ‘moneyness’ in (safe) public debt. It is especially true for short-term debt but also exists for longer maturities (through collateralization). Government debt is the money used inside the financial system to underpin or effect transactions. And, just as money, it serves to all economic agents to safely park their wealth.

Consequently, there is a ‘demand for debt’ akin to the demand for money. That demand is independent of the needs of the borrower or the intrinsic characteristics of debt, as long as it can be considered safe. In particular, short term safe instruments appear to carry a money premium (sometimes called a convenience yield) that lowers their yield: ‘That premium stems from their liquid, short term and safe nature – their money-like attributes.’ (Del Negro et al.)

While debt is instrumental in allocating liquidity and capital, it is not the purpose nor the function of debt to share and distribute risk. There is an inherent contradiction in the concept of ‘risky’ debt. It is in the nature of debt, as opposed to equity, that its nominal payoff should be stable and predictable. Obviously, there is always the possibility that the borrower is unable to meet its obligations and defaults (i.e. the credit risk). There is also the possibility that higher-than-expected inflation might reduce the real value of the stream of cash flows associated to debt. Those risks cannot be eliminated: to some extent, all debt is risky by nature. The question is: should it be risky by design? Should the structure of debt contracts make it ex-ante easier, or more difficult, to restructure of default according to circumstances? In that case, there would be an element of equity embedded into debt instruments. Would it be desirable from a financial stability point of view? This is the question at the center of this paper.

Should debt be designed as risky?

There is a long history of international efforts to create risky – state contingent – sovereign debt instruments and associated procedures. That approach has inspired the ill-fated Sovereign Debt Reduction Mechanism (SDRM) and the generalization of Collective Action Clauses (CACs) in sovereign debt. It also partially drives the current G20 agenda, as well as IMF work on debt sustainability. It offers numerous advantages.

1. It fosters market discipline. In the ideal model of efficient financial markets, it is desirable that risk is permanently reflected in the price of debt and the interest rate. Risk premia make it more (or less) costly to issue new debt and create incentives for the Sovereign to adjust if necessary. A debt regime that allows for easy default also imposes burden sharing on imprudent lenders.
2. It avoids moral hazard. To the extent that it comes from (explicit or implicit) guarantees given by a credible third parties, safety creates asymmetric incentives: the beneficiary Sovereign has no incentive to ensure fiscal soundness and sustainability. Those considerations of moral hazard are central to the debate on the treatment of Sovereign debt in the Euro area.
3. Only, if debt is risky can the independence of monetary policy be assured in all circumstances. Over the last decades, all advanced (and most emerging) economies have adopted a monetary regime based on the independence of central banks. This regime relies on the ability of central banks to control effectively inflation and, more significantly, on the perception that they will be able to do so in all circumstances. Such ‘monetary dominance’ implies that fiscal policy can always be adjusted to meet the government’s inter-temporal budget constraints, whatever action the central bank may have to take. With moderate levels of debt, there is no doubt that fiscal authority will meet that constraint. When public debt reaches high levels there is more uncertainty. First, high primary surpluses are needed, which may prove difficult or even impossible to achieve. Second, any monetary tightening, in the form of higher interest rates, will aggravate the debt service burden and make it less likely that the budget constraint will be met (the so-called ‘unpleasant monetary arithmetic’). At

very high debt levels, there is no ‘state of the world’ where both the budget constraint and the objective of price stability can be satisfied simultaneously. Long-run inconsistencies between monetary and fiscal constraints will result in either inflation or sovereign default. So, if a default is excluded, ‘fiscal dominance’ on monetary policy becomes a real possibility. The existence of such a dilemma might be sufficient to trigger expectations of future inflation which, in turn, could translate into higher inflation today.

4. Finally, sovereign default acts as an insurance against shocks because, under pre-defined conditions, it engineers a transfer of resources from the lenders to the sovereign debtor. GDP index-linked bonds are specifically designed for that purpose, as an instrument to share the economic risk between resident tax payers and foreign investors.

It should be noted, however, that alternative mechanisms for countries to insure against economic or financial contingencies do exist. One of them consists in accumulating buffers in the form of assets that can be liquidated and drawn upon in case of adverse shocks. When debt is held by non-residents, foreign exchange reserves play specifically that role. There is one striking difference between advanced and emerging economies: while advanced economies do not hold much of foreign reserves, all emerging economies keep accumulating them. This behavior contributes to increasing the demand for safe debt issued by advanced countries. By acting this way, countries ‘reveal’ their preferences and those are indicative of the subjective costs associated by borrowers with debt default.

Should debt be designed as safe?

It is difficult to make a case for debt to be safe when it is considered only as a funding instrument. The case becomes much stronger when debt is viewed as a financial asset and a store of value, for which there is a specific – and growing – demand.

The evidence for a growing trend for the demand of safe debt comes from three sources.

First, the evolution of regulatory requirements since the financial crisis. Banks are now required to hold ‘high quality’ assets to meet their liquidity ratios. New rules also demand that most derivatives contracts be cleared and settled through CCPs, which would likely increase the demand for collateral, especially in times of stress.

Second, contemporary events illustrate the inflexibility of the demand for safe assets. US authorities implemented in 2016 a reform of money market funds (MMF) whose central piece was the compulsory introduction of a floating net asset value (NAV) for ‘prime funds’. Holders of shares in those funds became exposed to possible nominal losses. After the reform was enacted, those funds registered an outflow of 1 trillion US dollars. Placements were mostly redeployed towards funds that still guaranteed full redemption value.

Finally, an important body of recent research documents strong regular patterns in the demand for safe assets (both privately and publicly issued) over several decades. According to Gorton et al. (2012), ‘the share of safe assets in the U.S. economy, including both U.S. Treasury debt and privately-created near-riskless debt has remained constant as a percentage of all U.S. assets since 1952.’ Krishnamurthy and Vissing-Jorgensen (2012) demonstrate an inverse relationship between privately and publicly issued safe debt with private debt expanding or retreating as if to offset the movements in public debt.

Looking forward, a good rule of thumb to predict the demand for safe assets would incorporate three components:

- a constant share of safe assets in overall financial portfolios over the very long run;
- a trend increase in the ratio of financial wealth to GDP;
- cyclical or temporary fluctuations in the demand for safe assets depending on risk aversion - with possible ‘jumps’ triggered, for instance, by regulatory changes.

Together, those demand dynamics require a supply of safe assets that would be growing (in % of GDP) and sufficiently ‘elastic’ to meet temporary surges or decreases in the use of safe assets in the financial system.

How would the economy adjust if the evolution of safe public debt does not parallel the need and demand for safe assets, therefore creating a 'shortage'? From a financial stability perspective, several potential dangers and dilemmas would arise.

The first relates to the prevalence of risky public debt in the financial system. Risky debt carries uncertainty on its future payoff and higher risk premia, being therefore more costly to issue. More importantly, however, uncertainty creates the possibility of multiple equilibriums. In times of trouble, sovereigns – like financial institutions – can be either illiquid, insolvent, or both. In many cases, the distinction is blurred. There is a substantial endogeneity in the way markets assess sovereign risk. For instance, the sole perception of insolvency can create insolvency, because it leads to an increase in risk premia and, ultimately, to unsustainable interest rate levels. When uncertainty is high, sovereigns also face liquidity shortages, as expiring debt may be difficult to roll over. They can only issue new debt at constantly higher interest rates. In turn, higher interest rates create doubts on solvency, triggering a spiral of increasing interest rates and illiquidity. The interaction of credit and liquidity risk creates powerful feedback loops that may destabilize the financial system.

A shortage of safe assets may also be conducive to overall financial fragility as it would encourage the (ultimately unsafe) production of (perceived) safe assets by the private sector. The search for safe 'parking spaces' may lead to an unrestricted demand for assets whose value is perceived as protected, hence fueling bubbles and creating financial fragility. The abovementioned inverse relationship between the production of public and private safe assets validates this assumption. The 2008-2009 financial crisis is widely attributed to misguided attempts by private financial intermediaries to manufacture risk free assets through the structuration and securitization of housing loans.

There is a deep logic in this process, which may lead to a repetition of crises in the future, albeit in different forms. The economy 'demands' safe assets, because it also 'demands' maturity and risk transformation. With an abundance of safe assets, that transformation can be achieved with minimum fragility. If there is shortage, the system will adjust and produce less safe short term assets, at the price of an increased fragility. Greenwood et al. (2016) have proposed to use that complementarity

between private and public safe assets as a tool for financial stability interventions: by issuing public safe assets that would crowd out private ones, the government could enhance the robustness of financial intermediation when necessary.

Finally, a shortage could prompt central banks to step in and produce – or facilitate the production of – safe assets. For instance, the purchase of private bonds or mortgage-backed securities (MBS) from the private sector amount to swapping a safe asset (Banks' reserves) for a risky one, thereby increasing the net supply of the former. In the Euro area, the so called Target II balances (which are held by National Central Banks at the ECB and used to settle payments between them) usually expand in times of uncertainty. This occurs because private financial intermediaries are using their accounts at the central banks – rather than private bilateral ones – to settle cross border transactions. By offering an elastic supply of safe payment instruments, the Target II system immunizes cross border payment flows from episodes of risk aversion. Central banks may also want, by guaranteeing the liquidity of Sovereign bond markets, to eliminate roll over risks and increase the perceived safety of public debt

While most of those interventions remain somehow contentious, they will likely remain debated in the future as central banks consider the exit from Quantitative Easing and the future size and shape of their balance sheets.

What makes debt 'safe'?

There are many definitions of safe assets. Significantly, market practitioners tend to have different views from professional economists. In short, safety can be seen as 'relative' or 'absolute'. In the first case, there is a continuum of mutually-substitutable assets, with increasing level of risk and spreads adjusting to changes in fundamentals and risk perceptions. Most market participants would take such a view and show some skepticism toward the concept of a pure 'safe' asset. They also take an optimistic vision of the equilibrium mechanism, where relative prices of assets would adjust so as to satisfy the equally relative aspiration to safety.

Economists tend to take another view, where safety is ‘absolute.’ An asset (or debt) is either safe or risky. Safe assets are not substitutes to any other category. Imbalances between supply and demand trigger adjustments in other markets (i.e. assets and good). An ‘asset shortage’ therefore has direct macroeconomic consequences.

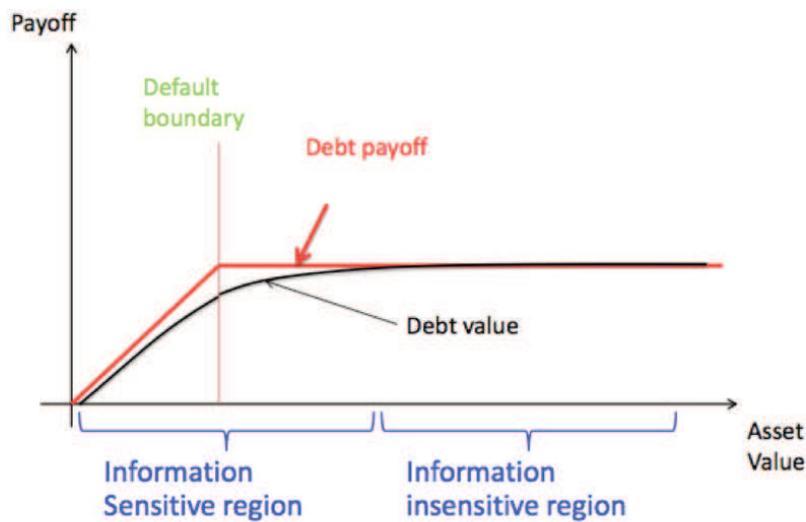
The validity of each approach may depend on the overall environment. In tranquil times, the relative view may be valid. In periods of increased financial frictions, there is a ‘flight to quality’: asset substitutability diminishes, arbitrage is constrained and safety becomes more absolute. Consequently, the distinction between safe and unsafe assets becomes starker.

Among economists themselves, there is a plurality of definitions. The most appropriate when looking at financial stability implications has been developed by Dang et al. (2009). For a safe asset to provide a reliable store of value, its value (and payoffs) must remain the same in all (or most) states of the world. A safe asset is therefore ‘information insensitive.’ Its value does not change in reaction to ‘news’ about the economy or the issuer’s solvency

Debt is especially suited to meet that requirement of information insensitivity, as its payoff is predictable and fully determined in most states of the world. The following graph is reproduced from Holmstrom (2012). It shows the payoff of a debt instrument in relation with the intrinsic value of the underlying claim or asset. Most of the states of the world are in the ‘information insensitive’ region: the lender is certain to get paid back whatever happens to the economy and the borrower. On the left of the ‘default boundary’, however, debt becomes ‘information sensitive’: since the value of the underlying asset is too low, the borrower may default and any information becomes extremely relevant.

Dang et al. (2009) and Holmstrom (2015) emphasize one major benefit of information insensitivity for the working of money and debt markets. Information insensitivity is conducive to greater trade and liquidity.

Debt and information sensitivity



When a security (debt) is information insensitive, there is no need or incentive for the buyer to incur the costs of price discovery. All episodes of illiquidity in debt and money markets have been brought by surges in information asymmetry: when one side of the trade knows more than the other about the underlying value of the security, exchanges come to a halt. The standard response to those liquidity freezes is to increase transparency and reestablish information symmetry. Dang et al. demonstrate that there is another way: eliminating any need for information by exchanging securities that are information insensitive. This is why ‘ignorance is bliss.’ Both the buyer and seller possess the same (zero) degree of information relative to the underlying value. There is no information asymmetry.

Safety, coordination of beliefs, and commitment

As developed in previous sections, financial market participants and intermediaries hold (sovereign) debt for the same reasons and motives that they hold money: as a store of liquid value. Just as for money, ‘backing’ is not essential when the decision to hold debt is made. Money is not held because it is backed by any tangible or intangible assets or by flows of income. Each participant in the economy believes that money will be accepted as a medium of exchange in the future. The same is true for debt as long as it is considered as safe. To some extent, safe assets

of those we decide should be safe. 'Admittedly, the definition is partly self-referential. In the end, assets are just as safe as they are expected to be and as a consequence they are prone to abrupt shifts in confidence' (Coeuré).

While safety results from a coordination of beliefs (in addition to fundamentals), it becomes fragile when that coordination breaks down. Even a solvent borrower may be stricken by coordination failures, for instance if some lenders start to have doubts and trigger a 'run on the debt'. Solvency is therefore not 'absolute.' It can be seen as depending on three parameters: the intrinsic creditworthiness of the borrower, the state of the economy, and the coordination of beliefs. Because of possible multiple equilibriums, the interaction between those three parameters is essential.

Commitments are very important: a credible commitment to pay back debt in full has positive effects on financial stability, because it reduces the probability of coordination failures. Looking at the graph above, a credible commitment can be seen as reducing the region of information sensitivity by shifting to the left the boundary between the information sensitive and insensitive regions. It makes debt safe in a greater number of states of the world and, overall, less information sensitive.

There is, obviously, a trade off. While the region where debt is information sensitive becomes smaller, inside that region the value of debt moves very strongly with any new information. The slope of the payoff curve gets steeper. In fact, it may be that, once the frontier has been reached, debt will lose all its value in the eyes of investors. Strong commitments unavoidably come with the tail risk of occasional disruptive shocks, if they are ultimately breached. In fact, one can think of several examples of fixed exchange rate regimes that collapse, creating huge damages to the economy. Commitment should certainly not be seen as a substitute to fiscal soundness but, rather, as an instrument to maximize the benefits of good fiscal policies and protecting them from exogenous financial shocks.

Authorities can signal their commitments through their actions (in this case through fiscal policies) but also, through their willingness to accept (or not) a binding legal framework. Commitment depends (par-

tially) on institutions and debt structure. Legal regimes that make it easy to restructure or forgive debt, send a message of weak commitment.

Sustainability, therefore, is partly endogenous to the debt regime implemented by the authorities. ‘Safety is, in other words, is an outcome of an institutional and legal framework.’ (Coeuré). Obviously, the credibility of fiscal consolidation is crucial when debt is high. However other policies, such as the legal treatment of debt and the willingness to repay, will determine how the fundamentals of debt interact with financial markets to produce – or not – a sustainable and stable equilibrium. In other words, the structure of debt matters. It is a legitimate policy objective to aim at a debt structure that would favor a stable coordination of beliefs through commitment.

If investors are living into a ‘binary’ world, where assets are either safe or unsafe, then the debt structure should mirror that distinction and create a clear division between safe and unsafe debt. It should also minimize the disruptions that would occur when debt suddenly loses its safe status as a result of a deterioration of fundamentals or a collapse in the coordination of beliefs. Altogether, governments should aim at institutions and debt structures that would (1) make default extremely hard to trigger, but (2) once triggered make it very easy to implement. Current international efforts may go in the opposite direction as they seek to make debt more state contingent, while leaving unchanged the existing complexity in implementing cross border defaults. If successful, those efforts would potentially limit the amount of safe assets available in the future.

The ‘Triffin dilemma’ on public debt

Safe debt is issued by governments. Unless there is overfunding of government needs, the net issuance of debt closely matches government deficits. If liquidity needs are high, an important stock of debt is needed. But, over time, the stock of public debt – the supply of safe assets – only grows if the issuer’s underlying fiscal position deteriorates. The resulting tension is described as a ‘Triffin dilemma’: to meet increasing demand for safe debt, sovereigns have to run constant deficits. Their solvency deteriorates and the safety of the debt can ultimately be compromised. Fiscal consolidation will further restrict the net supply of such assets. There is

no evading this dilemma as long as safety exclusively depends on scarcity.

A strong commitment, backed by an appropriate debt regime, helps to relax, if not eliminate the Triffin dilemma. This happens because, with strong and credible commitment, a larger share of the existing debt stock may be considered as safe. Put differently, it is possible to issue a greater amount of safe debt for the same amount of total debt, without compromising the sovereign's solvency.

Debt and the international monetary system

Debt is central to the workings of the international monetary and financial system. While equity flows have been important, it is difficult to imagine any progress in financial integration that would not mainly be based on debt (Obstfeld, 2015). Existing debt regimes have important consequences because they determine the conditions for the issuance of global safe assets.

There is, first, a question of stability. In a truly global financial system, domestic and foreign assets should be perfect substitutes for all asset classes. This is obviously not the case. Since only a few countries can issue safe debt and assets, cross-border portfolio flows, especially between different currencies, mainly involve risky securities. This is a major difference from domestic flows, where safe debt can be exchanged or serve as collateral. It is also one reason why, in aggregate, cross-border flows are more volatile than domestic ones.

Another question relates to the symmetry of the system. If one or a few countries have a monopoly in the issuance of safe debt, they have a dominant influence on overall financial conditions. In periods of tension, a flight to quality naturally generates capital flows from the risky 'periphery' to the safe 'center', exacerbating local liquidity problems and balance-of-payments difficulties (Brunnermeier et al. 2016). This has been apparent both globally – with outflows from Emerging Economies – and inside the euro area. During the euro crisis, the so-called principle of private sector involvements (PSI) was decided in October 2010. It explicitly made government debt safe contingent, and a large chunk of (peripheral) government debt instantly lost its status as a safe asset.

Indeed, there is a close relationship between the global discussion and the debate taking place inside the euro area on debt structure, especially on PSI and the regulatory treatment of sovereign debt held by banks. The tensions between the core and the periphery in the Eurozone largely mirror those that periodically appear in the international monetary system. Both at the regional and global level, it is hard to see how a more stable, resilient and symmetric monetary system could emerge from a situation where only a couple of countries would issue debt that is considered as safe.

For the euro area, in the framework of the Capital Market Union (CMU) it should be a primary objective to create safe debt instruments that allow robust cross border financial intermediation. Such debt instruments should be backed by a geographically diversified portfolio of claims. They could be both public (i.e. the European Safe Bonds discussed earlier) and private . A failure to construct a truly euro-wide safe asset would burden the single capital market with a permanent threat of disruption and instability

Finally, there is a close relationship between debt and international liquidity provision. Safe government debt is the asset in which much of foreign exchange reserves are invested. Thus the public component of 'global liquidity' is mainly comprised of debt. A diversification of foreign exchange reserves would necessitate that more countries issue safe and liquid debt.

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