Deleverage without a crunch

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Draft Working Paper

June 2017

Abstract

This working paper explores the basic frame-work for introduction of the virtual euro (*digital cash*) in the Eurozone, as a substitute for euro denominated bank money. Conversion to digital cash provides an opportunity to deleverage society, in a monetarily-neutral way, by repayment of bank loans, and without favouring debtors over creditors. Conversion to digital cash changes the nature of money in circulation, as contractual money claims (financial assets) are replaced by intangible liquid assets (digital cash). This releases the general payment system from credit and market risks, and fundamentally alters the way the monetary system is managed.

Key-words: digital cash; virtual euro; sovereign money; financial law; financial oversight; prudential oversight; money; credit; bank money; bank deposits; governance; monetary policy; monetary policy tools; monetary management; interest rates; banking; banking system; central bank; monetary authority; Eurozone; European central bank; Member States.

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Introduction

The virtual euro raises fundamental questions on design and governance of the monetary system. Like blockchain based currencies, the virtual euro (digital cash) is not a claim on the issuing entity. And payment with virtual euro does not involve any bank balance sheet. Bank liquidity, bank balance sheets, and interbank settlement are irrelevant for the virtual euro. All operational functions of the central bank can be discontinued in a virtual euro system. Conversion to the virtual euro can even repair imbalances accumulated in the current monetary system. Especially the eurozone has strong incentives to consider this, as it could deleverage the financial system, without the North having to pay for the South. 'Deleverage without a crunch' describes how this could work.

Deleverage without a crunch

Solving the monetary debt problem by issuance of virtual euros (v-EUR) by the EU.

Issuance of virtual euro is the legal power of the Union (3 TFEU), not the ECB. Virtual euro represents an *intangible liquid asset*. It is not a money claim on the issuing entity. Monetary money claims (e.g. bank deposits) are converted into virtual euro. Deleverage is achieved by repayment of bank loans.

Virtual euro issuance for conversion

Conversion of existing bank deposits into virtual euro.

During a limited transition period, the public is offered the option to convert euro denominated bank deposits, at par, into virtual euro (v-EUR). The v-EUR required for this *digital cash withdrawal* is issued per demand, by the EU. In return, the EU receives payment in bank money on its account at the ECB.

Prior to conversion

Banks provide loans to their customers (Clients). Banks fund their operations with Equity Capital (EC), Borrowed Capital (BC) and deposits. Deposits represent a special class of borrowed capital, subject to *prudential oversight*. In general, Borrowed Capital is subject to *financial oversight*, which requires proper communication and risk transparency on behalf of lenders/investors. Deposits lack such transparency rules. Instead, they are issued under conditions supervised by the central bank.

In the Eurozone, the function of the central bank is entrusted to the Eurosystem, a close collaboration of the ECB and the national central banks of the Eurozone Member States. Hereafter, the Eurosystem is equated with the European central bank (ECB*).

Currently, the general payment system is based on interbank settlement, and executed on the balance sheets of the Banks and the ECB*. The ECB* extends credit to its member banks, in return for collateral. To participate in the interbank settlement system, Banks are required to hold liquid reserves at their ECB* accounts.

Situation prior to conversion.

EU_{MTF}		ECB*		Banks		Clients	
		Credit to Banks on collateral	Reserves	Reserves	EC	Deposits	Loans
				Loans	BC		
					Deposits		

Prior to the conversion, the Union attributes issuance of v-EUR to a separate EU-governmental power, the Monetary Authority, that is not entwined with the banking system (as the ECB and the national central banks are) nor the political system. The Monetary Authority is not entitled to the revenue (seigniorage) derived from the conversion. This seigniorage is granted to the *Monetary Transition Fund* (MTF) of the EU, and used to deleverage society, by repayment of Bank debts, in a monetarily-neutral way (no inflation nor deflation). Deleverage is achieved by a balanced distribution of the seigniorage derived from the conversion, among debtors and creditors, Eurozone Member States and Eurozone Citizens.

Conversion (1) – Absorption of reserves

Purchase of v-EUR by banks to accommodate digital cash withdrawals by their account holders.

Payment for v-EUR by crediting the EU$_{MTF}$ account at the ECB.

Conversion to v-EUR siphons off excess liquidity that QE brought into the banking system. As the general payment system migrates to v-EUR, interbank settlement and central bank reserves (bank liquidity) are no longer essential to the general payment system, and are both divested from the public sphere.

Account holders withdraw bank deposits and receive v-EUR in return. Banks purchase v-EUR to accommodate those withdrawals, and pay by crediting the EU$_{MTF}$ account at the ECB, until their reserves at their ECB* accounts are exhausted.*

EU$_{MTF}$		ECB*		Banks		Clients	
Deposits at ECB*	**EC**	Credit to Banks on collateral	~~Reserves~~ **EU$_{MTF}$-deposits**	~~Reserves~~ Loans	EC BC Deposits –	Deposits – **v-EUR**	Loans

Conversion (2) - EU credit extension

Purchase of v-EUR by banks to accommodate digital cash withdrawals by their account holders.

Provision of v-EUR on credit by the EU.

As reserves of the Banks are insufficient to cover for all digital cash withdrawals, the Banks need additional credit. During the transition period, this is provided by the EU, which provides v-EUR to satisfy all digital cash withdrawals, on interest bearing credit to the Banks, on the condition that sufficient collateral is provided.

By definition, at the closing of the transition period, all remaining bank deposits are labeled Borrowed Capital (Bonds), and placed under regular financial oversight, to harness consumer protection and proper communication and risk transparency to lenders.

Account holders withdraw bank deposits and receive v-EUR in return. Banks purchase v-EUR to accommodate those withdrawals. As they have no remaining reserves to pay for the purchase in central bank money, the EU provides v-EUR on credit (on collateral) to the Banks.

EU$_{MTF}$		ECB*		Banks		Clients	
Deposits at ECB* **Credit to Banks on collateral**	EC **+**	Credit to Banks on collateral	EU$_{MTF}$-deposits	Loans	EC BC **+** ~~Deposits~~ **EU$_{MTF}$-credit**	~~Deposits~~ v-EUR **+** **Bonds**	Loans

After the conversion

After the transition period, all bank deposits are either converted into v-EUR or bonds issued by the Banks.

Situation after the transition period.

EU$_{MTF}$		ECB*		Banks		Clients	
Deposits at ECB* Credit to Banks on collateral	EC	Credit to Banks on collateral	EU$_{MTF}$-deposits	Loans	EC BC EU$_{MTF}$-credit	v-EUR Bonds	Loans

Extent of the conversion

The extent of the conversion is determined by a preference for holding money as digital cash (v-EUR), as opposed to lending on interest to financial institutions. This is positively influenced by implementing proper demarcations of public (v-EUR system) and private affairs (money lending) in the financial system, characterized by:

1. Abolition of state support for private monies and its issuers. This includes: (i) abolition of deposit guarantee schemes, (ii) discontinuation or privatization of interbank settlement, (iii) privatization of short term lending to financial institutions, (iv) dissolution of prudential oversight in a single (non-dual) system for financial oversight, aiming at risk transparency and consumer protection, and (v) application of regular insolvency procedures to financial institutions.
2. The EU and its Eurozone Member States, abstain from backing any monies, apart from physical and virtual euros, that are legally issued by the EU itself, or by its Eurozone Member States.
3. Taxes are no longer payable in private monies (like bank deposits); only physical and virtual euros that are legally issued by the EU or its Eurozone Member States, are accepted for payment of taxes.
4. Public budget deficits are exclusively funded by v-EUR borrowing, on the secondary market.

One-way conversion

The EU supports one-way conversion only. Reversion of v-EUR to bank deposits is not supported (but can of course, be accomplished on the secondary market, without affecting total v-EUR quantity). During the transition period, an exemption can be made for retail payments, to make the transition as seamless as possible, allowing payments back and forth between bank accounts and v-EUR accounts.

Over-night migration

Alternatively, all euro denominated current accounts (M1) are mandatorily converted into v-EUR. This would result in an overnight migration to the v-EUR payment system. In the ensuing transition period, savings deposits and other monetary money claims, are convertible on demand into v-EUR.

Payment services

The v-EUR payment system is essentially a public utility, entrusted to the Monetary Authority of the EU. Front-end payment services (user interfaces) however, are to be offered by commercial payment service providers. The license for providing payment services will no longer differ for banks and non-banks, creating a level playing field.

The nature of money

Conversion of bank money to v-EUR changes the nature of money. Bank deposits are *financial assets*, representing *money claims*, subject to counterparty risk. V-EUR does not represent a money claim and is not subject to counterparty risk. It is an *intangible liquid asset*; a digital embodiment of the general unit of value. Ownership of v-EUR is an absolute right, that can be exercised against anyone. By contrast, bank money is a relative right, that can be exercised against the bank only.

V-EUR is not a claim on the issuing entity. It only adds to the balance sheet of the issuing entity:
- as *an asset*, if the issuing entity holds it as cash at hand;
- if the issuing entity has spent it into circulation, in return for *an asset*;
- if the issuing entity has lent it into circulation, resulting in a *financial asset*.

Dividend distribution to Member States and Citizens

Deleverage by repayment of bank loans.

Debt reduction is achieved via distribution of the revenue gained out of v-EUR issuance (seigniorage), to Eurozone Member States (public debt) and Citizens (private debt).

V-EUR issuance for conversion of bank deposits adds Equity Capital (EC) to the balance sheet of the Monetary Transition Fund (MTF) of the EU. The underlying assets are claims on the ECB* and the Banks, which are directly (Banks) or indirectly (ECB*) covered with collateral. This Equity Capital is paid out as a dividend, in vouchers for repayment of bank loans, or in shares in the Monetary Transition Fund.

Debt repayment vouchers are distributed among Member States and Citizens with bank loans. Shares are granted to Member States and Citizens, to the extent of the dividend they are entitled to, but have no remaining bank loans for use of debt repayment vouchers.

Member States are entitled to dividends on equal footing, irrespective of their debt with the banking system. For that, an appropriate allocation key must be applied. For Citizens, an equal share per capita seems most suitable, irrespective of individual debt with the banking system.

Prior to dividend distribution

After the transition period, Banks are no longer funded with deposits. Bank depositors are replaced by bond holders and the Monetary Transition Fund (MTF) as creditors of the Banks. Banks are indebted to the MTF, which has a corresponding claim on the Banks.

Reserves of the Banks at the ECB* are absorbed by the MTF, that has become the ECB*s main creditor. The granting of seigniorage results in Equity Capital on the balance sheet of the MTF, which is distributed as a dividend for reduction of public and private debts with the banking system. The assets of the MTF consist of claims on the ECB* and the Banks.

Situation prior to dividend distribution.

EU_{MTF}		Member States		Citizens		Banks	
Deposits at ECB* Credit to Banks on collateral	EC	Taxes	Public debt: - to Banks - to ECB* - other	Bonds	Loans	Public debt Loans to L Loans to N	EC BC EU_{MTF}-credit

L = legal persons | N = natural persons (Eurozone Citizens)

Note that the balance sheet of the Member States does not show equilibrium of assets and liabilities. It shows a balance of incoming (Taxes) and outgoing (Public debt) cash flows.

Use of debt repayment vouchers by Member States

Eurozone Member States receive and exercise debt repayment vouchers, reducing public debt with the Banks. The EU in turn, accepts repayment vouchers of the Banks, in payment for v-EUR they purchased on credit. Potentially, public debt in the hands of the ECB* is also reduced by use of debt repayment vouchers. The EU accepts those vouchers from the ECB* for debt repayment as well, authorizing the ECB* to debit the account of the MTF, to the extent of the debt repayment vouchers it received.

Public debt reduction enables Member States to lower taxes.

Eurozone Member States receive and exercise debt repayment vouchers. In turn, Banks and ECB accept debt repayment vouchers from the Member States and exercise them with the EU_{MTF}, in payment for v-EUR they purchased on credit.*

EU_{MTF}		Member States		ECB*		Banks	
Deposits at ECB* – Credit to Banks on collateral –	EC –	Taxes –	Public debt: - ~~to Banks~~ - to ECB* – - other	Public debt – Credit to Banks on collateral	EU_{MTF}-deposits –	~~Public debt~~ Loans to L Loans to N	EC BC EU_{MTF}-credit –

In this example, it is assumed that all public debt with the Banks is repaid, and that substantial Equity Capital is still available on the MTF-balance sheet, for private debt reduction.

Situation after exercise of all debt repayment vouchers received by Member States.

EU_{MTF}		Member States		ECB*		Banks	
Deposits at ECB* Credit to Banks on collateral	EC	Taxes	Public debt: - to ECB* - other	Public debt Credit to Banks on collateral	EU_{MTF}-deposits	Loans to L Loans to N	EC BC EU_{MTF}-credit

Use of debt repayment vouchers by Citizens

Eurozone Citizens receive and exercise debt repayment vouchers, reducing private debt with the Banks (Loans). The EU in turn, accepts debt repayment vouchers of the Banks, in payment for v-EUR purchased on credit.

All Eurozone Citizens are entitled to an equal amount of dividend. The dividend is primarily distributed as debt repayment vouchers. As private debt is repaid, private debt burdens are reduced and private Equity Capital increases, strengthening the financial resilience of society.

Eurozone Citizens receive and exercise debt repayment vouchers. In turn, Banks accept debt repayment vouchers from the Citizens and exercise them with the EU_{MTF}, in payment for v-EUR they purchased on credit.

EU_{MTF}		Member States		Citizens		Banks	
Deposits at ECB* Credit to Banks on collateral –	EC –	Taxes	Public debt: - to ECB* - other		EC + Loans –	Loans to L Loans to N –	EC BC EU_{MTF}-credit –

Dividend for creditors

Debt reduction must not favour debtors. Member States and Citizens with insufficient bank loans to redeem all debt repayment vouchers they are entitled to, receive for the remainder shares in the Monetary Transition Fund (MTF). This fund contains the remaining claims on the banking system (Banks and ECB*).

Distribution of dividend to creditors (Member States and Citizens).

EU$_{MTF}$		Member States		Citizens		Banks	
Deposits at ECB*	**Shares of Member States & Citizens**	**Shares in MTF**	Public debt: - to ECB* - other	**Shares in MTF**	EC **+**	Loans to L Loans to N	EC BC EU$_{MTF}$-credit
Credit to Banks on collateral		Taxes					

Note that no Equity Capital (EC) is added to the balance sheet of the Member States, because this balance sheet does not show equilibrium of assets and liabilities. It shows a balance of incoming (Taxes) and outgoing (Public debt) cash flows.

Modest and stable cash flow for MTF-shareholders

Use of debt repayment vouchers reduces private debt and increases private Equity Capital (EC), lowering default risk in the credit system. This lowers interest rates and reduces the risks the banking system is exposed to. A modest and predictable return is to be expected from the remaining EU-credit to the banking system, providing a modest and stable cash flow for MTF-shareholders, until the debt is paid off and the MTF is dissolved. This allows for more private investment, lower taxes, additional government spending and additional repayment of public debt.

MTF-shareholders receive a modest and stable cash flow, until the debt is paid off and the MTF is dissolved.

EU$_{MTF}$		Member States		Citizens		Banks	
Deposits at ECB*	Shares of Member States & Citizens	Shares in MTF	Public debt: - to ECB* **–** - other **–**	Shares in MTF	EC	Loans to L Loans to N	EC BC EU$_{MTF}$-credit
Credit to Banks on collateral		Taxes **–**					

Monetary reset of the Eurozone

The foregoing represents a monetary reset of the Eurozone, freeing it from the debt deadlock in which it is currently trapped. This is achieved, not by debt write-off nor by inflation, but by debt repayment, enabled by issuance of sovereign money, to replace bank deposits, per demand for v-EUR.

The scale of public and private debt repayment is a function of the v-EUR quantity, that is issued per demand by conversion. Repayment is accomplished in a monetarily-neutral way, without inflating nor contracting the money quantity. The key is changing the nature of money in circulation, in which privately issued credit money is replaced by state issued sovereign money. This does not only solve the debt deadlock. It also releases the general payment system from credit and market risks, because payment in the v-EUR system is not executed on bank balance sheets. It is executed by direct transfer of money. V-EUR payment does not involve any balance sheet other than those of payer and payee.

The purest form of money

Apart from physical euros, v-EUR will be the only government-backed liquid asset available for general use as money. To its holder, it is the most convenient, cheap, stable and safe form of liquidity. It does not yield a profit by merely holding it. It is an intangible liquid asset (not a financial asset), that bears no interest, and yields revenue only if properly transferred and utilized. V-EUR provides a new and pure form of money and implements a clear distinction between holding money (free of risk and interest) and investment.

Presumably, because of its close approximation to pure money, a considerable part of savings deposits and money market instruments will be converted to v-EUR, extending the scale of the conversion, and the v-EUR quantity way beyond M1.

After the transition, the banking system operates on ‘outside money’ (v-EUR) that is part of the general money supply. The money supply is no longer a function of (the assets on) bank balance sheets. It is directly managed by the Monetary Authority, that is not a (central) bank, and does not need to back the v-EUR money supply by assets on its balance sheet. The v-EUR system is backed by good governance, embedded in law, strengthened by transparency, democratic control and institutional oversight.

Disentanglement of money and banking

Prior to the transition, the general money supply (bank money) is provided by commercial banks, in pursuit of their commercial interests, yielding an unbalanced money supply. The central bank provides credit to the Banks, enabling them to meet their obligations, thereby safeguarding trust in the banking system. This is necessary, as currently the banking system and the money system are inherently entwined.

Conversion to v-EUR disentangles money (the embodiment of the general value-unit, a public responsibility) and banking (receiving and providing credit, a private affair). This enables implementation of appropriate demarcations of public and private affairs in the financial system, lowering regulatory pressures, and enhancing competition in finance. It also strengthens efficiency of monetary policy, due to direct control of the money supply, and enables the administration to effectively counter adverse side effects of free competition, such as inequality and financial instability.

Money issuance after the transition period

After the transition period, newly issued v-EUR enters the economy primarily by government spending, and supplementary by lending for real economy investment.

Issuance by government spending

The Monetary Authority (MA) creates the money (v-EUR) and gives it to the State. The State spends it into circulation. In the following example 'the State' refers to the European Union and the Eurozone Member States combined. The State receives the seigniorage of money issuance by government spending. Since v-EUR is not a money claim on the issuing entity (MA) and the MA is not entitled to the seigniorage, nothing happens on its balance sheet.

The Monetary Authority (MA) creates the money (v-EUR) and gives it to the State.

MA		State		Society	
		v-EUR	**EC**		

The State spends it into circulation.

MA		State		Society	
		~~v-EUR~~	~~EC~~	**v-EUR**	**EC**

In this example, it is assumed that by spending the newly issued money (v-EUR), the State acquires no assets to be recorded on its balance sheet. Note that this process involves no debt, and that no financial assets nor liabilities remain on the balance sheet of the issuing entity.

Issuance by lending (supplementary)

If investment in the real economy is unsatisfactory and interest rates deemed too high, the Monetary Authority (MA) can issue new money (v-EUR) that enters the economy by lending on interest, to financial intermediaries (Banks). In the following example the MA is issuer and lender. However, in the actual implementation a separate entity might be considered to organize the tendering procedures and do the actual lending. The new money (v-EUR) temporarily supplements v-EUR for investment in the real-economy only. Collateral is required for v-EUR issuance by lending.

The (MA) creates the money (v-EUR) and lends it on interest to financial intermediaries (Banks).

MA		Banks		Society	
Loans on collateral	EC **+**	v-EUR **+**	BC **+**	v-EUR	EC

Financial intermediaries (Banks) lend the money (v-EUR) for investments in the real economy.

MA		Banks		Society	
Loans on collateral	EC	v-EUR **–** **Loans**	BC	v-EUR **+**	EC **Loans**

Lending of v-EUR into circulation sets (if necessary) a ceiling on interest rates, which is very different to the current monetary system, in which the central bank sets the floor for interest rates.

Lending or spending?

Most v-EUR enters the economy by selling (during the transition period) or government spending.

Money that is sold or spent into circulation is issued free of debt and interest, thereby lacking the urge to yield a return, as is implied in money that is lent on interest. After the transition period, the money that is spent into circulation is not issued on demand. Therefore, this part of the money supply is rather inelastic. Ideally, it provides appropriate liquidity buffers throughout society, to sustain decent living standards, private investment and risk coverage.

Supplementary issuance of money (v-EUR) by lending provides a flexible and rather elastic part of the money stock, for (counter-cyclical) adjustment of the money supply.

During the transition period, v-EUR is sold into circulation; v-EUR is purchased by Banks, to fulfill their obligations towards depositors, due to digital cash withdrawals. Part of the v-EUR purchased by Banks is directly paid for in central bank money. Another part is purchased on interest bearing credit, and paid for when bank loans are netted against the credit the Banks received from the EU, intermediated by use of debt repayment vouchers. The remainder is paid as the Banks repay their remaining debt with the EU_{MTF}. Since the revenue of this repayment is distributed among MTF-shareholders, this does not affect the quantity of v-EUR into circulation.

Reversion of the credit cycle

In the current bank money system, Banks extent credit first and look for funding later, which is available to them as deposits, created by the act of bank credit extension itself. Deposits are attracted under prudential oversight, blocking due market processes for allocation of money, yielding dominance of Banks over investments.

In the v-EUR system this is altered. Banks must attract funding first before they can lent money (v-EUR). In the process they are bound by regular financial oversight, safeguarding due market processes for money allocation and investments.

In the v-EUR system, Banks attract funding primarily from the money in circulation; *savings fund bank lending*, and lead the credit cycle. This is a reversion of the current cycle, in which *savings originate from bank credit extension*, that thus leads the credit cycle.

Credit cycle

Current bank money cycle:	BCE -> I -> S
v-EUR credit cycle:	S -> I

BCE = Bank Credit Extension | I = Investments | S = Savings

Decentralization of credit and investment

As financial intermediaries (Banks) must obtain funding primarily from society, financial power in the v-EUR system is highly decentralized, to the level of the individual. The Monetary Authority strengthens this direct democratic power by monitoring and safeguarding the continuous presence of sufficient liquidity buffers, well spread throughout society. The resulting decentralization of credit and investment enhances the transmission of information through interest rates, which is used by the Monetary Authority, to signal money shortages for real economy investment. The Monetary Authority can respond by supplementary issuance of money (v-EUR) by lending (to financial intermediaries).

New monetary management

In the v-EUR system the money supply is directly controlled by the Monetary Authority, which has a new class of monetary management tools at its disposal for direct and effective monetary management. This enables it to manage the monetary system with efficiency and precision, and in a predictable way. The Monetary Authority is not engaged in the business of banking, nor in trade of financial assets. Its conduct is subject to full public transparency and accountability.

Monetary taxes

After the transition, the general money supply is primarily and directly controlled through taxes and government spending. Two classes of taxes are to be distinguished: fiscal and monetary taxes. Monetary taxes affect the money supply, managing v-EUR quantity and circulation. Fiscal taxes fund the national budget, without affecting the money quantity. National budget deficits are funded exclusively by v-EUR, borrowed on the secondary market. Monetary taxation is conducted by the Monetary Authority. Fiscal taxation is conducted by the executive power of government.

Real-time insight in stock, flow and allocation

Thanks to digitization, v-EUR provides entirely new perspectives for monetary management, based on real-time insight in stock, flow and allocation of the general money supply. In the current money system, the central bank monitors the money on which the banking system operates, and accommodates the banks with additional money, if needed. The Monetary Authority will have a similar function, but not specifically focused on banks, but focused on society at large.

Currently, central banks focus on short term credit extension, to keep the general payment system afloat. Day-to-day bank liquidity is key to the current payment system, which is based on bank deposits. In a v-EUR system however, bank liquidity is not essential to the general payment system, and of no direct concern to the Monetary Authority, as it is to the central bank today.

Key to monetary management in a v-EUR system is the presence at any time of sufficient liquidity buffers, well spread throughout society at large, to enable society to prosper, and to ensure that financial crises cannot turn into monetary crises. That is what design of the v-EUR system and its accompanying monetary management tools must focus on.

Monetary Authority vis-à-vis the central bank

The Monetary Authority in a v-EUR system is very different from a central bank. This is partly due to the different nature of the money it issues; v-EUR is not a money claim, as central bank money is.

A central bank must balance all money it issues, on its balance sheet, covering it with assets, thereby exposing itself (and the currency) to market and credit risks. By contrast, the Monetary Authority does not balance v-EUR on its balance sheet, and does not cover it with assets. It can focus on its public task: providing liquidity to society, regardless of the availability of (financial) assets to balance its books with.

Nonetheless, the Monetary Authority must demand collateral when lending v-EUR into circulation. It is however, much better positioned to demand good collateral, because after the transition period, it has no need (and must not be allowed) to fund any deficit or liquidity shortage, to help any private or public entity stay afloat. It lends to supplement v-EUR for investment in the real economy only. In the process, it can (and must) select those financial intermediaries that submit the best proposal and collateral, in an open tender and on objective grounds.

In the EU, the central bank is statutorily insulated from undue political influence, but it is not in a similar way shielded from commercial interests. Instead, it is directly involved in the business of commercial banks, and the trade in financial assets. It operates primarily as a financial service provider to the entities it is supposed to supervise. Its activities contribute directly to the ability of commercial banks to pass on the burden of private risk-taking to society at large. By contrast, the Monetary Authority is no part of the banking system, and must be designed so as to insulate the monetary power from *all undue influences*, including influences of a private, commercial and political nature. Money creation must be conducted solely in the public interest and on objective monetary grounds. The Monetary Authority is not to operate as a bank (extending and receiving credit), and is deprived of all self-interest in the money it issues.

Monetary policy of the central bank is focused on moderate inflation. In the v-EUR system, the legal power to levy (and directly collect) monetary taxes is attributed to the Monetary Authority, providing much more precise, transparent, just and effective instruments for monetary adjustments than inflation. For the sake of transparency, and a proper demarcation of monetary and fiscal governmental powers, the Monetary Authority must be bound by a zero-inflation target.

Monetary Authority	Central bank
Provides liquidity to society.	Provides liquidity to banks.
Is not involved in the business of banking.	Is deeply involved in the business of banking.
Supervises from an independent stately position.	Supervises from an actively implicated position.
Monitors liquidity throughout society.	Monitors liquidity of banks.
Directly supplements liquidity for real economy investment, if needed.	Supplements liquidity to financial institutions, potentially triggering asset price inflation.
Does not provide short term credit.	Provides short term credit.
Is not exposed to counterparty risk.	Is exposed to counterparty risk.
Has no self-interest in money creation.	Has self-interest in money creation.
Administers the money system 'off-balance sheet'.	Administers a money system on its balance sheet.
Insulates the currency from market and credit risk.	Exposes the currency to market and credit risk.
Has direct control of the money supply.	Has weak and indirect influence on the money supply.
Is bound by a zero-inflation target.	Uses inflation to implement its policies.
Does not set a 'risk free' interest rate.	Sets the 'risk free' interest rate.
Sets a ceiling for interest rates, if necessary.	Sets a floor for interest rates.
Is insulated from both commercial and political interests.	Is insulated from political interests.
Does not fund public nor private deficits.	Does not fund public deficits.
Is part of a single system for financial oversight.	Is part of a dual system for financial (and prudential) oversight.
Contributes to transparency and a level playing field.	Obscures and levels bank credit risks.
Applies regular insolvency procedures to banks.	Applies special insolvency procedures to banks.
Operates under democratic control.	Operates beyond democratic control.
Applies the power to create the general currency in the public interest.	Applies the power to create the general currency in the interest of the banking system.

More on this in: Wortmann, E., A proposal for radical monetary reform, Stichting Ons Geld, 2016, available at: https://onsgeld.nu/onsgeld/2016/wortmann_radical_monetary_reform.pdf

How to determine the money supply?

Purpose of the v-EUR system is to enable society to flourish to its full potential.

In the v-EUR system, the money supply is directly controlled by the Monetary Authority, and determined in three instances. The first is an on-off event, that enrolls in a limited time frame. The second determines the larger and rather inelastic part of the money supply. The third determines a more flexible and elastic part of the money supply. The instances are:

1. **Conversion -** v-EUR issuance for conversion of bank deposits (digital cash withdrawals). During a limited transition period, bank deposits and other monetary money claims are converted per demand into v-EUR. This determines the initial v-EUR quantity, and enables a 'deleverage without a crunch'. In addition, conversion to v-EUR enables the disentanglement of money and banking, and the accompanying abolition of all state support for private monies and its issuers, which in turn, increases v-EUR demand, and the scale of deleverage.

2. **Sufficient v-EUR liquidity in society** - Direct control of '*money that is spent into circulation'*, via taxes and government spending. The focus is on presence of sufficient liquidity buffers, well spread throughout society, to sustain decent living standards and private investments, and to prevent financial crises turning into monetary crises.

3. **Supplementary v-EUR issuance for real economy investment** - Control of '*money that is lent into circulation'*, via interest rates and terms and conditions that restrict its initial use to the benefit of the real economy. Supplementary v-EUR issuance by lending for real economy investments sets a ceiling on interest rates for real economy investments, if necessary.

Edgar Wortmann – Stichting Ons Geld

Appendix I – A note on issuance of virtual euro by the EU

European Union (EU)

Issuance of virtual euro is the legal power of the Union (3 TFEU).

Monetary Authority (MA)

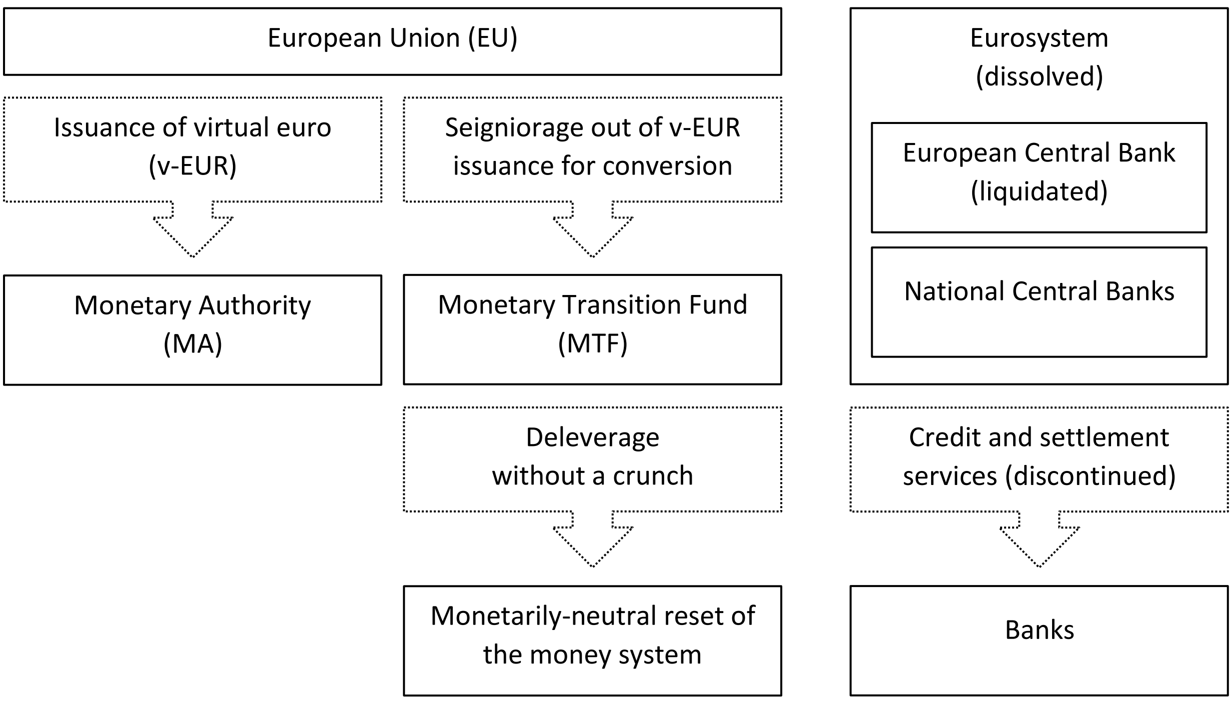
The European Union attributes issuance of virtual euro to a separate EU governmental power, the Monetary Authority, that is not entwined with the banking system (as the ECB and the national central banks are) nor the political system. The Monetary Authority has no self-interest in the money it issues, and is not entitled to the revenue (seigniorage) derived from it.

Monetary Transition Fund (MTF)

Seigniorage derived from issuance of virtual euro for conversion of bank deposits and other monetary money claims, is granted to the Monetary Transition Fund (MTF) and used to deleverage society, by repayment of Bank loans, in a monetarily-neutral way (no inflation nor deflation).

European Central Bank (ECB) and Eurosystem (ECB*)

Virtual euro is not physical cash (notes and coins) and not a central bank liability. It is thus outside the scope of the ECB mandate. Moreover, governance of the virtual euro system is incompatible with all core functions of a central bank, notably providing interbank settlement services and short-term credit to Banks, trade in financial assets and conduct of prudential oversight. Conversion to a virtual euro system implies discontinuation or privatization of these activities. 'Deleverage without a crunch' ultimately results in liquidation of the ECB as an enterprise, and dissolution of the Eurosystem (ECB*) as a network of (central) banks.



Appendix II – A note on money issuance during the transition period

During the transition period, the Monetary Authority (MA) creates new money (v-EUR) and sells it to the Banks, that purchase it to accommodate v-EUR withdrawals by their account holders (Clients). In the following example, newly issued v-EUR is directly added to the v-EUR Client accounts, bypassing Bank balance sheets.

During the transition period, Client demand (for digital cash withdrawal) triggers v-EUR issuance, and v-EUR is issued to satisfy that demand.

Since v-EUR is not a money claim on the issuing entity (MA) and the MA is not entitled to the seigniorage, nothing happens at the balance sheet of the MA.

Conversion (1) – Absorption of reserves

Account holders withdraw bank deposits and receive v-EUR in return. Banks purchase v-EUR to accommodate those withdrawals, and pay with their liquid reserves on their central bank accounts, which are all absorbed by the EU$_{MTF}$.

MA		Banks		Clients	
		~~Reserves~~ Loans	Deposits –	Deposits – **v-EUR**	Loans

Conversion (2) - EU credit extension

Account holders withdraw bank deposits and receive v-EUR in return. V-EUR is issued on credit to the Banks to accommodate those withdrawals. Bank deposits that are not withdrawn are converted into bonds, subject to regular financial oversight.

MA		Banks		Clients	
		Loans	**Bonds** ~~Deposits~~ **EU$_{MTF}$-credit**	~~Deposits~~ v-EUR **+** **Bonds**	Loans

Seigniorage is granted to the Monetary Transition Fund (MTF) of the EU.

Conversion (1) – Absorption of reserves

Account holders withdraw bank deposits and receive v-EUR in return. Banks purchase v-EUR to accommodate those withdrawals, and pay with their liquid reserves on their central bank accounts, which are all absorbed by the EU$_{MTF}$.

EU$_{MTF}$		Banks		Clients	
Deposits at ECB*	**EC**	~~Reserves~~ Loans	Deposits –	Deposits – **v-EUR**	Loans

Conversion (2) - EU credit extension

Account holders withdraw bank deposits and receive v-EUR in return. V-EUR is issued on credit to the Banks to accommodate those withdrawals. Bank deposits that are not withdrawn are converted into bonds, subject to regular financial oversight.

EU$_{MTF}$		Banks		Clients	
Deposits at ECB* **Credit to Banks on collateral**	EC **+**	Loans	**Bonds** ~~Deposits~~ **EU$_{MTF}$-credit**	~~Deposits~~ v-EUR **+** **Bonds**	Loans

Appendix III - Process of money issuance during the transition period (overview)

Prior to conversion

MA		EU$_{MTF}$		ECB*		Banks		Clients	
				Credit to Banks on collateral	Reserves	Reserves Loans	EC BC Deposits	Deposits	Loans

Conversion (1) – Absorption of reserves

Account holders withdraw bank deposits and receive v-EUR in return. Banks purchase v-EUR to accommodate those withdrawals, and pay by crediting the EU$_{MTF}$ account at the ECB*, until their reserves at their ECB* accounts are exhausted.

MA		EU$_{MTF}$		ECB*		Banks		Clients	
		Deposits at ECB*	**EC**	Credit to Banks on collateral	~~Reserves~~ **EU$_{MTF}$-deposits**	~~Reserves~~ Loans	EC BC Deposits **–**	Deposits **–** **v-EUR**	Loans

Conversion (2) - EU credit extension

Account holders withdraw bank deposits and receive v-EUR in return. Banks purchase v-EUR to accommodate those withdrawals. As they have no remaining reserves to pay for the purchase in central bank money, the EU provides v-EUR on credit (on collateral) to the Banks.

MA		EU$_{MTF}$		ECB*		Banks		Clients	
		Deposits at ECB* **Credit to Banks on collateral**	EC **+**	Credit to Banks on collateral	EU$_{MTF}$-deposits	Loans	EC BC **+** ~~Deposits~~ **EU$_{MTF}$-credit**	~~Deposits~~ v-EUR **+** **Bonds**	Loans

After conversion

After the transition period, all bank deposits are either converted into v-EUR or bonds, issued by the Banks under regular financial oversight.

MA		EU$_{MTF}$		ECB*		Banks		Clients	
		Deposits at ECB* Credit to Banks on collateral	EC	Credit to Banks on collateral	EU$_{MTF}$-deposits	Loans	EC BC EU$_{MTF}$-credit	v-EUR Bonds	Loans