

## XXXit – How to exit a currency union

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### **Abstract**

In this paper, I propose a mechanism for a member country X exiting a currency union such as the Eurozone. Most existing approaches require secrecy for the preparation of the exit, as well as implementation over a weekend, possibly combined with capital controls or similar measures. My contribution is a democratically legitimated solution related to proposals of parallel currencies that can be discussed and implemented over a longer period without giving incentives for major capital flows. It avoids interfering with private contracts, but allows for support of specific market participants. After introducing the proposal, I analyze the implications for selected classes of market participants and suggest possible policy measures to mitigate adverse consequences. Finally, I also discuss an application to pegged currencies such as the Danish DKK.

## 1. Introduction

The term “Grexit”, i.e., an exit of Greece from the Eurozone, was first coined by Buiter and Rahbari (2012). Towards the recent Greek legislative election on 25 January 2015, and even more so after the left-wing party Syriza had won the election, discussions about the “Grexit” have again become more present in the public discussion. Apart from Greece, the implications of other countries leaving the Eurozone are sometimes discussed as well. For example, Redican (2012) focuses on Spain. Even the exit of the economically strongest country in the Eurozone, namely Germany, is sometimes discussed, see, e.g., Kerber (2012).

In this paper, I aim to answer how the process should be, if a member country exits a currency union such as the Eurozone. The question has also been posed in the Wolfson Economics Prize 2012, promising GBP 250,000 to the best answer, which has then been given, according to the jury, by Bootle (2012). The main shortcoming that I see in the winning contribution, as well as many others such as the prize finalists Nordvig and Firoozye (2012), Record (2012), and Tepper (2012), is that they require secrecy for the preparation of the exit, as well as implementation over a weekend or a longer bank holiday period. This is possibly combined with capital controls and freezing of accounts, particularly in the case that the plans become public prematurely. The same shortcomings apply to the successful currency split conducted when converting the federal Czechoslovak crown into Czech and Slovak crowns on 8 February 1993, see Lopatka (2011).

My contribution is that I propose a democratically legitimated solution that can be discussed and implemented over a longer period (e.g., a couple of months) without giving incentives for major capital flows. Thus, my approach does not require capital controls or similar measures. I cover both an exit of a weaker or a stronger country from a currency union. In line with the title “XXXit”, I will generally speak of country X leaving the Eurozone, introducing a new currency XC

instead of the Euro (EUR).

My proposal consists of three major components. First, country X government collects the tax bill in XC. Furthermore, for those contracts that are signed with country X government and written under country X law, country X government has the OPTION to convert them to XC. This includes country X government bonds. Second, all private contracts are unaffected and remain denominated in EUR. This includes deposit accounts, thus avoiding incentives for bank runs. Third, country X government will selectively support market participants that are hit hard by the changes, possibly supported by taxing those on the winner side.

According to Mitchell (2011), “the currency has no intrinsic value. What gives it value, what motivates us to use the currency that the government suggests, is the fact that all tax obligations are denominated in and have to be extinguished with that currency.” Thus, the taxation in XC will smoothly introduce the new currency into an economy that can otherwise keep using EUR, just as long as market participants prefer.

There are some existing proposals for exit from Eurozone that do not require secrecy either. For example, Dobbs (2012) suggests splitting up the EUR into “New Euro Whites” and “New Euro Yolks”, according to the economic weights of the exiting vs. remaining countries. The costs of devaluation in either ingredient will then be borne by all owners/users of EUR. Huck and Valasek (2013) extend her approach by introducing fines to compensate moral hazard problems with devaluation.

Closest to mine is the approach by Redican (2012). Here, deposit accounts remain in EUR to avoid capital flight, but other local contracts are switched to the new local currency, depending on their “local context”. Questions remain open with respect to the extent to which contracts are switched and who decides the “fair” division of the respective costs, for example when switching the currency of a mortgage contract. Besides the contract changes, he introduces major adjustment

mechanisms to regulate exchange rates over a long horizon.

All existing approaches to “XXXit” (that I am aware of) have the disadvantage that they impose at least part of the possible devaluation costs directly on market participants who do not have to bear them in the first place. For example, a contract between two private parties written in EUR should not have to be affected. Such parties can mutually agree to convert their contract into a new currency at a self-determined exchange rate, but they should also be allowed to be unaffected. I think the legislation should interfere with private contracts as little as possible, if the policy goals can be reached equally well.

Also related to my proposal is the literature on parallel currencies. The most prominent contribution related to the “Grexit” by Mayer (2012) suggests that Greece should issue bonds that promise repayment in EUR sometime in the future, and use those to pay its local bills, pensions, etc. In the meantime, the locals will apply those bonds as a means of payment parallel to EUR. Bofinger (2012) criticizes the imbalances that occur when receivers of the new bonds (e.g., government employees and pensioners) still have liabilities in EUR. In contrast, my approach ensures that the government is in full control of the exchange rate unless it deliberately chooses devaluation. So, I allow for a truly smooth transition from EUR to a new currency that can fluctuate in the long run. I agree with Vaubel (1990, 2012) that usage of the new currency should not be enforced. Rather, market participants should be able to choose freely whether they prefer EUR or the new currency. Boyle (2003) links the argument for parallel currencies as an alternative to the Eurozone to the fundamental question of optimum currency areas, going back to Mundell (1961) and discussed for the European case in Bofinger (1994). As a fundamental critique of the overall discussion, Tamny (2011, 2015) doubts whether a country’s currency choice matters for the real economy after all, given that e.g. Greece would still have to borrow and trade in EUR, after introducing a new currency.

The remainder of the paper is organized as follows. After introducing the proposal, I analyze the implications for selected classes of market participants and suggest possible policy measures to mitigate adverse consequences, mostly along the lines of the proposal's Point 3. Finally, I discuss an application to pegged currencies such as the Danish DKK. Also for those, I claim that the proposal's Point 3 is the most relevant.

## 2. Proposal

For country X exiting the Eurozone (EZ) and introducing a new country X currency (XC) instead of EUR, I propose the following procedure consisting of three major components.

### Point 1 (country X government)

a) *Country X collects the tax bill in XC (EUR amounts are converted at parity).*

*Thus all firms and households in country X will have a demand for either generating revenues and income in XC, at the latest when taxes are due in XC for the first time, or obtaining additional XC for settling the tax bill. Country X starts selling XC at parity with EUR, thus receiving the same EUR income than when collecting taxes in EUR. Country X is in full control of the exchange rate. If it requires less (more) tax income measured in EUR, it can sell XC below (above) parity. Moreover, it can spend more XC than it collects back in taxes in a given period, which allows the firms and households to build up savings in XC. These will be valuable to cover future tax payments.*

b) *OPTIONAL for country X government (alternatively, all EUR contracts can remain untouched): All contracts with country X government parties on at least one side of the contract, and written under country X law, are converted from EUR into XC at exchange rate at parity. This includes country X government*

*bonds, as well as salaries for public employees, public pension, health insurance, . . . , and contracts for example for infrastructure / construction projects signed with country X government parties.*

**Point 2 (private contracts)** *No change imposed on private contracts, contracts under foreign law, and contracts without involvement of country X government parties. This includes deposits, loans, mortgages, rental contracts, employment contracts, . . . These can all remain in EUR, but the contracting parties are of course able to renegotiate the contracts and convert them into XC. While today's payments can be converted easily at the current spot rate, future payments are valued as shown in Section 3.1. Country X government recommends an exchange rate at parity, but the contracting parties can mutually agree on any other exchange rate. If they cannot agree, they may be able to terminate the contract according to the original conditions and sign a new one, possibly in XC and possibly with another counterparty. In the medium/long run, country X might consider incentives for converting the remaining EUR-denominated contracts – or, impose additional taxes on contracts that are still running in EUR.*

**Point 3 (balancing measures)** *Some market participants (e.g., banks, firms and households) might have troubles as they face a mismatch of assets and liabilities in XC and EUR (in case the exchange rate departs substantially from parity). Country X government will either support an exchange rate of close to parity or selectively provide additional equity or subsidies to those parties that are fundamentally healthy but hit hard by the mismatch (focusing on those residing in country X). Possibly, those on the winner side of the adjustment could be taxed accordingly, if the tax office has enough data to identify the respective contract positions – similar to some thoughts in Redican (2012) for the Eurozone exit case.*

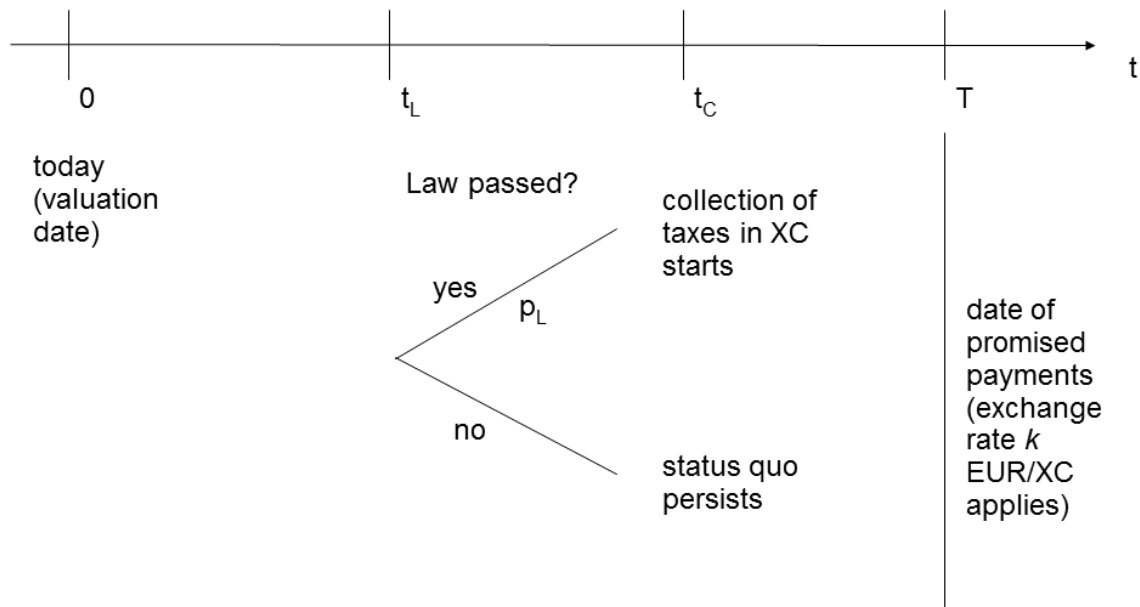


Figure 1: Timeline for the proposal. The figure shows the order of the events and decisions to be made over time.

I claim that secrecy is not required. Once this proposal is discussed, people will be aware that private property, contracts and deposits are not supposed to be affected. Thus, there is no reason to run banks or leave the country. The markets might reprice government bonds and contracts with country X government parties. This can also lead to temporary difficulties to issue new country X government bonds in the transition period, or country X might have to pay higher or lower rates than it used to in anticipation of the switch from EUR to XC. This is nothing that has to be prevented by imposing secrecy. Still, it might be advisable to get the process over within a couple of weeks or months, to minimize the uncertainty in the economy.

The timeline for the proposal is as follows. Today (time 0) is considered the point in time from which the market participants' assessment of the proposal and possible revaluations of traded securities and contracts (especially if the government chooses the OPTIONAL conversion according to the proposal's Point 1.b) take place. From today onwards, there will be discussions on different academic and political layers. The corresponding legal framework is developed. At time  $t_L$ , the law is up for

passing the parliament. The market participants assess the probability of the law passing with  $p_L$ . If the law does not pass, I assume the status quo persists, i.e., country X remains part of the Eurozone without changes for the foreseeable future. If the law passes, then country X starts collecting taxes in XC at time  $t_C$ , and it performs contract currency adjustments, if it chooses the OPTIONAL conversion according to the proposal's Point 1.b. Finally, I assume that all payments agreed upon in today's contracts are happening at time  $T$ . An exchange rate  $k$  EUR/XC is applied to convert values between XC and EUR at time  $T$ . To handle longer-term contracts, one may assume that any contracted payments occurring after time  $T$  are settled at time  $T$  by converting the present values with the exchange rate  $k$ . The timeline is visualized in Figure 1.

### 3. Implications

In this section, I analyze the implications that implementing the proposal will have for the various market participants. Here, I do not attempt to set up an equilibrium model to derive the resulting EUR/XC exchange rate. Rather, I state the implications as a function of an exchange rate  $k$  EUR/XC. Thus, I am able to draw general conclusions for all possible realizations of  $k$  at time  $T$ . In particular, I cover both countries with depreciation ( $k < 1$ ) or appreciation ( $k > 1$ ) of the new currency XC relative to the EUR. In a second step, one could set up an equilibrium model to derive the respective  $k$  that will be applicable for the specific exiting country in question. Given the solution of the equilibrium model, the third step would be to go backwards and determine the optimal decision of country X, whether it should actually pass the law to exit the currency union in the first place (i.e., the event that I assess with probability  $p_L$  for now).



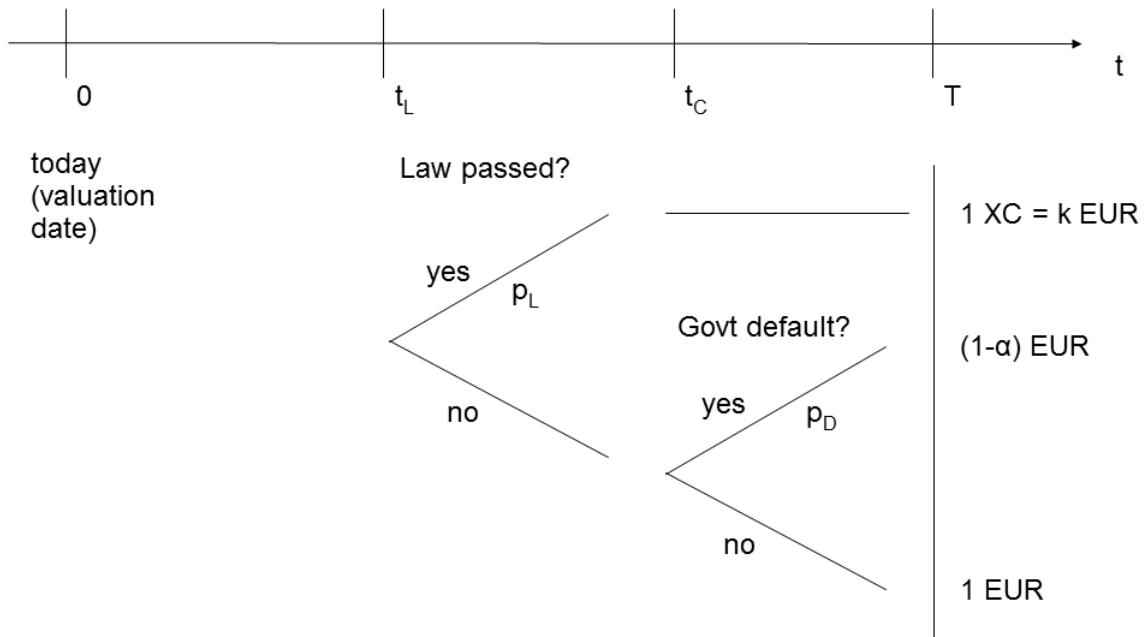


Figure 2: State-contingent payoffs of government bond issued by country X at time  $T$ . The payoffs depend on whether a law to convert the bond payoffs from EUR to XC is passed at time  $t_L$ , and also on whether the government defaults on the bond.

### 3.1. Exiting country's government

From the point of view of the exiting country's government, the first focus is on what happens to the government bonds that are currently on the market (if the OPTIONAL conversion according to the proposal's Point 1.b is conducted), and, not less importantly, how the conditions will be for emissions of new bonds.

Consider a government bond issued by country X, promising to pay 1 EUR at time  $T$ . The payoff structure is visualized in Figure 2. With probability  $p_L$ , the law is passed at time  $t_L$ , and the bond investor will receive 1 XC at time  $T$ . I assume the government is now in perfect control of its money and the central bank, so there is no risk that it will default on XC payments.

If the law does not pass, which happens with probability  $(1 - p_L)$ , then it depends whether the government is solvent at time  $T$ . If yes, which happens with probability  $(1 - p_D)$ , then the investor will receive 1 EUR at time  $T$ . If the government defaults,

which happens with probability  $p_D$ , then the investor will receive  $(1 - \alpha)$  EUR at time  $T$ . I assume that in the latter case, a haircut of  $\alpha$  per cent is applied to all government bonds issued by country X. This means that the expected loss on the government bonds is  $\alpha p_D$ . The expected payoff to the investor at time  $T$  is accordingly stated as

$$\begin{aligned}
 & p_L \cdot 1XC \cdot kEUR/XC + (1 - p_L)(p_D(1 - \alpha)EUR + (1 - p_D) \cdot 1EUR) \\
 & = p_L k + (1 - p_L)(1 - \alpha p_D).
 \end{aligned}$$

Thus, with  $r$  being the adequate discount rate from time  $T$  back to time 0 (I assume risk-neutral investors for now), the present value of a government bond issued by country X, promising to pay 1 EUR at time  $T$ , is

$$\frac{p_L k + (1 - p_L)(1 - \alpha p_D)}{1 + r}.$$

Compare this to the status quo (corresponding to  $p_L = 0$ ), in which the bond investor today holds a value of

$$\frac{1 - \alpha p_D}{1 + r}.$$

The bond investor, and thus the market value of the bond or the conditions for issuing a new government bond, will be improved by the new law, whenever

$$k > 1 - \alpha p_D. \tag{1}$$

So, for a country that can achieve a  $k > 1$  upon exiting the Eurozone (say Germany), the bond investor will clearly be better off, as (1) is always satisfied. Interestingly, for a country that faces a devaluation with  $k < 1$  after the exit (say

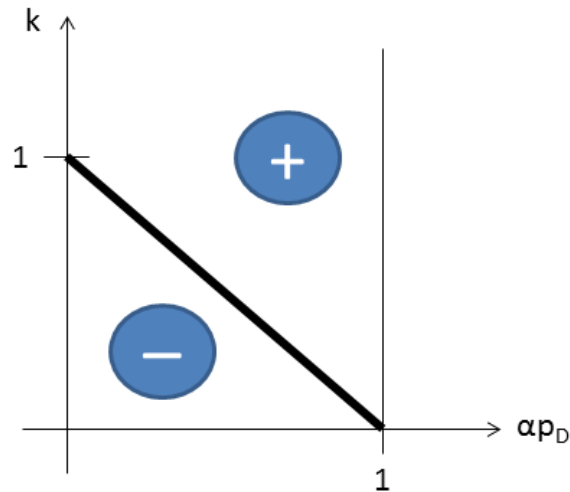


Figure 3: Visualization of effect of new law on government bond market value. The figure visualizes the areas in which the market value of the government bonds issued by country X will improve (+) or deteriorate (-) after implementing the law, according to (1). The outcome depends on the relation between the expected loss  $\alpha p_D$  without exit and the exchange rate  $k$  after the exit.

Greece), the bond investor can also be better off. The latter will hold if the devaluation costs are sufficiently small compared to the positive effect of eliminating the risk of an expected loss  $\alpha p_D$  on the government debt. In a dynamic setting, this positive outcome could even be achieved if the initial devaluation is substantial, but then  $k$  might again increase over time, such that government bonds with long maturities will finally recover, whereas immediate losses would have occurred if country X had been staying within the currency union. Of course, it can also well be that (1) does not hold. Then, the conventional wisdom result will apply, i.e., the net effect is that the bond investor will be hurt so much due to the devaluation that he cannot be compensated by eliminating the risk of a haircut. The two different cases are visualized in Figure 3. According to the proposal's Point 3, country X may consider a special tax on the gains that government bond investors make, if (1) holds. More

explicitly, this could amount to a tax

$$\tau \max\{k - (1 - \alpha p_D); 0\}$$

charged at time  $T$ , with an appropriate tax rate  $\tau$ , the  $k$  that has materialized by time  $T$ , and  $\alpha p_D$  measured at an earlier date, e.g. time 0.

If country X wants to issue new government bonds, the markets will price in the expectations accordingly. So, if (1) holds, the investors will ask for a lower premium, or for a higher premium otherwise, relative to the status quo. The government will OPTIONALLY convert public pension liabilities into XC, as well as other contracts according to the proposal's Point 1.b. Liabilities under foreign law have still to be serviced in EUR or the respective original currency. According to the proposal's Point 1.a, country X ensures that its XC tax income can service its EUR liabilities.

### *3.2. Financial market investors*

As discussed above, an investor holding government bonds issued by country X will improve if (1) holds. If the investor finds that he has different expectations from other market participants regarding  $k$ , he will at some point before  $T$  be able to trade currency derivatives to benefit from his knowledge, or to lock in a specific EUR/XC rate already today. For investors that are hit particularly hard by the future exchange rate, the proposal's Point 3 applies.

All financial market instruments other than government bonds issued by country X are still traded in EUR (unless mutually agreed otherwise), therefore they will not (directly) be affected by the new situation.

### *3.3. Banks*

According to the proposal's Point 2, deposits and other contracts with private counterparties remain in EUR. Usually, banks perform maturity transformation. Thus their assets (e.g., loans, mortgages) have longer maturities than their liabilities (e.g., deposits). They will receive payments in EUR for a longer horizon (unless they renegotiate the contracts) and can require new deposits to be denoted in XC to the extent they also have XC assets. The transition can lead to hardships for private households in case of devaluation (see below) and thus an increased default rate e.g. on mortgages. Still, the real collateral values will not be affected as much, thus the banks are more likely to face liquidity problems than over-indebtedness. Banks holding government bonds issued by country X (as the only bank assets that will be converted into XC) can be negatively affected, if (1) does not hold. As for financial market investors, country X can selectively provide support to its local banks, while banks in other countries should receive similar help (and their depositors benefit from deposit insurance) in the respective countries.

### *3.4. Non-financial firms*

Non-financial firms will have a number of long-term contracts (e.g., wages, loans, and rents to be paid), which will remain denominated in EUR according to the proposal's Point 2. On the other hand, costs and revenues from buying raw materials and selling products are typically more short-term (see also in Section 4 the case of Switzerland releasing its currency, which makes local businesses face wages in CHF being more costly relative to revenues in EUR than before). So it is likely and advisable that the firms try to renegotiate their long-term contracts such that they match the currency of revenues.

### 3.5. *Private households*

In the short run, private households should not be affected much, as all existing contracts remain denominated in EUR (an exception will be government employees, whose wage contracts will be XC-denominated from time  $t_C$  onwards). Should banks become troubled, the households will benefit from deposit insurance. In the medium run, an issue might be that existing wage contracts will be terminated and re-established in XC, in case of devaluation in country X. Then, the household's other contracts (e.g., mortgage repayments, rents, ...) will still be running in EUR. This can lead to defaults on such contracts. Households who do not want to be exposed to currency risk can take the initiative and renegotiate all their existing contracts into XC. For hardships that the households cannot resolve, the proposal's Point 3 applies. If the government of country X observes that employers use their market power on the labor market to convert wage contracts at a higher rate than  $k$  in case of devaluation, then it may consider imposing a minimum XC wage.

## 4. **Application to pegged currencies**

To which extent is my proposal applicable to pegged currencies? As an example, assume that Denmark (currently having the Danish currency DKK pegged to the EUR) intends to return to a free-floating DKK.

For Denmark, only the proposal's Point 3 should be relevant. Thus, I claim that unpegging DKK and EUR can be done immediately without any further precautions, but the government might consider helping selectively those banks, firms and households that are fundamentally healthy but suffer after the unpegging, because they didn't hedge EUR/DKK exchange rate risk.

Possibly, those on the winner side of the coming EUR/DKK adjustment could be taxed accordingly, if the tax office has enough data to identify the EUR and DKK contract positions. For example, assume a Danish pension fund has most of

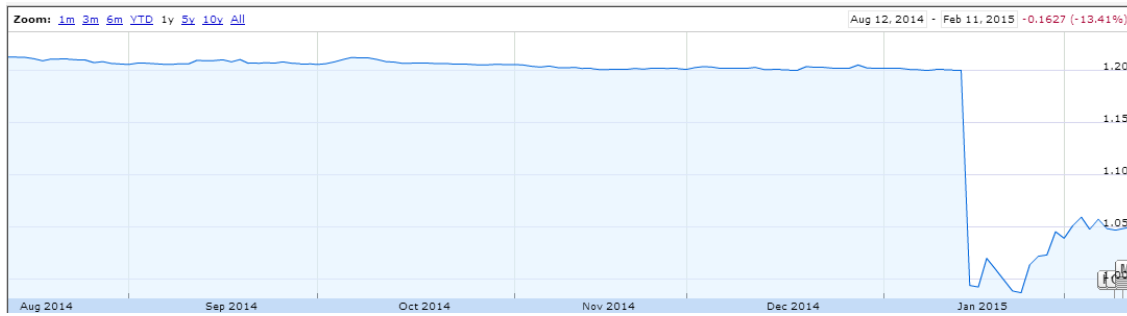


Figure 4: The price of 1 EUR in CHF between 12 August 2014 and 11 February 2015. Source: <https://www.google.com/finance?q=eurchf>

its assets invested in EUR, and the EUR appreciates towards the DKK. Then the tax office could claim part of these gains to compensate other agents in the economy, for example net importers of goods and services who now have to pay higher prices for inputs from the Eurozone. On the contrary, if the EUR depreciates towards the DKK, the appropriate policy measure could be a subsidy to the pension funds, to compensate their loss in asset value after conversion to DKK.

On 15 January 2015, the Swiss National Bank (SNB) decided no longer to ensure the exchange rate of 1.20 CHF/EUR. As Figure 4 shows, this decision led to an immediate dip of the exchange rate towards around parity, whereas it now seems to stabilize around 1.05 CHF/EUR. According to Urio (2015), the SNB decision wiped out an estimated CHF 30 billion of market value from Swiss pension plan assets, corresponding to a 4% reduction in assets of the average Swiss pension plan, on 15 January 2015. Among the subsequent measures taken by the affected industries (e.g., export-oriented production companies and the tourism industry) are unpaid overtime,<sup>1</sup> as well as special discounts for tourists.<sup>2</sup> The proposal's Point 3 could also be applied by Swiss authorities to support pension funds and local businesses. However, I assume that the Swiss authorities would have harder times than the Danish ones to tax those that have benefitted from releasing the exchange rate, due

<sup>1</sup>See <http://www.tagesschau.de/wirtschaft/schweiz-mehrarbeit-101.html>

<sup>2</sup>See <http://www.tagesschau.de/wirtschaft/schweiz-franken-tourismus-101.html>

to a higher level of privacy and data protection towards the tax office.

## 5. Conclusion

In this paper, I propose a mechanism for a member country X exiting a currency union such as the Eurozone. My contribution is a democratically legitimated solution that can be discussed and implemented over a longer period without giving incentives for major capital flows. It avoids interfering with private contracts, but allows for support of specific market participants.

One interesting result is that an investor holding government bonds of country X can be better off after the exit even in the case of country X facing devaluation of its new currency. The latter will hold if the devaluation costs are sufficiently small compared to the positive effect of eliminating the risk of a haircut on the government debt.

After introducing the proposal, I analyze the implications for selected classes of market participants, and I suggest possible policy measures to mitigate adverse consequences. Particularly, my idea is to tax those on the winner side of the adjustment and support market participants that are fundamentally healthy but hit hard by a mismatch of assets and liabilities.

Finally, I also discuss an application to pegged currencies such as the Danish DKK. Here, I suggest that similar policy measures could be applied to mitigate adverse consequences, while the other parts of the proposal are not required.



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