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Collective Decisions on Public Debt

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Collective Decisions on Public Debt

Charles B. Blankart[1] and
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Introduction

Credit is the backbone of capitalism because credit allows the efficient allocation of resources to economic activities. In cases of distress, a bankruptcy regime is established that makes it possible to revive viable, but financially-distressed businesses and to liquidate structurally-distressed businesses in an orderly asset distribution procedure. Bankruptcy is *ex ante* of utmost importance because it incentivizes debtors and creditors to adjust credit costs and lending practices to bring them in line with expected *ex post* outcomes. Bankruptcy, however, was abolished under socialism, leading to systems of soft budget constraints that are lenient towards inefficient management.

In public finance such soft budgetary constraints occur when institutions are not coherent, i.e. when the circles of those who order, enjoy, and pay for the meal do not overlap. This is likely to result in moral hazard. In this article, three theoretical – institutionally coherent – models are proposed: (i) a model of integration, (ii) a model of autonomy, and (iii) a model of choice. On this basis, three federal jurisdictions – Germany, Switzerland, and the United States of America – are examined according to their public finance model and its institutional congruency. Conclusions for the Eurozone are drawn from these experiences. Recent developments in Greece under the Tsipras administration show how important such lessons are for Europe.

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Public finance bottom-up and top-down

The allocation of capital is crucial in an economy to ensure that capital is deployed as effectively as possible. This allocation functions bottom-up in a free market society and top-down in a socialist economy. Although socialism collapsed in Europe in 1990, the top-down allocation of capital is still alive in capitalist economies in the area of public finance. Soaring public debt levels indicate that governments have succeeded in externalizing their public debt at the expense of other governments in the euro area. The default and exit of Greece under the Tsipras administration is imaginable. The ECB, the IMF, and especially the Merkel administration encouraged the Greek government to enter a tremendously expensive Ponzi scheme – that benefited the Greek people least of all, since they were largely deprived of their sovereignty and burdened with a currency that was far too 'highly nominated' to allow for the Greece economy's competitive survival in terms of export.

In this article, we take a step back and look at how public finance can be organized in federal governments within a sovereign nation, before re-thinking the Eurozone situation in this light. To grasp the mechanism of collective decisions on public debt, one has to understand that the governments of modern economies are not monolithic. They consist of different competitive sub-central governments, each trying to attract as much capital as possible, preferably at the cost of other units within the sovereign nation. In this article, we propose three institutionally coherent models for organizing the public finance of sub-central units, states, and the federal union so that their decisions are internalized at each level and that opportunism is prevented: (i) a model of integration, (ii) a model of autonomy, and (iii) a model of choice.

While the mutual internalization of decisions represents a first step, it can nevertheless be excluded that governments become financially distressed and fail. Their break-up and liquidation is not an option, or at least that is the wide consensus in politics to date. Restructuring, however, is feasible. In this article, Germany, Switzerland and the United States of America serve as models of how public finance can be organized and what the implications of each model are.

Lessons from corporate finance

In a capitalist system, firms are responsible for themselves. In cases of financial and/or economic distress, the government provides an orderly insolvency procedure. Insolvent firms are either liquidated or restructured. Liquidation means that the insolvent firm is dissolved as a legal entity and its assets are either sold as a packet or on a piece-meal basis. Restructuring means that creditors agree about the prolongation and/or reduction of debt, and the provision of fresh capital. The reorganization may be accompanied by a reorganization of the business. Restructuring and reorganization promise the insolvent firm a fresh start. The procedure is collective and replaces individual action so as to reduce the cost of insolvency, i.e. to avoid prisoner's dilemma situations, unnecessarily multiplied cost for enforcement and monitoring, reputational damage, the cost of collectively irrational actions (herd behavior), et cetera.[3] Liquidation and restructuring set a natural limit on over-indebtedness and mismanagement, and therewith facilitate an efficient allocation of capital.

Depending on the underlying lending structure, insolvency systems make use of different strategies to incentivize the main players. In a dispersed lending structure, the directors have superior knowledge and control options, while the creditors are rather inactive (rational apathy). The directors are incentivized with a carrot to cooperate. An institutional preference for rescue over liquidation, a debtor-in-possession restructuring option with a defensive stay as a protection against individual action, an exclusivity period for the debtor's management to propose a plan, and an option to be shared-in the proceeds of the restructured firm – in deviation from the absolute priority principle – are each examples of self-exercisable rewards for an early entry into insolvency proceedings. Due to the lack of an incentive for creditors in a dispersed lending structure to invest in constant monitoring and risk management, it is paramount that the insolvency procedure appears as an attractive alternative for the debtor as compared with risky turnaround strategies out-of-insolvency. The carrot that the debtor may receive is funded by the savings of its creditors in ex ante debt management. In a concentrated lending structure, by contrast, institutional investors hold large (and often secured) debt claims. They have an incentive to protect their investment by active ex ante debt management (monitoring and creditor control by loan contract design). It is also typical for concentrated lending structures that creditors such as banks regularly cooperate in syndicated loan arrangements. Free riding is discouraged by established reputation mechanisms in inter-creditor relations. The creditors, ideally, act like a single creditor and choose the value-maximizing option in exercising control. The directors are threatened into playing fair with a negative sanction (stick) such as the replacement with an externally-managed insolvency procedure or with liability for delayed insolvency, wrongful, or fraudulent trading. One institutional disadvantage of a stick-strategy compared to a carrot-strategy is that the sanction is not self-exercisable but that, especially for liability claims, creditors have to initiate and fund the procedure, and they have to prove the directors' fault. While insolvency systems, depending on the pre-dominant lending structure, tend to either apply a carrot or stick strategy, they may combine elements of both approaches.[4]

Most importantly, the creditors anticipate the effect that the insolvency procedure has on the debtors' behavior, the risk of default, and finally their share in the pie of assets that are available for distribution in insolvency. Those whose money is at stake – the creditors – have every interest in accurately pricing their risk. The prices of debt capital reflect the investors' expectations about their risk in the investment. If creditors calculate a high risk, they either increase their interest rate or stand back from lending at all. According to this assessment, i.e. the debtors' risk of default and the loss in default, the specific interest rate is calculated. The insolvency regime and its incentive structure play a major role in this regard. The cost of capital as the source for entrepreneurial activity gives the debtor a strong incentive to succeed in business and minimize the risk of a failure. In order to lower the cost of debt capital acquisition, the debtor has an incentive to invest and to signal a diligent business strategy. The insolvency regime supports the debtors' credible signal.

In socialism, the bureaucracy develops and enforces a plan how to finance the economy. The price of finance is not set by a competitive market, but it is centrally fixed. The Hungarian economist János Kornai (1986) has observed that socialist firms suffer constantly from insufficient liquidity because of exaggerated targets and bad payment morals. As the threat of insolvency is missing, financial crises are not resolved in orderly insolvency procedures, but by the state. The socialist state happens

[3] For the rationale of a collective procedure in insolvency see Jackson (1982).

[4] Skeel (1998) distinguishes, in this context, ex ante oriented regimes (creditor-oriented, negative sanctions in insolvency) versus ex post oriented regimes (debtor-oriented, positive sanctions in insolvency).

to be a lenient creditor, which permanently provides new liquidity. A bail-out is rather the norm than the exception. The socialist economy is an economy of soft budget constraints.

After the fall of socialism, Kornai's soft budget constraints did not completely disappear. They found a revival in the multilevel governments of federal states. In the following section, we will outline the particularities of public debt finance and its flaws within the Eurozone and within federal unions. On this basis, we will present the previously mentioned three institutionally coherent models of public finance: (i) a model of integration, (ii) a model of autonomy, and (iii) a model of choice (section "Internalising externalities").

Externalities in public finance

Externalities among euro states

Even though the euro member states are legally responsible for their debt promise in relation to their creditors (*acta iuri gestioni*) and in relation to other euro member states (Art. 123 I, 125 I TFEU) (EU 2016), they can factually escape their legal responsibility. The European Monetary Union has – contrary to the expectations of those who took the 'law in the books' (i.e. the European treaties) seriously – turned out to be a transfer union, ready to bail out insolvent member states either through the fiscal transfers of the ESM or through the monetary transfers of the ECB's SMP or OMT programs.[5] Kornai's soft budget constraints, once familiar in socialist economies, re-appeared in new cloths under the euro. In effect, the euro governments assumed responsibility for each other's debt. In case of fiscal distress, they support each other. Those that can expect to be bailed-out benefit from low interest rates because their investors do not bear the costs of incremental risk, but calculate the risk of the union as a whole. Cheap money makes unreasonable spending rational and explains rising public debt levels (Blankart and Ehmke 2014).

Externalities within euro states

Within the euro member states sub-central governments have three sources of income. They can raise taxes, they receive payments for services mandated by higher level governments and they can acquire debt in loan agreements and by public debt offers. Two types of sub-central externalities may occur.

First, the superior units have an incentive to burden their local units with costly duties without transferring sufficient means for their funding. So the politicians at a state level can dress their windows and present themselves with balanced budgets to their voters, while the local units are forced into indebtedness. This tendency can be amplified by state debt brakes, which should restrict the state's own indebtedness, but which, in fact, incentivize superior governments to 'outsource' debt to local units, whose indebtedness increases.

However, the effectiveness of debt brakes largely depends on their credibility. Debt brakes are credible if the debtor is self-responsible for its debt and has to bear the risk and cost of excessive debt acquisition. If the last step is, however, the rescue of the public debtor by a savior, it is questionable as to whether all provisions set before – however strict they may appear to be – are credible.

Second, the sub-central units have an incentive to raise more debt than efficient if interest rates do not reflect the costs of the incremental insolvency risk. This is the case when no insolvency has to be expected, but eventually a bail-out takes place. If the disciplinary diktat of interest rates as a reflection of the local units' budgetary performance vanishes, the government of local units – especially those less creditworthy – will feel invited to take a free lunch at the expense of those public entities that will eventually bear the cost of the bail-out.

Internalising externalities

We propose three models for overcoming these problems on the demand side of the market for capital. They are all based on the idea of institutional congruence, requiring that the circles of beneficiaries, decision-makers and tax payers are congruent and coincident so that a strong link exists between risk, return, and control, in effect that those who order and enjoy the meal also pay for the meal (Blankart 2011).

1. Integration: Institutional congruence may be achieved through vertical integration. The local units are dependent in their budgetary policy on their respective superior unit. Control and responsibilities are centralized. If a local unit struggles, the state is in charge of acting according to a guarantee given to the local units

[5] For a proposal how to overcome sovereign debt crises see Kirchner and Ehmke (2012, 2013).

creditors to fund a bail-out. Although local units may still acquire their own debt, the ultimate debtor is the state. The interest rates are calculated according to the transfer union's creditworthiness.

In order to be institutionally coherent, a functioning chain of commands from the top down to the bottom is required. The budget of the local units, as well as the task of how they have to spend their budget, is determined by negotiations with the state's government. Even though political negotiations take place, the state government, which has to guarantee the debt, coordinates the transfers and has the ultimate and decisive say on the local budgets and their use. A problem reoccurs if the state itself can expect to be bailed out by the federal government. In the integration model the diktat of politics prevails.

2. Autonomy: In the autonomy model the local unit's budget is determined by the markets. As far as the local unit performs public duties on behalf of the state government, the local unit has a claim to be compensated for its cost. Aside from that, the local unit is independent in its budgetary policy. A bail-out does not take place. If the unit defaults, the creditors cannot expect the state's government help. A bail-out would violate the principle of institutional congruence and create moral hazard. In case of bankruptcy creditors have to bargain about a solution with the local unit. The pool of assets available for distribution is limited to the local unit's assets. In case an orderly insolvency procedure for local units exists, debtor and creditors can resort to that option. The question of how much debt a local unit can raise is decided by the creditors, who monitor the local unit's performance and therewith its risk of default. Interest rates reflect the local unit's incremental risk. The market diktat replaces political control.

3. Choice: There is a middle ground between a pure model of integration and autonomy, which is a model of choice or an option model (Blankart and Fasten 2007). Two alternatives are imaginable: either the local units (1. alternative) or the states (2. alternative) can decide as to whether they want to apply the integration model.

In alternative 1, local units can opt-out of the state's transfer union. From now on, they are financially independent. They receive transfers only as far as they assume public duties from the state for which they will be compensated. If they have solid budgets, they may even benefit from lower interest rates than the state. More importantly, they escape the political diktat and can deal with their budget independently. Financially less solid local units may prefer to remain in the safe haven and be bailed out once troubled and, in exchange for the central government's guarantee, to relinquish their budgetary independency.

In alternative 2, the states each decide whether they want to pay the price of a bail-out if necessary and remain in control, or whether they would benefit from giving up control as well as risk to their local units.

The role of creditors as suppliers of capital

The previously developed models of *integration, autonomy*, and *choice*, characterize the demand for capital by different governments of a union. Now we will examine the role played by creditors on the supply side of the capital market in greater detail.

In the case of vertical integration, the local unit is part of a transfer union. The state guarantees the debt of its local units. The state may itself expect a bail-out from the federal government. Therefore the creditors assume the risk of the transfer union as a whole, no matter whether they lend directly to the state, or to a local government. The interest rate reflects the financial situation of the union as a whole and does not exert any disciplinary function on the local unit. Only as far as the transfer union as a whole is concerned, the union government has an incentive to draft a reasonable budget plan and to enforce it on its downstream governments.

If, instead, the local units have an independent budget as in the model of *autonomy*, the creditors will be confronted with various potential debtors. The creditors face the incremental risk of the local unit. The cost for monitoring and control are internalized. That is in particular true in case of a single major creditor and a concentrated body of creditors' structure with constant inter-creditor business relations. As long as creditors can coordinate amongst themselves and have a functioning internal agreement about how to divide the cost of monitoring and control, the assumption of individual debtor's monitoring and control should hold. Such an internal agreement could be based on constant inter-creditor business relations and is rather typical of syndicated bank lending. The cooperation is then enforced by a threat to punish free riders in future business transactions; ultimately, with the threat of excluding opportunistic players from trading within an exclusive business circle.

The more the body of creditors' structure is dispersed, the higher is the chance that monitoring and control of the individual debtor does not take place. The investigation into the budgetary solidity of a debtor, as well as its constant monitoring and control, involves cost. Cost for information procurement will not be returned since one can expect that information is revealed through trading. Those who have taken the first step of investing in such information must fear that other creditors will free ride on their investment. The same applies to control which benefits all but burdens only the creditors who perform such costly control of the debtor's performance. Monitoring and risk control become a public good. If debtors fund their budgets by publicly offered and traded bonds in particular, the body of creditors can be expected to be dispersed and the inter-creditor relations to be loose. The incentive to monitor and exercise control vanishes and an information gap remains. The investors cannot distinguish high quality from low quality bonds. Local units that offer debt with a low chance of default cannot credibly signal the high quality of their debt. They either find no investors if they price their debt accurately, or they have to under-price their debt and pay an interest rate calculated on a risk rate above their incremental risk rate. The bond price is then calculated as the arithmetic mean of all investment risks with different risky investments (pooling equilibrium). The incentive of the local units to tighten their belt so as to benefit from lower interest rates as solid debtors disappears.

The lack of a seperating equilibrium is a market failure, which is healed by the self-regulating forces of the market itself. Local units with a solid budget have an incentive to credibly signal their incremental risk and to collect the fruits of their budgetary performance insofar as it is superior to the average performance reflected in the pooling equilibrium. A local unit as a bond issuer commissions a rating by an agency. The agency attaches its reputation to the credit rating. The rating is freely accessible and will be seen as a pre-condition for credit investment.[6] The disciplinary function of the interest rate is restored.

[6] See Fasten (2012) chapter 4 on the issuer-pays model and the investor-pays model in public finance. Since the 1970s the Big Three rating agencies – Standard & Poor's, Fitch, and Moody's – have applied the issuer-pays model. This is rational because the information that, for example, the sub-central unit X has a BBB-rating is easily spread and information is revealed through trading.

Public finance in Germany, Switzerland and the United States

The German experience

§ 12 para. 1 no. 1 of the German Federal Insolvency Code (Dejure 2016a) determines:

(1) Insolvency proceedings may not be opened for the assets owned by

1. the federal republic or a state;

2. a legal person of public law supervised by a state, if the law of the state exempts such corporation from insolvency proceedings.

The latter option has been exhausted by the states. Indeed, no sub-central local unit provides for a public insolvency procedure. Therefore, the incentives to use resources deliberatively and efficiently are smaller in the public than in the private sector. In fact, governments have created an area for themselves, which is exempt from the capitalist principle of self-responsibility.

In this context, however, the Federal Constitutional Court decided in its Berlin judgment of 2006 that the confederate (federal and state) governments of Germany are not obliged to bail out each other, unless in a case of last resort under the principle of "ultima ratio", i.e. after all other means of a financial rescue have been exhausted (BVerfGE 2006). Once the stage of "ultima ratio" is reached, a bail-out is not only indicated, but even mandatory for the confederate governments. "Ultima ratio" requires that the distressed government has done all that is necessary and possible to maintain its operation. Or the other way round, the government must give up everything that is not indispensable to its operation. The court has not defined what indispensable means. Is the most recent masterpiece of the state museum indispensable, or the public urban transit network? Will creditors go to such lengths, or will they temper justice with mercy and stop the tragedy with an early bail-out of the distressed government? The Court leaves such questions open. Instead of explaining how to get from here to there, the Federal Constitutional Court only requires "indispensability", which is open to political manipulation.

Since there is no insolvency procedure for sub-central units, but a bail-out is to be expected as "ultima ratio", one may expect the German model of public finance to

be a model of *integration*. However, since the sub-central units enjoy quite ample leeway in their own budgetary affairs (Art. 28 II GG) (Dejure 2016b); and since the budgets of states and sub-central units are separate and not integrated, which would be more characteristic for the autonomy model, the German model of public finance seems to be between the lines, i.e. not institutionally coherent.

The Swiss experience

Leukerbad is a small spa in the canton of Valais in Switzerland with about 1,400 inhabitants. As such, it would not be worthwhile mentioning if it did not serve as a paradigm example showing how a strict no-bail-out principle can promote the endogenous generation of new institutions overcoming a previous market failure.

In Switzerland local governments are subject to the Federal Law of Debt Collection of 1947 (SchGG: Bundesversammlung 2007). An insolvent community cannot be simply broken up, decomposed and sold in pieces. Its administration property is exempt from a break up. Only its commercial property can serve as a pawn in the case of an insolvency. There is a collective voting procedure on a plan for restructuring which can, if accepted by a qualified majority, bind dissenting creditors. However, the plan can only impose very limited infringements of creditors' rights – a certain prolongation of the debt, a reduction of the interest rate, et cetera – but most essentially, no haircut of the principal amount owed to the creditors. There is, nevertheless, another important feature in the SchGG. The factually insolvent municipal can be put under guardianship ("Beiratschaft"). A public supervisory authority assumes budgetary control rights over the local unit, which loses its autonomy under the authority's guardianship. The public supervisory authority is then supposed to restructure the local unit's budgets and turn it around financially. Such a loss of autonomy can be seen as a harsh threat and an incentive for sub-central governments to avoid financial distress.

As the Swiss local communities were generally seriously financed and never suffered financial distress, Switzerland's politicians have become oblivious to the law of 1947.

Under a legal illusion, the Lord Mayor of Leukerbad launched an enormous, debt-financed investment project worth CHF 232.5 million or CHF 140,000 per capita – too much for such a small unit. Leukerbad went bankrupt as a result. It came under guardianship of the canton, but a decision could not be reached. The banks refused to accept liability for the losses and claimed that Valais was responsible for bailing out Leukerbad in front of the federal tribunal in Lausanne. They argued that the government of the canton of Valais had violated its duty of supervising Leukerbad, and should therefore take over the debt. The court rejected the claim, confirming the no-bail-out principle. Accordingly, it was not the canton but it were the banks which had violated 'their duty' of supervising Leukerbad (Schaltegger and Winistörfer 2013).

But what should the banks do? They apparently became victims of a "lemons" market (Akerlof 1970) with unobservable quality differences. The market failure was healed by self-regulating market forces. Where there is demand, there is supply. Rating agencies emerged at the University of St. Gallen and in the specialized departments of larger banks, which provided creditors with information about debtors' creditworthiness. Credit rating agencies ranked the local communities as well as the cantons, which re-adjusted their monitoring activities.

Had the federal court decided differently, had it acknowledged that the canton of Valais had neglected its supervisory duty and was in charge of controlling the performance of its sub-central units, the banks would not have received the signal to check the municipalities' creditworthiness. The market for credit agencies would not have emerged. The duty of control would have been shifted to the cantons, and municipal budgetary autonomy would have been lost if the cantons had – which would only have been rational in that case – integrated the municipalities. The conclusion is that market endogenous incentives can correct for market failure and that state control is not indispensable.

The US experience

After the revolutionary war, the Federal Government of the United States came to the conclusion that it could not afford to bail out its states if they were to suffer fiscal distress. The no-bail-out concept for states became a leading principle in the US by about 1840 (EEAG 2013). The no-bail-out principle is not a constitutional provision, but it became a credence capital good. The longer the no-bail-out principle was applied, the more it became a self-enforcing capital good. This principle has been maintained to the present day.

For municipalities, a collective restructuring procedure exists under Chapter 9 of the US Bankruptcy Code (US Courts 2016). The procedure has been applied over 600 times to date. Prominent examples are Orange County 1994 and Detroit 2013. Chapter 9 is drafted in line with the model of Chapter 11 for the reorganization and restructuring of corporate debtors.

The mechanism is released by a declaration of the public debtor of an inability to pay its debt. Under the protection of a stay, which prevents individual action, the debtor works out a restructuring plan in cooperation with its creditors. Creditors vote upon the plan in groups. The group formation takes place according to the creditors' specific rights before and according to the restructuring plan. Hence, it can be ensured that the rights of minority creditors are not violated, and coordination is promoted within a relatively homogeneous group. The plan is approved by a group if half of its members, who hold two-thirds of the outstanding debt included in the restructuring plan, assent to the plan.

Finally, the court has to sanction the plan. If a group votes against the plan, the missing approval can be overcome by a court order. The court has discretion to cramdown a creditor group as "non-discriminatory, fair, and reasonable" if at least one other group has approved the plan. The aim of this provision is to promote the chances of a successful restructuring, since there is no guarantee that all creditor groups would approve an efficient, or a "non-discriminatory, fair, and reasonable" restructuring plan. While the orderly procedure should ameliorate coordination problems, some creditors may pursue interests that are perverse to the common goal of an efficient restructuring. If creditors holding more than one third of debt claims within one group possessed credit default swaps exceeding their debt claims, i.e. naked credit default swaps; or if they gambled on falling bond prices and shorten bonds of the troubled municipal, it would be perfectly rational for them to block a debt restructuring and leave the debtor to struggle on.

The restructuring procedure for public debtors in the US has some special features. Firstly, and most importantly, there is no liquidation procedure and therewith no disciplinary threat of a liquidation. In a corporate insolvency, liquidation would be the equally ranking alternative to corporate debt restructuring. The option that would yield the highest outcome, or would be the most efficient alternative, would be chosen. Secondly, the creditors and the court have limited opportunities to interfere in the public debtor's affairs. The debtor's existence should not be called into question and the local unit should be kept in a position that allows it to perform its public duties in the interest of its citizens.

The chance to bind defecting creditors and deter individual opportunistic actions provides a valuable option for the local unit to relieve itself of an unsustainable debt burden and get back on track towards solid budgetary policy so as to repay the reduced debt claims. Creditor and debtor agree upon a win-win-solution. The more values the orderly insolvency promises to maintain, the lower is the anticipated loss for creditors and the more favorable are the interest rates ex ante.

Lessons for the Eurozone

From the previous sections about public finance in federal states, one can draw the following conclusions for the Eurozone.

In the Eurozone, the sovereign states maintain control over their national budgets. They are legally required by the Maastricht Treaty not to exceed a qualified limit for indebtedness. Recent history has taught us that such provisions appear to be null and void if not factually enforced – with France and Germany being the first countries to officially violate the debt limit. It can

Figure 1

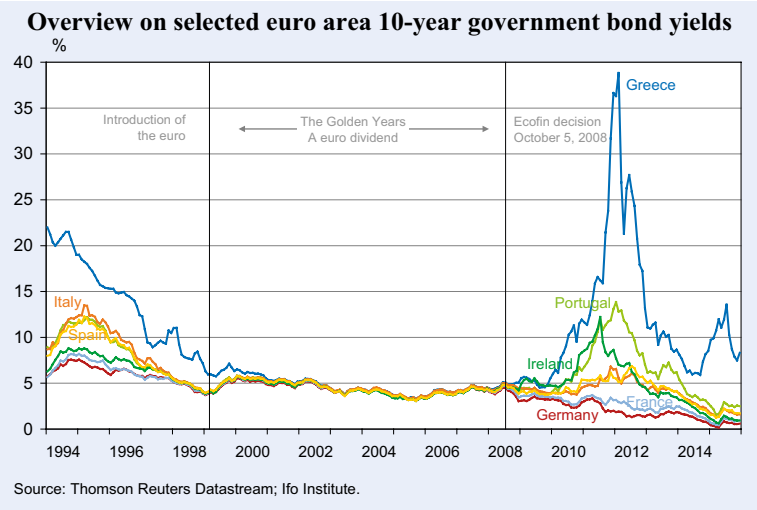

Table 1

Indebtedness of selected euro area countries

	Public debt		Financial balances per year	
Year	*2002*	*2014*	*2002*	*2014*
Maastricht threshold	60.0	60.0	-3.0	-3.0
France	59.0	95.3	-3.3	-4.0
Germany	60.6	74.6	-3.8	+0.3
Greece	101.7	180.5	-4.8	-3.7
Ireland	31.8	107.6	-0.3	-3.8
Italy	105.4	132.4	-3.2	-3.0
Netherlands	50.5	68.2	-2.1	-2.4
Portugal	56.8	130.2	-3.4	-7.2
Spain	52.6	99.3	-0.3	-5.9
United Kingdom	37.1	88.2	-2.2	-5.6
Euro area	68.0	94.7	-2.7	-2.6

Source: OECD (2016).

be observed that the member states of the Eurozone still remain largely independent in their budgetary policy, which would be in line with the *autonomy* model.

However, the bail-out policy and transfer union reflect the *integration* model. In the expectation of a bail-out interest rates converge and a pooling equilibrium with cheap money for the poorly performing member states provides incentives for them to accumulate excessive debt, as outlined in the section "The role of creditors as suppliers of capital" (see Figure 1 'The Golden Years – A euro dividend'). A shock following the Ecofin decision that states should guarantee their national banks' debt, doubts that peripheral member states could bear that cost, and probably lingering doubts as to whether a bail-out would actually take place, as previously anticipated ('euro dividend') but expressively prohibited by the European treaties, led to a steep rise in the bond yields of certain Euro member states. When it became clear in 2010 that the distressed member states would be bailed out, the yields – again – converged, approaching a pooling equilibrium in the transfer union, with exploding debt levels as a result (see Table 1).

Summary and conclusions

If fiscal responsibility is blurred among federal union, states, and sub-central units, resources cannot be allocated efficiently among the levels of federal governments.

This article proposes three federal models for an efficient allocation of resources and an internalization of externalities: an *integration* model, an *autonomy* model and a *choice* model. All three alternatives establish clear responsibilities. They avoid the danger that costs are externalized.

Nevertheless, insolvencies cannot be completely ruled out. What should be done in the case of insolvency? Private firms that go bankrupt are broken up and liquidated. But that is not an option for public units. In practice, there are three alternative models: The German Constitutional Court proposes a bail-out under the provision of ultima ratio. In Switzerland, the no-bail-out principle was confirmed in Leukerbad. Creditors are responsible for monitoring and controlling their debtors and are therefore incentivized to assess the incremental risk of the debtor to default and adjust their interest rates accordingly. As a result, creditors express a demand for debtor ratings that is satisfied by emerging rating agencies. The procedure of Chapter 9 of the US Bankruptcy code goes even further in establishing a free market debt negotiation procedure within the framework of an orderly insolvency procedure. It re-enforces the principle of self-responsibility, following the principle applied in the private sector economy. The US no-bail-out principle confirms the *autonomy* model.

The Eurozone shows the most obvious disparity in terms of institutional congruency with budgetary autonomy under the protection of a transfer union. Excessive debt levels are possible in cases where creditors calculate the risk of the transfer union, instead of the incremental risk rate, but control remains with the member states. In order to approach efficiency, a transfer union

would require a functioning chain of commands from the top to the bottom.

Ultimately, moral hazard will prevail in federalism as well as in a monetary union if those who order and enjoy the meal do not have to pay the bill.

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